

PROPRIETARY INFORMATION: THIS DRAWING IS THE PROPERTY OF AMEC ENVIRONMENT & INFRASTRUCTURE AND IS NOT TO BE LOANED OR REPRODUCED IN ANY WAY WITHOUT THE PERMISSION OF AMEC ENVIRONMENT & INFRASTRUCTURE

SUNPIN ENERGY SERVICES, LLC

4.493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT

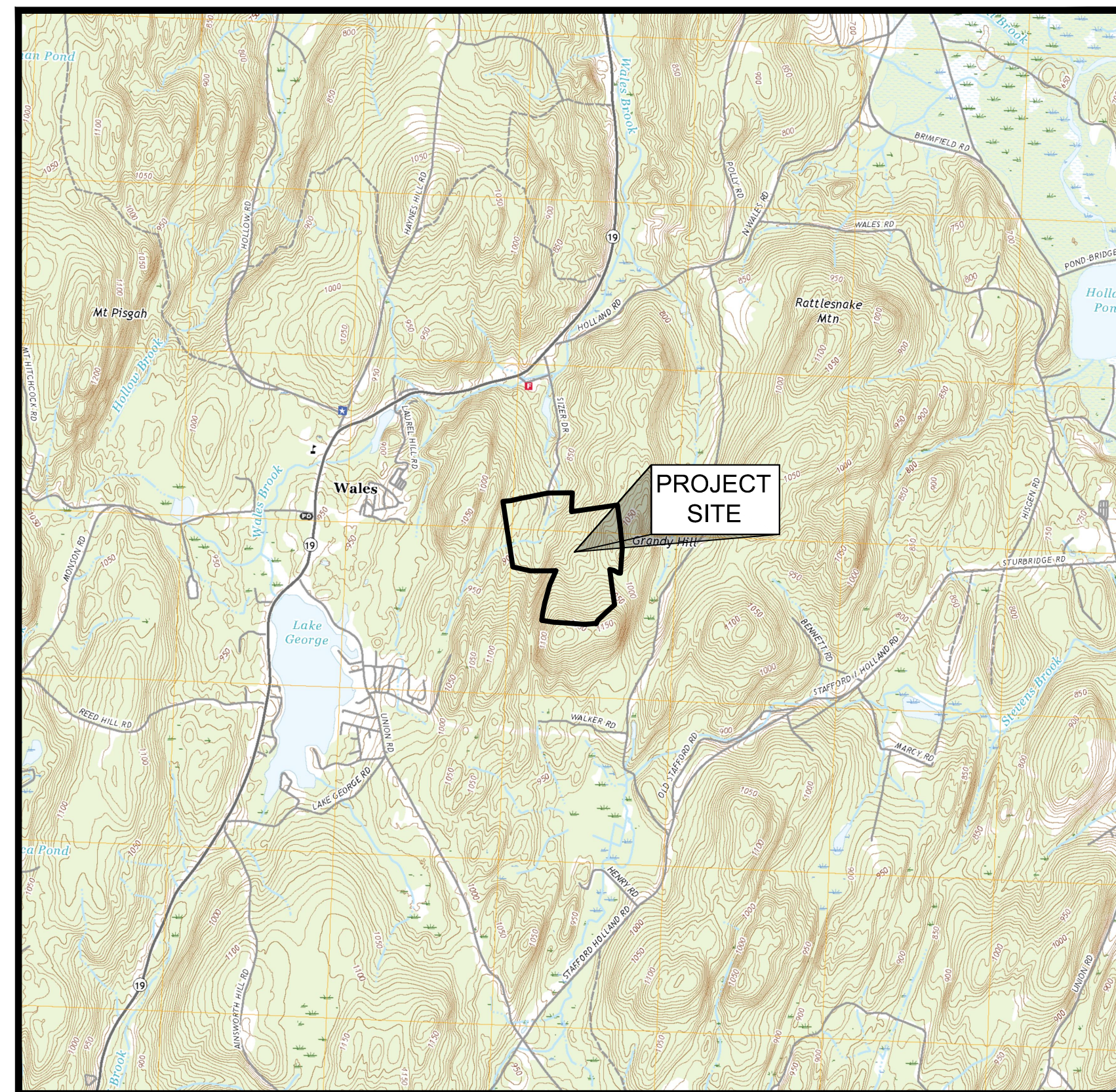
40 SIZER DRIVE

WALES, MASSACHUSETTS

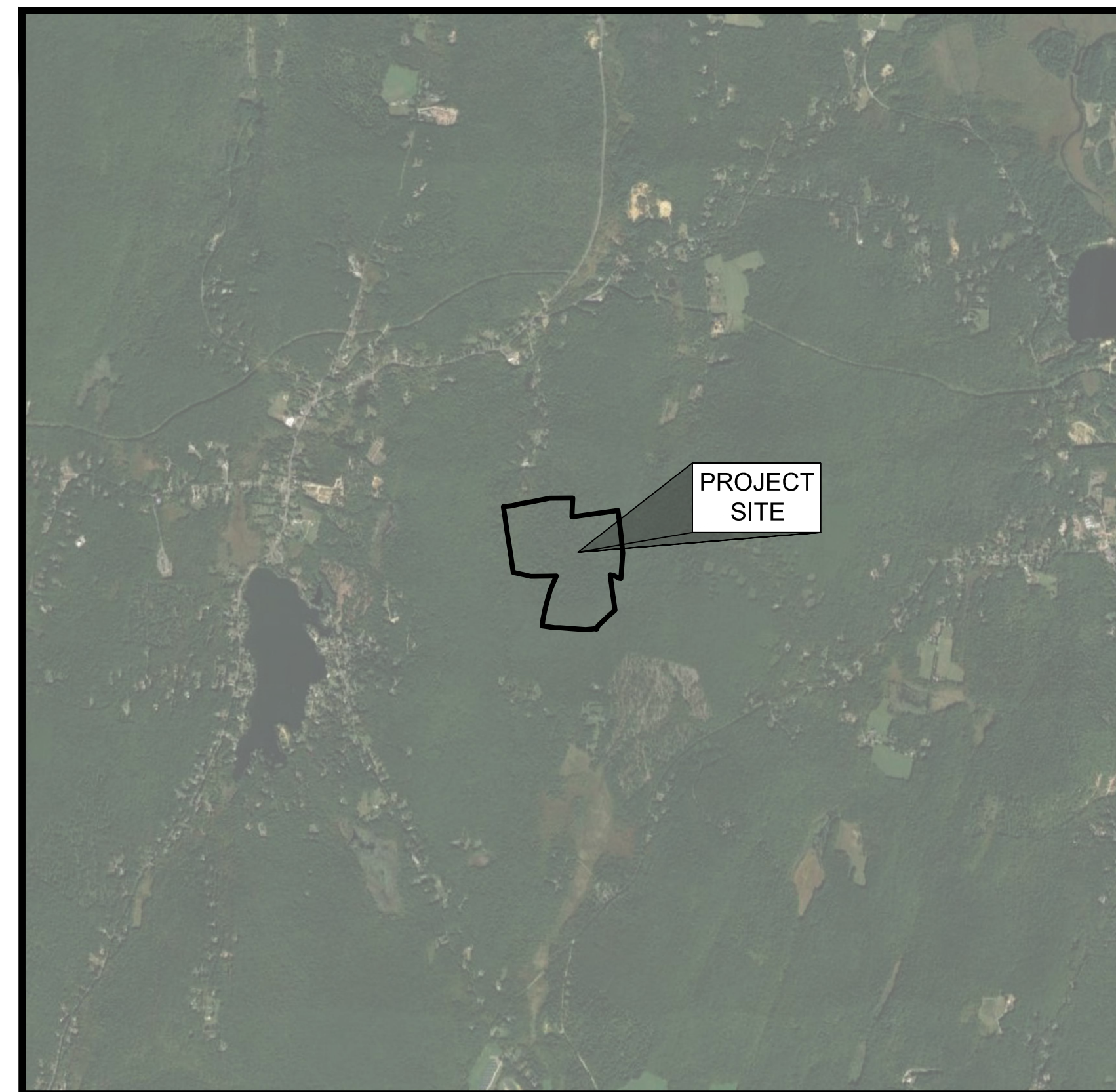
APRIL 29, 2021

LAST REVISED OCTOBER 28, 2021

ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION



LOCUS MAP
NOT TO SCALE



AERIAL IMAGE
NOT TO SCALE

DRAWING INDEX

SHEET NUMBER	DRAWING TITLE	DRAWING NUMBER
	COVER SHEET	
1	CONSTRUCTION, EROSION AND SEDIMENTATION CONTROL NOTES	G-001
2	EXISTING CONDITIONS PLAN	V-101
3	SHEET INDEX PLAN	C-101
4	PROPOSED SITE PLAN (SHEET 1 OF 2)	C-102
5	PROPOSED SITE PLAN (SHEET 2 OF 2)	C-103
6	PROPOSED GRADING AND DRAINAGE PLAN (SHEET 1 OF 2)	C-104
7	PROPOSED GRADING AND DRAINAGE PLAN (SHEET 2 OF 2)	C-105
8	STREAM/WETLAND CROSSING AREA	C-106
9	STREAM/WETLAND CROSSING NOTES AND DETAILS	C-107
10	DETAILS (SHEET 1 OF 2)	C-501
11	DETAILS (SHEET 2 OF 2)	C-502

PROPERTY OWNER

CINDY BOUCHER
40 SIZER DRIVE
WALES, MASSACHUSETTS 01081

DEVELOPED BY

SUNPIN ENERGY SERVICES, LLC



12424 WILSHIRE BOULEVARD, #750
LOS ANGELES, CA 90025

PREPARED BY

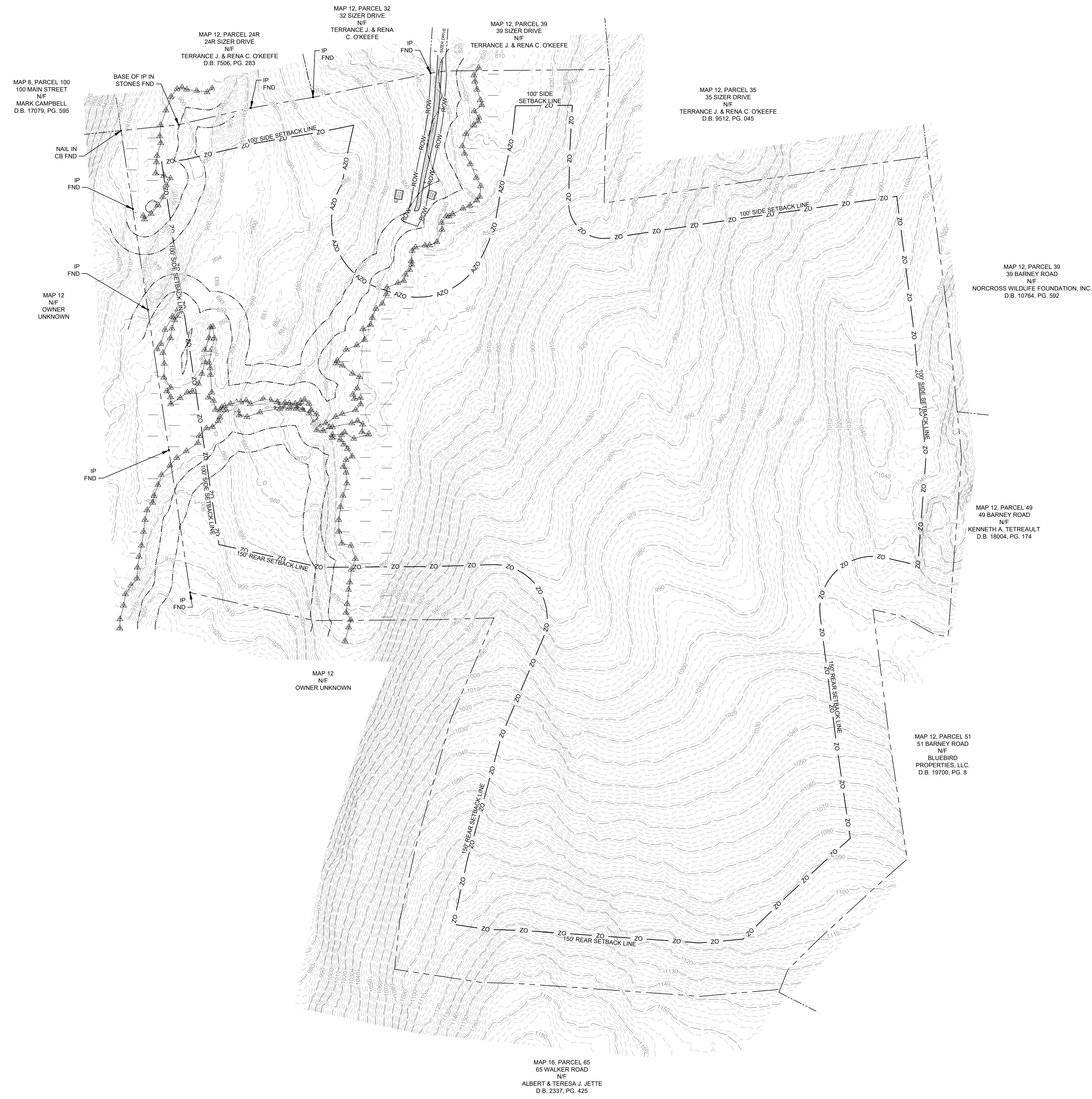


WOOD MASSACHUSETTS, INC.
271 MILL ROAD
CHELMSFORD, MASSACHUSETTS 01824

C:\Users\michael.willinson\Desktop\Sunpin Wales\Sheets\0 - 385200259 - C-000.dwg - Oct 28, 2021 8:05am - michael.willinson

NOTES:

- ELECTRONIC BASE PLAN FROM ANDREWS SURVEY & ENGINEERING, INC., 104 MENDON STREET, PO BOX 312, UXBRIDGE, MA 01569.



