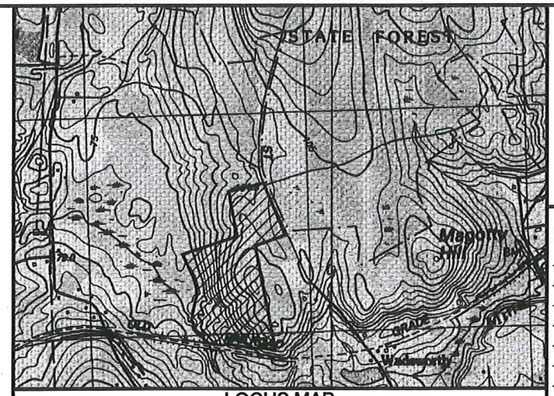
SPRING STREET RENEWABLES, LLC
LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM
SPRING STREET

FRANKLIN, MASSACHUSETTS

NOVEMBER 21, 2018
REV: APRIL 8, 2019

RECEIVED
APR 10 2019
PLANNING DEPT.



LOCUS MAP
SCALE: 1" = 1,000'

APPLICANT:
SPRING ST RENEWABLES, LLC
101 SUMMER STREET
BOSTON, MA 02110

LAND SURVEYOR & CIVIL ENGINEER:
ANDREWS SURVEY & ENGINEERING, INC.
104 MENDON STREET
UXBRIDGE, MA 01569
P: 508.278.3897
F: 508.278.2289

ENVIRONMENTAL:
ECR, LLC.
P.O. BOX 4012
PLYMOUTH, MA 02361
P: 617-529-3792

CONSULTANT:
NEXAMP, INC.
101 SUMMER STREET
BOSTON, MA 02110

OWNER OF RECORD:
RICHARD COSTELLO
PO BOX 283
FRANKLIN, MA 02038
FRANKLIN ASSESSORS INFORMATION:
MAP 310, PARCEL 02
TOTAL PARCEL AREA: 570,636± S.F. (13.2± AC.)

DEED REFERENCE:
DEED BK. 2731, PG. 108

PLAN REFERENCES:
P.B. 54, PL. 2557

OWNER OF RECORD:
MICHAEL J BUCCI
4 ALMOND DRIVE
JOHNSTON, RI 02919
FRANKLIN ASSESSORS INFORMATION:
MAP 309, PARCEL 15
TOTAL PARCEL AREA: 424,013± S.F. (9.7± AC.)

DEED REFERENCE:
DEED BK. 34238, PG. 115

PLAN REFERENCES:
P.B. 468, PL. 616

OWNER OF RECORD:
ANTHONY DEPOTO ETALS
8 SPRING STREET
FRANKLIN, MA 02038
FRANKLIN ASSESSORS INFORMATION:
MAP 323, PARCEL 44
TOTAL PARCEL AREA: 1,121,670± S.F. (25.75± AC.)

DEED REFERENCE:
DEED BK. 589, PG. 111

PLAN REFERENCES:
P.B. 54, PL. 2557

GOVERNMENT / UTILITY CONTACTS

FRANKLIN POLICE DEPT.
911 PANTHER WAY
P: 508-528-1212
ATTN: THOMAS LYNCH, CHIEF

FRANKLIN FIRE DEPT.
40 WEST CENTRAL STREET
P: 508-528-2323
P: 508-520-4912
ATTN: GARY MCCARRAHER, CHIEF

FRANKLIN PLANNING DEPARTMENT
355 EAST CENTRAL STREET
P: 508-520-4907
ATTN: AMY LOVE, PLANNER

FRANKLIN D.P.W.
257 FISHER STREET
P: 508-520-4910
F: 508-520-4939
ATTN: ROBERT CANTOREGGI, DIRECTOR

FRANKLIN BUILDING DEPT.
355 EAST CENTRAL STREET
P: 508-520-4926
F: 508-520-4906
ATTN: LLOYD BROWN, BUILDING COMMISSIONER

ASE
Andrews Survey & Engineering, Inc.
Land Surveying - Civil Engineering - Site Planning
P.O. Box 312, 104 Mendon Street
Uxbridge, Massachusetts 01569
P: 508-278-3897 F: 508-278-2289
500 East Washington Street
North Attleboro, Massachusetts 02760
P: 508-316-0452 F: 508-316-0963

APPROVAL UNDER SITE PLAN REVIEW
FRANKLIN PLANNING BOARD

BEING A MAJORITY DATE:

THIS CERTIFIES THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE NORTHBRIDGE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED ON AT
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FRANKLIN TOWN CLERK DATE

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4	04/08/19	PER TOWN/PEER REVIEW COMMENTS

SHEET TITLE

COVER SHEET

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MARKVILLE
CIVIL
No. 20363
REGISTERED PROFESSIONAL ENGINEER
1/9/19

P.E. P.L.S.

DES BY: KNP | DATE: NOVEMBER 21,2018
CHK BY: RMM | PROJECT NO. 2018-101

C0.0
PLAN NO. L-5691

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GENERAL ABBREVIATIONS

AAB	ARCHITECTURAL ACCESS BOARD
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ADA	AMERICANS WITH DISABILITIES ACT
AIA	AMERICAN INSTITUTE OF ARCHITECTURE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AWWA	AMERICAN WATERWORKS ASSOCIATION
BCP	BITUMINOUS CONCRETE PAVEMENT
BLDG	BUILDING
C/C	CENTER TO CENTER
CB	CATCH BASIN
CBR	CALIFORNIA BEARING RATIO
CIP	CAST-IN-PLACE
CLF	CHAIL LINK FENCE
CO	CLEANOUT
CONC	CONCRETE
DIA,ø	DIAMETER
DMH	DRAIN MANHOLE
EA	EACH
EG	EXISTING GRADE
EL,ELEV	ELEVATION
ESHGW	ESTIMATED SEASONAL HIGH GROUND WATER
EW	EACH WAY
EX,EXIST	EXISTING
FF	FINISHED FLOOR
FDN	FOUNDATION
FG	FINISH GRADE
GALV	GALVANIZED
GW	GROUNDWATER
HAR	HANDICAP ACCESSIBLE RAMP
HOR	HORIZONTAL
HWM	HIGH WATER MARK
INV	INVERT
MAX	MAXIMUM
MH	MANHOLE
MB	MAIL BOX
MHD	MASSACHUSETTS HIGHWAY DEPARTMENT
MHW	MEAN HIGH WATER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLW	MEAN LOW WATER
MSL	MEAN SEA LEVEL
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NA	NOT APPLICABLE
NSF	NATIONAL SANITATION FOUNDATION
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O.C.	ON CENTER
O/O	OUTSIDE TO OUTSIDE
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
PCC	PORTLAND CEMENT CONCRETE
PSTR	POST AND RAIL FENCE
PWW	PAVED WATERWAY
RR	RAILROAD
RW	RETAINING WALL
S/E	SIMILAR OR EQUAL TO
SMH	SEWER MANHOLE
STCK	STOCKADE FENCE
TBA	TO BE ABANDONED
TBC	TOP BACK CURB
TBD	TO BE DETERMINED
TBR	TO BE REMOVED
TC	TOP OF CONCRETE
TEMP	TEMPORARY
TF	TOP OF FOUNDATION
TO	TOP OF OPENING
TP	TOP OF PAVEMENT
TW	TOP OF WALL
TYP	TYPICAL
VERT	VERTICAL
WS	WATER SURFACE
WWF	WELDED WIRE FABRIC

UNIT ABBREVIATIONS

AC	ACRES
AC-FT	ACRE-FEET
AFA	ACRE-FEET ANNUALLY
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CY	CUBIC YARDS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
GAL	GALLONS
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HR	HOURS
IN	INCHES
KWH	KILOWATT HOURS
LB	POUNDS
LF	LINEAR FEET
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MGL	MILLIGRAMS PER LITER
MI	MILES
MPH	MILES PER HOUR
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
SF	SQUARE FEET
SM	SQUARE MILES
SY	SQUARE YARD
T	TONS
V	VOLTS
W	WATTS

