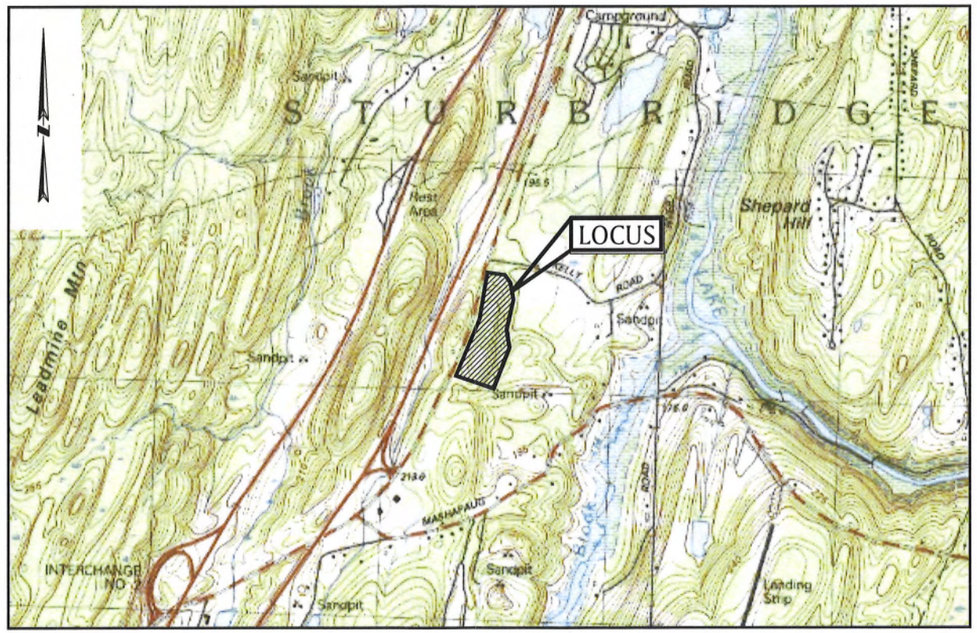
GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15
STURBRIDGE, MASSACHUSETTS

AUGUST 1, 2023

ZONING COMPLIANCE TABLE		
CRITERIA: ARTICLE XIV – INTENSITY REGULATIONS (§300–14.2, SPECIAL USE)		
	REQUIRED	PROPOSED
MINIMUM LOT AREA	1 ACRE	13.92 ACRES
MINIMUM LOT FRONTAGE	200'	1,619.5'±
MINIMUM STREET SETBACK	50'	54.2'
MINIMUM SIDE/REAR YARD SETBACK	30'	192.3'
MAX. LOT COVERAGE (%)	30%	17%
MAXIMUM HEIGHT	35'	N/A
CRITERIA: ARTICLE X – SOLAR ENERGY FACILITIES (§300–10.1 – §300.10.12)		
	REQUIRED	PROPOSED
MINIMUM FRONT/SIDE/REAR YARD SETBACK	100'	100.6'
MINIMUM RESIDENTIAL LANDSCAPED BUFFER	200'	200.0'



LOCUS MAP

500 0 1,000 2,000 3,000 feet

SCALE: 1" = 1,000±

INDEX OF DRAWINGS

PREPARED FOR:

STURBRIDGE PV, LLC
2420 17TH STREET
DENVER, CO 80202

PREPARED BY:

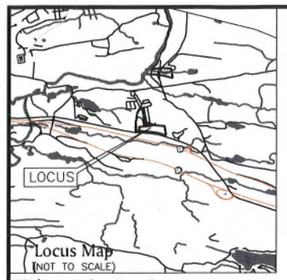
BSC GROUP
349 Main Street - Route 28
W. Yarmouth, Massachusetts
02673
508 778 8919

COMMONWEALTH OF MASSACHUSETTS
BRIAN G. YERGATIAN
1 CIVIL
No. 44039
REGISTERED PROFESSIONAL ENGINEER

8/1/2023

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

JOB NO: 5-0745.00



***UTILITY NOTE**

EXISTING UTILITIES, WHERE SHOWN HEREON, ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY LOCATING AND COORDINATING ANY ON-SITE ACTIVITY WITH DIG-SAFE AND THE APPROPRIATE UTILITY COMPANY AND MAINTAINING EXISTING UTILITY SYSTEM SERVICE. DIG-SAFE SHALL BE NOTIFIED PER RHODE ISLAND GENERAL LAWS TITLE 39 CHAPTER 39-1.2, AT 1-888-344-7233. NO GUARANTEE IS IMPLIED OR INTENDED AS TO THE ACCURACY, LOCATION OR THAT ALL UTILITIES AND/OR SUBSURFACE STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION AND INVERTS OR UTILITIES AND STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

LEGEND

BIT BITUMINOUS
CATCH BASIN
CHAIN LINK FENCE
CONC CONCRETE
DECIDUOUS TREE
DWP DETECTABLE WARNING PAD
DRAIN MANHOLE
DRILL HOLE
ELECTRIC MANHOLE
HYDRANT
IRON ROD FENCE
IR IRON ROD
LIGHT POLE
MANHOLE
PEDESTRIAN SIGNAL
SEWER MANHOLE
SIGN
SWL SINGLE WHITE LINE
TELEPHONE MANHOLE
TC/BC TOP CURB/BOTTOM CURB
TW/BW TOP WALL/BOTTOM WALL
TRAFFIC MASTARM
UTILITY POLE W/LIGHT & TRANSFORMER
VGC VERTICAL GRANITE CURB
WATER GATE
OHW OVERHEAD WIRES
ONE FOOT CONTOUR
FIVE FOOT CONTOUR
UNDERGROUND DRAIN
UNDERGROUND ELECTRIC
UNDERGROUND GAS
UNDERGROUND SEWER
UNDERGROUND TELEPHONE
UNDERGROUND WATER

NAD 1983

OWNER:
30 SWIFT, LLC
SEE PLAN FOR ABUTTING PARCEL OWNER INFORMATION

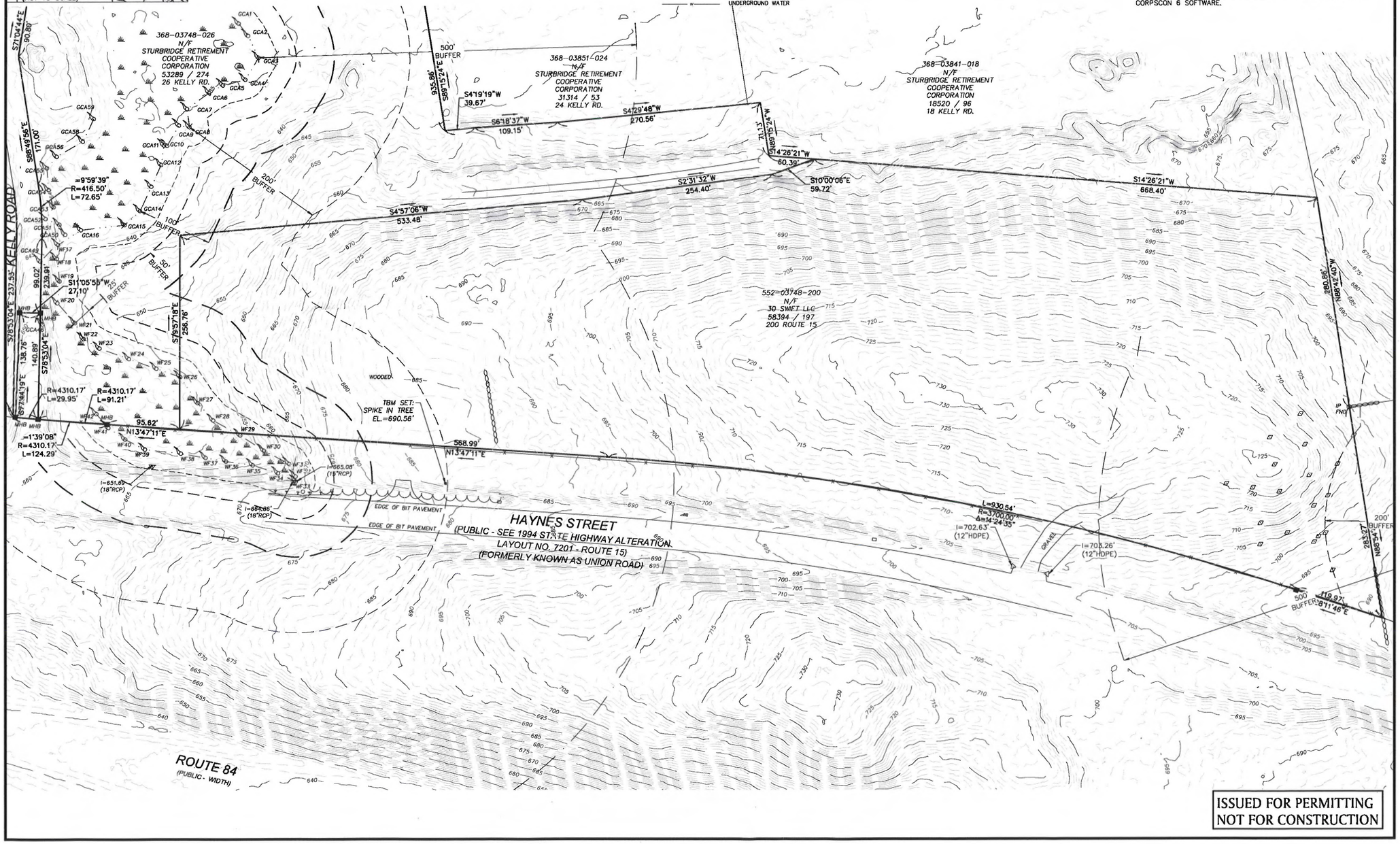
GENERAL NOTES:

1) THE EXISTING CONDITIONS SHOWN HEREON DEPICT THE SUBJECT SITE AS IT APPEARED DURING A FIELD SURVEY CONDUCTED BY BSC GROUP, INC. BETWEEN OCTOBER 11, 2022 AND NOVEMBER 18, 2022.

2) THE ABOVE MENTIONED FIELD SURVEY IS BASED ON NAD 1983 HORIZONTAL AND NAVD 1988 VERTICAL DATUM (TEMPORARY BENCH MARKS (TBM) SET) AS DERIVED FROM GPS OBSERVATIONS MADE AT THE TIME OF THE SURVEY.

*3) THE UTILITIES SHOWN ON THIS PLAN ARE TAKEN FROM LOCATIONS OF SURFACE STRUCTURES AND ALSO RECORD INFORMATION SUPPLIED BY UTILITY COMPANIES AND PB 90 PG 52-62.

4) WETLANDS FLAGS WF17-WF42 WERE FIELD LOCATED BY BSC GROUP AS PART OF AN ON-THE-GROUND SURVEY. WETLAND FLAGS GCA1-GCA16, GCA49-GCA59 AND GCB1-GCB11 ARE SHOWN FROM LATITUDE AND LONGITUDE VALUES PROVIDED BY GODDARD CONSULTING, LLC AND THE LATITUDE AND LONGITUDE VALUES PROVIDED WERE CONVERTED TO MASS STATE PLANE COORDINATE VALUES USING CORPSCON 6 SOFTWARE.



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Christopher W. McNary No. 47396 Registered Professional Land Surveyor
Commonwealth of Massachusetts

Christopher W. McNary 09/29/2023
CHRISTOPHER W. MCNARY #47396 DATE
PROFESSIONAL LAND SURVEYOR

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15
IN
STURBRIDGE
MASSACHUSETTS
(WORCESTER COUNTY)

EXISTING CONDITIONS PLAN

APRIL 26, 2023

REVISIONS:

NO.	DATE	DESC.
1.	6/14/23	REV. WF FLAGS & BUFFERS

PREPARED FOR:
STURBRIDGE PV, LLC
2420 17TH STREET
DENVER, CO 80202

BSC GROUP
349 Main Street - Route 28
West Yarmouth, Massachusetts
02673
508 778 8919

SCALE: 1" = 60'
0 30 60 120 FEET

FILE: \5074500\S\D\5074500EC-2023.dwg
DWG.:5074500EC-2023
JOB. NO: 5-0745.00
SHEET 2 OF 9

GENERAL NOTES

1. THE AREA ENCLOSED BY CHAIN LINK FENCE IS 7.71± ACRES.
2. CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS REQUIRES THE CLEARING OF 9.44± ACRES OF WOODLANDS.
3. ALL DISTURBED AREAS WITHIN THE CHAIN LINK FENCE, IF NOT OTHERWISE SPECIFIED, WILL BE LOAMED AND SEEDED WITH A POLLINATOR SEED MIXTURE.