LEGEND:

---	PROPERTY LINE
- - - -	ABUTTER'S PROPERTY LINE
- - - -	APPROXIMATE RIGHT-OF-WAY
—ROW—	ROW
---	MAJOR CONTOUR
---	MINOR CONTOUR
—OHW—	OVERHEAD ELECTRIC LINE
---	WETLAND LINE
---	50' WETLAND BUFFER
---	100' WETLAND BUFFER
---	PROPERTY LINE SETBACK
---	APPROXIMATE PROPERTY LINE SETBACK
---	WETLAND AREA
---	PAVEMENT
○	UTILITY POLE
△	GUY POLE
△	WETLAND FLAG



REVISION	DATE	ISSUE / REVISION DESCRIPTION	ISSUED	APPROVED
6	10/28/2021	CC PEER REVIEW	MJW	APV
5	09/24/2021	CC PEER REVIEW	MJW	APV
4	06/29/2021	REVISED PER CONSERVATION COMMISSIONS	MJW	APV
3	05/20/2021	ISSUED TO CONSERVATION COMMISSION	MJW	APV
2	04/29/2021	CONSERVATION COMMISSION COMMENTS	MJW	APV
1	03/15/2021	CONSERVATION COMMISSION COMMENTS	MJW	APV
0	01/21/2021	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION	MJW	APV

PROJECT: **4.493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT 40 SIZER DRIVE WALES, MASSACHUSETTS**

TITLE: **EXISTING CONDITIONS PLAN**

CLIENT: **SUNPIN ENERGY SERVICES, LLC**

SEAL:

DESIGNED BY: MJW	DRAWN BY: DED
CHECKED BY: APV	SCALE: AS SHOWN
PROJECT NUMBER: 3652200259	
DRAWING NUMBER: V-101	
SHEET NUMBER: 2 OF 11	

ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

SHEET C-102
SHEET C-104

MAP 8, PARCEL 100
100 MAIN STREET
N/F
MARK CAMPBELL
D.B. 17079, PG. 595

MAP 12, PARCEL 24R
24R SIZER DRIVE
N/F
TERRANCE J. & RENA C. O'KEEFE
D.B. 7506, PG. 283

MAP 12, PARCEL 32
32 SIZER DRIVE
N/F
TERRANCE J. & RENA C. O'KEEFE

MAP 12, PARCEL 39
39 SIZER DRIVE
N/F
TERRANCE J. & RENA C. O'KEEFE

MAP 12, PARCEL 35
35 SIZER DRIVE
N/F
TERRANCE J. & RENA C. O'KEEFE
D.B. 9512, PG. 045

MAP 12, PARCEL 39
39 BARNEY ROAD
N/F
NORCROSS WILDLIFE FOUNDATION, INC.
D.B. 10764, PG. 592

MAP 12, PARCEL 49
49 BARNEY ROAD
N/F
KENNETH A. TETREAULT
D.B. 18004, PG. 174

MAP 12, PARCEL 51
51 BARNEY ROAD
N/F
BLUEBIRD
PROPERTIES, LLC.
D.B. 19700, PG. 8

MAP 12
N/F
OWNER
UNKNOWN

SHEET C-103
SHEET C-105

SHEET C-106

PHASE	AREA (AC)
1	3.5
2	3.7
3	2.8
4	3.3

SOIL EROSION & SEDIMENTATION CONTROL (SESC) CONSTRUCTION SEQUENCING:

- SURVEY AND FLAG LIMITS OF DISTURBANCE.
 - INSTALL PERIMETER EROSION CONTROL BARRIERS AND CONSTRUCTION EXIT. CONTRACTOR TO MAINTAIN AND SUPPLEMENT THROUGHOUT CONSTRUCTION WHERE EVIDENCE OF SEDIMENT EXTENDS BEYOND THE LIMIT OF DISTURBANCE (LOD).
 - CUT AND REMOVE TREES AND STUMPS WITHIN PROPOSED ACCESS ROAD AREA.
 - INSTALL WETLAND CROSSING CULVERT.
- PHASE START
- CUT AND REMOVE TREES AND STUMPS IN SEDIMENT TRAP AREA(S).
 - INSTALL TEMPORARY SEDIMENT TRAP(S).
 - COMPLETE TREE CUTTING, REMOVAL, AND STUMP GRINDING FOR REMAINDER OF PHASE AREA.
 - FOLLOWING TREE CUTTING, IMMEDIATELY APPLY HYDROSEED WITH TACKIFIER TO THE DISTURBED AREA IN ACCORDANCE WITH THE SEEDING AND REVEGETATION PLAN ON SHEET G-001.
 - REMOVE EXISTING PAVEMENT (IF APPLICABLE) AND SCARIFY UNDERLYING SOIL.
 - INSTALL THE CRUSHED STONE ACCESS ROAD.
 - INSTALL SOLAR POSTS, RACKING, PANELS, ELECTRICAL CONDUIT, EQUIPMENT, ETC.
 - REPAIR ANY RUTS OR RILLS PRESENT AS A RESULT OF CONSTRUCTION OPERATIONS.
 - OVERSEED THE SITE WITH POLLINATOR MIX IN ACCORDANCE WITH THE SEEDING AND REVEGETATION PLAN ON SHEET G-001.
 - FOLLOWING ESTABLISHMENT OF VEGETATION, INSTALL BIORETENTION BASIN(S).
- PHASE END
- MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED WITH VEGETATION AND NO OBVIOUS EVIDENCE OF EROSION IN THE PROJECT LIMITS IS OBSERVED. ANY CONSTRUCTION SEDIMENT DISCOVERED BEYOND THE LOD SHALL BE PROMPTLY REMOVED AND DAMAGED EROSION CONTROLS SHALL BE REPAIRED. ONCE PROPER VEGETATION ESTABLISHMENT HAS OCCURRED, THE TEMPORARY SEDIMENT TRAPS AND SEDIMENT BARRIERS SHALL BE REMOVED.

NOTES:

- ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.



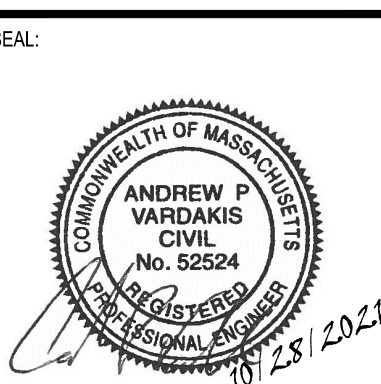
WOOD MASSACHUSETTS, INC.
271 MILL ROAD CHELMSFORD
MASSACHUSETTS 01864
TELEPHONE: (978) 692-9090
FAX: (978) 692-6633
WEB: WWW.WOODPLC.COM

REVISION	DATE	ISSUE / REVISION DESCRIPTION
6	10/28/2021	CC PEER REVIEW
5	09/24/2021	CC PEER REVIEW
4	06/29/2021	REVISED PER CONSERVATION COMMISSIONS
3	05/20/2021	ISSUED TO CONSERVATION COMMISSION
2	04/29/2021	CONSERVATION COMMISSION COMMENTS
1	03/15/2021	CONSERVATION COMMISSION COMMENTS
0	01/21/2021	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

PROJECT:
**4.493 MW DC GROUND-MOUNT SOLAR PV
DEVELOPMENT
40 SIZER DRIVE
WALES, MASSACHUSETTS**

SHEET INDEX & PHASING PLAN

CLIENT:
**SUNPIN ENERGY
SERVICES, LLC**

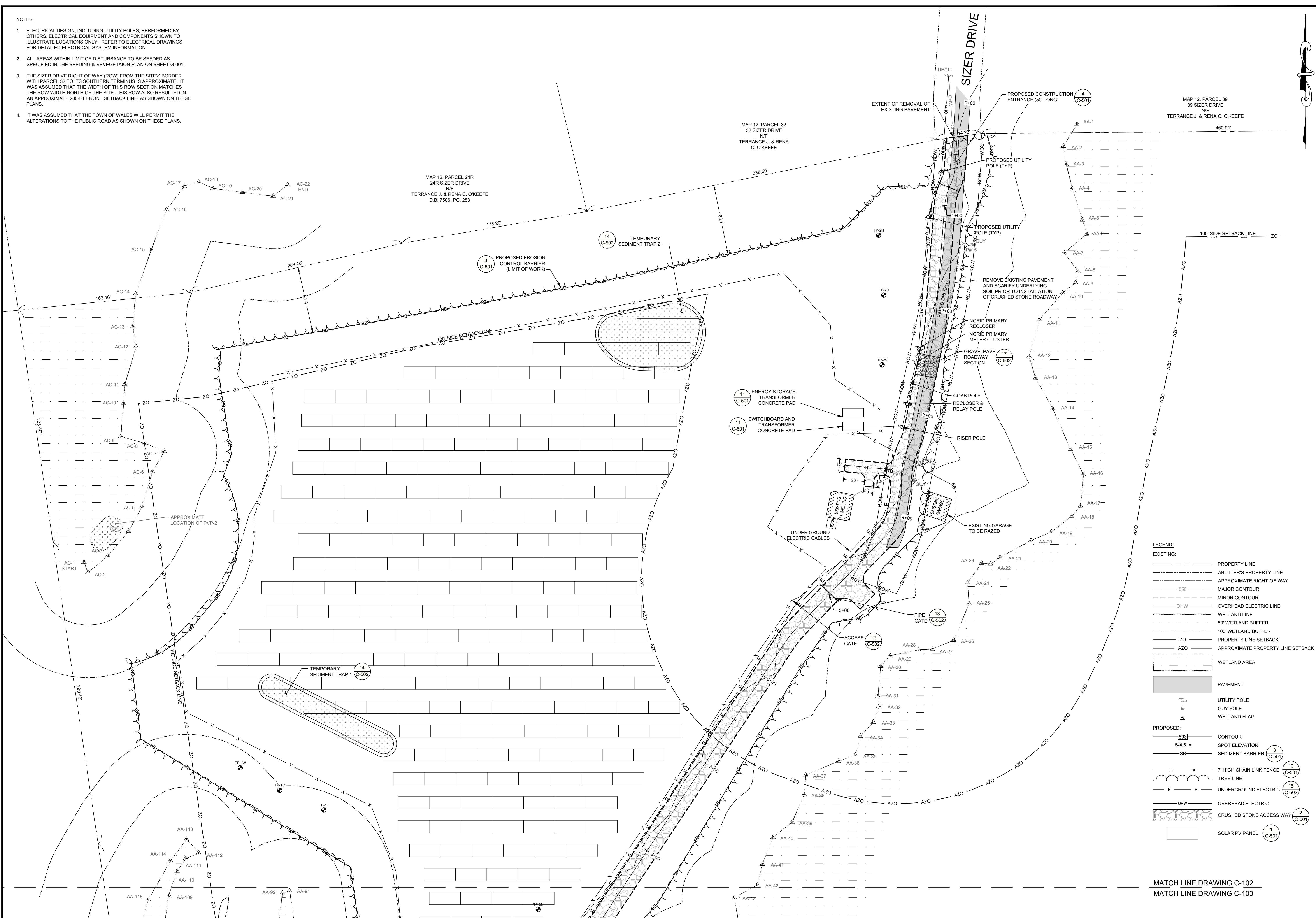


DESIGNED BY: MJW	DRAWN BY: DED
CHECKED BY: APV	SCALE: AS SHOWN
PROJECT NUMBER: 3652200259	
DRAWING NUMBER: C-101	
SHEET NUMBER: 3 OF 11	

ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

NOTES:

- ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.
- ALL AREAS WITHIN LIMIT OF DISTURBANCE TO BE SEEDED AS SPECIFIED IN THE SEEDING & REVEGETATION PLAN ON SHEET G-001.
- THE SIZER DRIVE RIGHT OF WAY (ROW) FROM THE SITE'S BORDER WITH PARCEL 32 TO ITS SOUTHERN TERMINUS IS APPROXIMATE. IT WAS ASSUMED THAT THE WIDTH OF THIS ROW SECTION MATCHES THE ROW WIDTH NORTH OF THE SITE. THIS ROW ALSO RESULTED IN AN APPROXIMATE 200-FT FRONT SETBACK LINE, AS SHOWN ON THESE PLANS.
- IT WAS ASSUMED THAT THE TOWN OF WALES WILL PERMIT THE ALTERATIONS TO THE PUBLIC ROAD AS SHOWN ON THESE PLANS.



LEGEND:

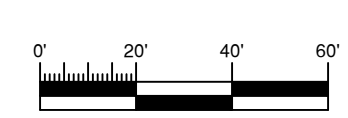
EXISTING:

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- APPROXIMATE RIGHT-OF-WAY
- MAJOR CONTOUR
- MINOR CONTOUR
- OVERHEAD ELECTRIC LINE
- WETLAND LINE
- 50' WETLAND BUFFER
- 100' WETLAND BUFFER
- PROPERTY LINE SETBACK
- APPROXIMATE PROPERTY LINE SETBACK
- WETLAND AREA
- PAVEMENT
- UTILITY POLE
- GUY POLE
- WETLAND FLAG

PROPOSED:

- CONTOUR
- SPOT ELEVATION
- SEDIMENT BARRIER (C-501)
- 7' HIGH CHAIN LINK FENCE (C-501)
- TREE LINE
- UNDERGROUND ELECTRIC (C-502)
- OVERHEAD ELECTRIC
- CRUSHED STONE ACCESS WAY (2) (C-501)
- SOLAR PV PANEL (1) (C-501)

MATCH LINE DRAWING C-102
MATCH LINE DRAWING C-103



NO.	DATE	REVISION	ISSUE / REVISION DESCRIPTION
6	10/28/2021		CC PEER REVIEW
5	09/24/2021		CC PEER REVIEW
4	06/29/2021		REVISED PER CONSERVATION COMMISSIONS
3	05/20/2021		ISSUED TO CONSERVATION COMMISSION
2	04/29/2021		CONSERVATION COMMISSION COMMENTS
1	03/15/2021		CONSERVATION COMMISSION COMMENTS
0	01/21/2021		ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

PROJECT: 4.493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT
40 SIZER DRIVE
WALES, MASSACHUSETTS

TITLE: PROPOSED SITE PLAN
(SHEET 1 OF 2)

SUNPIN ENERGY SERVICES, LLC

SUNPIN
Securing a brighter future through solar

SEAL:

DESIGNED BY: MJW
DRAWN BY: DED

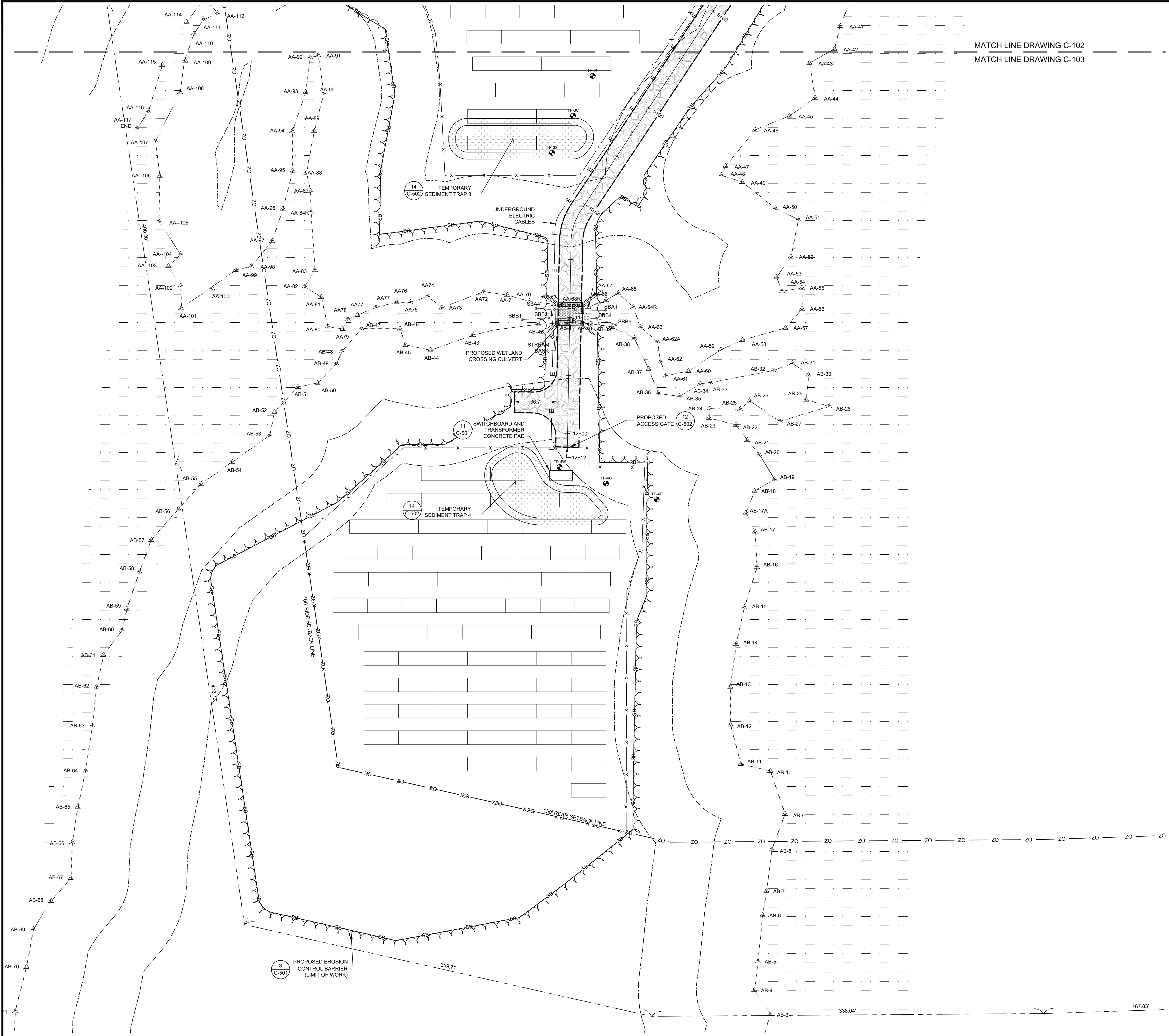
CHECKED BY: APV
SCALE: AS SHOWN

PROJECT NUMBER: 3652200259

DRAWING NUMBER: C-102

SHEET NUMBER: 4 OF 11

MATCH LINE DRAWING C-102
MATCH LINE DRAWING C-103



LEGEND:

EXISTING:

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- ROW - ROW APPROXIMATE RIGHT-OF-WAY
- MAJOR CONTOUR
- MINOR CONTOUR
- OHW - OVERHEAD ELECTRIC LINE
- WETLAND LINE
- 50' WETLAND BUFFER
- 100' WETLAND BUFFER
- ZO - PROPERTY LINE SETBACK
- AZO - APPROXIMATE PROPERTY LINE SETBACK
- WETLAND AREA
- PAVEMENT
- UTILITY POLE
- GUY POLE
- WETLAND FLAG

PROPOSED:

- CONTOUR
- SPOT ELEVATION
- SEDIMENT BARRIER
- 7' HIGH CHAIN LINK FENCE
- TREE LINE
- UNDERGROUND ELECTRIC
- OVERHEAD ELECTRIC
- CRUSHED STONE ACCESS WAY
- SOLAR PV PANEL

- NOTES:**
- ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.
 - ALL AREAS WITHIN LIMIT OF DISTURBANCE TO BE SEEDED AS SPECIFIED IN THE SEEDING & REVEGETATION PLAN ON SHEET G-001.