PIPE AND VALVE ABBREVIATIONS

AC	ASBESTOS CEMENT
ACCM	ASPHALT-COATED CORRUGATED METAL
AVRV	AIR/VACUUM RELIEF VALVE
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BV	BALL VALVE
BW	BUTT WELD
CI	CAST IRON
CL	CLASS
CLDI	CEMENT LINED DUCTILE IRON
CMP	CORRUGATED METAL PIPE
CS	COMBINED SEWER
CV	CHECK VALVE
DI	DUCTILE IRON
FD	FOUNDATION DRAIN
FJDI	FLANGED JOINT DUCTILE IRON
FLG	FLANGE
G	GAS
GV	GAS VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
ID	INSIDE DIAMETER
IRR	IRRIGATION
MJDI	MECHANICAL JOINT DUCTILE IRON
OD	OUTSIDE DIAMETER
OIL	CRUDE OR FUEL OIL
PE	PLAIN END
PJDI	PUSH-ON JOINT DUCTILE IRON
PRV	PRESSURE REDUCING VALVE
PSV	PRESSURE SUSTAINING VALVE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RJ	RESTRAINED JOINT
RW	RESILIENT WEDGE
S	SANITARY SEWER
ST	STEAM
UD	UNDERDRAIN
VC	VITRIFIED CLAY
WV	WATER VALVE

SURVEY AND HIGHWAY ABBREVIATIONS

BCC	BITUMINOUS CONCRETE CURB
BVC	BEGIN VERTICAL CURVE
(C)	CALCULATED
CCB	CAPE COD BERM
CTR. BK.	CENTER BACK
CW	CROSSWALK
DH	DRILL HOLE
DHCB	DRILL HOLE IN CONCRETE BOUND
DHSB	DRILL HOLE IN STONE BOUND
EOP	EDGE OF PAVEMENT
EPLP	ESCUTCHEON PIN IN LEAD PLUG
EVC	END VERTICAL CURVE
FD	FOUND
HP	HIGH POINT
H&T	HUB & TACK
LROD	IRON ROD
LPIPE	IRON PIPE
LPIN	IRON PIN
L	LENGTH
LP	LOW POINT
(M)	FIELD MEASURED
MAG	MAGNETIC
MHB	MASS. HIGHWAY BOUND
MON	MONUMENT
N/F	NOW OR FORMERLY
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PRCC	PRECAST CONCRETE CURB
PI	POINT OF INTERSECTION
PM	PUNCH MARK
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
R	RADIUS
(R)	RECORD
(R/H)	RECORD AND HELD
ROW	RIGHT OF WAY
SB	STONE BOUND
SGC	SLOPED GRANITE CURB
SHLL	STATE HIGHWAY LAYOUT LINE
S&S	STAKE & STONES
STA	STATION
SW	SIDEWALK
VGC	VERTICAL GRANITE CURB
WCHB	WORCESTER COUNTY HIGHWAY BOUND
WC	WOOD CURB

TREE ABBREVIATIONS

MP	MAPLE	CH	CHERRY	DG	DOGWOOD
OK	OAK	EM	ELM	AP	APPLE
PN	PINE	AS	ASH	PO	POPLAR
PR	PEAR	BR	BIRCH	WL	WILLOW
CD	CEDAR	LC	LOCUST	HM	HEMLOCK
CA	CATALPA	SP	SPRUCE	BE	BEECH
FR	FIR	WA	WALNUT		

GEOPHYSICAL LEGEND

EXISTING		PROPOSED
× 232.5	SPOT ELEVATION	13.3 FG × 232.6
100	MAJOR ELEVATION CONTOUR	100
100	MINOR ELEVATION CONTOUR	100
	INTERMITTENT STREAM, DRAINAGE DITCH, OR EDGE OF SEASONAL PONDING AREA	
	SHORE LINE (SEE ABBREVIATIONS)	
WF1	WETLAND EDGE WITH FLAG NO.	
	EDGE OF WOODS OR BRUSH (DRIP LINE)	
26.8 12"M	PROMINENT DECIDUOUS TREE WITH ELEVATION, SIZE AND SPECIES	26.8 12"M
26.8 18"P	PROMINENT CONIFEROUS TREE WITH ELEVATION, SIZE AND SPECIES	26.8 18"P
	ROCK OUTCROP (LEDGE)	
	WETLAND FILL LIMIT	
	WETLAND REPLICATION AREA LIMIT	
A	LIMIT OF CONSERVANCY DISTRICT OR WATERSHED PROTECTION DISTRICT	
	LIMIT OF WILDLIFE HABITAT AREA	
	EROSION CONTROL BARRIER	
	HAYBALES	
	SURFACE RUNOFF DIRECTION	
	WATERCOURSE FLOW	
	PIPE FLOW	
	DEEP SOIL OBSERVATION HOLE	
	PERCOLATION TEST	
SP2	SOIL PROBE	SP2
SB3	SOIL BORING HOLE	SB3
GW5	GROUNDWATER MONITORING WELL	GW5

UTILITIES LEGEND

EXISTING		PROPOSED
	STORM DRAIN WITH FLARED END W/ RIPRAP APRON	D
	STORM DRAIN WITH HEADWALL	D
OHW	OVERHEAD WIRE	OHW
E	ELECTRIC MANHOLE & UNDERGROUND ELECTRIC LINES	E
WS	WATER SERVICE	WS
FS	FIRE SERVICE	FS
FM	FORCE MAIN	FM
T	TELEPHONE MANHOLE & UNDERGROUND TELEPHONE LINES	T
S 6"ø	SEWER LINE & MANHOLE SIZE MATERIAL & FLOW DIRECTION	S SMH
CB 12"ø D DMH	DRAINLINE W/ PIPE SIZE, MATERIAL & FLOW DIRECTION, CATCH BASIN MANHOLE & ROUND CATCH BASIN	CB D DMH
RD	ROOF DRAIN AND DOWNSPOUT	RD DS
UD	PERFORATED UNDERDRAIN	UD
FD	FOUNDATION DRAIN	FD
W	WATER MAIN AND VALVE	W
OIL	FUEL OR CRUDE OIL	
P	PROPANE LINE	P
G CV	GAS LINE AND VALVE	G GV CMH
CO	BURIED COMMUNICATIONS AND MANHOLE	CO
CB	CATCH BASIN	
DCB	DOUBLE GRATE CATCH BASIN	
PBH	PULLBOX OR HANDHOLE	
T	TRANSFORMER PAD	E
	BOLLARD LIGHT	
	UTILITY POLE WITH GUY & DESTINATION	
	STREET LIGHT OR SITE LIGHT / POLE	
	FIRE HYDRANT	
	WATER SPIGOT	
W MTR	WATER METER	W MTR
G MTR	GAS METER	G MTR
T	TELEPHONE BOX	T
FA	FIRE ALARM BOX	FA
W	DOMESTIC WELL	