368-03748-026
N/F
STURBRIDGE RETIREMENT COOPERATIVE CORPORATION
53289 / 274
26 KELLY RD.

368-03851-024
N/F
STURBRIDGE RETIREMENT COOPERATIVE CORPORATION
31314 / 53
24 KELLY RD.

368-03841-018
N/F
STURBRIDGE RETIREMENT COOPERATIVE CORPORATION
18520 / 96
18 KELLY RD.

552-03748-200
N/F
30 SWIFT LLC
58394 / 197
200 ROUTE 15

423-0413
N/F
ANDREW & M
BROG
43530 /
30 MASHA

NAD 1983

500' BUFFER
200' BUFFER
100' BUFFER
50' BUFFER
25' BUFFER

S89°15'24"E 935.85'
S4°19'19"W 39.67'
S6°18'37"W 109.15'
S4°29'48"W 270.56'
S89°15'24"W 71.13'
S14°26'21"W 60.39'
S2°31'32"W 254.40'
S10°00'06"E 59.72'
S14°26'21"W 668.40'
S4°57'06"W 533.48'
N89°07'42"W 280.85'
S79°57'18"E 256.76'
S11°05'55"W 27.10'
=9°59'39"
R=416.50'
L=72.65'
R=4310.17'
L=91.21'
95.62'
N13°47'11"E
568.99'
N13°47'11"E
L=930.54'
R=3700.00'
Δ=14°24'35"
N88°54'
283.27'
108.7'
148.2'
119.97'
S11°46'E

PROPOSED LIMIT OF TREE CLEARING (TYP.)
REQUIRED ZONING SETBACK (TYP.)
INFILTRATION BASIN #1
SUBSURFACE INFILTRATION SYSTEM #3
LIMIT OF PAVED AREA
REMOVE ROCK WALL
SUBSURFACE INFILTRATION SYSTEM #1
BESS PAD
CONCRETE EQUIPMENT PAD (TYP.)
PROPOSED UTILITY POLES
20' SLIDE GATE W/KNOX BOX
PROPOSED 7' HIGH CHAIN LINK FENCE (TYP.)
20' WIDE GRAVEL ACCESS ROAD
PROPOSED LIMIT OF TREE CLEARING (TYP.)
SUBSURFACE INFILTRATION SYSTEM #2
CONNECT TO NATIONAL GRID EXISTING POLES ON KELLY ROAD, SEE INTERCONNECTION PLAN
PROPOSED PAVED APRON
OHW
EDGE OF BIT PAVEMENT
702.63' (12"HDPE)
701.26' (12"HDPE)

HAYNES STREET
(PUBLIC - SEE 1994 STATE HIGHWAY ALTERATION LAYOUT NO. 7201 - ROUTE 15)
(FORMERLY KNOWN AS UNION ROAD)

ROUTE 84
(PUBLIC - WIDTH)

BRIAN G. YERGATIAN
CIVIL
No. 42091
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

8/1/23

BRIAN G. YERGATIAN DATE
PROFESSIONAL ENGINEER

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15

IN

STURBRIDGE
MASSACHUSETTS
(WORCESTER COUNTY)

LAYOUT & MATERIALS PLAN

AUGUST 1, 2023

REVISIONS:

NO.	DATE	DESC.

ISSUED FOR PERMITTING
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PREPARED FOR:
STURBRIDGE PV, LLC
2420 17TH STREET
DENVER, CO 80202

BSC GROUP
349 Main Street - Route 28
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508 778 8919

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0 30 60 120 FEET

FILE: PROJECTS-YAR\5074500\C\D\5074500-SP.dwg
DWG.: DWG
JOB. NO: 5-0745.00
SHEET 3 OF 9

EXAMINATION OF CONDITIONS:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR JUDGING THE FULL EXTENT OF WORK REQUIREMENTS INVOLVED. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING: TRANSPORTATION, PURCHASE, TEMPORARY STORAGE AND MAINTENANCE OF PLANTS; PLANT RE-HANDLING PRIOR TO FINAL INSTALLATION; REMOVAL AND OFF-SITE DISPOSAL OF EXISTING LOAM DETERMINED BY THE ENGINEER TO BE UNACCEPTABLE; PURCHASE, TRANSPORT, AND SUPPLY OF LOAM.
2. IMPORTED LOAM OFTEN CARRIES ANNUAL WEED SEED SUCH AS PERSICARIA. IT IS ADVANTAGEOUS TO ALLOW SOIL TO SETTLE AND WEED SEED TO GERMINATE AND BE MOWED PRIOR TO SITE SEEDING.
3. VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND REPORT ANY CONFLICTS TO THE OWNER OR HIS REPRESENTATIVE.

PLANTING NOTES

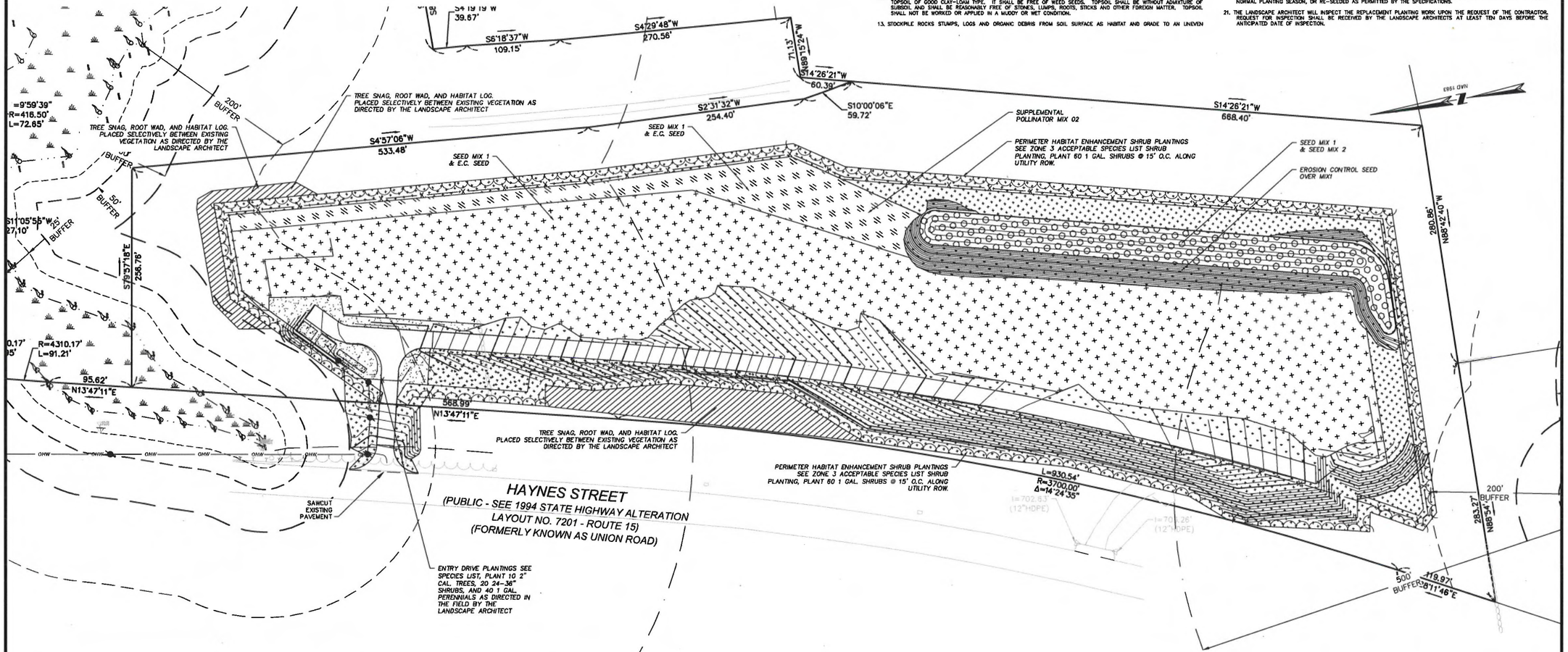
4. ALL PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
5. PLANT MATERIALS SHALL BEAR SAME RELATIONSHIP TO GRADE AS THEY BORE TO GRADE IN THE NURSERY.
6. ALL TREES NOTED FOR CLEARING AND SELECTIVE PRUNING AND THINNING SHALL BE EXECUTED UNDER THE SUPERVISION of A LICENSED ARBORIST.
7. THE CONTRACTOR SHALL CLEARLY MARK LIMITS OF CLEARING AND LIMITS OF SELECTIVE PRUNING AND THINNING, FOR REVIEW BY THE A/E PRIOR TO ANY CLEARING OPERATIONS. VEGETATION THAT IS NOT USED IN HABITAT FEATURES OR REMOVED AS TIMBER PRODUCTS SHALL BE CHIPPED ON SITE AND INCORPORATED INTO TOP SOIL.
8. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROTECT EXISTING VEGETATION THAT IS TAGGED BY THE A/E, "TO BE SAVED".
9. ALL TREES TO BE SAVED SHALL BE PROTECTED WITH MARKED BOUNDS AT A MINIMUM DISTANCE OF 6', OR AS DIRECTED BY THE LANDSCAPE ARCHITECT.
10. THE A/E RESERVES THE RIGHT TO ADJUST FINAL GRADES IN THE FIELD TO SAVE EXISTING VEGETATION.
11. LOAM AND SEED ALL DISTURBED AREAS UNLESS OTHERWISE INDICATED.
12. THE LANDSCAPE CONTRACTOR SHALL FURNISH TOPSOIL. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL AND PRODUCTIVE TOPSOIL OF GOOD CLAY-LOAM TYPE, IT SHALL BE FREE OF WEED SEEDS. TOPSOIL SHALL BE WITHOUT ADMIXTURE OF SUBSOIL AND SHALL BE REASONABLY FREE OF STONES, LUMPS, ROOTS, STICKS AND OTHER FOREIGN MATTER. TOPSOIL SHALL NOT BE WORKED OR APPLIED IN A MUDDY OR WET CONDITION.
13. STOCKPILE ROCKS STUMPS, LOGS AND OGANIC DEBRIS FROM SOIL SURFACE AS HABITAT AND GRADE TO AN UNEVEN SURFACE.
14. PROVIDE FERTILIZE OR OTHER SOIL AMENDMENTS AS DIRECTED BY THE LANDSCAPE ARCHITECT BASED UPON THE FINDINGS OF THE SOIL TEST REPORT. NO FERTILIZER OR OTHER NUTRIENT AMENDMENT SHALL BE APPLIED WITHOUT COMPLIANCE WITH 330 CMR 31.00-31.11 .