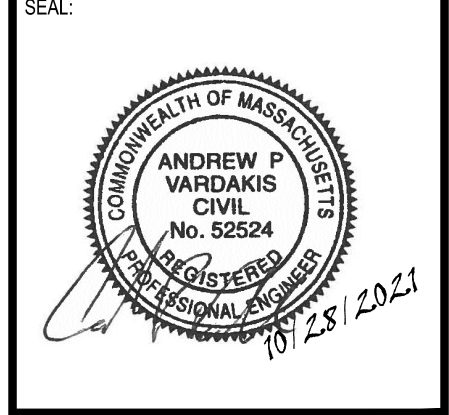
REVISION	DATE	ISSUE / REVISION DESCRIPTION	ISSUED	APPROVED
6	10/28/2021	CC PEER REVIEW	MJW	APV
5	09/24/2021	REVISED PER CONSERVATION COMMISSIONS	MJW	APV
4	06/29/2021	ISSUED TO CONSERVATION COMMISSION	MJW	APV
3	05/20/2021	CONSERVATION COMMISSION COMMENTS	MJW	APV
2	04/29/2021	CONSERVATION COMMISSION COMMENTS	MJW	APV
1	03/15/2021	CONSERVATION COMMISSION COMMENTS	MJW	APV
0	01/21/2021	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION	MJW	APV

PROJECT: 4.493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT
40 SIZER DRIVE
WALLES, MASSACHUSETTS

TITLE: PROPOSED SITE PLAN
(SHEET 2 OF 2)

CLIENT: SUNPIN ENERGY SERVICES, LLC

SUNPIN
Securing a brighter future through solar



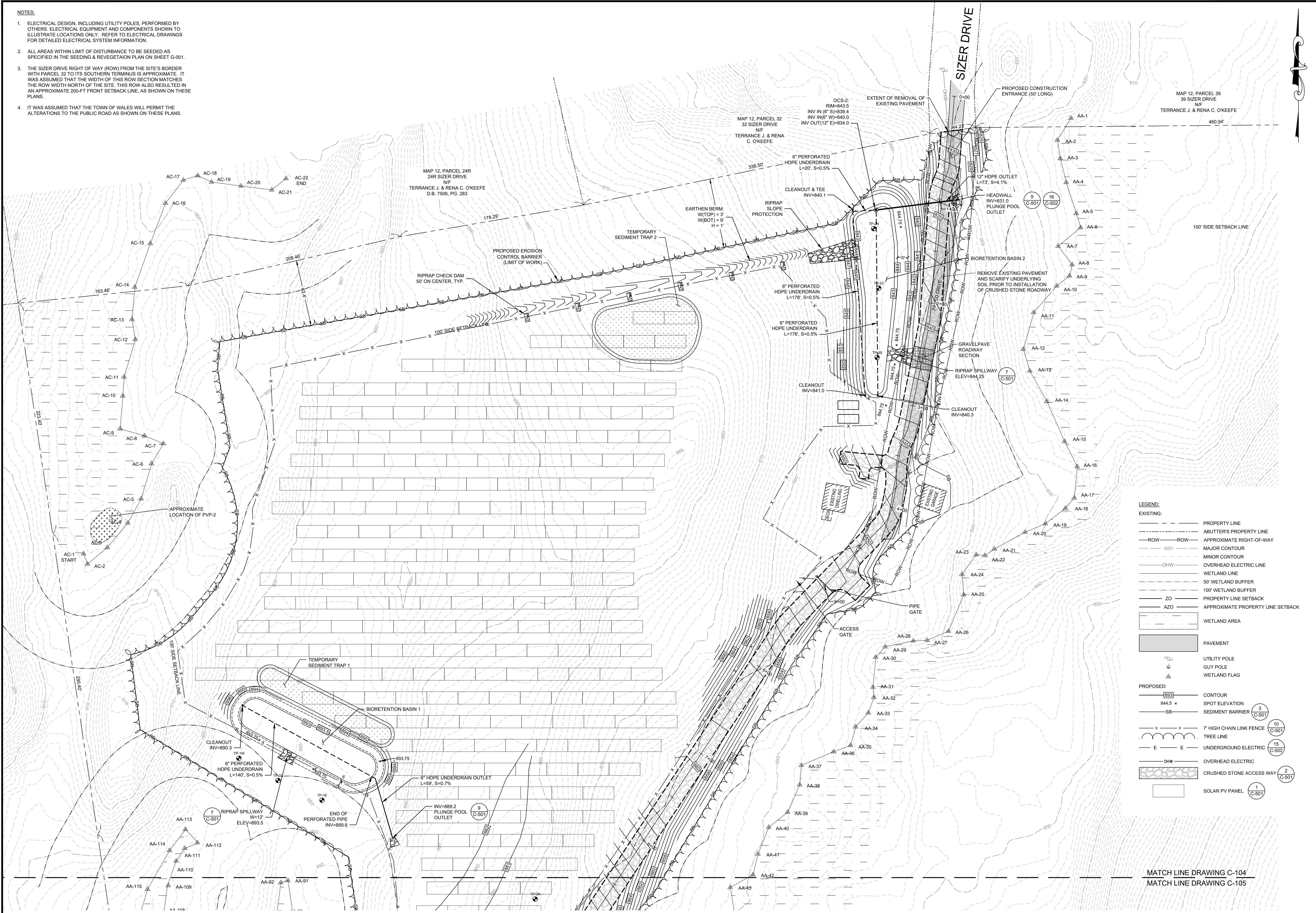
DESIGNED BY: MJW
CHECKED BY: APV
PROJECT NUMBER: 3652200259
DRAWING NUMBER: C-103
SHEET NUMBER: 5 OF 11

DRAWN BY: DED
SCALE: AS SHOWN

ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

NOTES:

- ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.
- ALL AREAS WITHIN LIMIT OF DISTURBANCE TO BE SEEDED AS SPECIFIED IN THE SEEDING & REVEGETATION PLAN ON SHEET G-001.
- THE SIZER DRIVE RIGHT OF WAY (ROW) FROM THE SITE'S BORDER WITH PARCEL 32 TO ITS SOUTHERN TERMINUS IS APPROXIMATE. IT WAS ASSUMED THAT THE WIDTH OF THIS ROW SECTION MATCHES THE ROW WIDTH NORTH OF THE SITE. THIS ROW ALSO RESULTED IN AN APPROXIMATE 200-FT FRONT SETBACK LINE, AS SHOWN ON THESE PLANS.
- IT WAS ASSUMED THAT THE TOWN OF WALES WILL PERMIT THE ALTERATIONS TO THE PUBLIC ROAD AS SHOWN ON THESE PLANS.



LEGEND:

EXISTING:

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- APPROXIMATE RIGHT-OF-WAY
- MAJOR CONTOUR
- MINOR CONTOUR
- OVERHEAD ELECTRIC LINE
- WETLAND LINE
- 50' WETLAND BUFFER
- 100' WETLAND BUFFER
- PROPERTY LINE SETBACK
- APPROXIMATE PROPERTY LINE SETBACK
- WETLAND AREA
- PAVEMENT
- UTILITY POLE
- GUY POLE
- WETLAND FLAG

PROPOSED:

- CONTOUR
- SPOT ELEVATION
- SEDIMENT BARRIER
- 7' HIGH CHAIN LINK FENCE
- TREE LINE
- UNDERGROUND ELECTRIC
- OVERHEAD ELECTRIC
- CRUSHED STONE ACCESS WAY
- SOLAR PV PANEL

wood.

WOOD MASSACHUSETTS, INC.
271 MILL ROAD CHELMSFORD
MASSACHUSETTS 01864
TELEPHONE: (978) 692-9090
FAX: (978) 692-6633
WEB: WWW.WOODPLC.COM

NO.	DATE	REVISION	ISSUE / REVISION DESCRIPTION
6	10/28/2021		CC PEER REVIEW
5	09/24/2021		CC PEER REVIEW
4	06/29/2021		REVISED PER CONSERVATION COMMISSIONS
3	05/20/2021		ISSUED TO CONSERVATION COMMISSION
2	04/29/2021		CONSERVATION COMMISSION COMMENTS
1	03/15/2021		CONSERVATION COMMISSION COMMENTS
0	01/21/2021		ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

PROJECT: 4.493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT
40 SIZER DRIVE
WALES, MASSACHUSETTS

TITLE: PROPOSED GRADING AND DRAINAGE PLAN (SHEET 1 OF 2)

CLIENT: SUNPIN ENERGY SERVICES, LLC

SUNPIN
Securing a brighter future through solar

SEAL:

DESIGNED BY: MJW
DRAWN BY: DED

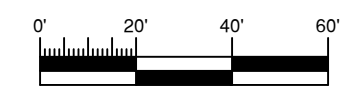
CHECKED BY: APV
SCALE: AS SHOWN

PROJECT NUMBER: 3652200259

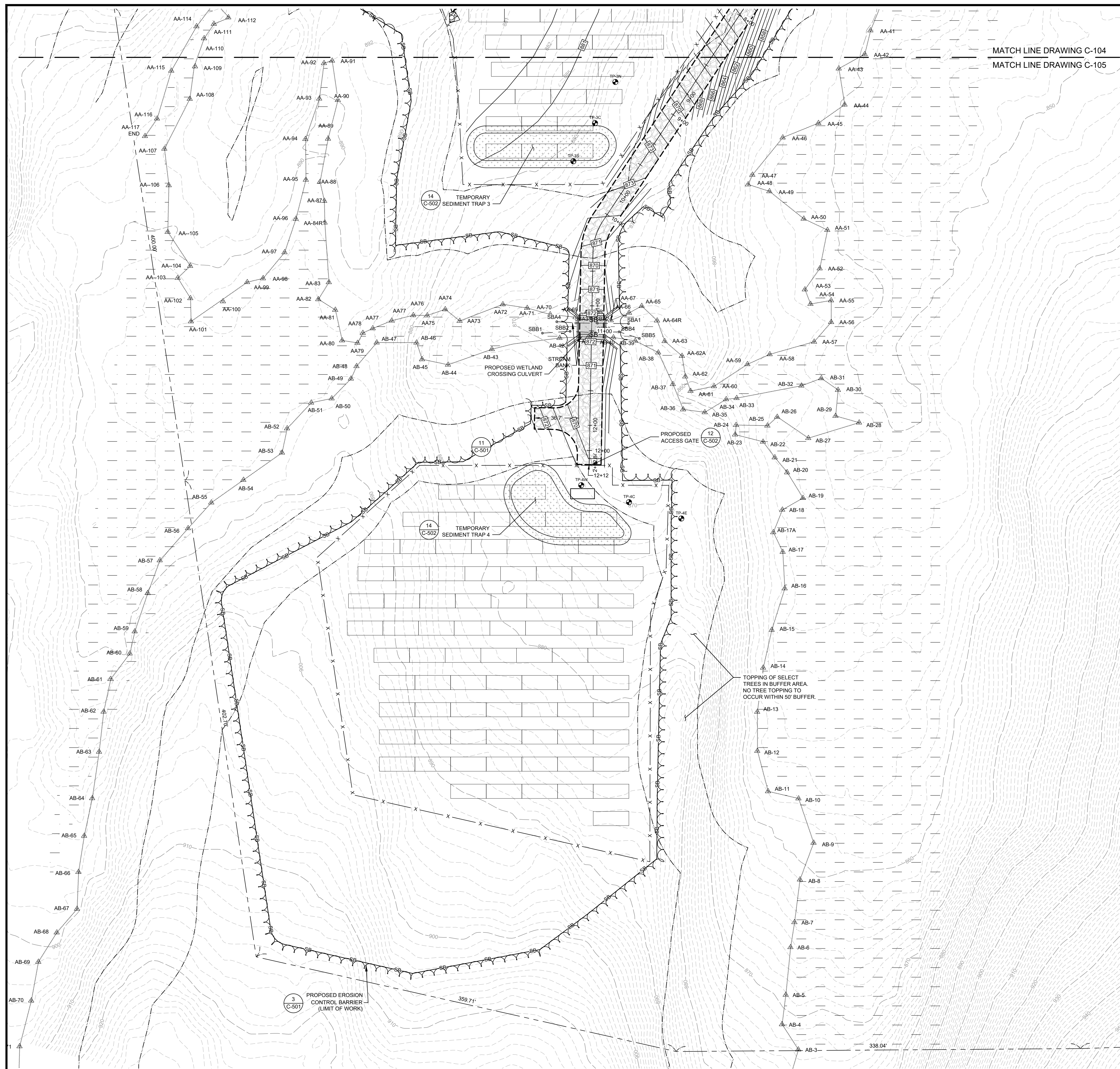
DRAWING NUMBER: C-104

SHEET NUMBER: 6 OF 11

MATCH LINE DRAWING C-104
MATCH LINE DRAWING C-105



ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

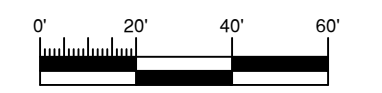



MATCH LINE DRAWING C-104
MATCH LINE DRAWING C-105

LEGEND:

EXISTING:	
---	PROPERTY LINE
---	ADJUTER'S PROPERTY LINE
---	APPROXIMATE RIGHT-OF-WAY
---	MAJOR CONTOUR
---	MINOR CONTOUR
---	OVERHEAD ELECTRIC LINE
---	WETLAND LINE
---	50' WETLAND BUFFER
---	100' WETLAND BUFFER
---	PROPERTY LINE SETBACK
---	APPROXIMATE PROPERTY LINE SETBACK
WETLAND AREA	
PAVEMENT	
○	UTILITY POLE
△	GUY POLE
△	WETLAND FLAG
PROPOSED:	
---	CONTOUR
844.5 x	SPOT ELEVATION
SB	SEDIMENT BARRIER (3 C-501)
x x	7' HIGH CHAIN LINK FENCE (10 C-501)
~ ~ ~	TREE LINE
E E	UNDERGROUND ELECTRIC (15 C-502)
OHW	OVERHEAD ELECTRIC
---	CRUSHED STONE ACCESS WAY (2 C-501)
□	SOLAR PV PANEL (1 C-501)

- NOTES:**
- ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.
 - ALL AREAS WITHIN LIMIT OF DISTURBANCE TO BE SEEDED AS SPECIFIED IN THE SEEDING & REVEGETATION PLAN ON SHEET G-001.