SURVEY AND HIGHWAY LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	EASEMENT LINE	
	TOWN LINE	
	MATCH LINE	
Z	CONTIGUOUS OWNERSHIP ACROSS LINES	Z
	BUILDING SETBACK	
	CENTERLINE	
34+00	STATE HIGHWAY BASELINE	34+00
55.36' N12°46'23"E	BEARING & DISTANCE ALONG BOUNDARY	55.36' N12°46'23"E
	DRILL HOLE (FOUND, SET OR TO BE SET)	
	IRON ROD, PIN OR PIPE (FOUND, SET OR TO BE SET)	
	STONE OR CONCRETE BOUND (FOUND OR SET)	
	TRAVERSE STAKE, PK NAIL, CUT SPIKE OR RAILROAD SPIKE (FOUND OR SET)	
	ELEVATION BENCH MARK	
	BARBED WIRE	
	STONE WALL	
6' CLF	CHAIN LINK FENCE WITH HEIGHT	6' CLF
5' PSTR	WOOD FENCE WITH HEIGHT (SEE ABBREVIATIONS)	5' PSTR
	GRAVEL OR DIRT ROAD	
	EDGE OF PAVEMENT	
VGC	CURB (SEE ABBREVIATIONS)	VGC
	RAILROAD	
	MEDIAN GUARDRAIL (STEEL OR WOOD)	
	MEDIAN BARRIER (CONCRETE)	
	GUARDRAIL (STEEL)	
	GUARDRAIL (WOOD)	
	STREET, TRAFFIC OR AD SIGN	
	MONUMENT SIGN	
3	UNITED STATES HIGHWAY	
495	INTERSTATE HIGHWAY	
119	STATE HIGHWAY	
	TRAFFIC FLOW	

SITE IMPROVEMENTS LEGEND

EXISTING		PROPOSED
	LIMIT OF WORK OR PHASE LINE	
	CONSTRUCTION KEY NOTE	1
	STONE RETAINING WALL	
	RETAINING WALL	
	BOLLARD	
	HANDICAP ACCESSIBLE PARKING	
38	NO. OF STANDARD PARKING SPACES	38
38	NO. OF COMPACT PARKING SPACES	38
	BUILDING, LIGHT, STEPS & OVERHANG	

ASE
Andrews Survey & Engineering, Inc.
Land Surveying - Civil Engineering - Site Planning
P.O. Box 312, 104 Meadon Street
Uxbridge, Massachusetts 01569
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508 East Washington Street
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LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM
SPRING STREET
FRANKLIN, MA

APPLICANT:
SPRING ST. RENEWABLES, LLC
101 SUMMER STREET
BOSTON, MA 02110

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GRAPHIC SCALE

SHEET TITLE

LEGEND, ABBREVIATIONS & GENERAL NOTES

COMMONWEALTH OF MASSACHUSETTS
RICHARD M MARVILLE
CIVIL
No. 26303
REGISTERED PROFESSIONAL ENGINEER
4/9/19

DES BY: KNP | DATE: NOVEMBER 21,2018
CHK BY: RWM | PROJECT NO. 2018-101

C0.1

PLAN NO. L-5691

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ZONING REQUIREMENTS

ZONE: RURAL RESIDENTIAL I
PROPOSED USE: GROUND-MOUNTED SOLAR PV SYSTEM

	REQUIRED	PROPOSED
AREA	40,000 SF	2,098,739 SF
FRONTAGE	200 FT	987 FT
DEPTH	200 FT	N/A
LOT WIDTH	180 FT	N/A
FRONT YARD	40 FT	N/A
SIDE YARD	40 FT	N/A
REAR YARD	40 FT	N/A
MAXIMUM HEIGHT	35 FT	N/A
MAXIMUM IMPER. COVERAGE OF EXISTING UPLAND	25%	0.00%