MAINTENANCE PERIOD: 90 DAYS

15. THE MAINTENANCE PERIOD SHALL BEGIN IMMEDIATELY AFTER EACH PLANT IS PLANTED AND SHALL CONTINUE FOR A MINIMUM OF 90 DAYS FOLLOWING THE COMPLETION OF ALL PLANTING INSTALLATIONS, OR UNTIL THE CONDITIONAL ACCEPTANCE OF ALL PLANTING WORK, WHICHEVER IS A LONGER PERIOD OF TIME.
16. AT THE END OF THE MAINTENANCE PERIOD, THE CONTRACTOR WILL REQUEST INSPECTION BY THE OWNERS REPRESENTATIVE AT LEAST 10 DAYS BEFORE THE ANTICIPATED DATE OF INSPECTION.
17. AT THE TIME OF INSPECTION, IF THE PLANT MATERIALS AND WORKMANSHIP ARE ACCEPTABLE TO THE LANDSCAPE ARCHITECTS, THEY SHALL ISSUE A WRITTEN CERTIFICATE OF CONDITIONAL ACCEPTANCE TO THE CONTRACTOR. THE DATE OF THE INSPECTION SHALL ESTABLISH THE END OF THE MAINTENANCE PERIOD AND THE COMMENCEMENT OF THE REQUIRED ONE-YEAR ESTABLISHMENT PERIOD FOR PLANTING WORK.
18. IF IN THE LANDSCAPE ARCHITECTS OPINION, PLANT MATERIALS AND/OR WORKMANSHIP IS DEFICIENT, ACCEPTANCE WILL NOT BE GRANTED, AND THE MAINTENANCE PERIOD FOR ALL THE PLANTS SHALL BE EXTENDED UNTIL PLANT REPLACEMENTS ARE MADE OR OTHER DEFICIENCIES ARE CORRECTED. ALL DEAD AND UNSATISFACTORY PLANTS WILL BE REMOVED PROMPTLY FROM THE PROJECT. REPLACEMENT PLANTS SHALL CONFORM IN ALL RESPECTS TO THE SPECIFICATIONS FOR THE ORIGINAL PLANTS AND SHALL BE PLANTED IN THE SAME MANNER.

ESTABLISHMENT PERIOD: ONE YEAR

19. THE PURPOSE OF THE ESTABLISHMENT PERIOD IS TO NURTURE PLANTS AND SEEDING THROUGH AT LEAST ONE FULL GROWING SEASON AND ONE FULL WINTER. ALL PLANTS SHALL BE INSPECTED BY THE ENGINEER ONE YEAR AFTER CONDITIONAL ACCEPTANCE AND SHALL BE ALIVE AND IN SATISFACTORY GROWTH AT THE END OF THAT TIME. THE CONTRACTOR IS RESPONSIBLE FOR ARRANGING INSPECTION EARLY ENOUGH IN THE SEASON TO ALLOW ADEQUATE TIME TO PROCURE AND INSTALL REPLACEMENT MATERIAL.
20. AT THE END OF THE ESTABLISHMENT PERIOD, EACH PLANT/ SEED TYPE SHALL SHOW HEALTHY GROWTH ON AT LEAST 75 PERCENT OF ITS TERMINAL STEMS, AS DETERMINED BY THE ENGINEER. DETERMINATION OF HEALTHY GROWTH SHALL INCLUDE, BUT IS NOT NECESSARILY LIMITED TO, VIABLE LEAVES (IN SEASON) AND TERMINAL BUDS. PLANTS FOUND TO BE UNACCEPTABLE SHALL BE REMOVED PROMPTLY FROM THE SITE AND REPLACED IMMEDIATELY OR DURING THE NEXT NORMAL PLANTING SEASON, OR RE-SEEDED AS PERMITTED BY THE SPECIFICATIONS.
21. THE LANDSCAPE ARCHITECT WILL INSPECT THE REPLACEMENT PLANTING WORK UPON THE REQUEST OF THE CONTRACTOR. REQUEST FOR INSPECTION SHALL BE RECEIVED BY THE LANDSCAPE ARCHITECTS AT LEAST TEN DAYS BEFORE THE ANTICIPATED DATE OF INSPECTION.



BASE SEED MIXES
POLLINATOR MIXES ARE BEST SPREAD BY BROADCASTING USING A CYCLONE FERTILIZER SPREADER PRIOR TO HYDROSEEDING OR HYDROMULCHING. BROADCASTING NATIVE WARM-SEASON GRASS AND FORB SEED ARE IRREGULAR AND REQUIRE THE USE OF A CARRIER TO ENSURE THE MIXTURE FLOWS CORRECTLY THROUGH THE SPREADER AND THE SEED IS DISTRIBUTED EVENLY ACROSS THE FIELD.

COVER CROP HYDROSEEDED OVER BASE SEED DURING ESTABLISHMENT
ALL SEEDED AREAS TO BEGIN WITH A COVER CROP SELECTED RELATIVE TO SEASON SEED AT 20 LBS/ACRE WITH A COVER CROP FOR A COVER CROP USE JAPANESE MILLET (10 LBS/ACRE; 1 MAY TO 31 AUG), BARNYARD GRASS (10 LBS/ACRE; 1 MAY TO 31 AUG), OR GRAIN RYE (30 LBS/ACRE; 1 SEPT TO 30 APR)

LOW UPLAND POLLINATOR MIX 1 UNDER ARRAY UNDER 3' PART SHADE
1 LB/ 1000 FT
ERNMX-612 OR EQUIVALENT
94.9% FESTUCA OVINA, (SHEEP FESCUE)
2.5% ASCLEPIAS TUBEROSA (BUTTERFLY MILKWEED)
2.0% CHAMAECRISTA FASCICULATA, PA ECOTYPE (PARTRIDGE PEA)
0.3% OENOTHERA FRUTICOSA VAR. FRUTICOSA (SUNDROPS)
0.3% SISYRINCHIUM ANGUSTIFOLIUM (NARROWLEAF BLUE EYED GRASS)

EROSION CONTROL SEED (OVER MIX 1 FOR STEEP SLOPES) UNDER 3'
2 LB/ 1000 FT
70% LOLIUM PERENNE, TETRAPLOID (PERENNIAL RYEGRASS,TETRAPLOID)
30% AVENA SATIVA, (OATS)

POLLINATOR FRIENDLY TURF
4 LB/ 1000 FT.
ERNMX-186
LOW GRASS MIX WITH RED AND WHITE CLOVER

BASIN MIX 2 OUTSIDE ARRAY FULL SUN TRANSITIONAL MOISTURE
1 LB/ 1000 SF
ERNMX 610
37.0% SCHIZACHYRIUM SCOPARIUM,(LITTLE BLUESTEM,)
36.3% BOUTELOUA CURTIPENDULA, BUTTE (SIDEOATS GRAMA, BUTTE)
4.0% CHAMAECRISTA FASCICULATA, (PARTRIDGE PEA)
4.0% COREOPSIS LANCEOLATA (LANCELEAF COREOPSIS)
4.0% ECHINACEA PURPUREA (PURPLE CONEFLOWER)
3.3% RUDBECKIA HIRTA (BLACKEYED SUSAN)
2.3% HELIOPSIS HELIANTHOIDES, (OXEYE SUNFLOWER)
1.8% PENSTEMON DIGITALIS (TALL WHITE BEARDTONGUE)
1.5% ASCLEPIAS TUBEROSA (BUTTERFLY MILKWEED)
0.8% LIATRIS SPICATA (MARSH BLAZING STAR)
0.7% SENNA HEBECARPA, (WILD SENNA,)
0.6% ZIZIA AUREA,(GOLDEN ALEXANDERS)
0.5% ASCLEPIAS INCARNATA, (SWAMP MILKWEED)
0.5% GEUM CANADENSE, (WHITE AVENS,)
0.5% MONARDA FISTULOSA, (WILD BERGAMOT)
0.5% PYCNANTHEMUM TENUIFOLIUM (NARROWLEAF MOUNTAINMINT)
0.4% ASTER LAEVIS, NY ECOTYPE (SMOOTH BLUE ASTER, NY ECOTYPE)
0.4% ASTER NOVAE-ANGLIAE, (NEW ENGLAND ASTER,)
0.3% BAPTISIA AUSTRALIS, SOUTHERN (BLUE FALSE INDIGO, SOUTHERN)
0.3% SISYRINCHIUM ANGUSTIFOLIUM (NARROWLEAF BLUE EYED GRASS)
0.2% OENOTHERA FRUTICOSA VAR. FRUTICOSA(SUNDROPS)
0.2% SOLIDAGO NEMORALIS, (GRAY GOLDENROD)
0.1% ASTER PRENANTHOIDES, (ZIGZAG ASTER)

POLLINATOR MIX 2 OUTSIDE ARRAY FULL SUN UNDER 4'
1 LB/ 1000 FT
ERNMX-148 OR EQUIVALENT
26.4% LOLIUM PERENNE, TETRAPLOID (PERENNIAL RYEGRASS, TETRAPLOID)
21.0% DACTYLIS GLOMERATA, POTOMAC (ORCHARDGRASS, POTOMAC)
18.9% POA PRATENSIS, 'GINGER' (KENTUCKY BLUEGRASS, 'GINGER' (PASTURE TYPE)
12.0% BROMUS BIEBERSTEINII, 'FLEET' (MEADOW BROME, 'FLEET')
5.7% TRIFOLIUM HYBRIDUM (ALSIKE CLOVER)
5.0% FESTUCA ELATIOR X LOLIUM PERENNE, DUO (FESTULOLIUM, 'DUO')
4.8% TRIFOLIUM PRATENSE, MEDIUM, (RED CLOVER, MEDIUM)
2.0% LOTUS CORNICULATUS, 'LEO' (BIRD'S FOOT TREFOIL, 'LEO')
1.4% CHAMAECRISTA FASCICULATA, (PARTRIDGE PEA,)
1.0% LINUM PERENNE (PERENNIAL BLUE FLAX)
0.9% COREOPSIS LANCEOLATA (LANCELEAF COREOPSIS)
0.5% CHRYSANTHEMUM LEUCANTHEMUM (OXEYE DAISY)
0.4% SOLIDAGO NEMORALIS, (GRAY GOLDENROD)

SHADE PERIMETER POLLINATOR MIX
1 LB/ 1000 FT.
ERNMX-132-1
29.0% PANICUM CLANDESTINUM, TIOGA (DEERTONGUE, TIOGA)
20.0% LOLIUM MULTIFLORUM (ANNUAL RYEGRASS)
15.0% ELYMUS VIRGINICUS, MADISON-NY ECOTYPE (VIRGINIA WILDRYE,
15.0% PANICUM VIRGATUM, 'SHELTER' (SWITCHGRASS, 'SHELTER')
10.0% FESTUCA RUBRA (CREEPING RED FESCUE)
5.0% AGROSTIS PERENNANS, ALBANY PINE (AUTUMN BENTGRASS)
3.0% CAREX VULPINOIDEA, (FOX SEDGE)
3.0% CHAMAECRISTA FASCICULATA, (PARTRIDGE PEA)

COMMONWEALTH OF MASSACHUSETTS
BRIAN G. YERGATIAN
CIVIL
NO. 46008
REGISTERED
PROFESSIONAL ENGINEER

8/1/23

BRIAN G. YERGATIAN — DATE
PROFESSIONAL ENGINEER

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15

IN

STURBRIDGE
MASSACHUSETTS
(WORCESTER COUNTY)

PLANTING PLAN

AUGUST 1, 2023

REVISIONS:

NO.	DATE	DESC.