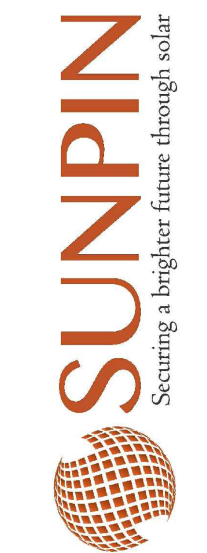
WOOD MASSACHUSETTS, INC.
271 MILL ROAD CHELMSFORD
MASSACHUSETTS 01864
TELEPHONE: (978) 692-9090
FAX: (978) 692-6633
WEB: WWW.WOODPLC.COM

REVISION	DATE	ISSUE / REVISION DESCRIPTION
6	10/28/2021	CC PEER REVIEW
5	09/24/2021	CC PEER REVIEW
4	06/29/2021	REVISED PER CONSERVATION COMMISSIONS
3	05/20/2021	ISSUED TO CONSERVATION COMMISSION
2	04/29/2021	CONSERVATION COMMISSION COMMENTS
1	03/15/2021	CONSERVATION COMMISSION COMMENTS
0	01/21/2021	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION
APV		APPROVED

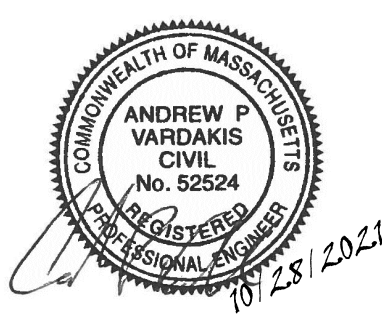
PROJECT: 4.493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT
40 SIZER DRIVE
WALLES, MASSACHUSETTS

TITLE: PROPOSED GRADING AND DRAINAGE PLAN
(SHEET 2 OF 2)

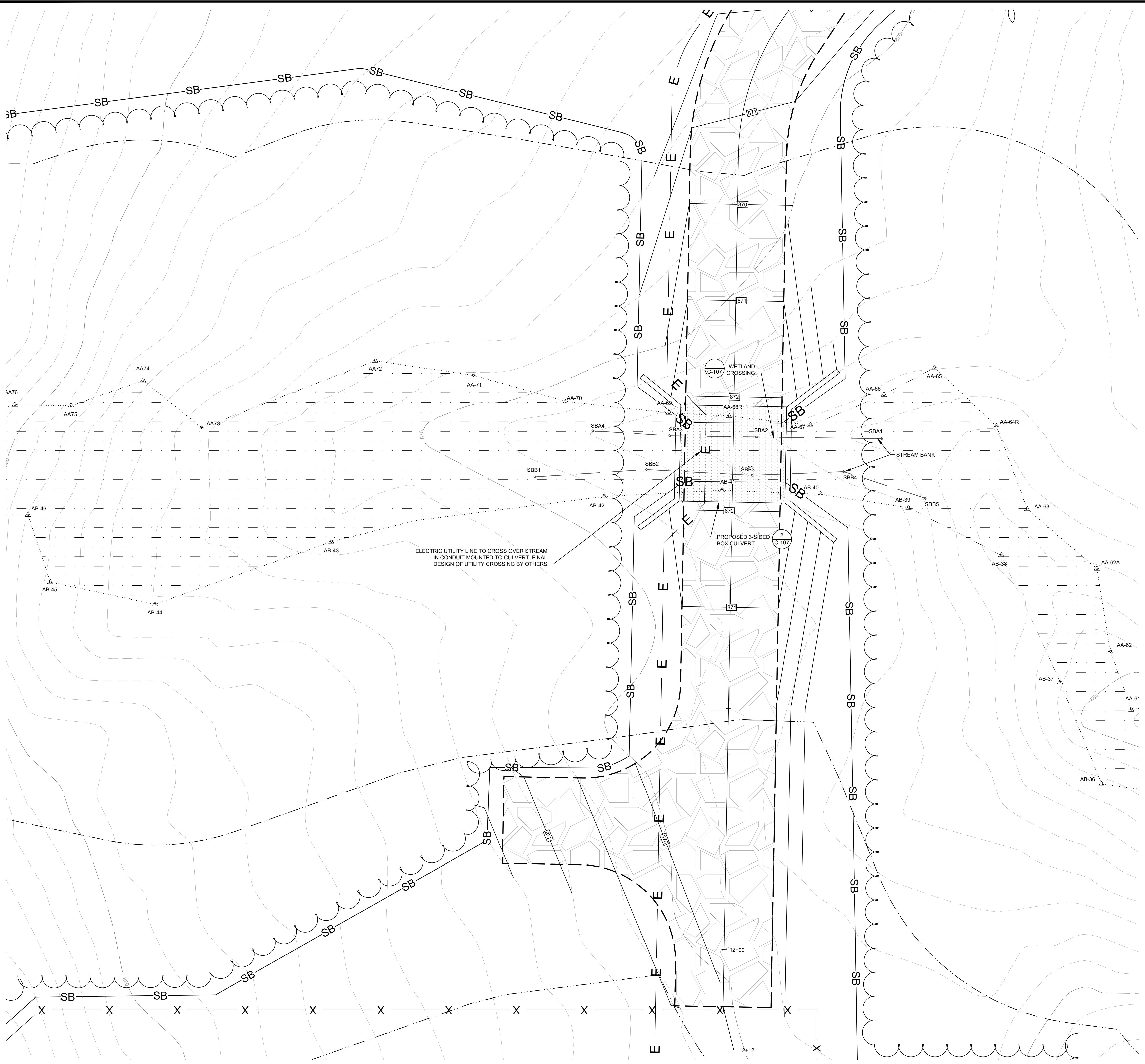
CLIENT: SUNPIN ENERGY SERVICES, LLC



Securing a brighter future through solar



DESIGNED BY: M/W	DRAWN BY: DED
CHECKED BY: APV	SCALE: AS SHOWN
PROJECT NUMBER: 3652200259	DRAWING NUMBER: C-105
SHEET NUMBER: 7 OF 11	



LEGEND:

EXISTING:

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- APPROXIMATE RIGHT-OF-WAY
- MAJOR CONTOUR
- MINOR CONTOUR
- OVERHEAD ELECTRIC LINE
- WETLAND LINE
- 50' WETLAND BUFFER
- 100' WETLAND BUFFER
- PROPERTY LINE SETBACK
- APPROXIMATE PROPERTY LINE SETBACK
- WETLAND AREA

PROPOSED:

- CONTOUR
- SPOT ELEVATION
- SEDIMENT BARRIER
- 7' HIGH CHAIN LINK FENCE
- TREE LINE
- UNDERGROUND ELECTRIC
- OVERHEAD ELECTRIC
- CRUSHED STONE ACCESS WAY
- SOLAR PV PANEL

SYMBOLS:

- UTILITY POLE
- GUY POLE
- WETLAND FLAG



WOOD MASSACHUSETTS, INC.
271 MILL ROAD CHELMSFORD
MASSACHUSETTS 01864
TELEPHONE: (978) 692-9090
FAX: (978) 692-6633
WEB: WWW.WOODPLC.COM

REVISION	DATE	ISSUE / REVISION DESCRIPTION	APPROVED
6	10/28/2021	CC PEER REVIEW	APV
5	09/24/2021	CC PEER REVIEW	APV
4	06/29/2021	REVISED PER CONSERVATION COMMISSIONS	APV
3	05/20/2021	ISSUED TO CONSERVATION COMMISSION	APV
2	04/29/2021	CONSERVATION COMMISSION COMMENTS	APV
1	03/15/2021	CONSERVATION COMMISSION COMMENTS	APV
0	01/21/2021	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION	APV

PROJECT: 4.493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT
40 SIZER DRIVE
WALLES, MASSACHUSETTS

TITLE:
STREAM/WETLAND CROSSING AREA

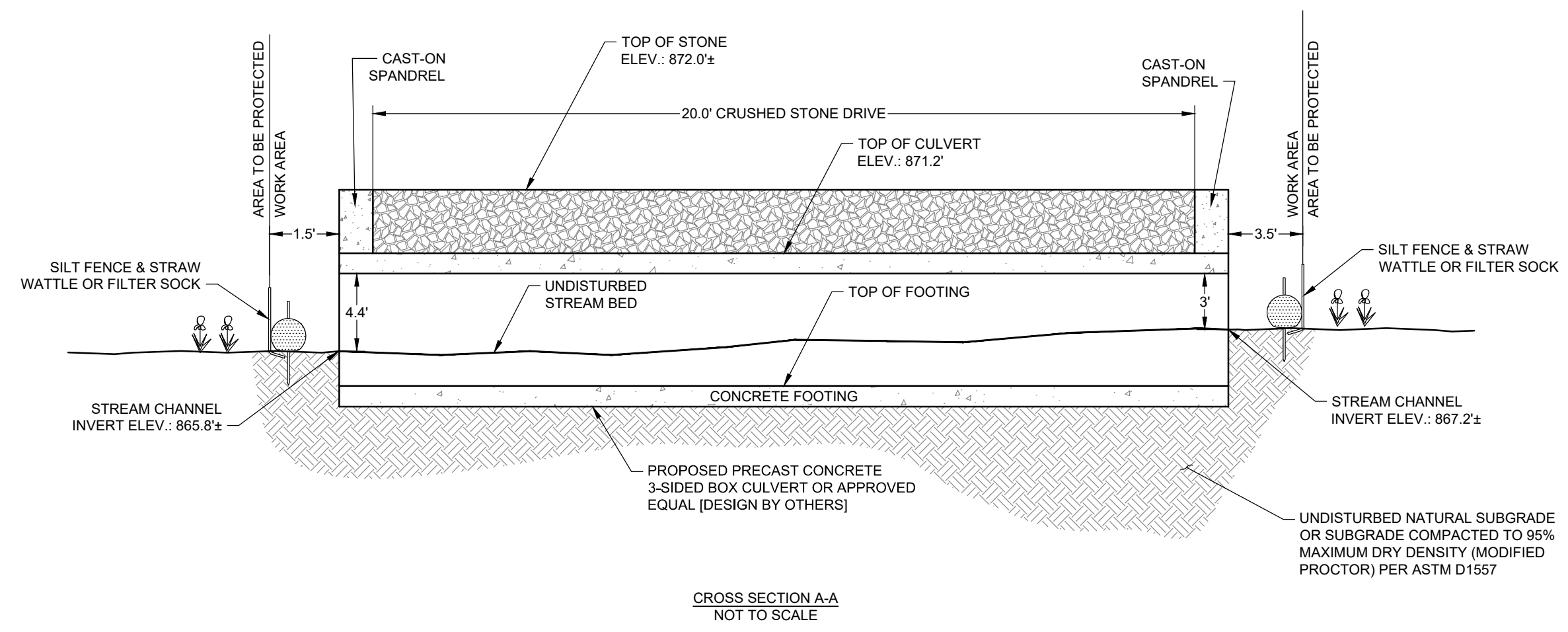
CLIENT: SUNPIN ENERGY SERVICES, LLC

Securing a brighter future through solar

DESIGNED BY: MJW
CHECKED BY: APV
PROJECT NUMBER: 3652200259

DRAWN BY: DED
SCALE: AS SHOWN
DRAWING NUMBER: C-106
SHEET NUMBER: 8 OF 11

PERFORMANCE STANDARD:	STANDARDS MET AT STREAM CROSSING:
1. TYPE OF CROSSING • GENERAL: SPANS (BRIDGES, 3-SIDED BOX CULVERTS, OPEN BOTTOM CULVERTS OR ARCHES) ARE STRONGLY PREFERRED. • OPTIMUM: USE A BRIDGE.	A 3-SIDED BOX CULVERT THAT SPANS THE EXISTING STREAM HAS BEEN PROPOSED.
2. EMBEDMENT • ALL CULVERTS SHOULD BE EMBEDDED (SUNK INTO STREAM) A MINIMUM OF 2 FEET, AND ROUND PIPE CULVERTS AT LEAST 25%. • IF PIPE CULVERT CANNOT BE EMBEDDED THIS DEEP, THEN THEY SHOULD NOT BE USED. • WHEN EMBEDMENT MATERIAL INCLUDED ELEMENTS > 15 INCHES IN DIAMETER, EMBEDMENT DEPTHS SHOULD BE AT LEAST TWICE THE D84 (PARTICLE WIDTH LARGER THAN 84% OF PARTICLES) OF THE EMBEDMENT MATERIAL.	A 3-SIDED BOX CULVERT THAT SPANS THE EXISTING STREAM HAS BEEN PROPOSED. THERE IS NO EMBEDDING THAT WILL BE INCORPORATED INTO THIS STREAM CROSSING.
3. CROSSING SPAN • GENERAL: SPANS CHANNEL WIDTH (A MINIMUM OF 1.2 TIMES THE BANKFULL WIDTH OF THE STREAM). • OPTIMUM: SPANS THE STREAMBED AND BANKS (AT LEAST 1.2 TIMES BANKFULL WIDTH) WITH SUFFICIENT HEADROOM TO PROVIDE DRY PASSAGE FOR WILDLIFE.	THE EXISTING BANKFULL WIDTH OF THE STREAM IS APPROXIMATELY 8 FEET. THE PROPOSED SPAN OF THE 3-SIDED BOX CULVERT IS 18 FEET WHICH IS 2.25 TIMES THE WIDTH OF THE EXISTING BANKFULL STREAM.
4. OPENNESS • GENERAL: OPENNESS RATIO (CROSS SECTIONAL AREA/CROSSING LENGTH) OF AT LEAST 0.82 FEET (0.25 METERS). THE CROSSING SHOULD BE WIDE AND HIGH RELATIVE TO ITS LENGTH. • OPTIMUM: OPENNESS RATIO OF AT LEAST 1.64 FEET (0.5 METERS) AND MINIMUM HEIGHT OF 6 FEET. IF CONDITION SIGNIFICANTLY REDUCE WILDLIFE PASSAGE NEAR A CROSSING (E.G. STEEP EMBANKMENTS, HIGH TRAFFIC VOLUMES, AND PHYSICAL BARRIERS), MAINTAIN A MINIMUM HEIGHT OF 8 FEET (2.4 METERS) AND OPENNESS RATIO OF 2.46 FEET (0.75 METERS).	X-SEC CULVERT AREA PRE-EMBED - EMBEDDED AREA CULVERT LENGTH $97 \text{ S.F.} - 43 \text{ S.F.} = 2.45$ (UPSTREAM END) 22 FEET $97 \text{ S.F.} - 18 \text{ S.F.} = 3.60$ FEET (DOWNSTREAM END) 22 FEET THE PROPOSED 3-SIDED BOX CULVERT MEETS THE GENERAL AND OPTIMUM STREAM CROSSING STANDARDS.
5. CROSSING SPAN • NATURAL BOTTOM SUBSTRATE SHOULD BE USED WITHIN THE CROSSING AND IT SHOULD MATCH THE UPSTREAM AND DOWNSTREAM SUBSTRATES. THE SUBSTRATE AND DESIGN SHOULD RESIST DISPLACEMENT DURING FLOWS AND MAINTAIN APPROPRIATE BOTTOM DURING NORMAL FLOWS.	A 3-SIDED BOX CULVERT THAT SPANS THE EXISTING STREAM HAS BEEN PROPOSED. THERE IS NO EMBEDDING THAT WILL BE INCORPORATED INTO THIS STREAM CROSSING AND THE NATURAL STREAM BED WILL BE UTILIZED. EROSION CONTROL WILL BE PLACED ON BOTH SIDES OF THE NATURAL CHANNEL.
6. WATER DEPTH AND VELOCITY • WATER DEPTHS AND VELOCITIES ARE COMPARABLE TO THOSE FOUND IN THE NATURAL CHANNEL AT A VARIETY OF FLOWS.	A 3-SIDED BOX CULVERT THAT SPANS THE EXISTING INTERMITTENT STREAM HAS BEEN PROPOSED AND THE NATURAL GRADES WILL BE UTILIZED. HOLDING CURRENT ELEVATIONS, DEPTHS AND VELOCITIES WHEN WATER IS PRESENT IS COMPARABLE.