1. RICHARD COSTELLO
MAP 310, PARCEL 2
ZONE: RURAL RESIDENTIAL 1 (RR1)
USE: RES. DEV LAND

2. MICHAEL BUCCI
MAP 309, PARCEL 15
ZONE: RR1
USE: RES. UNDEV LAND

3. ANTHONY DEPOTO
MAP 323, PARCEL 44
ZONE: RR1
USE: RES. UNDEV LAND

4. STUART KLEIN
MAP 324, PARCEL 31
ZONE: RR1
USE: ONE FAMILY

5. EDWARD MAZUKINA
MAP 323, PARCEL 2
ZONE: RR1
USE: ONE FAMILY

6. WILLIAM LESSARD
MAP 323, PARCEL 4
ZONE: RR1
USE: ONE FAMILY

7. GREGORY & JILL KUYKENDALL
MAP 323, PARCEL 5
ZONE: RR1
USE: ONE FAMILY

8. HEDWIG & KARL VONNEGUT
MAP 323, PARCEL 6
ZONE: RR1
USE: ONE FAMILY

9. ROBERT BECKMANN
MAP 323, PARCEL 7
ZONE: RR1
USE: ONE FAMILY

10. COMMONWEALTH OF MASSACHUSETTS
MAP 323, PARCEL 40
ZONE: RR1
USE: SNR – PARKS & RECREATION

11. PATRICIA MORSE
MAP 323, PARCEL 41
ZONE: RR1
USE: 61A/61B/COM

12. ERIC & KRISTEN POLITO
MAP 323, PARCEL 43
ZONE: RR1
USE: ONE FAMILY

13. BARBARA & HARRY COCHRAN
MAP 310, PARCEL 1
ZONE: RR1
USE: ONE FAMILY

14. PATRICIA MORSE
MAP 323, PARCEL 46
ZONE: RR1
USE: 61A/61B/COM

15. COMMONWEALTH OF MASSACHUSETTS
MAP 293, PARCEL 1
ZONE: RR1
USE: SNR– PARKS & RECREATION

16. TOWN OF FRANKLIN
MAP 310, PARCEL 2
ZONE: RR1
USE: VACANT – CONSERVATION

17. GARY & SUSAN NASSOIY
MAP 308, PARCEL 20
ZONE: RR1
USE: ONE FAMILY

18. CHRISTOPHER QUEALLY
MAP 308, PARCEL 21
ZONE: RR1
USE: ONE FAMILY

19. JOHN WAHLBERG
MAP 308, PARCEL 22
ZONE: RR1
USE: ONE FAMILY

20. TORI DUNHAM
MAP 308, PARCEL 23
ZONE: RR1
USE: ONE FAMILY

21. KYLE & KERI VINING
MAP 308, PARCEL 25
ZONE: RR1
USE: ONE FAMILY

22. FLOYD HENO
MAP 308, PARCEL 76
ZONE: RR1
USE: 61A/61B/COM

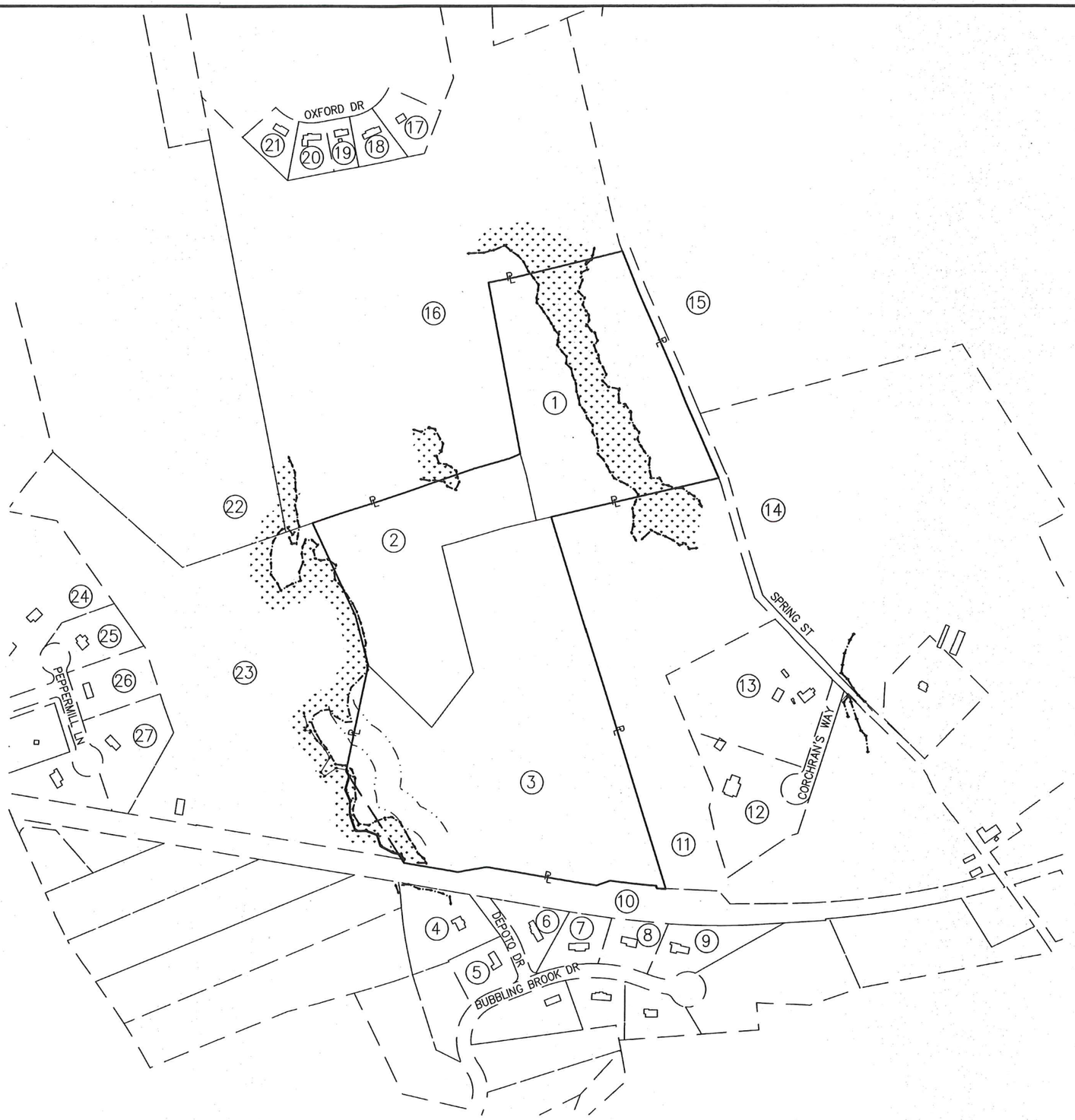
23. ALAN & LISA DAVIS
MAP 324, PARCEL 17
ZONE: RR1
USE: ONE FAMILY

24. MARK & ALEXANDRA LEPAGE
MAP 309, PARCEL 12
ZONE: RR1
USE: ONE FAMILY

25. JOSEPH & MICHELE TODESCA
MAP 309, PARCEL 13
ZONE: RR1
USE: ONE FAMILY

26. MICHAEL & KATHLEEN FITZGERALD
MAP 309, PARCEL 14
ZONE: RR1
USE: ONE FAMILY

27. STEPHEN & NANCY CUNNINGHAM
MAP 324, PARCEL 16
ZONE: RR1
USE: ONE FAMILY



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GRAPHIC SCALE
120 0 120 240
(IN FEET)
1 inch = 120 feet

SHEET TITLE
VICINITY MAP

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MARVILLE
CIVIL
No. 28523
REGISTERED PROFESSIONAL ENGINEER
4/9/19
P.E.

DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101

C1.0
PLAN NO. L-5691

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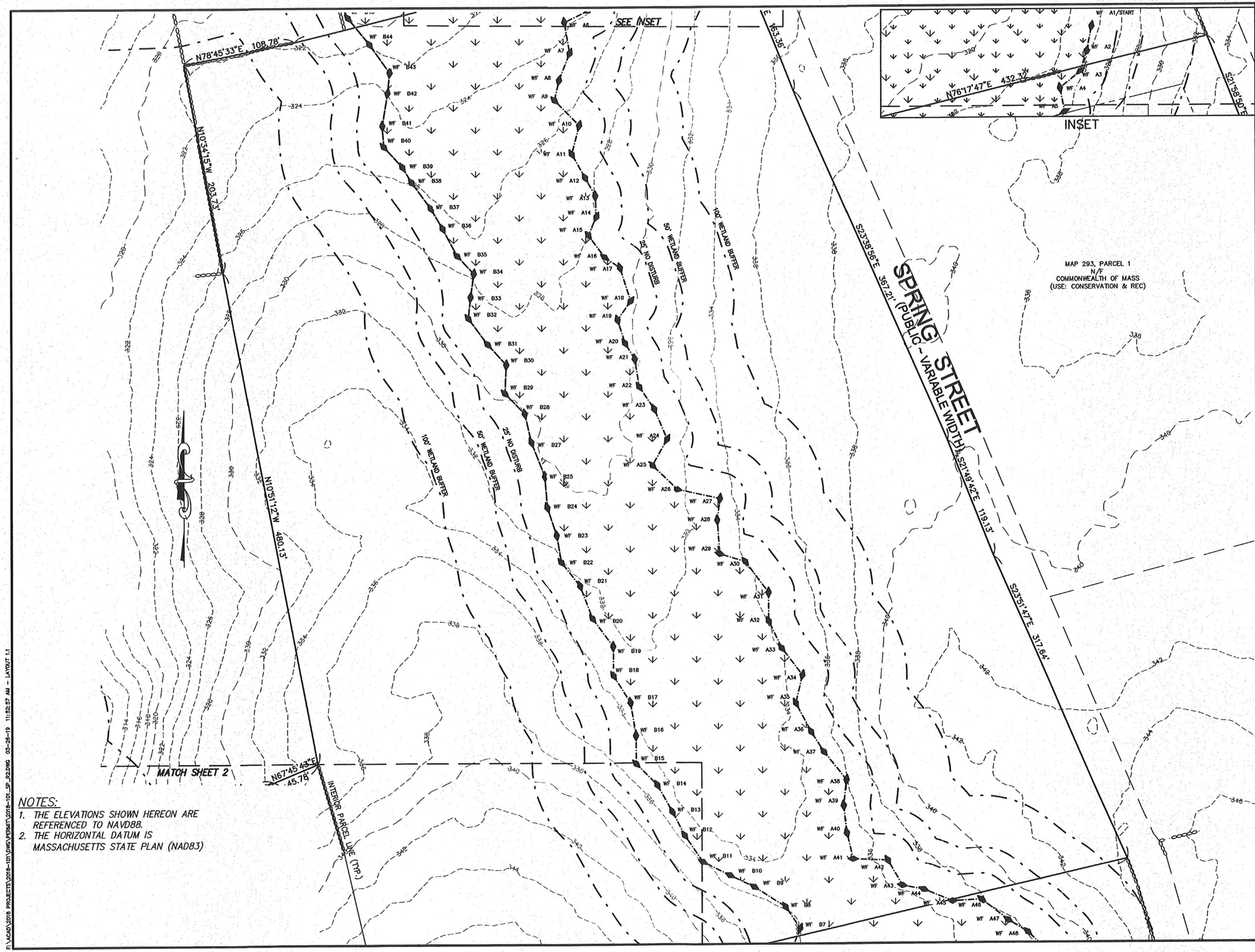

NOTES:

1. THE ELEVATIONS SHOWN HEREON ARE REFERENCED TO NAVD88.
2. THE HORIZONTAL DATUM IS MASSACHUSETTS STATE PLAN (NAD83)

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FRANKLIN PLANNING BOARD

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THIS CERTIFIES THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE FRANKLIN PLANNING BOARD HAS BEEN RECEIVED AND RECORDED ON _____ AT _____ AND NO APPEAL WAS RECEIVED DURING THE 20 DAYS NEXT AFTER SUCH RECEIPT OF SAID NOTICE.