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

PREPARED FOR:
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2420 17TH STREET
DENVER, CO 80202

BSC GROUP
349 Main Street - Route 28
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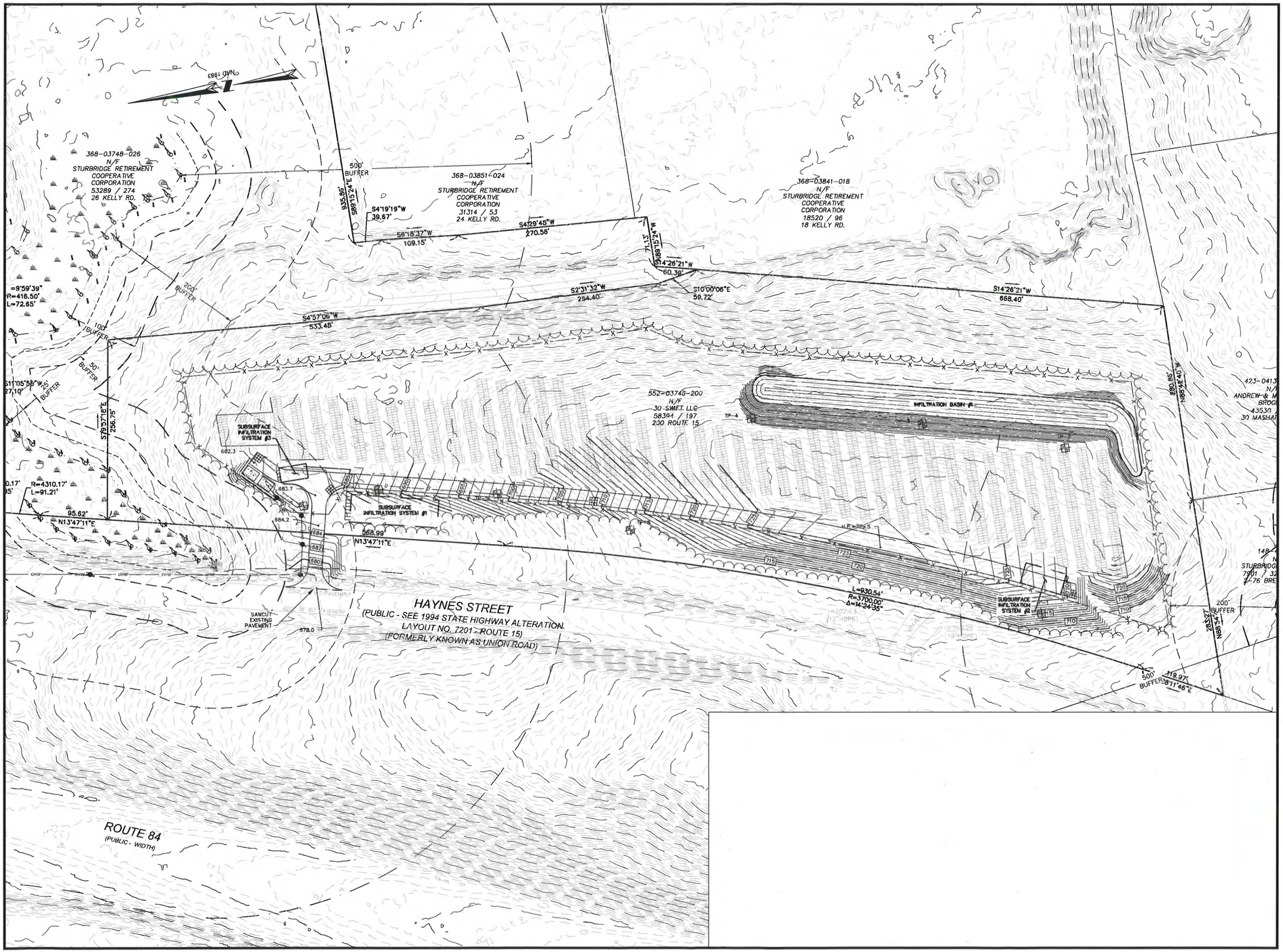
02673
508 778 8919

SCALE: 1" = 60'
0 30 60 120 FEET

FILE: PROJECTS-YAR\5074500\C\D\5074500-SP.dwg
DWG.: DWG
JOB. NO: 5-0745.00
SHEET 4 OF 9



8/1/23

BRIAN G. YERGATIAN DATE
PROFESSIONAL ENGINEER

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15

IN

STURBRIDGE
MASSACHUSETTS
(WORCESTER COUNTY)

GRADING PLAN

AUGUST 1, 2023

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423-0413
N/F
ANDREW & M
BROG
43530 /
30 MASHA

148
N/
STURBRIDG
7901 / 32
7-76 BRE

NAD 1983

500' BUFFER
200' BUFFER
100' BUFFER
50' BUFFER
25' BUFFER

S4°19'19"W 39.67'
S6°18'37"W 109.15'
S4°29'48"W 270.56'
S4°57'06"W 533.48'
S2°31'32"W 254.40'
S10°00'06"E 59.72'
S14°26'21"W 60.38'
S14°26'21"W 668.40'
N89°15'24"W 935.85'
N89°15'24"W 71.13'
N88°42'40"W 280.86'
S79°57'18"E 256.76'
S11°05'58"W 27.10'
=9°59'39"
R=416.50'
L=72.65'
R=4310.17'
L=91.21'
95.62'
N13°47'11"E
568.99'
N13°47'11"E
L=930.54'
R=3700.00'
Δ=14°24'35"
H.P.=729.5
283.27'
N89°54'
119.97'
S11°46'E

INFILTRATION BASIN #1
A=23,026± S.F.

SUBSURFACE INFILTRATION SYSTEM #3
20 ADS STORMTECH SC-740 CHAMBERS IN 20.50'X39.22' BED OF CRUSHED STONE
TOP OF STONE=680.75
TOP OF CHAMBERS=680.25
BOT OF CHAMBERS=677.75
BOT OF STONE=677.25

WQU-1
STORMCEPTOR STC 4501
RIM=681.9
I(OUT)=677.9

CB-1
RIM=684.00
I(OUT)=681.0

WQU-2
STORMCWPTOR STC 900
RIM=685.0
I(IN)=680.9
I(OUT)=680.8

INSPECTION PORT
12" HDPE
682.3
683.7
684.2
678.0

SUBSURFACE INFILTRATION SYSTEM #1
136 ADS STORMTECH SC-740 CHAMBERS IN 39.50'X124.66' BED OF CRUSHED STONE
TOP OF STONE=684.00
TOP OF CHAMBERS=683.50
BOT OF CHAMBERS=681.00
BOT OF STONE=680.50

CB-2
RIM=709.0
I(OUT)=705.0

CB-3
RIM=719.5
I(OUT)=714.5

SUBSURFACE INFILTRATION SYSTEM #2
48 ADS STORMTECH SC-740 CHAMBERS
IN 30'X60.58' BED OF CRUSHED STONE
TOP OF STONE=714.50
TOP OF CHAMBER=714.00
BOT OF CHAMBER=711.50
BOT OF STONE=711.00

TP-1
TP-2
TP-3
TP-4
TP-5
TP-6

SAWCUT EXISTING PAVEMENT

HAYNES STREET
(PUBLIC - SEE 1994 STATE HIGHWAY ALTERATION LAYOUT NO. 7201 - ROUTE 15)
(FORMERLY KNOWN AS UNION ROAD)

ROUTE 84
(PUBLIC - WIDTH)

OHW

BRIAN G. YERGATIAN
CIVIL
No. 49209
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

8/1/23

BRIAN G. YERGATIAN DATE
PROFESSIONAL ENGINEER

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15

IN

STURBRIDGE
MASSACHUSETTS
(WORCESTER COUNTY)

DRAINAGE PLAN

AUGUST 1, 2023

REVISIONS:

NO.	DATE	DESC.

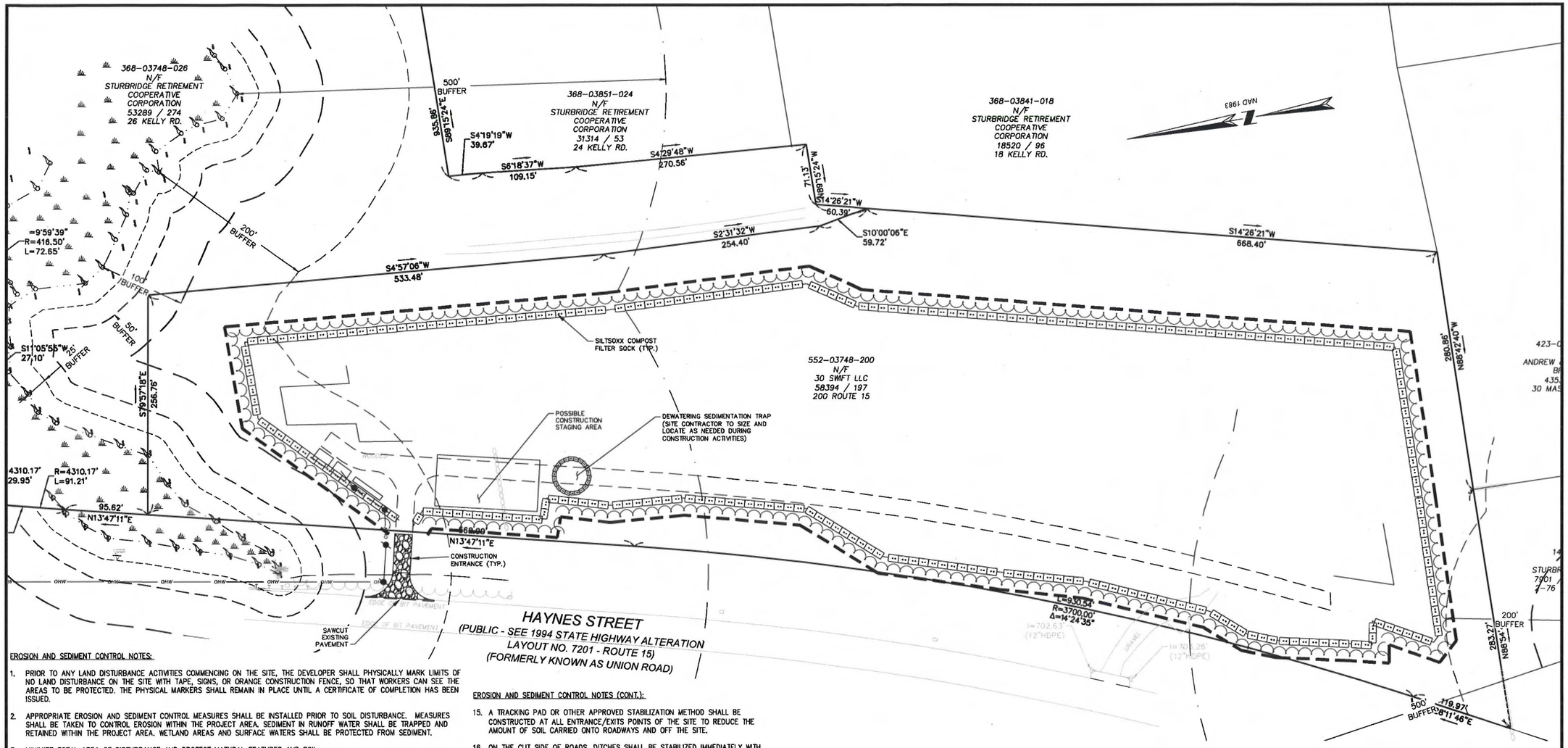
ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

PREPARED FOR:
STURBRIDGE PV, LLC
2420 17TH STREET
DENVER, CO 80202

BSC GROUP
349 Main Street - Route 28
West Yarmouth, Massachusetts
02673
508 778 8919

SCALE: 1" = 60'
0 30 60 120 FEET

FILE: PROJECTS-YAR\5074500\C\D\5074500-SP.dwg
DWG.: DWG
JOB. NO: 5-0745.00
SHEET 6 OF 9



EROSION AND SEDIMENT CONTROL NOTES:

1. PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING ON THE SITE, THE DEVELOPER SHALL PHYSICALLY MARK LIMITS OF NO LAND DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREAS TO BE PROTECTED. THE PHYSICAL MARKERS SHALL REMAIN IN PLACE UNTIL A CERTIFICATE OF COMPLETION HAS BEEN ISSUED.
2. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SOIL DISTURBANCE. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
3. MINIMIZE TOTAL AREA OF DISTURBANCE AND PROTECT NATURAL FEATURES AND SOIL.
4. THE CONTRACTOR SHALL SEQUENCE ALL ACTIVITIES TO MINIMIZE SIMULTANEOUS AREAS OF DISTURBANCE. MASS CLEARING AND GRADING OF THE ENTIRE SITE SHALL BE AVOIDED.
5. MINIMIZE SOIL EROSION AND CONTROL SEDIMENTATION DURING CONSTRUCTION.
6. DIVERT UNCONTAMINATED WATER AROUND DISTURBED AREAS.
7. INSTALL AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES OR IN ACCORDANCE WITH THE 2017 EPA CONSTRUCTION GENERAL PERMIT.
8. PROTECT AND MANAGE ON AND OFF-SITE MATERIAL STORAGE AREAS (OVERBURDEN AND STOCKPILES OF DIRT, BORROW AREAS, OR OTHER AREAS USED SOLELY BY THE PERMITTED PROJECT ARE CONSIDERED A PART OF THE PROJECT).
9. COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS INCLUDING WASTE DISPOSAL, SANITARY OR SEWER REGULATIONS, AND AIR QUALITY REQUIREMENTS, INCLUDING DUST CONTROL.
10. SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES 1/4 TO 1/2 THE HEIGHT OF THE EROSION CONTROL DEVICE. SEDIMENT SHALL BE REMOVED FROM SILT FENCE PRIOR TO REACHING THE LOAD-BEARING CAPACITY OF THE SILT FENCE WHICH MAY BE LOWER THAN 1/4 TO 1/2 THE HEIGHT.
11. SEDIMENT FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS SHALL BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT.
12. BMPS TO BE USED FOR INFILTRATION AFTER CONSTRUCTION SHALL NOT BE USED AS BMPS DURING CONSTRUCTION UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER AND THE TOWN OF STURBRIDGE. MANY INFILTRATION TECHNOLOGIES ARE NOT DESIGNED TO HANDLE THE HIGH CONCENTRATIONS OF SEDIMENTS TYPICALLY FOUND IN CONSTRUCTION RUNOFF, AND THUS MUST BE PROTECTED FROM CONSTRUCTION RELATED SEDIMENT LOADINGS.
13. SOIL STOCKPILES MUST BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY. STOCKPILE SIDE SLOPES SHALL NOT BE GREATER THAN 2:1. ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROLS.
14. FOR ACTIVE CONSTRUCTION AREAS SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS AND AREAS WITHIN 50 FEET OF A BUILDING UNDER CONSTRUCTION, A PERIMETER SEDIMENT CONTROL SYSTEM SHALL BE INSTALLED AND MAINTAINED TO CONTAIN SOIL.

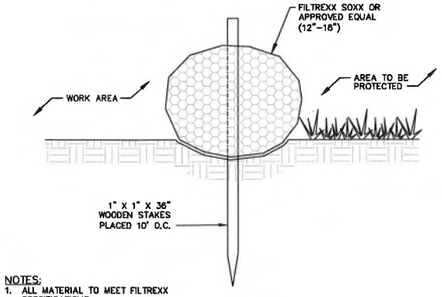
EROSION AND SEDIMENT CONTROL NOTES (CONT.):

15. A TRACKING PAD OR OTHER APPROVED STABILIZATION METHOD SHALL BE CONSTRUCTED AT ALL ENTRANCE/EXITS POINTS OF THE SITE TO REDUCE THE AMOUNT OF SOIL CARRIED ONTO ROADWAYS AND OFF THE SITE.
16. ON THE CUT SIDE OF ROADS, DITCHES SHALL BE STABILIZED IMMEDIATELY WITH ROCK RIP-RAP OR OTHER NON-ERODIBLE LINERS, OR WHERE APPROPRIATE, VEGETATIVE MEASURES SUCH AS HYDROSEEDING OR JUTE MATTING
17. PERMANENT SEEDING SHALL BE UNDERTAKEN IN THE SPRING FROM MARCH THROUGH MAY, AND IN LATE SUMMER AND EARLY FALL FROM AUGUST TO OCTOBER 15. DURING THE PEAK SUMMER MONTHS AND IN THE FALL AFTER OCTOBER 15, WHEN SEEDING IS FOUND TO BE IMPRACTICAL, APPROPRIATE TEMPORARY STABILIZATION SHALL BE APPLIED. PERMANENT SEEDING MAY BE UNDERTAKEN DURING THE SUMMER IF PLANS PROVIDE FOR ADEQUATE MULCHING AND WATERING.
18. ALL SLOPES STEEPER THAN 3:1 (H:V, 33.3%), AS WELL AS PERIMETER DIKES, SEDIMENT BASINS OR TRAPS, AND EMBANKMENTS MUST, UPON COMPLETION, BE IMMEDIATELY STABILIZED WITH SOD, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES. AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST NOT BE DISTURBED.
19. TEMPORARY SEDIMENT TRAPPING DEVICES MUST NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTRIBUTORY DRAINAGE AREAS.
20. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS OF REMOVAL.
21. PROPERLY MANAGE ON-SITE CONSTRUCTION AND WASTE MATERIALS.
22. PREVENT OFF-SITE VEHICLE TRACKING OF SEDIMENTS,
23. DUST SHALL BE CONTROLLED AT THE SITE.
24. ALL PREVIOUSLY DISTURBED LAND SHALL BE STABILIZED BY APPROVED METHODS AFTER 14 DAYS IF LEFT UNDISTURBED, THIS INCLUDES STOCKPILES, CONSTRUCTION ENTRANCES, GRADED AREAS AND OTHER CONSTRUCTION ACTIVITY RELATED CLEARING,
25. IF WORK IS HALTED OVER WINTER MONTHS THE CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZING THE AREA THROUGH GROUND COVER PRACTICES.

LEGEND

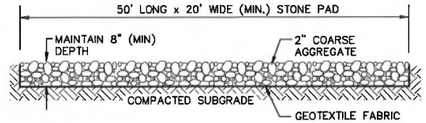
STAKED STRAW WATTLES (LIMIT OF WORK)

LIMIT OF WORK



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 THE ENGINEER.

SILTSOXX COMPOST FILTER SOCK
SCALE: NONE



TEMPORARY CONSTRUCTION ENTRANCE
SCALE: NONE

8/1/23

BRIAN G. YERGATIAN, PROFESSIONAL ENGINEER — DATE

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15

IN

STURBRIDGE
MASSACHUSETTS
(WORCESTER COUNTY)

EROSION & SEDIMENT CONTROL PLAN

AUGUST 1, 2023

REVISIONS:

NO.	DATE	DESC.

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

PREPARED FOR:
STURBRIDGE PV, LLC
2420 17TH STREET
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BSC GROUP
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West Yarmouth, Massachusetts
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508 778 8919

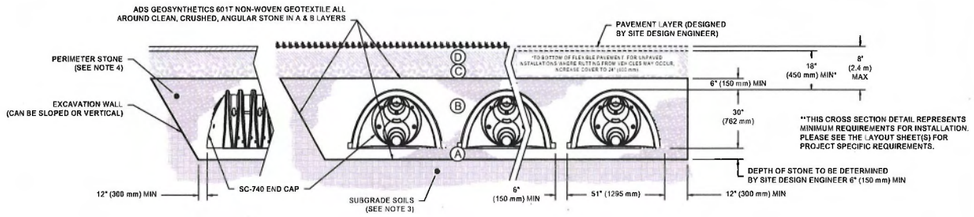
SCALE: 1" = 60'
0 30 60 120 FEET

FILE: PROJECTS-YAR\5074500\C\D\5074500-SP.dwg
DWG.: DWG
JOB. NO: 5-0745.00

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

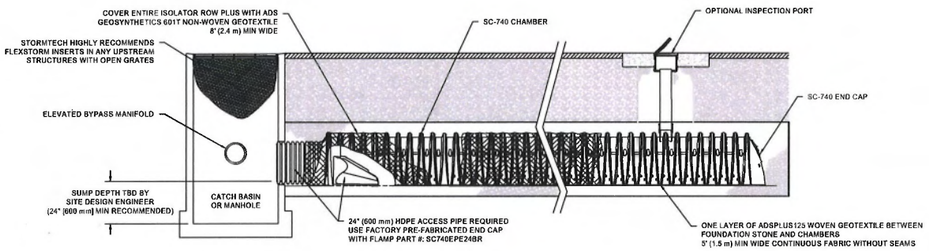
	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

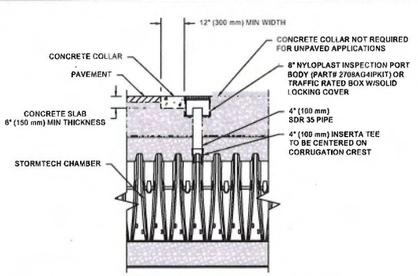


NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1 SC-740 CROSS SECTION DETAIL



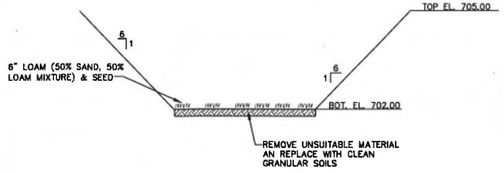
3 SC-740 ISOLATOR ROW PLUS DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

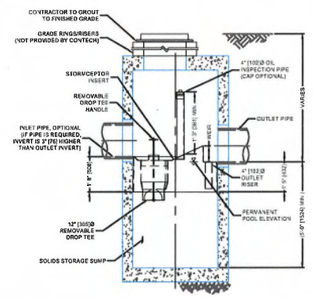
4 4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

INFILTRATION BASIN #1



NOTES:
1. LIGHT EARTH MOVING EQUIPMENT IS TO BE USED DURING CONSTRUCTION TO REDUCE COMPACTION OF BASIN BOTTOM.
2. BASIN FLOOR IS TO BE DEEPLY TILLED AFTER FINAL GRADING.
3. PROPER EROSION SEDIMENT CONTROLS SHOULD BE UTILIZED DURING CONSTRUCTION TO PREVENT SEDIMENT AND/OR DEBRIS FROM ENTERING THE BASIN.
4. 75% OF RIP-RAP STONE SHALL BE 70 – 100 lbs.

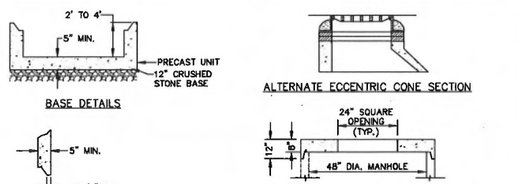
INFILTRATION BASIN CROSS-SECTION
SCALE: NONE



SECTION A-A

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. STORMCEPTOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STORMCEPTOR STRUCTURE SHALL MEET AASHTO H520 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

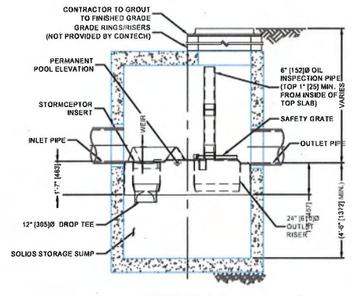
STORMCEPTOR STC 450i
SCALE: NONE



NOTES:
1. ALL PRECAST JOINTS TO BE SEALED WITH BUTYL RUBBER.
2. DESIGN TO CONFORM TO H-20 LOADING.
3. CONTRACTOR HAS THE OPTION TO USE ALTERNATE TOP SLAB.

PRECAST CONCRETE CATCH BASIN
SCALE: NONE

PLAN VIEW
TOP SLAB NOT SHOWN



SECTION A-A

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5. STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

STORMCEPTOR STC 900
SCALE: NONE

8/1/23

BRIAN G. YERGATIAN — DATE
PROFESSIONAL ENGINEER

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15

IN

STURBRIDGE
MASSACHUSETTS
(WORCESTER COUNTY)

DETAIL SHEET

AUGUST 1, 2023

REVISIONS:

NO.	DATE	DESC.