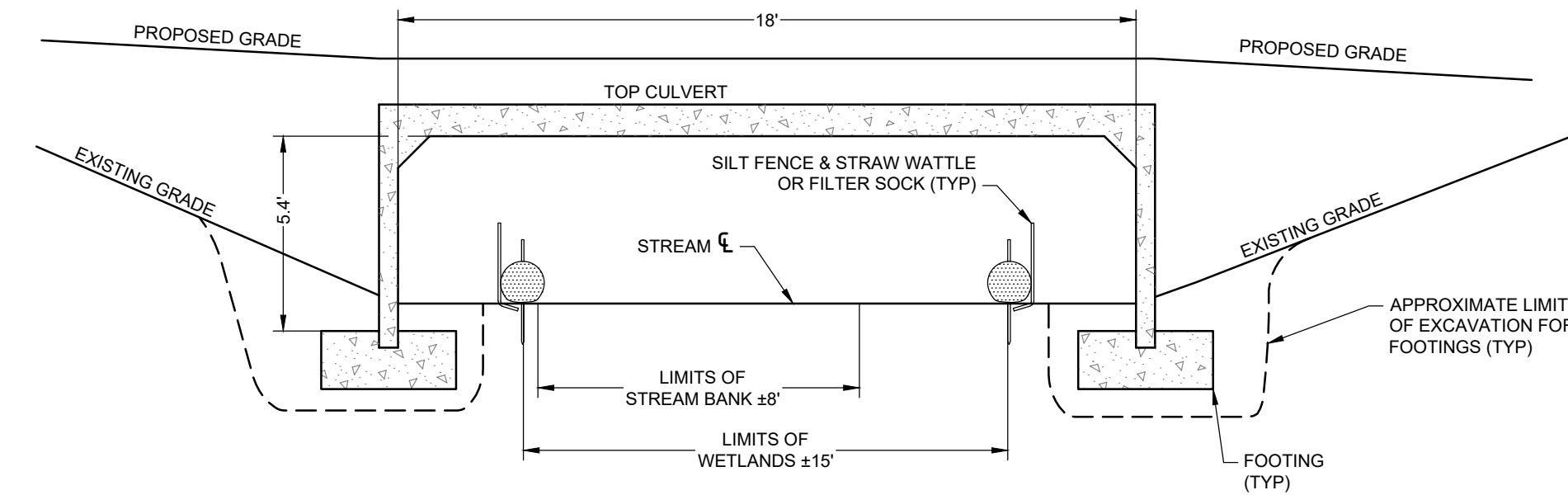


WETLAND CROSSING
NOT TO SCALE

1

NOTES:

1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN PER ASTM C1504 SPECIFICATION FOR 3-SIDED CULVERT.
3. ALL REINFORCEMENT PER ASTM A-615-75.
4. DESIGN AASHTO H-20 LOADING.
5. TONGUE AND GROOVE JOINT SEALED WITH BUTYL RESIN.
6. STRUCTURAL DESIGN TO BE PERFORMED BY OTHERS. CROSS-SECTIONAL GEOMETRY OF CULVERT TO BE MAINTAINED AS SHOWN ON THESE PLANS.



PRECAST CONCRETE 3-SIDED BOX CULVERT
NOT TO SCALE

2

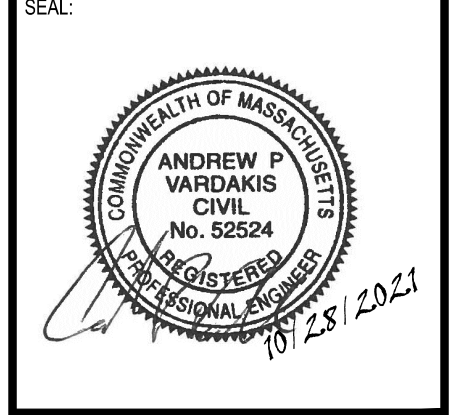
REVISION	DATE	ISSUE / REVISION DESCRIPTION	APV	APV	APV	APV	APV	APV	APV	APV
6	10/28/2021	CC PEER REVIEW								
5	09/24/2021	CC PEER REVIEW								
4	06/29/2021	REVISED PER CONSERVATION COMMISSIONS								
3	05/20/2021	ISSUED TO CONSERVATION COMMISSION								
2	04/29/2021	CONSERVATION COMMISSION COMMENTS								
1	03/15/2021	CONSERVATION COMMISSION COMMENTS								
0	01/21/2021	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION								

PROJECT: **4,493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT 40 SIZER DRIVE WALLE, MASSACHUSETTS**

TITLE: **STREAM/WETLAND CROSSING NOTES AND DETAILS**

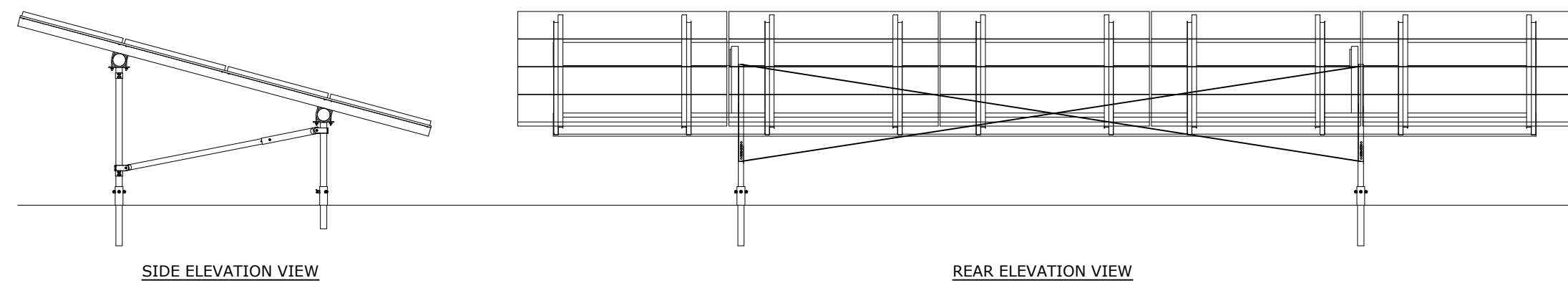
CLIENT: **SUNPIN ENERGY SERVICES, LLC**

SUNPIN Securing a brighter future through solar



DESIGNED BY: MJW
DRAWN BY: DED
CHECKED BY: APV
SCALE: AS SHOWN
PROJECT NUMBER: 3652200259
DRAWING NUMBER: **C-107**
SHEET NUMBER: **9 OF 11**

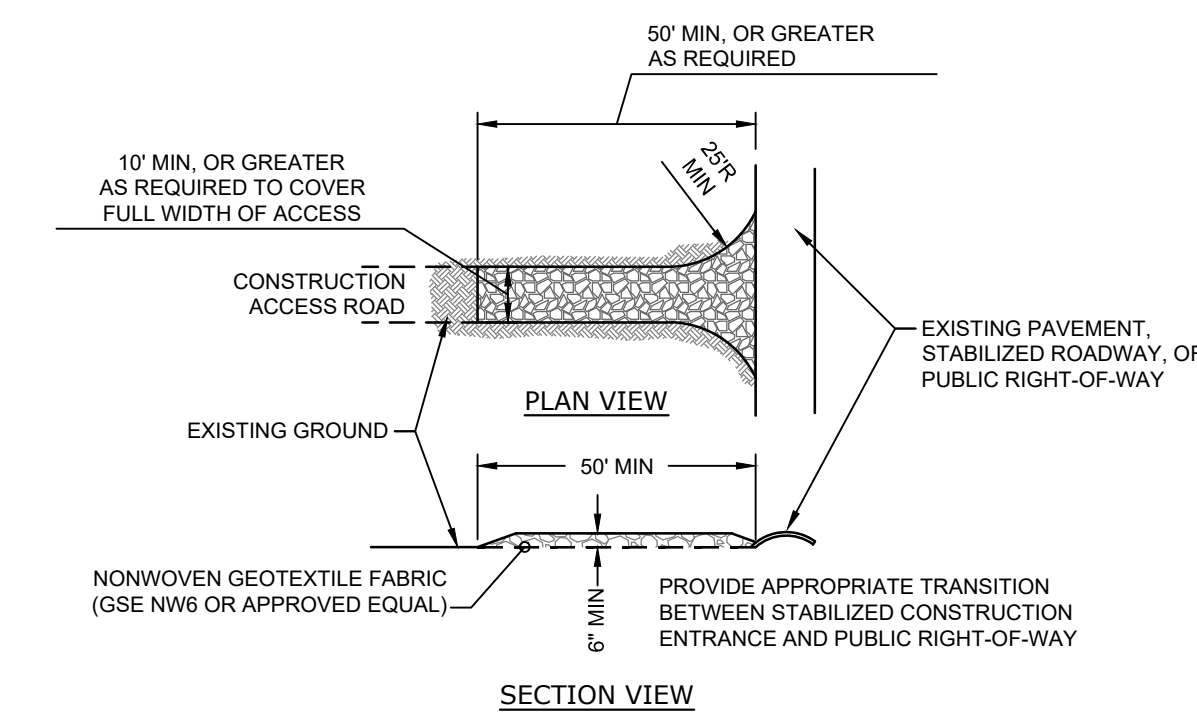
ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION



SOLAR PV ARRAY
NOT TO SCALE

NOTE:
1. DESIGN FOR FOUNDATIONS, RACKING, AND MODULES BY OTHERS. DETAILS SHOWN FOR ILLUSTRATION PURPOSES ONLY.

1

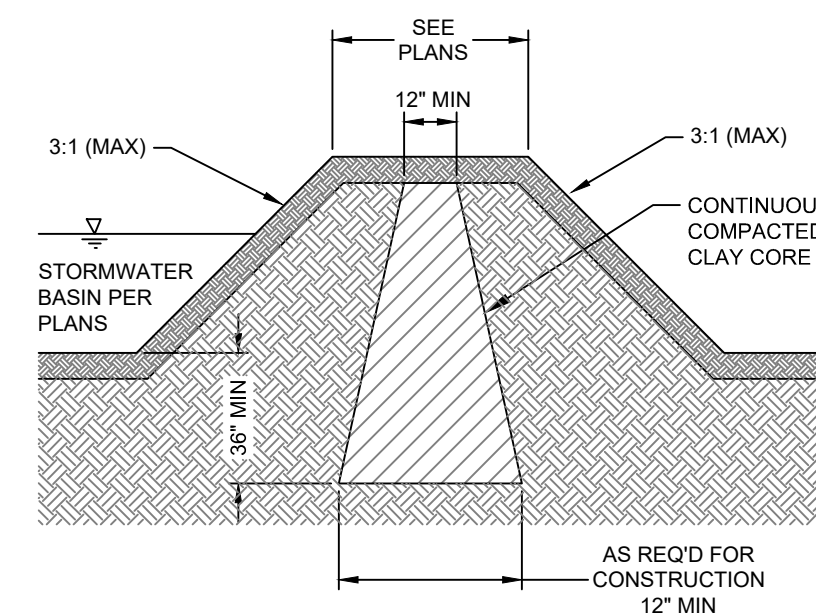


NOTES:

- STONE TO BE 1"-3" STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FT.
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - TEN (10) FT. MIN, BUT NOT LESS THAN THE FULL TRAVELED WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- FILTER CLOTH - SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS OR BENEATH THE ENTRANCE.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. IF WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

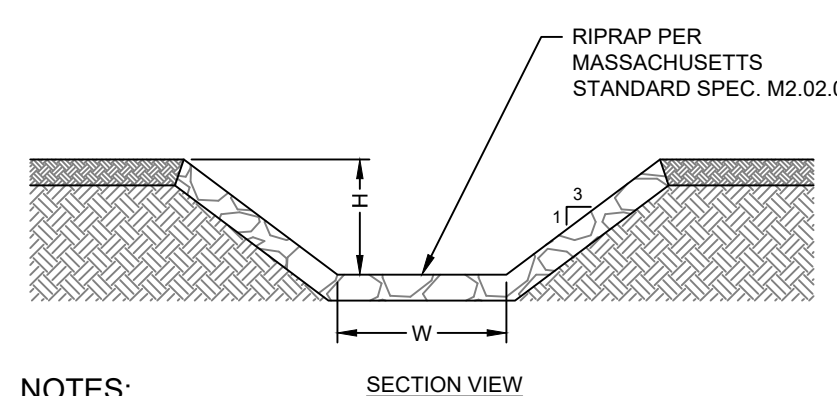
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

4



STORMWATER BASIN BERM
NOT TO SCALE

6



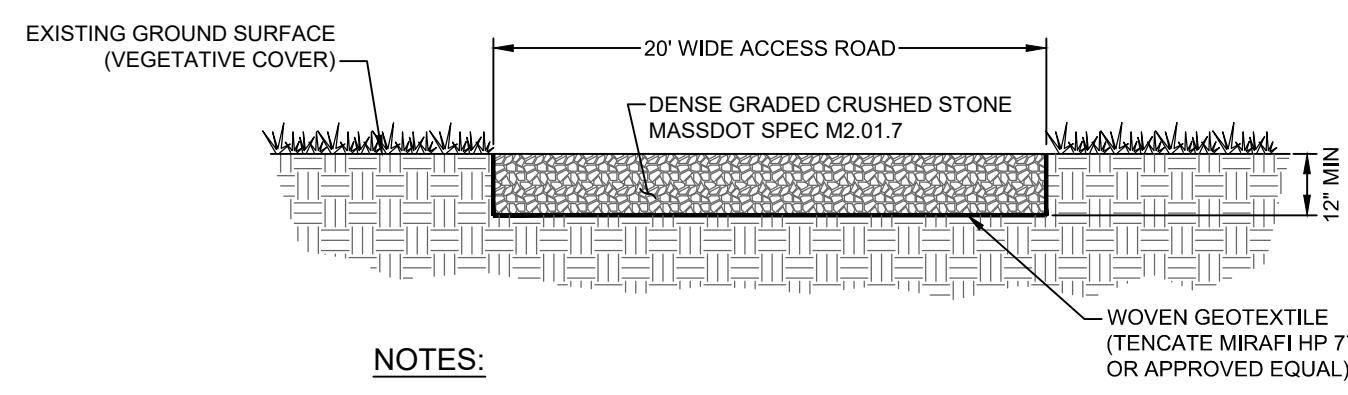
NOTES:

- RIPRAP TO BE INSTALLED WITHIN THE FULL WIDTH OF THE SPILLWAY AND THE FULL LENGTH OF THE BASIN BERM - FROM THE BASIN BOTTOM TO WHERE MATCHING EXISTING GRADE.
- SEE DETENTION BASIN DETAIL FOR ELEVATIONS.

RIP RAP OVERFLOW SPILLWAY
NOT TO SCALE

7

WEIR DIMENSIONS (FT)		
BMP ID	W	H
BIORETENTION BASIN 1	12.00	0.25
BIORETENTION BASIN 2	10.00	0.50



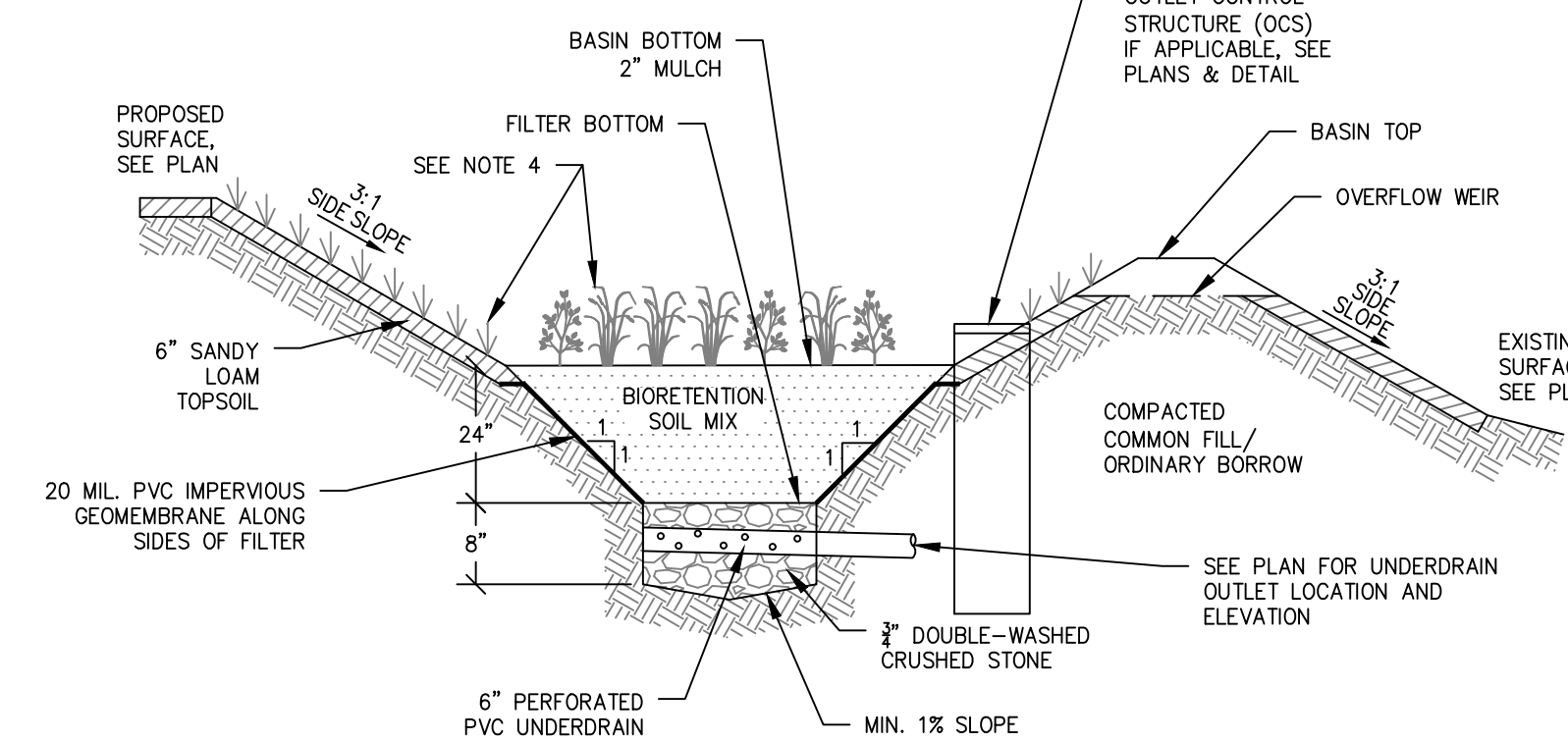
NOTES:

- ACCESS ROAD TO BE CONSTRUCTED OF A MINIMUM 6" OF DENSE GRADED CRUSHED STONE.
- WOVEN GEOTEXTILE TO BE PLACED BETWEEN THE GROUND SURFACE AND THE CRUSHED STONE.
- CRUSHED STONE SHALL BE COMPACTED TO A FIRM AND NON-YIELDING CONDITION.
- EXISTING PAVEMENT SHALL BE REMOVED AND UNDERLYING SOILS SHALL BE SCARIFIED PRIOR TO INSTALLATION OF FABRIC AND CRUSHED STONE.