FRANKLIN TOWN CLERK DATE

PROJECT: LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM
SPRING STREET
FRANKLIN, MA

APPLICANT: SPRING ST. RENEWABLES, LLC
101 SUMMER STREET
BOSTON, MA 02110

REVISIONS		
NO.	DATE	DESCRIPTION
1	02/1/19	PEER REVIEW COMMENTS
2	03/11/19	DEP COMMENTS

GRAPHIC SCALE

0 20 40 80
(IN FEET)
1 inch = 40 feet

SHEET TITLE

EXISTING CONDITIONS

SHEET 1 OF 3

COMMONWEALTH OF MASSACHUSETTS
BYRON J. ANDREWS
No. 47080
REGISTERED PROFESSIONAL LAND SURVEYOR
3/25/19
P.L.S

DES BY: KNP | DATE: NOVEMBER 21, 2018
CHK BY: RMM | PROJECT NO. 2018-101

C1.1
PLAN NO. L-5691

MAP 308, PARCEL 24
N/F
TOWN OF FRANKLIN
(USE: VACANT CONSERVATION)

MAP 323, PARCEL 41
N/F
WADSWORTH FARM REALTY TRUST
PATRICIA MORSE, TR.
(USE: CH 61A/61B)

MAP 324, PARCEL 17
N/F
ALAN DAVIS
(USE: RESIDENTIAL)

N67°45'45"E 45.78'
N73°59'44"E 141.06'
N71°04'10"E 291.54'
N72°19'35"E 266.81'
N71°07'49"E 112.76'
N24°59'54"W 398.50'
N14°38'21"W 202.93'
S77°04'30"W 673.40'

INTERIOR PARCEL LINE (TYP.)

25' NO DISTURB
50' WETLAND BUFFER
100' WETLAND BUFFER

MATCH SHEET 1
MATCH SHEET 3

NOTES:
1. THE ELEVATIONS SHOWN HEREON ARE REFERENCED TO NAVD88.
2. THE HORIZONTAL DATUM IS MASSACHUSETTS STATE PLAN (NAD83)

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ASE
Andrews Survey & Engineering, Inc.
Land Surveying - Civil Engineering - Site Planning
P.O. Box 312, 104 Meadon Street
Uxbridge, Massachusetts 01569
P: 508-278-3897 F: 508-278-2289
500 East Washington Street
North Attleboro, Massachusetts 02760
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APPROVAL UNDER SITE PLAN REVIEW.
FRANKLIN PLANNING BOARD

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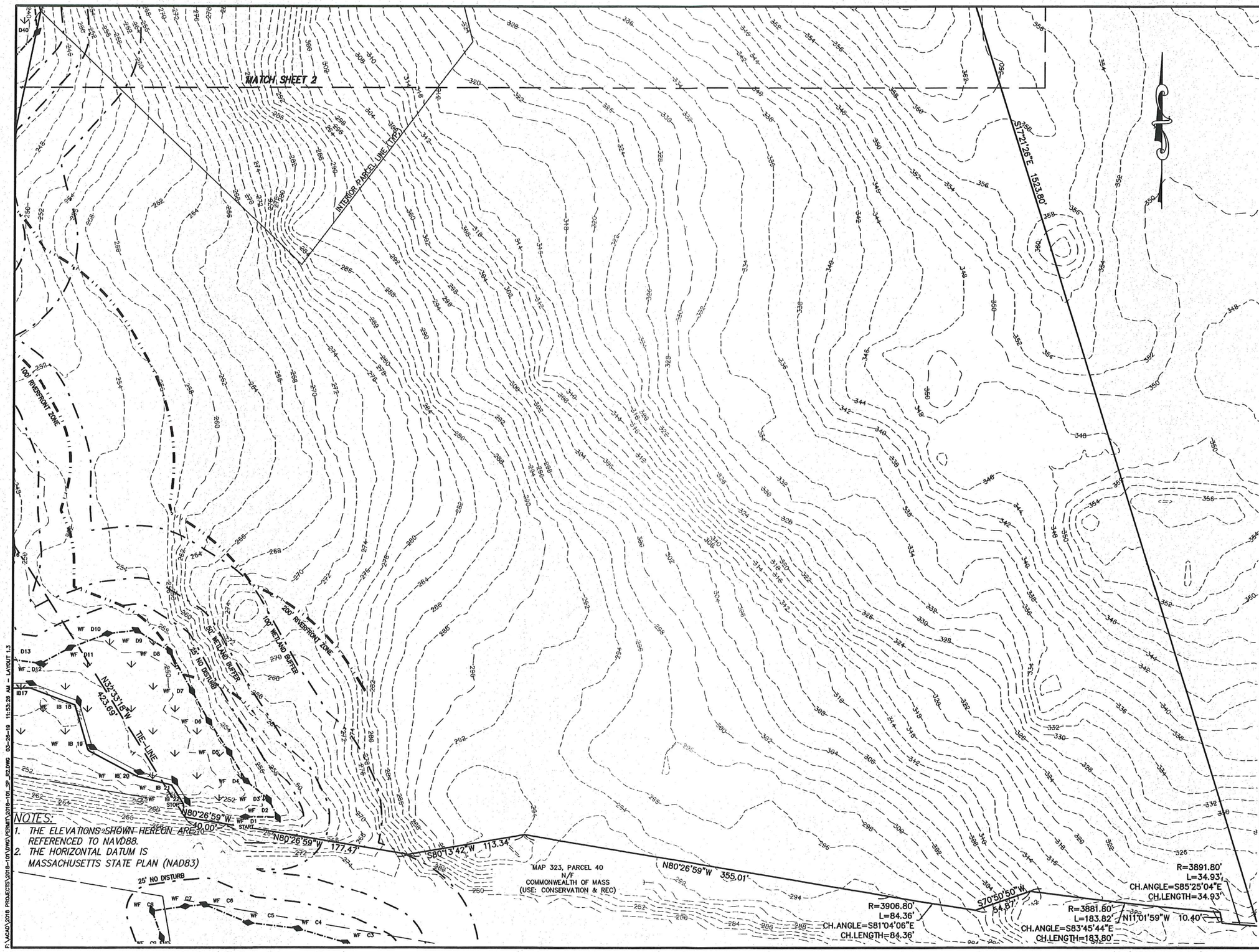
GRAPHIC SCALE
(IN FEET)
1 inch = 40 feet

SHEET TITLE
EXISTING CONDITIONS
SHEET 2 OF 3

COMMONWEALTH OF MASSACHUSETTS
BYRON K. ANDREWS No. 47308
REGISTERED PROFESSIONAL LAND SURVEYOR
3/25/19
P.L.S

DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101
C1.2
PLAN NO. L-5691



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SPRING STREET
FRANKLIN, MA

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101 SUMMER STREET
BOSTON, MA 02110

REVISIONS

NO.	DATE	DESCRIPTION
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2	03/11/19	DEP COMMENTS