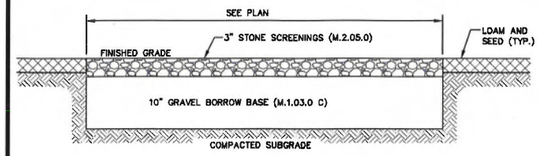
ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

PREPARED FOR:
STURBRIDGE PV, LLC
2420 17TH STREET
DENVER, CO 80202

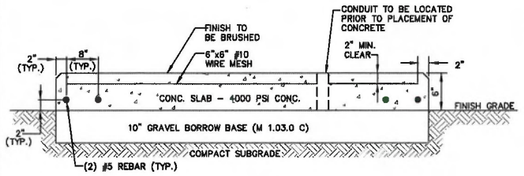
BSC GROUP
349 Main Street - Route 28
West Yarmouth, Massachusetts
02673
508 778 8919

SCALE: NOT TO SCALE
0 30 60 120 FEET

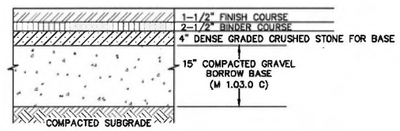
FILE: PROJECTS-YAR\5074500\C\D\5074500-SP.dwg
DWG.: DWG
JOB. NO: 5-0745.00
SHEET 8 OF 9



GRAVEL DRIVEWAY
SCALE: NONE



TRANSFORMER PAD
SCALE: NONE



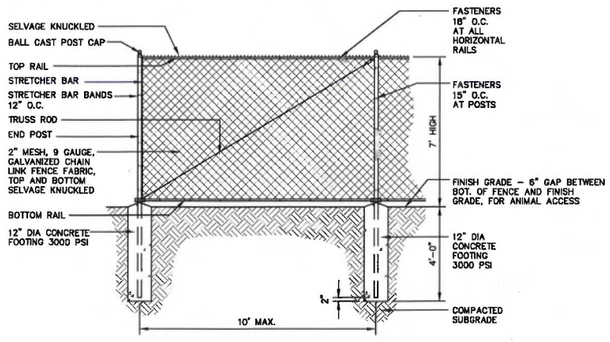
STANDARD DUTY FLEXIBLE PAVEMENT

NOTE:
PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND MAY BE BASED ON THE RESULTS OF GEOTECHNICAL INVESTIGATIONS

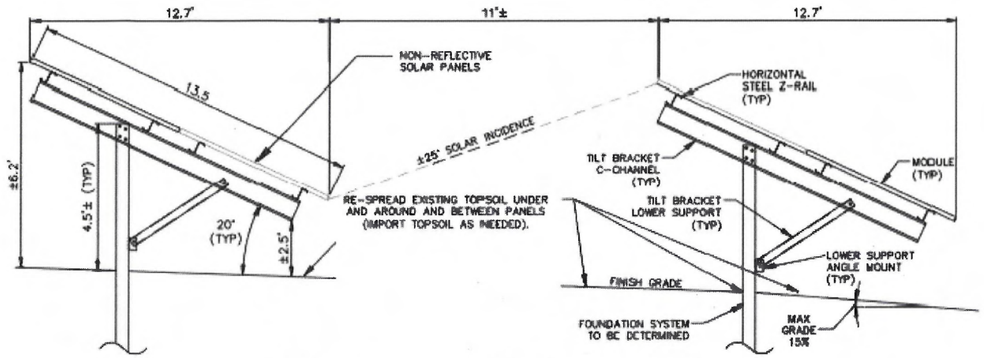
HOT MIX ASPHALT PAVEMENT SECTIONS
SCALE: NONE

CHAIN LINK FENCE FRAMEWORK SCHEDULE

FABRIC HEIGHT	8' OR LESS	8' – 10'	10' OR MORE
END, CORNER & PULL POST	2.375" O.D.	2.875" O.D.	4" O.D.
LINE POST	1.900" O.D.	2.375" O.D.	2.875" O.D.
TOP AND BOTTOM RAIL	1.660" O.D.	1.660" O.D.	1.660" O.D.
MIDDLE RAIL	NONE	1.660" O.D.	1.660" O.D.



CHAIN LINK FENCE
SCALE: NONE



SECTION VIEW – PANEL/RACK ASSEMBLY
SCALE: NONE

BRIAN G. YERGATIAN, CIVIL, NO. 49209, REGISTERED PROFESSIONAL ENGINEER, COMMONWEALTH OF MASSACHUSETTS

8/1/23

BRIAN G. YERGATIAN, PROFESSIONAL ENGINEER — DATE

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

200 ROUTE 15

IN

STURBRIDGE
MASSACHUSETTS
(WORCESTER COUNTY)

DETAIL SHEET II

AUGUST 1, 2023

REVISIONS:

NO.	DATE	DESC.

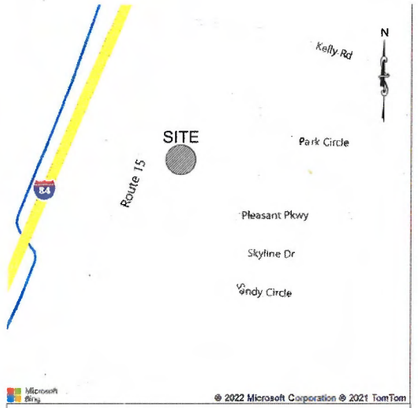
ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

PREPARED FOR:
STURBRIDGE PV, LLC
2420 17TH STREET
DENVER, CO 80202

BSC GROUP
349 Main Street - Route 28
West Yarmouth, Massachusetts
02673
508 778 8919

SCALE: NOT TO SCALE

FILE: PROJECTS-YAR\5074500\C\D\5074500-SP.dwg
DWG.: DWG
JOB. NO: 5-0745.00



LOCATION MAP:

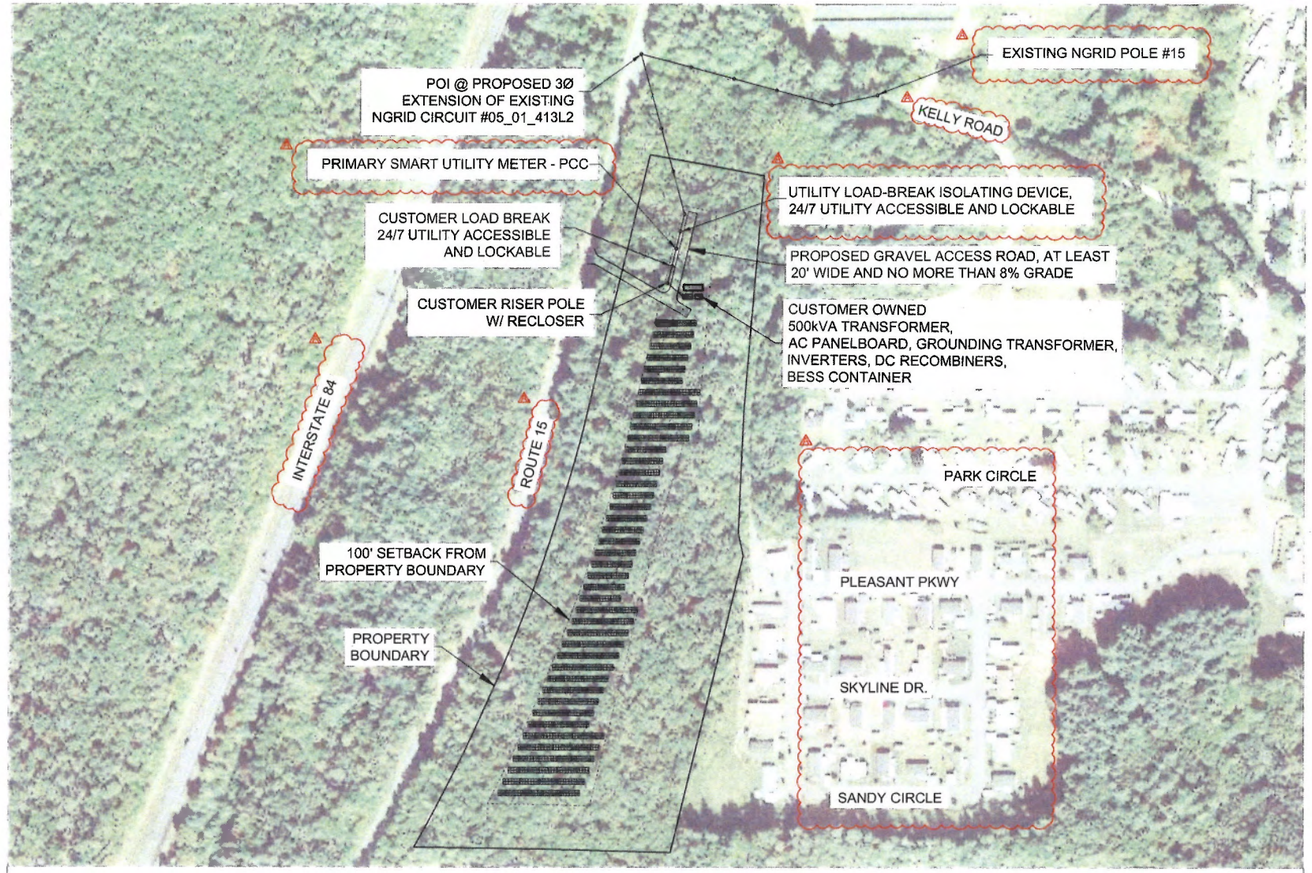
N

180° MODULE
ORIENTATION
25° TILT

SITE PLAN/LAYOUT IS REPRESENTATIVE FOR INTERCONNECTION APPROVAL ONLY. NOT FOR CONSTRUCTION.

FINAL PV DISCONNECT AND METER LOCATION WILL BE DETERMINED BY THE NATIONAL GRID METERING DEPARTMENT.

LOADS:	
GROUND SNOW	40 PSF
WIND LOAD	124 MPH



SITE PLAN:

0 150 300 600

GRAPHIC SCALE IN FEET
1" = 150'-0"

200 ROUTE 15
1,310.4 - kW DC
500.0 - KW AC NOMINAL
500.0 - KW AC MAXIMUM
PHOTOVOLTAIC POWER SYSTEM
W/ 640kW / 1,280 kWH DC-COUPLED STORAGE

PROJECT DATA

INTEGRATOR:	BEAR PEAK POWER 1099 18TH ST, SUITE 2150 DENVER, CO 80202
SITE:	200 ROUTE 15 STURBRIDGE, MA 01566
CODES:	NEC-2020 IBC-2015 9TH EDITION CMR 780
SOLAR ARRAY:	
MODULE:	HT-SAAE HT72-166M 450W 2,912 MODULES
RACKING:	GROUND MOUNTED @ 25 DEGREES
INVERTER:	(4) SOLECTRIA XGI 1500-125/125
DC STORAGE:	(8) ALENCON BOSS-1500 DC-DC CONVERTERS 640kW / 1,280 kWH DC-COUPLED BESS
DC OUTPUT:	1,310,400 W DC - STC
AC OUTPUT:	500,000 W AC

ASHRAE TEMPERATURE:

WORCHESTER REGIONAL ARPT			
ELEV.	HIGH TEMPERATURE		LOW TEMPERATURE
	0.4%	2% AVG.	EXTREME MINIMUM
310m	32°C	29°C	-20°C

COVER SHEET

ARC DESIGN
409 NORTH MAIN STREET
ELMER, NJ 08318
(856) 712-2166 FAX: (856) 358-1511

PREPARED FOR:
BEAR PEAK POWER
1099 18TH ST, SUITE 2150
DENVER, CO 80202

PROPOSED PHOTOVOLTAIC ARRAY
200 ROUTE 15
200 ROUTE 15
STURBRIDGE, MA 01566

JAMES A. CLANCY
MA PE LICENSE NO. 46775

REVISIONS	
DATE	COMMENT
05-20-22	BESS REVISION
05-27-22	INV/ESS CHANGE
06-16-22	PER UTILITY REVIEW

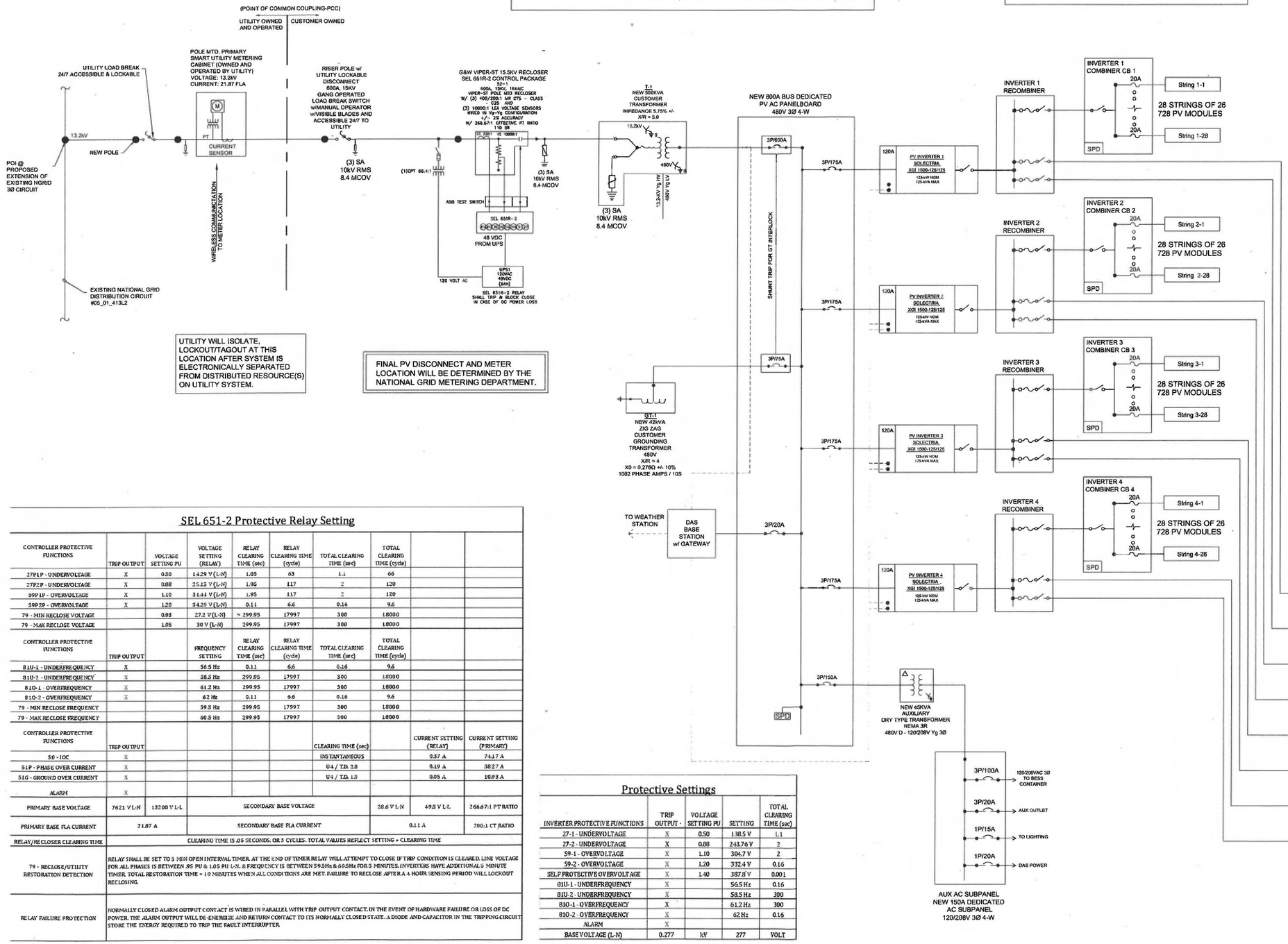
JOB #	
DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	05-23-2022

C-1

(2,912) HT-SAAE HT72-166M 450W MODULES
(4) SOLECTRIA XGI 1500-125/125 INVERTERS
(8) ALENCON BOSS 1500-DC-DC CONVERTERS

SYSTEM SIZE = 1,310.4 kW DC
500.0 kW AC NOMINAL
500.0 kVA AC MAXIMUM
640kW / 1,280kWH DC-COUPLED BESS

INVERTER 1-4
PV Modules = 450 Watts STC
728 Modules per Inverter = 327,600 watts DC STC
28 Strings of 26 PV Modules per Inverter
w/ 160kW / 320 kWH DC-Coupled Storage per Inverter



UTILITY WILL ISOLATE, LOCKOUT/TAGOUT AT THIS LOCATION AFTER SYSTEM IS ELECTRONICALLY SEPARATED FROM DISTRIBUTED RESOURCE(S) ON UTILITY SYSTEM.

FINAL PV DISCONNECT AND METER LOCATION WILL BE DETERMINED BY THE NATIONAL GRID METERING DEPARTMENT.

SEL 651-2 Protective Relay Setting

CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	VOLTAGE SETTING (RELAY)	RELAY CLEARING TIME (sec)	RELAY CLEARING TIME (cycle)	TOTAL CLEARING TIME (sec)	TOTAL CLEARING TIME (cycle)		
27P1P - UNDERVOLTAGE	X	0.50	144.9 V (L-N)	1.05	63	1.1	66		
27P2P - UNDERVOLTAGE	X	0.88	255.15 V (L-N)	1.95	117	2	120		
59P1P - OVERVOLTAGE	X	1.10	318.8 V (L-N)	1.95	117	2	120		
59P2P - OVERVOLTAGE	X	1.20	347.8 V (L-N)	0.11	6.6	0.16	9.6		
79 - MIN RECLOSE VOLTAGE		0.83	240.7 V (L-N)	299.95	17997	300	18000		
79 - MAX RECLOSE VOLTAGE		1.05	304.5 V (L-N)	299.95	17997	300	18000		
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT		FREQUENCY SETTING	RELAY CLEARING TIME (sec)	RELAY CLEARING TIME (cycle)	TOTAL CLEARING TIME (sec)	TOTAL CLEARING TIME (cycle)		
81U-1 - UNDERFREQUENCY	X		56.5 Hz	0.11	6.6	0.16	9.6		
81U-2 - UNDERFREQUENCY	X		58.5 Hz	299.95	17997	300	18000		
81O-1 - OVERFREQUENCY	X		61.2 Hz	299.95	17997	300	18000		
81O-2 - OVERFREQUENCY	X		62 Hz	0.11	6.6	0.16	9.6		
79 - MIN RECLOSE FREQUENCY			59.5 Hz	299.95	17997	300	18000		
79 - MAX RECLOSE FREQUENCY			60.5 Hz	299.95	17997	300	18000		
CONTROLLER PROTECTIVE FUNCTIONS	TRIP OUTPUT					CLEARING TIME (sec)		CURRENT SETTING (RELAY)	CURRENT SETTING (PRIMARY)
50 - IOC	X					INSTANTANEOUS		0.37 A	74.17 A
51P - PHASE OVER CURRENT	X					U4 / T.D. 2.0		0.19 A	38.27 A
51G - GROUND OVER CURRENT	X					U4 / T.D. 1.5		0.05 A	10.93 A
ALARM	X								
PRIMARY BASE VOLTAGE	7621 V L-N	13200 V L-L	SECONDARY BASE VOLTAGE				28.6 V L-N	49.5 V L-L	266.67:1 PT RATIO
PRIMARY BASE FLA CURRENT	21.87 A		SECONDARY BASE FLA CURRENT				0.11 A		200:1 CT RATIO
RELAY/RECLOSER CLEARING TIME	CLEARING TIME IS .05 SECONDS, OR 3 CYCLES. TOTAL VALUES REFLECT SETTING + CLEARING TIME								
79 - RECLOSE/UTILITY RESTORATION DETECTION	RELAY SHALL BE SET TO 5 MIN OPEN INTERVAL TIMER. AT THE END OF TIMER RELAY WILL ATTEMPT TO CLOSE IF TRIP CONDITION IS CLEARED. LINE VOLTAGE FOR ALL PHASES IS BETWEEN .95 PU & 1.05 PU L-N, & FREQUENCY IS BETWEEN 59.5Hz & 60.5Hz FOR 5 MINUTES. INVERTERS HAVE ADDITIONAL 5 MINUTE TIMER. TOTAL RESTORATION TIME = 10 MINUTES WHEN ALL CONDITIONS ARE MET. FAILURE TO RECLOSE AFTER A 4 HOUR SENSING PERIOD WILL LOCKOUT RECLOSING.								
RELAY FAILURE PROTECTION	NORMALLY CLOSED ALARM OUTPUT CONTACT IS WIRED IN PARALLEL WITH TRIP OUTPUT CONTACT. IN THE EVENT OF HARDWARE FAILURE OR LOSS OF DC POWER, THE ALARM OUTPUT WILL DE-ENERGIZE AND RETURN CONTACT TO ITS NORMALLY CLOSED STATE. A DIODE AND CAPACITOR IN THE TRIPPING CIRCUIT STORE THE ENERGY REQUIRED TO TRIP THE FAULT INTERRUPTER.								

Protective Settings

INVERTER PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTING PU	SETTING	TOTAL CLEARING TIME (sec)
27-1 - UNDERVOLTAGE	X	0.50	138.5 V	1.1
27-2 - UNDERVOLTAGE	X	0.88	243.76 V	2
59-1 - OVERVOLTAGE	X	1.10	304.7 V	2
59-2 - OVERVOLTAGE	X	1.20	332.4 V	0.16
SEL.P PROTECTIVE OVERVOLTAGE	X	1.40	387.8 V	0.001
81U-1 - UNDERFREQUENCY	X		56.5 Hz	0.16
81U-2 - UNDERFREQUENCY	X		58.5 Hz	300
81O-1 - OVERFREQUENCY	X		61.2 Hz	300
81O-2 - OVERFREQUENCY	X		62 Hz	0.16
ALARM	X			
BASE VOLTAGE (L-N)	0.277	kV	277	VOLT

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PREPARED FOR:
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PROPOSED PHOTOVOLTAIC ARRAY
200 ROUTE 15
200 ROUTE 15
STURBRIDGE, MA 01566

JAMES A. CLANCY
MA PE REGISTRATION #46775

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05-27-22	INV/ESS CHANGE
06-16-22	PER UTILITY REVIEW

JOB #	
DRWN	RCA
CHKD	JAC
SCALE	AS NOTED
DATE	05-23-2022

E-1

ELECTRICAL - LINE DIAGRAM

Reliable State-owned Enterprise Deliver Solar Power since 1960s

HT-SAAE

HT72-166M Transparent

High Efficiency Low LID Bifacial PERC with Half-cut Technology

NEW Big Size Cell 166/83 Monocrystalline

435W / 440W
445W / 450W / 455W

- Module Efficiency: 20.9%
- No of Cells: 144 (6 × 24)
- Weight: 23.5kg

Half cut cell technology can reduce the internal power loss and improve component overall power. Excellent heat dissipation avoids hot spot production.

9BB The optimized number and width of main gate lines, Maximize the light receiving area of components and Reduce component power consumption

12 Ys — Products Warranty

Designed for high voltage systems of up to 1500 VDC. Increasing the string length of solar systems and saving on BOS costs

30 Ys — Warranty on power output

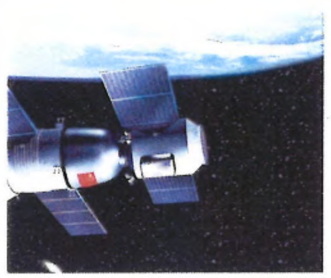
2% — All the modules are sorted and packaged by amperage reducing mismatch losses and maximizing system output.

EL — Microcrack resistant high performance transparent backsheet structure enhance reliability, triple EL tested of high quality control.

5W — Positive tolerance 0/+5W guaranteed

Entire module certified to with stand extreme wind (2400 Pa) and snow loads (5400 Pa)

PID — PID Resistant



Comprehensive and first-rate certification system

IEC61215: 2016 IEC61730: 2016 Latest Standard and UL 61730 Latest Standard, ISO9001 ISO14001 and ISO45001 meeting the highest international standards Strict quality control

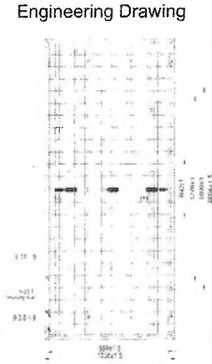
MULTIWAY+

MULTIWAY+
Better Choice For Higher Efficiency!