CRUSHED STONE ACCESS ROAD
NOT TO SCALE

2

BASIN ELEVATIONS (FT)						
BMP ID	BASIN TOP	BASIN BOTTOM	FILTER BOTTOM	OVERFLOW WEIR	OCS GRATE RIM	APPROX. GW ELEVATION
BIORETENTION BASIN 1	893.75	893.00	891.00	893.50	N/A	891.50
BIORETENTION BASIN 2	844.75	843.00	841.00	844.25	843.50	< 840.50



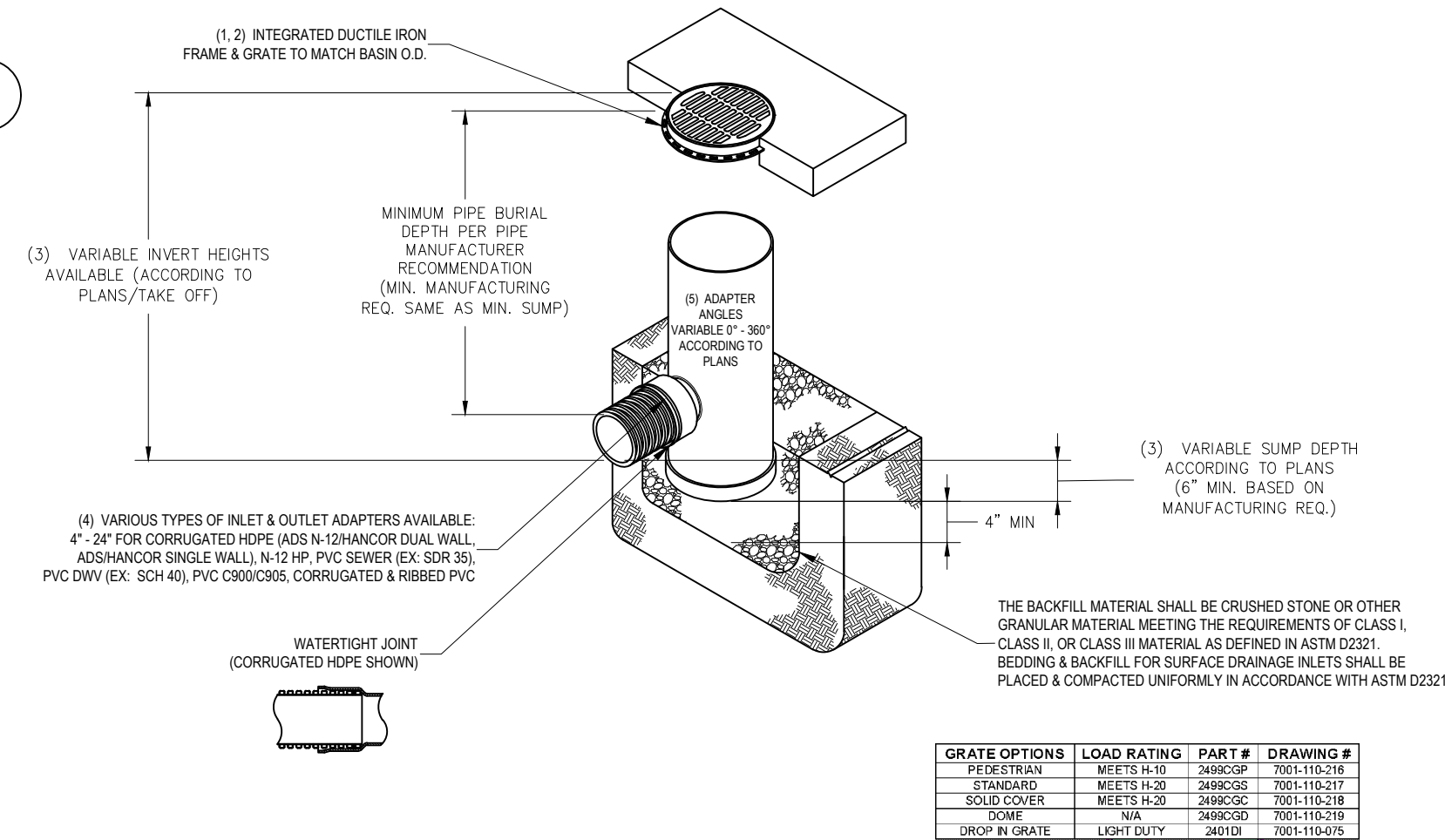
BIORETENTION BASIN
NOT TO SCALE

5

NOTES:

- BIORETENTION SOIL MIX SHALL BE:
40% SAND
20-30% TOPSOIL
30-40% COMPOST
- SIDE SLOPES SHALL BE 3:1 MAX.
- CONTRACTOR SHALL SUBMIT A SIEVE ANALYSIS OF BIORETENTION SOIL MIX TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
- PLANTING PLAN SHALL INCLUDE A MIX OF HERBACEOUS PERENNIALS, SHRUBS, AND UNDERSTORY TREES (IF CONDITIONS PERMIT) THAT CAN TOLERATE INTERMITTENT PONDING AND EXTENDED DRY PERIODS. INCLUDE ONE TREE OR SHRUB PER 50 SQ.FT. OF BIORETENTION AREA, AND AT LEAST 3 SPECIES OF HERBACEOUS PERENNIALS AND SHRUBS. UTILIZE THE LIST OF SUITABLE PLANTS FOUND IN VOLUME 2 CHAPTER 2 OF THE MASSACHUSETTS STORMWATER HANDBOOK.

NYLOPLAST 24" DRAIN BASIN: 2824AG _ _X

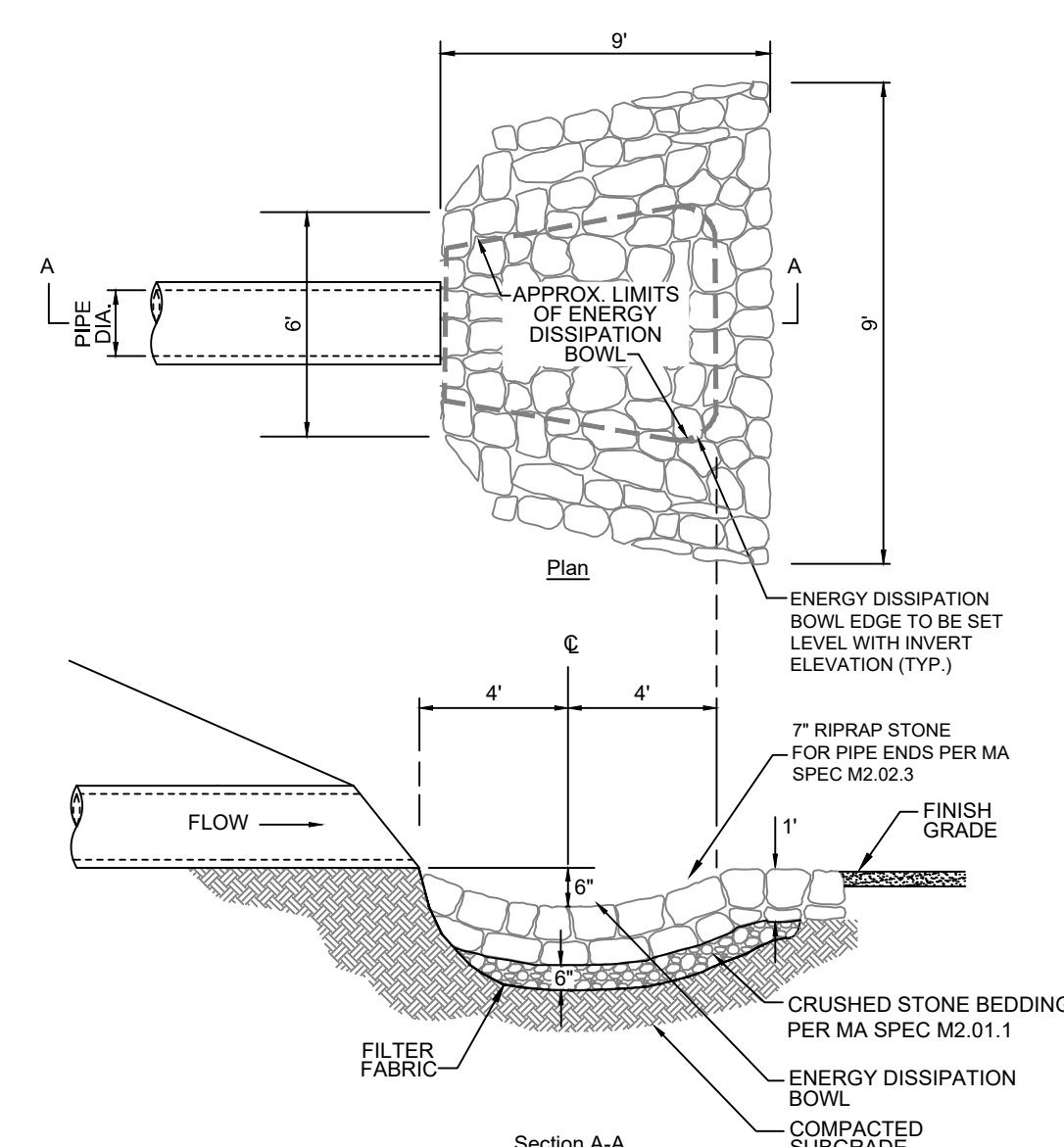


GRATE OPTIONS

LOAD RATING	PART #	DRAWING #
STANDARD	NYL24S	100-110-217
SOLE COVER	NYL24C	100-110-218
DRIP & GRATE	NYL24D	100-110-219

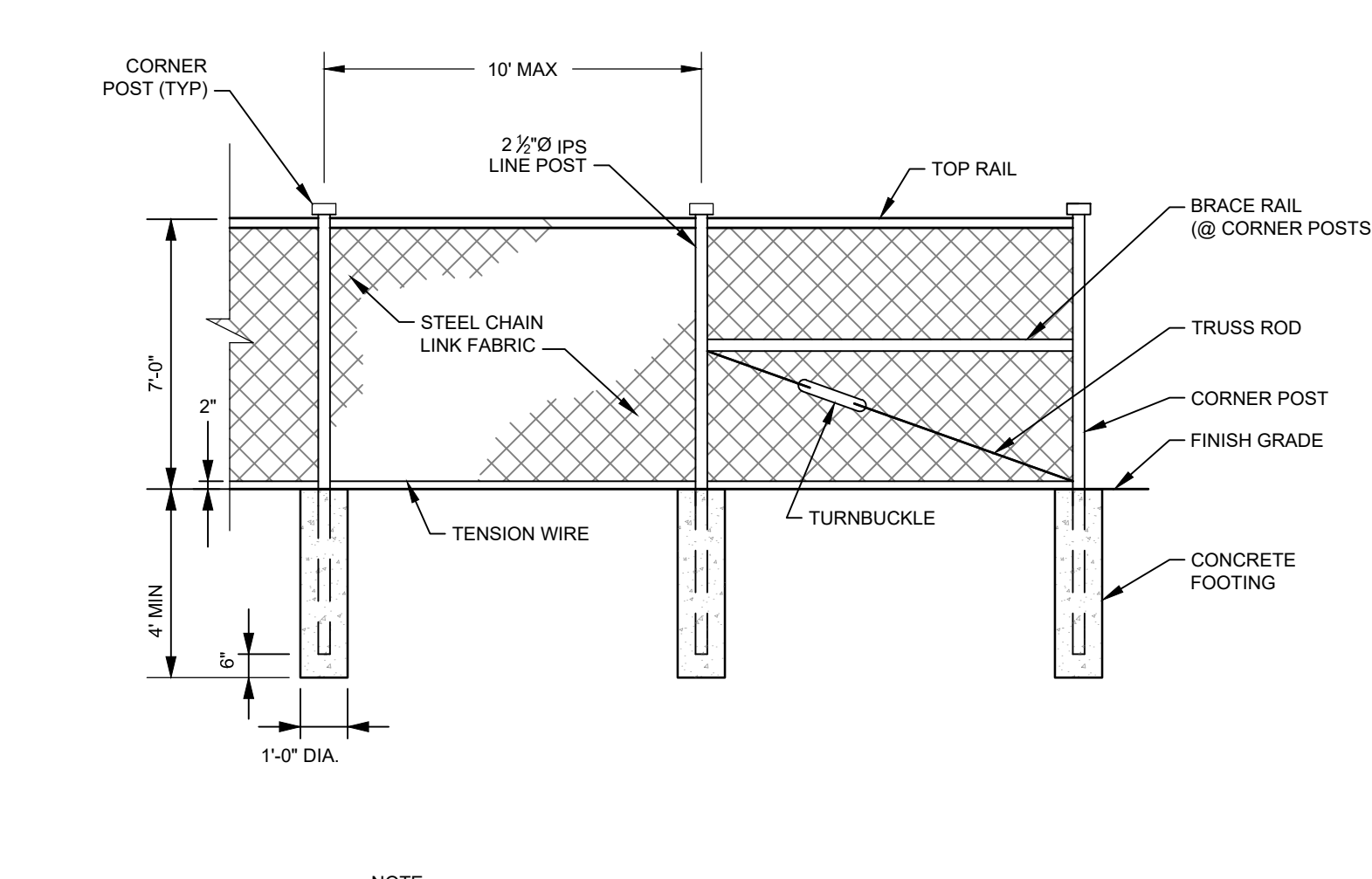
OUTLET CONTROL STRUCTURE (OCS)
NOT TO SCALE