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 feet

SHEET TITLE

EXISTING CONDITIONS

SHEET 3 OF 3

BYRON J. ANDREWS No. 47899 REGISTERED PROFESSIONAL LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS
3/25/19
P.L.S

DES BY: KNP | DATE: NOVEMBER 21,2018
CHK BY: RMM | PROJECT NO. 2018-101

C1.3
PLAN NO. L-5891

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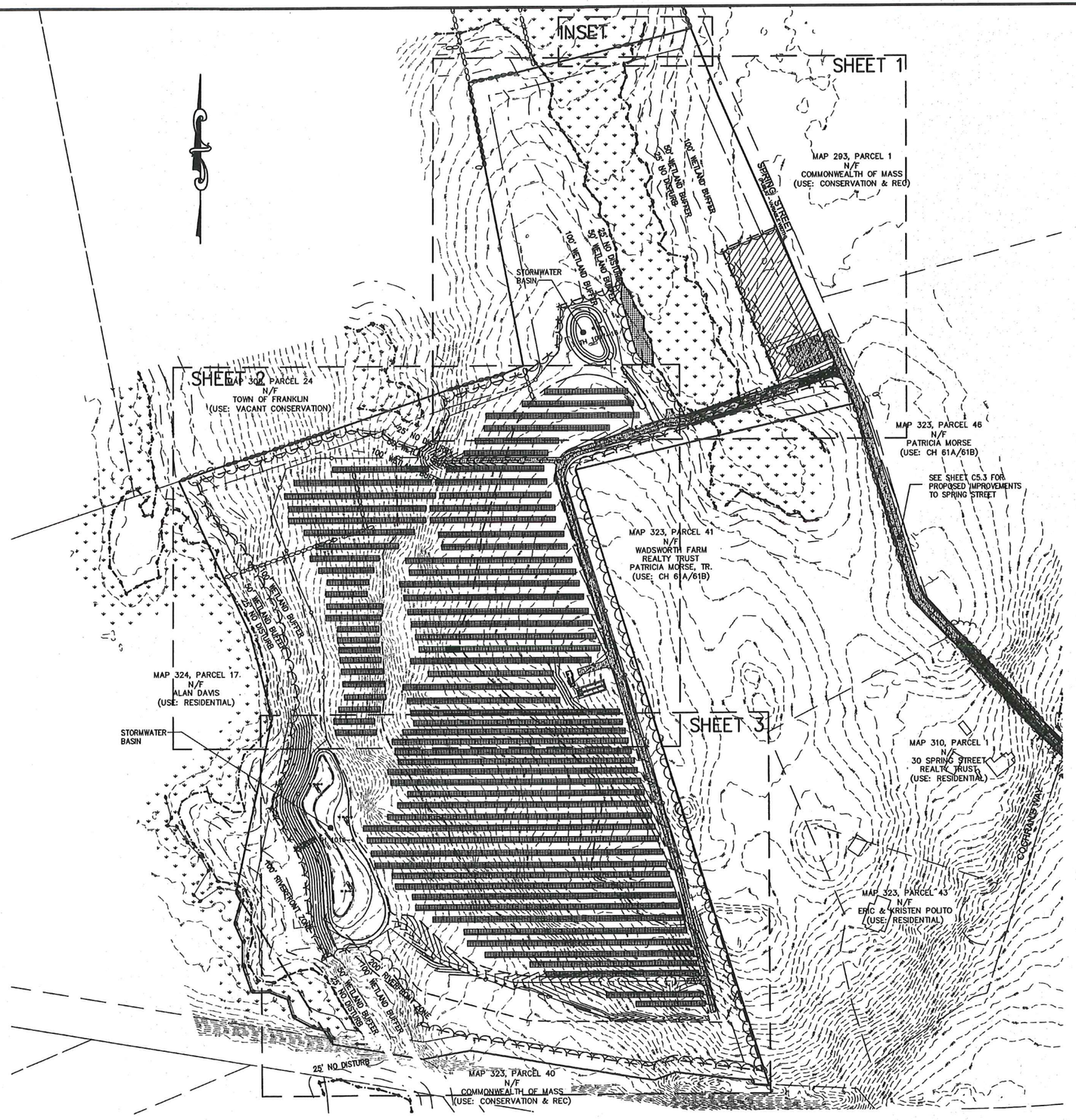
ZONING REQUIREMENTS

ZONE: RURAL RESIDENTIAL I
PROPOSED USE: GROUND-MOUNTED SOLAR PV SYSTEM

	REQUIRED	PROPOSED
AREA	40,000 SF	2,098,739 SF
FRONTAGE	200 FT	667 FT
DEPTH	200 FT	1,531 FT
LOT WIDTH	180' DIA.	667' DIA.
FRONT YARD	40 FT	40 FT
SIDE YARD	40 FT	40 FT
REAR YARD	40 FT	40 FT
MAXIMUM HEIGHT	35 FT	N/A
MAXIMUM IMPER. COVERAGE OF EXISTING UPLAND	25%	(971 SF /1,924,650) 0.05%

OBSERVATION TEST HOLE DATA
PERFORMED BY: JOHN MADEIROS, R.S., SE#2849
ANDREWS SURVEY & ENGINEERING, INC. (10/16/18 & 10/17/18)

TH 1016-3 (ELEV. = 261.0)		
0-3"	A	FSL
3-16"	B	FSL
16-48"	C1	SL
48-84"	C2	SAND
ESHGWT @ 3.0' (258.0)		
WATER @ 5' (256.0)		
REFUSAL @ N/A		
TH 1016-4 (ELEV. = 260.0)		
0-3"	A	FSL
3-30"	B	FSL
30-84"	C	SAND
ESHGWT @ 2.5' (257.5)		
WATER @ 5.2' (254.8)		
REFUSAL @ N/A		
TH 1016-5 (ELEV. = 261.0)		
0-4"	A	FSL
4-32"	B	FSL
32-96"	C	SAND
ESHGWT @ 2.3' (258.7)		
WATER @ 6.8' (254.2)		
REFUSAL @ N/A		
TH 1017-10 (ELEV. = 267.0)		
0-6"	A	FSL
6-24"	B	FSL
24-98"	C	SAND
ESHGWT @ 4.0' (263.0)		
WATER @ 7.0' (260.0)		
REFUSAL @ N/A		
TH 1017-18 (ELEV. = 338.8)		
0-10"	A	FSL
10-18"	B	FSL
18-120"	C	SL
ESHGWT @ 5' (333.8)		
WATER @ 9' (329.8)		
REFUSAL @ N/A		



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LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM
SPRING STREET
FRANKLIN, MA

APPLICANT:
SPRING ST. RENEWABLES, LLC
101 SUMMER STREET
BOSTON, MA 02110

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3	03/28/19	PER 3/28/19 WSI REVIEW
4	04/08/19	PER TOWN/PEER REVIEW COMMENTS

GRAPHIC SCALE

120 0 120 240
(IN FEET)
1 inch = 120 feet

SHEET TITLE

SITE PLAN

INDEX SHEET

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MANVILLE
CIVIL
No. 29023
REGISTERED PROFESSIONAL ENGINEER
2/4/19
P.E.

DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101

C2.0

PLAN NO. L-5691

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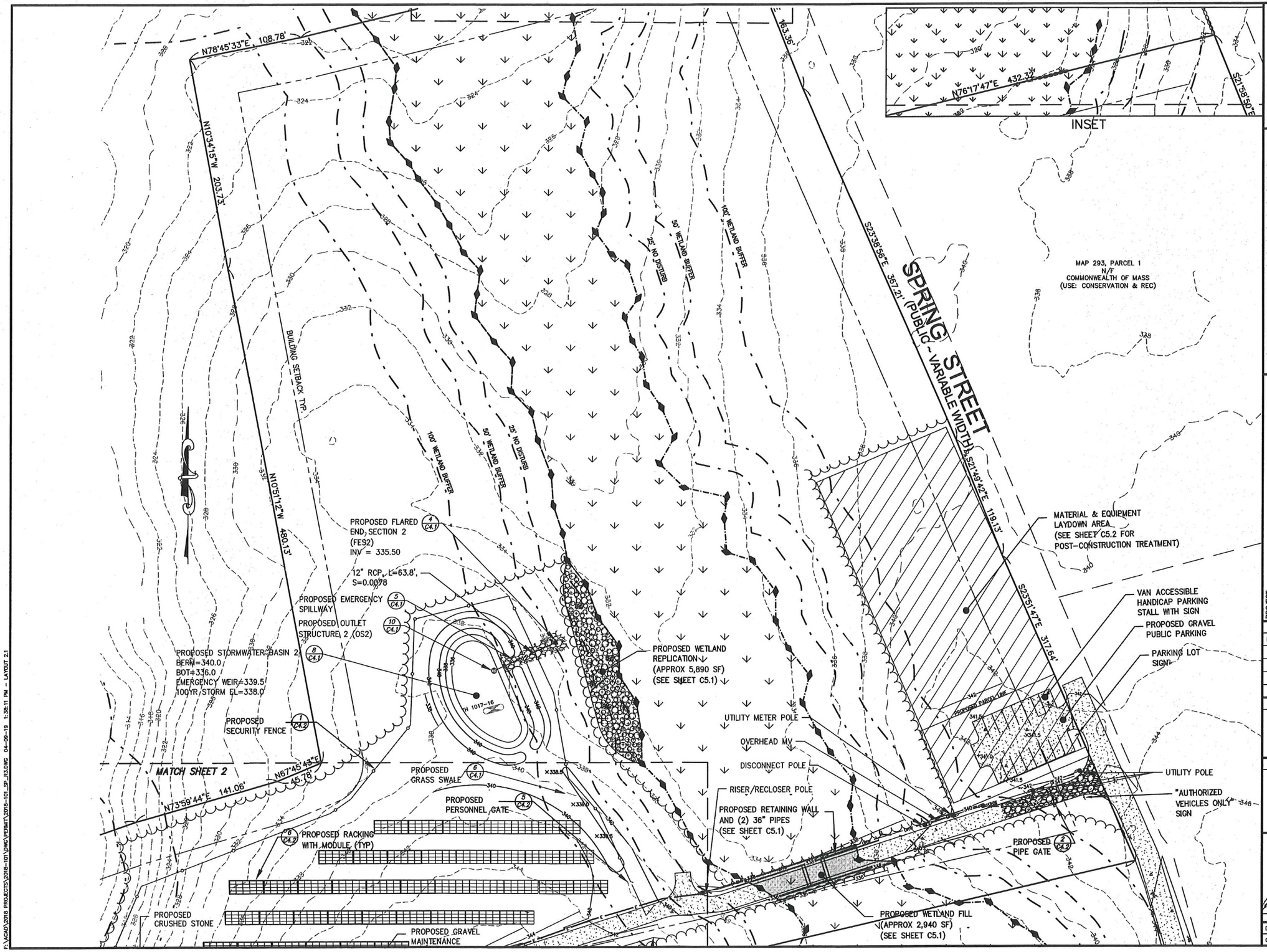

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BOSTON, MA 02110

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4	04/08/19	PER TOWN/PEER REVIEW COMMENTS

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 feet

SHEET TITLE

SITE PLAN

SHEET 1 OF 3

RICHARD M. MARVILLE CIVIL No. 28323 REGISTERED PROFESSIONAL ENGINEER
P.E.

DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101

C2.1

PLAN NO. L-5691

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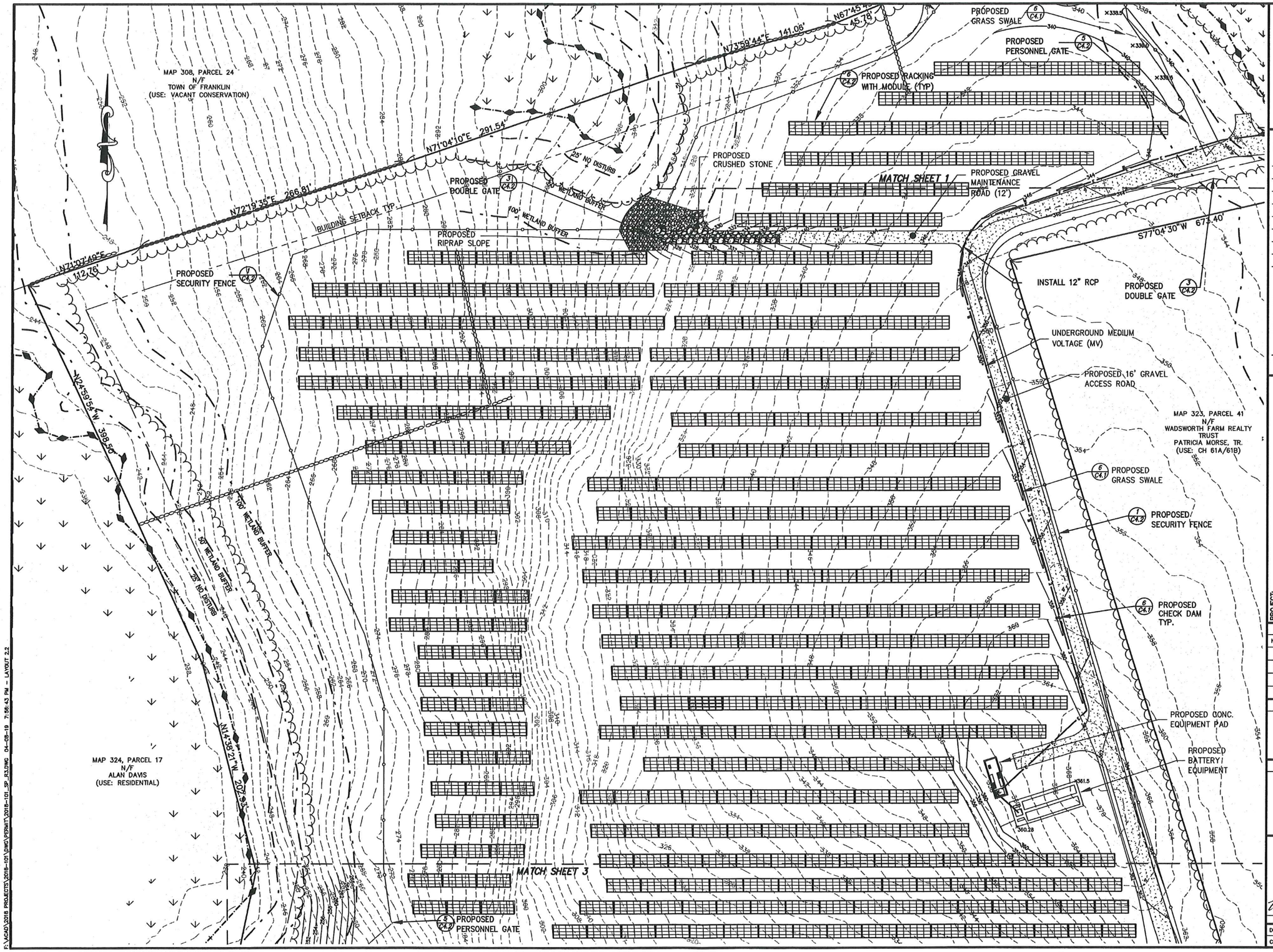

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SPRING STREET
FRANKLIN, MA

APPLICANT:
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101 SUMMER STREET
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GRAPHIC SCALE

0 20 40 80
(IN FEET)
1 inch = 40 feet

SHEET TITLE

SITE PLAN

SHEET 2 OF 3

RICHARD M. MARVILLE CIVIL No. 28023 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

P.E.

DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101

C2.2

PLAN NO. L-5691

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PROPOSED PERSONNEL GATE (5 C4.2)

MATCH SHEET 2

TH 10-16-3

12" RCP, L=39.9', S=0.025

PROPOSED EMERGENCY SPILLWAY (5 C4.1)

PROPOSED OUTLET STRUCTURE 1 (OS1) (9 C4.1)

TH 10-17-10

TH 10-16-4

TH 10-16-5

100' RIVERFRONT ZONE

PROPOSED FLARED END SECTION 1 (FES1) INV = 260.0 (10 C4.1)

200' RIVERFRONT ZONE

100' WETLAND BUFFER

50' WETLAND BUFFER

25' NO DISTURB

PROPOSED STORMWATER BASIN 1 (6 C4.1)
BERM=266.0
BOT=261.0
EMERGENCY WEIR=265.0
100YR STORM EL=264.85

PROPOSED RIP-RAP SWALE (3 C4.1)

PROPOSED GRASS SWALE (6 C4.1)

PROPOSED CHECK DAM TYP. (6 C4.1)

PROPOSED SECURITY FENCE (2 C4.2)

PROPOSED GRASS SWALE (6 C4.1)

PROPOSED CHECK DAM TYP. (6 C4.1)

PROPOSED GRASS SWALE (6 C4.1)

PROPOSED DOUBLEGATE (3 C4.2)

PROPOSED SNOW STORAGE AREA

S17°21'26"E 1523.80'

N52°33'18"W 423.69'

TIE-LINE

N80°26'59"W 40.00'

N80°26'59"W 177.47'

S80°13'42"W 113.34'

N80°26'59"W 355.01'

BUILDING SETBACK TYP.