1500V module HT72-166M

435W/440W/445W/450W/455W

Engineering Drawing



Electrical Characteristics

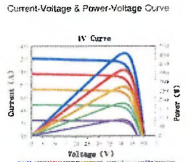
NMOT

BIFACIAL REARSIDE POWER GAIN

Mechanical Characteristics

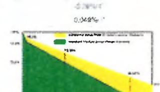
I-V Curves

Current-Voltage & Power-Voltage Curve



Temperature Characteristics

Warranty



MULTIWAY+

ALENCON

The BOSS: Alencon's Unique Bi-Directional DC-DC Converter for Battery Energy Storage Systems

BOSS Applications:
- DC-Coupled Solar + Storage
- Battery Storage Augmentation
- Microgrids
- Battery Charge Balancing for Electrical Vehicles and other devices

The Most Powerful and Flexible Bi-Directional DC-DC Converter on the Market Today

Alencon's Bi-Directional DC-DC Optimizer for Storage Systems, the BOSS, is a unique solution for your next battery energy storage project. The BOSS enables the granular control of charge and discharge of individual battery racks with a patent pending, galvanically isolated approach. The Alencon BOSS is the only DC-DC optimizer on the market capable of managing the charge and discharge of batteries on the rack level while offering galvanic isolation.

The Alencon BOSS is a cost-effective way to DC couple solar and storage or to augment existing battery energy storage systems. The BOSS can also be used for battery balancing applications required for electric vehicles and other devices. The BOSS can charge and discharge batteries across a wide voltage range on either side of the battery. BOSS units can be installed between individual battery racks or placed in parallel in any variety of configurations or form factors.

Features
- Full galvanic isolation between input and output
- Battery rack level charge and discharge
- Wide voltage mapping range between battery and DC bus or between batteries
- Numerous BOSS units can easily be installed and controlled in parallel
- Detect ground leaks with "Leak Locator" technology

Benefits
- Combine grounded PV arrays with floating batteries
- Maximize the utilization of each battery rack
- Match different voltages between batteries and solar or other DC sources and loads
- Easily augment energy storage systems with new battery racks with different charge characteristics and even different chemistries
- Improve the safety of battery energy storage systems

Advantages
- Flexibly design and deploy DC coupled Solar + Storage systems
- Get more energy from every battery rack
- Reduce overall BESS capital and operating expenses to improve storage project return on investment
- Improve battery energy storage system safety and prevent mishaps from occurring
- Increase system reliability and simplify O&M

Technical Specifications

Model	BOSS - 1000	BOSS - 1500
Standard DC Bus Specifications		
Max DC Bus Voltage	1000 V DC	1500 V DC
Operating DC Bus Voltage Range	200 - 1000 V DC	200 - 1500 V DC
Standard Battery Voltage Specifications		
Max Battery Voltage	1000 V DC	1500 V DC
Operating Battery Voltage Range	0 - 1000 V DC	0 - 1500 V DC
Unit Power Specifications		
Max Current - 25 C° Ambient	77 A	56A
Maximum Power - 25 C° Ambient	77 kW	84 kW
Maximum Power - 50 C° Ambient	58 kW	63 kW
Efficiency		
Peak Efficiency	98.5%	
CEC Weighted Efficiency	98.0%	
Isolation		
Galvanic Isolation	Yes	
Standards & Compliance		
Certifications	UL1741, IEC 62109-1, CSA C22.2	
Environmental		
Storage Temperature	40°C to 60°C	
Cooling	Forced Air	
Humidity	0-95%	
Environmental Rating	NEMA 3R & IPP66	
Operating Ambient Temp.	-5°C to 50°C	
Form Factor		
Packaging	Rack or Rail Mounted, Indoor / Rail Mounted, Outdoor	
Size (H × W × D)	Rack Mount: 8U 14" x 19" x 27", Rail Mount: 24.8" × 16.5" × 10.6"	
Weight	Rack Mount: 53 KG/Rail Mount: 51 KG	
Aux Power	24 V available	
Communications	Modbus TCP via Alencon Communications Environment (ACE)	
Additional Packaging, Fusing and Disconnect Options	BOSS units can be installed in a variety of methods, including having numerous units in a single indoor or outdoor rated container. Containers can be sized to meet specific power, current, and space requirements. External fusing and disconnects also available	

Can be customized to end user requirements using Alencon Systems' mass customization manufacturing approach
Can vary based on input and output voltages being mapped, see note above

The Alencon Advantage:
- **Full Galvanic Isolation**
- **Easily Scalable from the KW to the MW Level**

Alencon Systems' BOSS is your secret weapon for deploying battery storage. The BOSS is the only battery rack level DC-DC optimizer that offers full galvanic isolation between the battery and DC bus. The BOSS's galvanic isolation allows you to map large voltage differences between battery racks, PV arrays and inverters, making it storage agnostic while offering an unparalleled level of protection from electrical faults. The BOSS's galvanic isolation and modular designed assures your significant investment in energy storage will not be threatened with unexpected downtime and/or costly damage. Alencon's BOSS units can be easily paralleled and installed in a prewired, optimally sized container called the BOSS BOX (battery optimized container) to allow you to scale up to multi-megawatt storage deployments.

ALENCON

www.alenconsystems.com
info@alenconsystems.com
888-410-7915

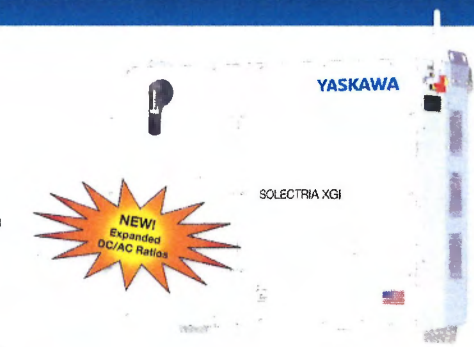
SOLECTRIA™ XGI 1500

PREMIUM 3-PHASE TRANSFORMERLESS UTILITY-SCALE INVERTERS

FEATURES
- Made in the USA with global components
- Buy American Act (BAA) compliant
- Four models:
  - 125kW/125kVA,
  - 125kW/150kVA,
  - 150kW/166kVA,
  - 166kW/166kVA
- 99.0% peak efficiency
- Flexible solution for distributed and centralized system architecture
- Advanced grid-support functionality Rule 21/UL1741SA
- Robust, dependable and built to last
- Lowest O&M and Installation costs
- Access all inverters on site via WiFi from one location
- Remote diagnostics and firmware upgrades
- SunSpec Modbus Certified
- Tested compatible with the TESLA PowerPack Microgrid System
- app for system visibility

OPTIONS
- String combiners for distributed and centralized systems
- Web-based monitoring
- Extended warranty

MADE IN THE USA



Yaskawa Solectria Solar's XGI 1500 utility-scale string inverters are designed for high reliability and built of the highest quality components that were selected, tested and proven to last beyond their warranty.

XGI 1500 inverters provide advanced grid-support functionality and meet the latest IEEE 1547 and UL 1741 standards for safety. They are the most powerful 1500 VDC string inverters in the PV market and have been engineered for both distributed and centralized system architecture.

Designed and engineered in Lawrence, MA, XGI inverters are assembled and tested at Yaskawa America's facilities in Buffalo Grove, IL. They are Made in the USA with global components and are compliant with the Buy American Act.

YASKAWA SOLECTRIA SOLAR

Yaskawa Solectria Solar 1-978-683-9700 | Email: inverters@solectria.com | solectria.com
Document No. FLXGI1500.01 | 05/03/2021 | © 2021 Yaskawa America, Inc

SOLECTRIA™ XGI 1500 TECHNICAL DATA

SPECIFICATIONS

SOLECTRIA XGI 1500 Model		XGI 1500-125/125	XGI 1500-125/150	XGI 1500-150/166	XGI 1500-166/166
DC Input	Absolute Maximum Input Voltage	1500 VDC	1500 VDC	1500 VDC	1500 VDC
	Maximum Power Input Voltage Range (MPPT)	860-1250 VDC	860-1250 VDC	860-1250 VDC	860-1250 VDC
	Operating Voltage Range (MPPT)	860-1450 VDC	860-1450 VDC	860-1450 VDC	860-1450 VDC
	Number of MPP Trackers	1 MPPT	1 MPPT	1 MPPT	1 MPPT
	Maximum Operating Input Current	148.3 A	148.3 A	176.0 A	197.7 A
	Maximum Operating PV Power	128 kW	128 kW	153 kW	170 kW
	Maximum DC/AC Ratio | Max Rated PV Power	2.6 | 332 kW	2.6 | 332 kW	2.2 | 332 kW	2.0 | 332 kW
	Max Rated PV Short-Circuit Current (ΣIsc x 1.25)	500 A	500 A	500 A	500 A
AC Output	Nominal Output Voltage	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph	600 VAC, 3-Ph
	AC Voltage Range	-12% to +10%	-12% to +10%	-12% to +10%	-12% to +10%
	Continuous Real Output Power	125 kW	125 kW	150 kW	166 kW
	Continuous Apparent Output Power	125 kVA	150 kVA	166 kVA	166 kVA
	Maximum Output Current	120 A	144 A	160 A	160 A
	Nominal Output Frequency	60 Hz	60 Hz	60 Hz	60 Hz
	Power Factor (Unity default)	+/- 0.80 Adjustable	+/- 0.80 Adjustable	+/- 0.80 Adjustable	+/- 0.80 Adjustable
	Total Harmonic Distortion (THD) @ Rated Load	<3%	<3%	<3%	<3%
	Grid Connection Type	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND
	Fault Current Contribution (1 cycle RMS)	144 A	173 A	192 A	192 A
Efficiency	Peak Efficiency	98.9%	98.9%	99.0%	99.0%
	CEC Average Efficiency	98.5%	98.5%	98.5%	98.5%
	Tare Loss	<1 W	<1 W	<1 W	<1 W
Temperature	Ambient Temperature Range	-40°F to 140°F (-40C to 60C)		-40°F to 140°F (-40C to 60C)	
	De-Rating Temperature	122°F (50C)		113°F (45C)	
	Storage Temperature Range	-40°F to 167°F (-40C to 75C)		-40°F to 167°F (-40C to 75C)	
	Relative Humidity (non-condensing)	0 - 95%		0 - 95%	
	Operating Altitude	Full Power up to 9,840 ft (3.0 km); De-Rate to 70% of Full Power at 13,123 ft (4.0 km)			
Communications	Advanced Graphical User Interface	WiFi			
	Communication Interface	Ethernet			
	Third-Party Monitoring Protocol	SunSpec Modbus TCP/IP			
	Web-Based Monitoring	Optional			
	Firmware Updates	Remote and Local			
Testing & Certifications	Safety Listings & Certifications	UL 1741, IEEE 1547, UL 1998			
	Advanced Grid Support Functionality	Rule 21, UL 1741SA			
	Testing Agency	ETL			
	FCC Compliance	FCC Part 15 (Subpart B, Class A)			
Warranty	Standard and Options	5 Years Standard; Option for 10 Years			
Enclosure	Acoustic Noise Rating	73 dBA @ 1 m ; 67dBA @ 3 m			
	DC Disconnect	Integrated 2-Pole 250 A DC Disconnect			
	Mounting Angle	Vertical only			
	Dimensions	Height: 29.5 in. (750 mm) | Width: 39.4 in. (1000 mm) | Depth: 15.1 in. (380 mm)			
	Weight	270 lbs (122 kg)			
	Enclosure Rating and Finish	Type 4X, Polyester Powder-Coated Aluminum			

IT'S PERSONAL

YASKAWA SOLECTRIA SOLAR

Yaskawa Solectria Solar 1-978-683-9700 | Email: inverters@solectria.com | solectria.com
Document No. FLXGI1500.01 | 05/03/2021 | © 2021 Yaskawa America, Inc.

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PROPOSED PHOTOVOLTAIC ARRAY
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EQUIPMENT SPECIFICATIONS

E-4