8



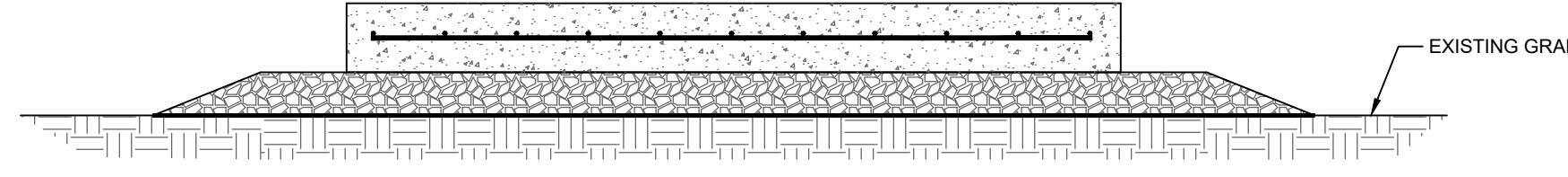
PLUNGE POOL
NOT TO SCALE

9



CHAIN LINK FENCE
NOT TO SCALE

10

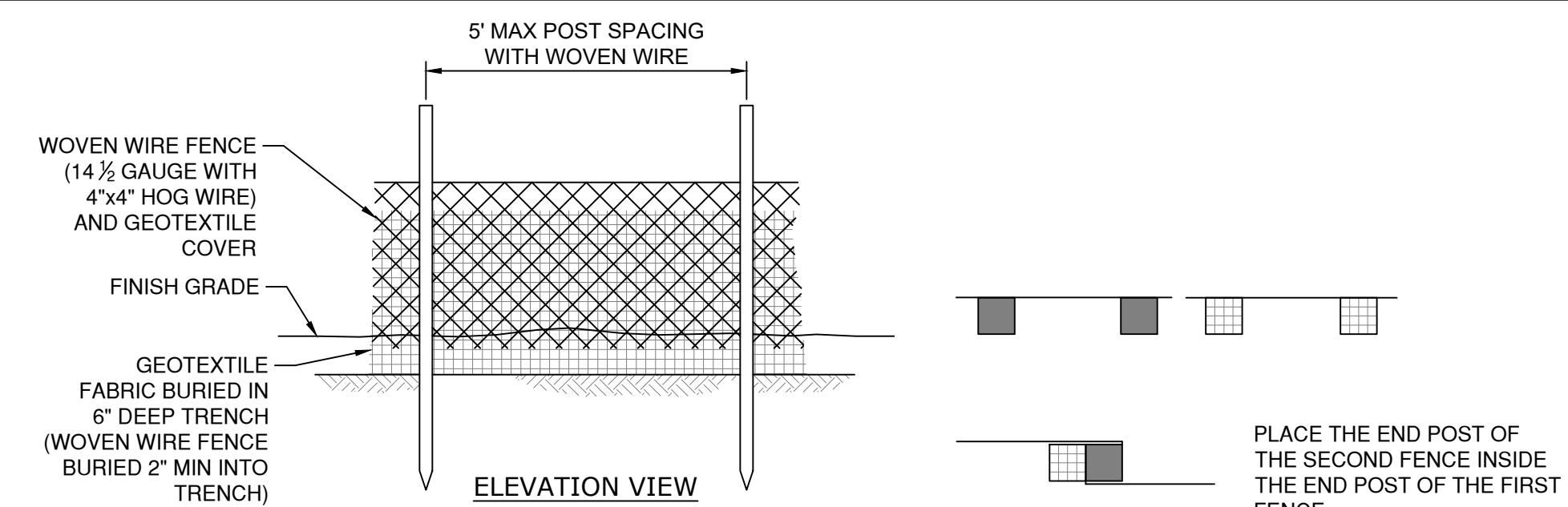


NOTES:

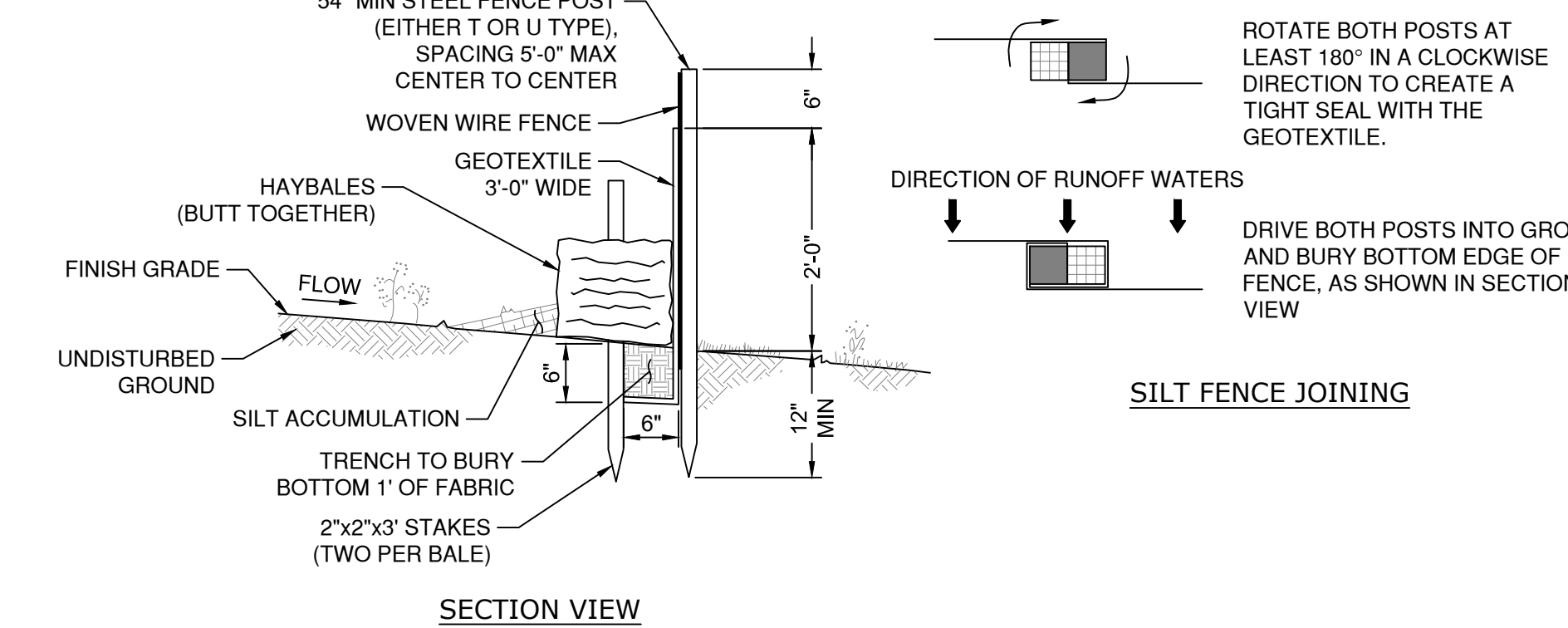
- CONCRETE PAD SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. DESIGN TO BE FINALIZED AT LATER DATE.

TYPICAL CONCRETE EQUIPMENT PAD SECTION
NOT TO SCALE

11



ELEVATION VIEW



SECTION VIEW

NOTES:

- GEOTEXTILE TO BE FASTENED SECURELY TO FENCE POST BY USE OF WIRE TIES.
- GEOTEXTILE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
- BURY BOTTOM 1'-0" OF GEOTEXTILE IN TRENCH (6" DEEP x 6" WIDE) REPLACE SOIL AND TAMP IN PLACE.
- ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE SHALL BE SECURELY FASTENED TOGETHER AS SHOWN. FASTENERS SHALL BE PROVIDED AS SPECIFIED IN NOTE 1 ABOVE. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
- MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE EROSION CONTROL PLAN. COLLECTED MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
- ALL SILT FENCE SHALL INCLUDE WOVEN WIRE FENCE SUPPORT UNLESS INDICATED OTHERWISE.

SEDIMENT BARRIER - DOUBLE STAKED HAY BALE WITH HOG WIRE BACKED SILT FENCE
NOT TO SCALE

3

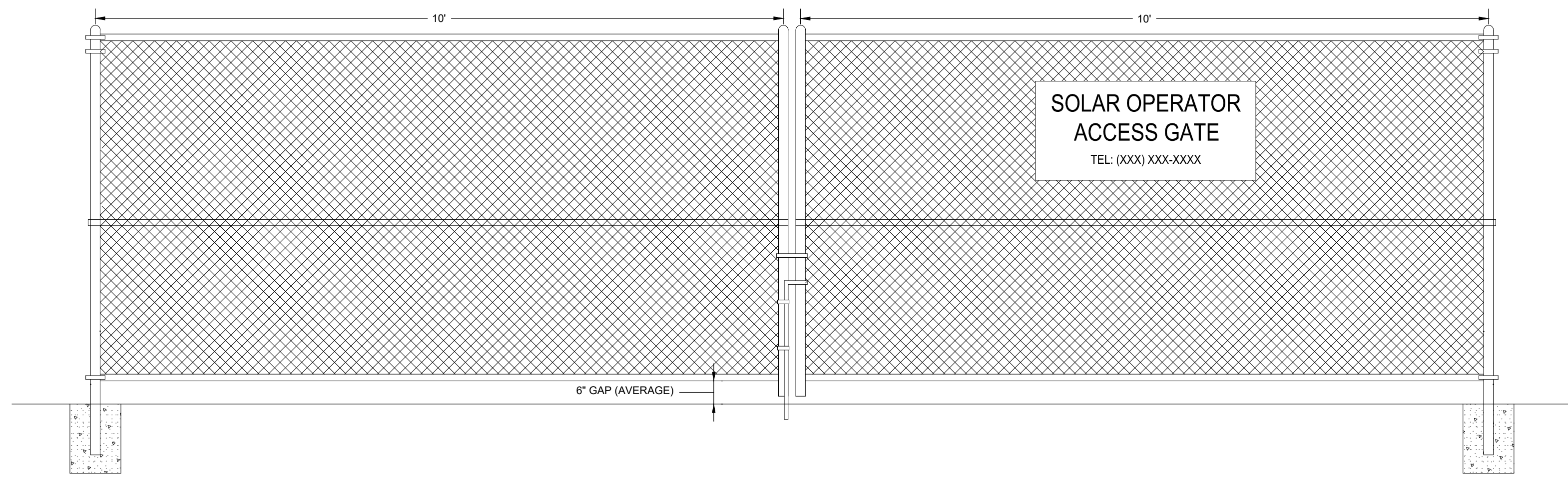
DATE	REVISION	ISSUE / REVISION DESCRIPTION
10/28/2021	6	CC PEER REVIEW
09/24/2021	5	CC PEER REVIEW
06/29/2021	4	REVISED PER CONSERVATION COMMISSIONS
05/20/2021	3	ISSUED TO CONSERVATION COMMISSION
04/29/2021	2	CONSERVATION COMMISSION COMMENTS
03/15/2021	1	CONSERVATION COMMISSION COMMENTS
01/21/2021	0	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION

PROJECT:	4,493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT 40 SIZER DRIVE WALES, MASSACHUSETTS
TITLE:	DETAILS (1 OF 2)

SUNPIN ENERGY SERVICES, LLC
Securing a brighter future through solar

SEAL:

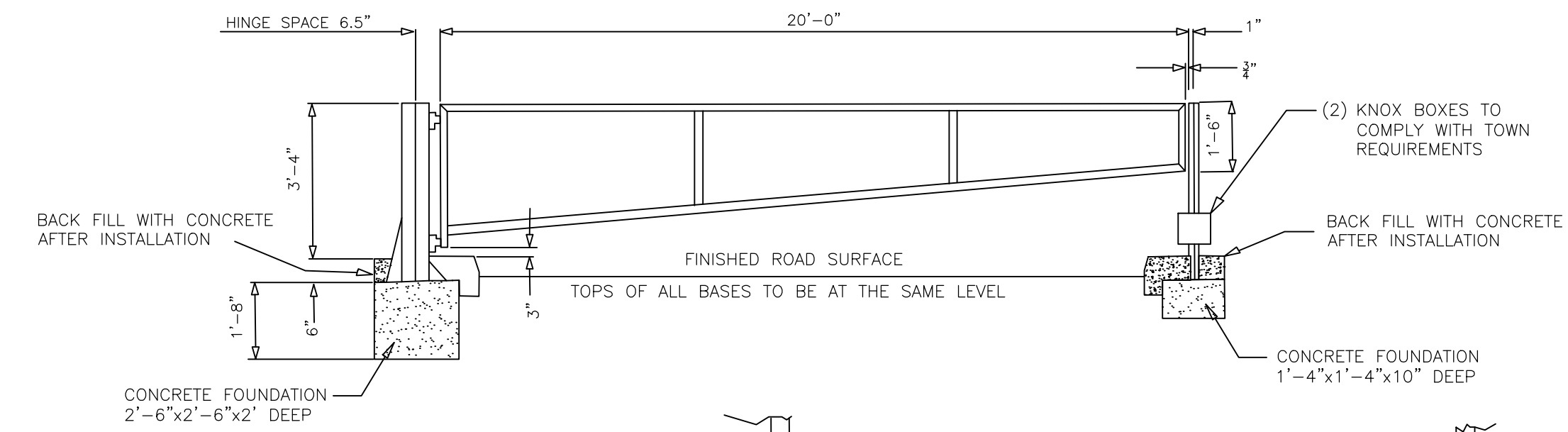
DESIGNED BY:	MJW	DRAWN BY:	DED
CHECKED BY:	APV	SCALE:	AS SHOWN
PROJECT NUMBER:	3652200259		
DRAWING NUMBER:	C-501		
SHEET NUMBER:	10 OF 11		



- NOTES:**
- A "KNOX BOX" SHALL BE PROVIDED AT EVERY GATE LOCATION FOR EMERGENCY ACCESS.

ACCESS GATE DETAIL
NOT TO SCALE

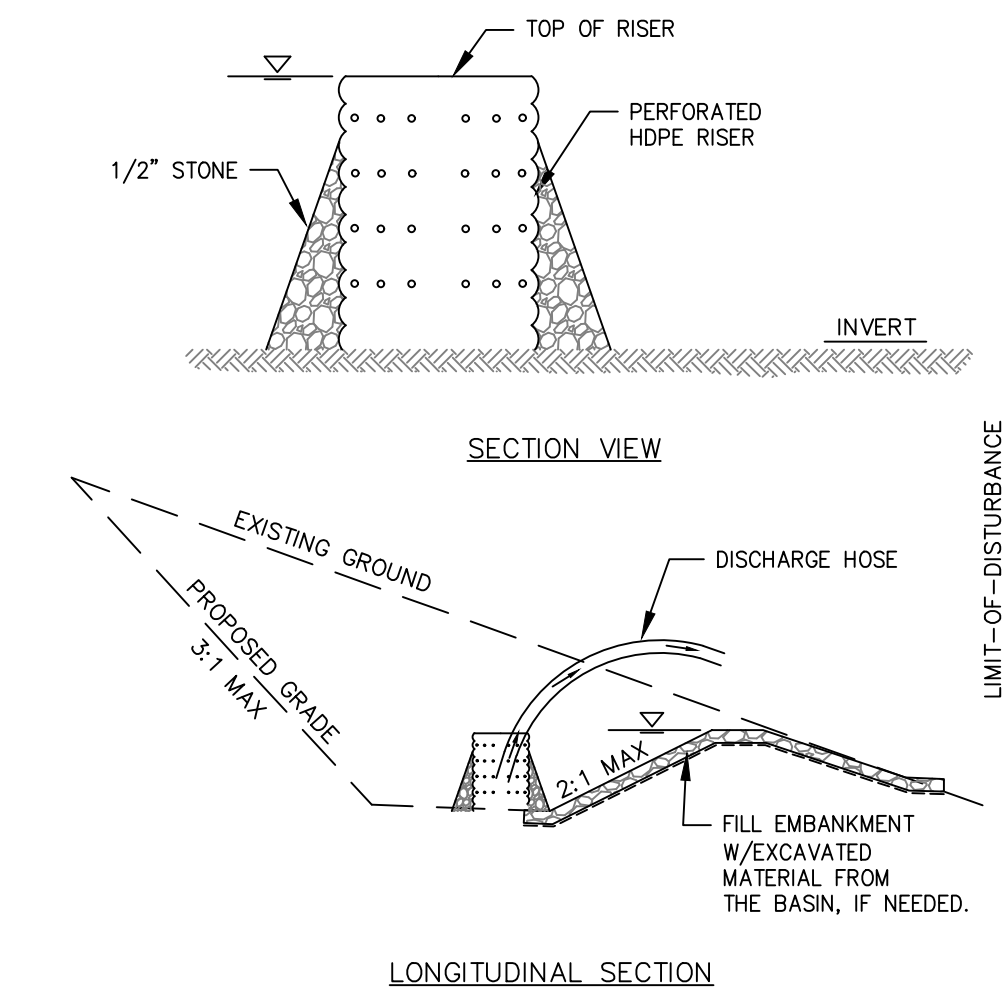
12



- NOTE:**
CONCRETE TO BE CAST A MINIMUM OF 7 DAYS BEFORE INSTALLATION OF EQUIPMENT

PIPE GATE DETAIL
NOT TO SCALE

13



TEMPORARY SEDIMENT TRAP SIZING

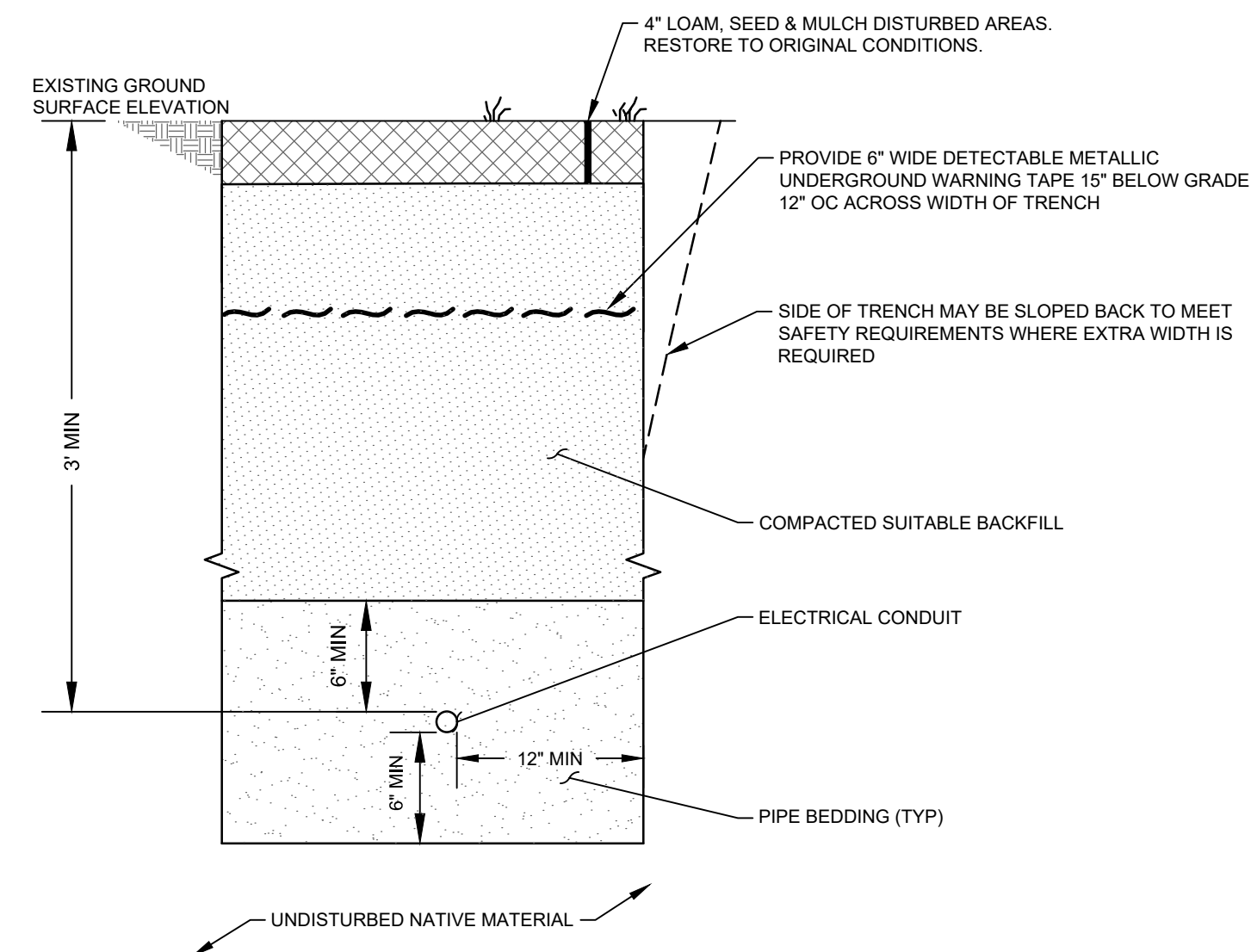
SEDIMENT TRAP ID	SEDIMENT TRAP 1	SEDIMENT TRAP 2	SEDIMENT TRAP 3	SEDIMENT TRAP 4
DRAINAGE AREA, SQ.FT.	61,304	110,975	148,463	172,321
DRAINAGE AREA, AC.	1.41	2.55	3.41	3.96
REQUIRED STORAGE VOLUME, CU.FT. (12-INCH PER ACRE OF DRAINAGE AREA)	2,554	4,624	6,445	7,180
PROPOSED TEMPORARY SEDIMENT TRAP BOTTOM AREA, SQ.FT.	2,553	4,767	2,488	2,845
PROPOSED TEMPORARY SEDIMENT TRAP TOP AREA, SQ.FT.	3,478	5,576	4,120	4,415
PROPOSED TEMPORARY SEDIMENT TRAP DEPTH, FT.	1	1	2	2
PROPOSED TEMPORARY SEDIMENT TRAP STORAGE VOLUME, CU.FT.	3,016	5,172	6,608	7,260

*MAX ALLOWED DRAINAGE AREA TO A SEDIMENT TRAP IS 5 ACRES, PER MASSACHUSETTS EROSION AND SEDIMENTATION CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS

- NOTES:**
- TOTAL MIN STORAGE VOLUME = 3' X CONTRIBUTING AREA PER MASSACHUSETTS EROSION AND SEDIMENTATION CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS.
 - SEDIMENT SHALL BE REMOVED WHEN THE TRAP IS 1/2 FULL AT A MINIMUM.
 - THE BASIN SHALL REMAIN IN PLACE UNTIL THE SITE HAS BEEN STABILIZED WITH BUILDINGS, PAVEMENT, OR ESTABLISHED VEGETATION, AS APPLICABLE.
 - PUMP DISCHARGE WILL BE DIRECTED TO A SILT BAG IN UPLANDS IN A WELL-VEGETATED AREA, AS NEEDED.

TEMPORARY SEDIMENT TRAP
NOT TO SCALE

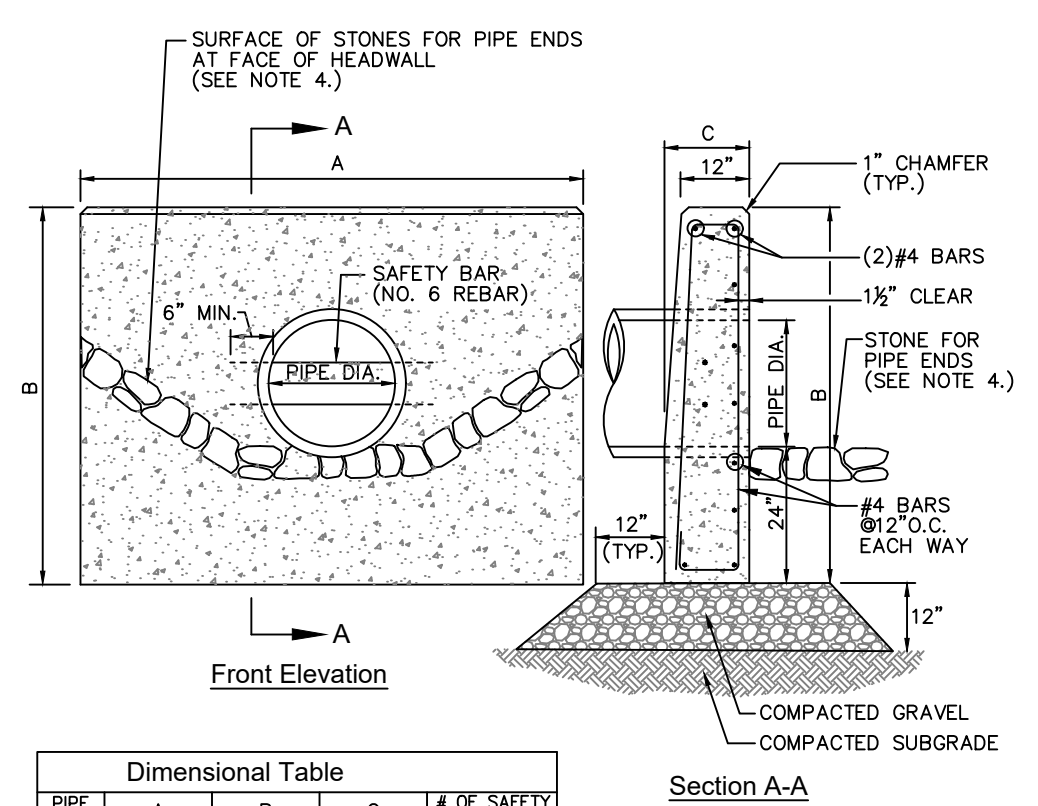
14



- NOTE:**
DETAIL SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. ELECTRICAL ENGINEER TO CONFIRM REGULATORY AND CODE COMPLIANCE.

ELECTRICAL CONDUIT UTILITY TRENCH
NOT TO SCALE

15



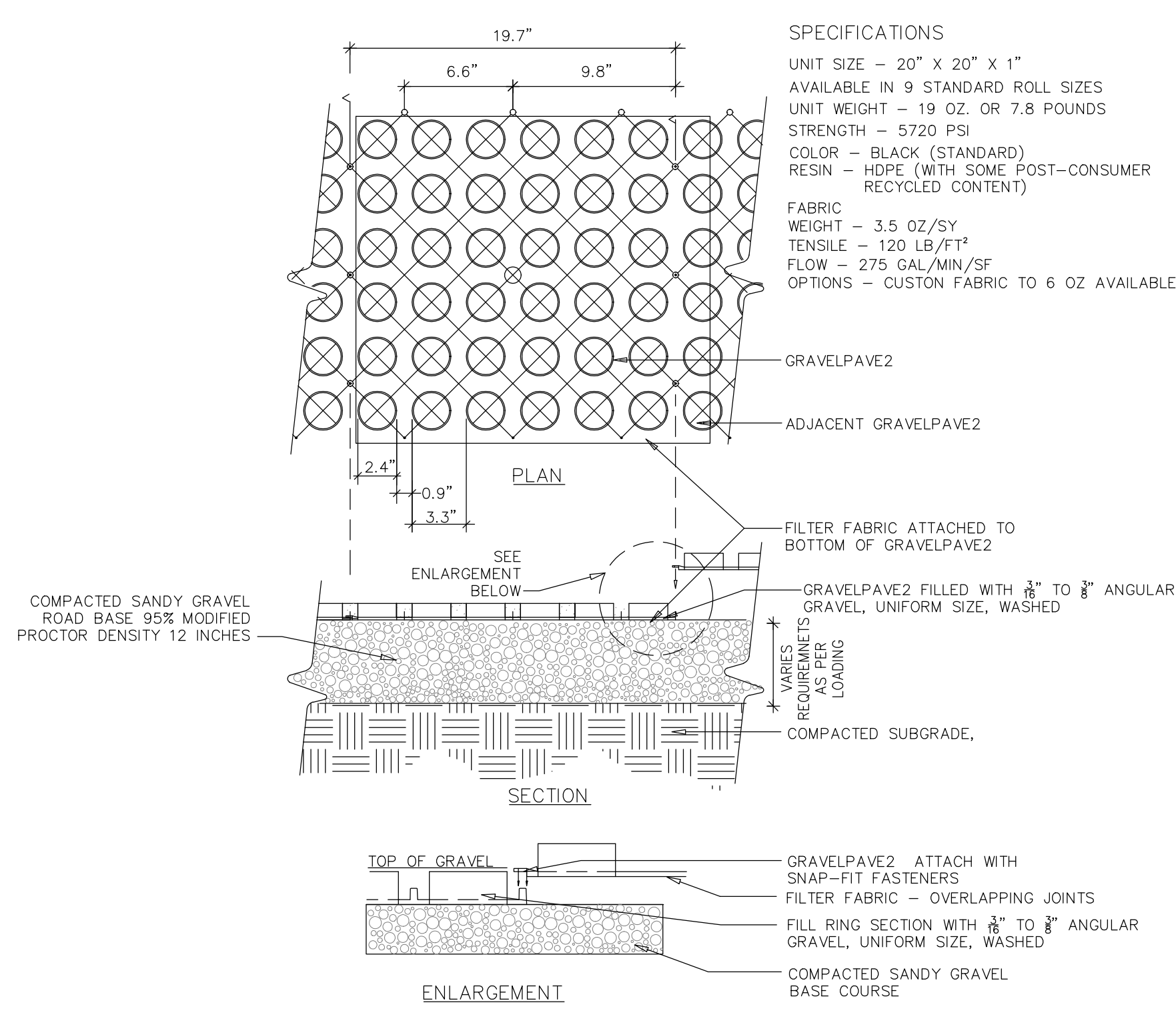
Dimensional Table

PIPE DIA.	A	B	C	# OF SAFETY BARS
12"	5'-6"	4'-2"	1'-6"	-
15"	6'-6"	4'-5"	1'-6"	-
18"	7'-6"	4'-9"	1'-6"	1
24"	9'-0"	5'-3"	1'-6"	1
30"	11'-0"	5'-10"	1'-6"	2
36"	13'-0"	6'-4"	1'-9"	2
42"	15'-9"	6'-11"	1'-9"	3
48"	17'-9"	7'-5"	2'-0"	3
60"	21'-9"	8'-6"	2'-6"	4
72"	25'-9"	9'-7"	3'-0"	5

- Notes:**
- CONCRETE SHALL BE MINIMUM COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
 - SAFETY BARS TO BE OMITTED WHERE INDICATED ON PLANS.
 - SAFETY BARS SHALL BE SET TO CREATE EQUAL OPENING DIMENSIONS.
 - SEE PLUNGE POOL DETAIL.

CONCRETE HEADWALL
NOT TO SCALE

16



- SPECIFICATIONS**
- UNIT SIZE - 20" X 20" X 1"
 - AVAILABLE IN 9 STANDARD ROLL SIZES
 - UNIT WEIGHT - 19 OZ. OR 7.8 POUNDS
 - STRENGTH - 5720 PSI
 - COLOR - BLACK (STANDARD)
 - RESIN - HDPE (WITH SOME POST-CONSUMER RECYCLED CONTENT)
 - FABRIC WEIGHT - 3.5 OZ/SY
 - TENSILE - 120 LB/FT²
 - FLOW - 275 GAL/MIN/SF
 - OPTIONS - CUSTOM FABRIC TO 6 OZ AVAILABLE

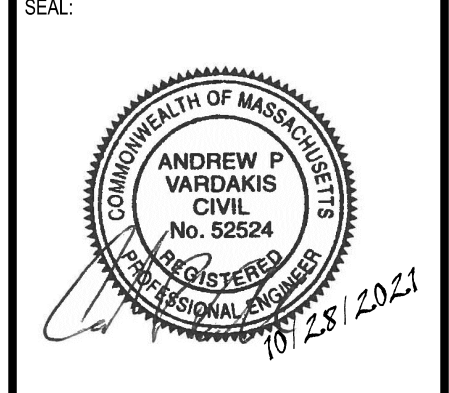
TYPICAL GRAVELPAVE2
NOT TO SCALE

17

DATE	REVISION	ISSUE / REVISION DESCRIPTION	APPROVED
10/28/2021	6	CC PEER REVIEW	APV
09/24/2021	5	CC PEER REVIEW	MJW
06/29/2021	4	REVISED PER CONSERVATION COMMISSION	APV
05/20/2021	3	ISSUED TO CONSERVATION COMMISSION	APV
04/29/2021	2	CONSERVATION COMMISSION COMMENTS	APV
03/15/2021	1	CONSERVATION COMMISSION COMMENTS	APV
01/21/2021	0	ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION	APV

PROJECT: 4.493 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT 40 SIZER DRIVE WALES, MASSACHUSETTS
TITLE: DETAILS (SHEET 2 OF 2)

SUNPIN ENERGY SERVICES, LLC
SUNPIN
Securing a brighter future through solar



DESIGNED BY: MJW
CHECKED BY: APV
PROJECT NUMBER: 3652200259
DRAWING NUMBER: C-502
SHEET NUMBER: 11 OF 11