25' NO DISTURB

MAP 323, PARCEL 40
N/F
COMMONWEALTH OF MASS
(USE: CONSERVATION & REC)

R=3906.80'
L=84.36'
CH.ANGLE=S81°04'06"E
CH.LENGTH=84.36'

S70°50'50"W 54.87'

R=3881.80'
L=183.82'
N11°01'59"W 10.40'
CH.ANGLE=S83°45'44"E
CH.LENGTH=183.80'

R=3891.80'
L=34.93'
CH.ANGLE=S85°26'04"E
CH.LENGTH=34.93'

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FRANKLIN, MA

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GRAPHIC SCALE

(IN FEET)
1 inch = 40 feet

SHEET TITLE

SITE PLAN

SHEET 3 OF 3

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MAINVILLE
CIVIL
No 28323
REGISTERED PROFESSIONAL ENGINEER

4/8/19
P.E.

DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101

C2.3

PLAN NO. L-5691

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GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 feet

SHEET TITLE
EROSION & SEDIMENT CONTROL PLAN
SHEET 1 OF 3

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MARVILLE
CIVIL
No. 28323
REGISTERED PROFESSIONAL ENGINEER
4/9/19
P.E.

DES BY: KNP DATE: NOVEMBER 21, 2018
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C3.1
PLAN NO. L-5691

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MAP 308, PARCEL 24
N/F
TOWN OF FRANKLIN
(USE: VACANT CONSERVATION)

PROPOSED EROSION CONTROL BARRIER (LIMIT OF WORK)

25' NO DISTURB

50' WETLAND BUFFER

BUILDING SETBACK TYP.

100' WETLAND BUFFER

PROPOSED EROSION CONTROL BARRIER

MATCH SHEET 1

PROPOSED EROSION CONTROL BARRIER (LIMIT OF WORK)

MAP 323, PARCEL 41
N/F
WADSWORTH FARM REALTY TRUST
PATRICIA MORSE, TR.
(USE: CH 61A/61B)

MAP 324, PARCEL 17
N/F
ALAN DAVIS
(USE: RESIDENTIAL)

100' WETLAND BUFFER

50' WETLAND BUFFER

25' NO DISTURB

MATCH SHEET 3

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40 0 20 40 80
(IN FEET)
1 inch = 40 feet

SHEET TITLE

EROSION & SEDIMENT CONTROL PLAN

SHEET 2 OF 3

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MANVILLE
CIVIL
No. 28323
REGISTERED PROFESSIONAL ENGINEER

4/19/19
P.E.

DES BY: KNP DATE: NOVEMBER 21, 2018
CHK BY: RMM PROJECT NO. 2018-101

C3.2
PLAN NO. L-5691

MATCH SHEET 2

TEMPORARY SEDIMENTATION POND

1. TEMPORARY SEDIMENTATION PONDS SHALL BE CONSTRUCTED IMMEDIATELY AFTER TREE CLEARING AND GRUBBING AND PRIOR TO CONSTRUCTION OF THE PROPOSED GRAVEL DRIVE.
2. CONSTRUCT PROPOSED DETENTION POND TO 12" ABOVE FINISHED GRADE.
3. TEMPORARY SEDIMENTATION CONTROLS SHALL REMAIN IN PLACE UNTIL THE PROJECT AREA HAS BEEN SEED AND STABILIZED.
4. ONCE STABILIZED, ANY SEDIMENT ACCUMULATED IN THE PROPOSED DETENTION PONDS SHALL BE REMOVED AND CONSTRUCTED TO FINISH GRADE PER THE SITE PLAN AND DETAIL SHEETS.

100' RIVERFRONT ZONE

200' RIVERFRONT ZONE

50' WETLAND BUFFER

25' NO DISTURB

PROPOSED EROSION CONTROL BARRIER (LIMIT OF WORK) 2/C3.4

PROPOSED EROSION CONTROL BARRIER 2/C3.4

PROPOSED EROSION CONTROL BARRIER (LIMIT OF WORK) 2/C3.4

BUILDING SETBACK TYP.

MAP 323, PARCEL 40
N/F
COMMONWEALTH OF MASS
(USE: CONSERVATION & REC)

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FRANKLIN, MA

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4	04/08/19	PER TOWN/PEER REVIEW COMMENTS

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 feet

SHEET TITLE

EROSION & SEDIMENT CONTROL PLAN

SHEET 3 OF 3

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MAROVILLE
CIVIL
No. 28023
REGISTERED PROFESSIONAL ENGINEER
4/9/19
P.E.

DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101

C3.3
PLAN NO. L-5691

EROSION AND SEDIMENT CONTROL REQUIREMENTS

PART 1 – GENERAL

1.01 SUMMARY

A. FURNISH, INSTALL, AND MAINTAIN TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS, BUT NOT NECESSARILY LIMITED TO, STRAW BALE AND SILT FENCE BARRIERS, RIPRAP, VEHICLE TRACKING PADS, DIVERSION CHANNELS AND BERMS, CHECK DAMS, STRATEGICALLY LOCATED STOCKPILES, SEDIMENT BASINS, MULCH, AND SEED MIX (HEREINAFTER "CONTROL MEASURES") ADEQUATE TO PREVENT THE CONVEYANCE OF EROSION PRODUCTS (E.G. SOIL, MULCH, SOD) OFF SITE, OR INTO ENVIRONMENTALLY SENSITIVE AREAS, OR INTO AREAS WHERE WORK WILL BE ADVERSELY IMPACTED. ENVIRONMENTALLY SENSITIVE AREAS INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, WETLANDS, TRIBUTARIES TO WETLANDS, WETLAND BUFFER ZONES, INTERMITTENT AND PERENNIAL STREAMS / RIVERS, AND THEIR ATTENDANT BUFFER ZONES.

ALL METHODS AND MATERIALS USED FOR EROSION CONTROL SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN "EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS A GUIDE FOR PLANNERS, DESIGNERS, AND MUNICIPAL OFFICIALS" AS PUBLISHED BY THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF RESOURCE PROTECTION, UNLESS OTHERWISE APPROVED IN WRITING.

1. REFER TO DRAWINGS FOR LOCATION AND DETAILS OF LIMITS OF DISTURBANCE AND CONTROL MEASURES REQUIRED TO COMMENCE WORK. LIMITS OF DISTURBANCE SHALL BE MARKED WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE PRIOR TO COMMENCING ANY LAND DISTURBANCE ACTIVITIES. CONTROL MEASURES WILL BE ADEQUATE ONLY FOR VEGETATION CLEARING. THE DRAWINGS ARE NOT INTENDED TO GRAPHICALLY DEPICT ALL CONTROL MEASURES THAT WILL BE REQUIRED TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A.

2. DEVISE AND EMPLOY CONTROL MEASURES THROUGHOUT THE DURATION OF PROJECT, OVER ALL AREAS DISTURBED OR UNDISTURBED BY CONSTRUCTION, AS NECESSARY TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A

3. DEVISE AND EMPLOY TEMPORARY CONTROL MEASURES AS NECESSARY TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A WHILE ALLOWING WORK TO PROCEED IN AN EFFICIENT, COST EFFECTIVE MANNER.

4. DEVISE, EMPLOY AND MAINTAIN CONTROL MEASURES UNTIL SUCH TIME AS THE ENTIRE SITE IS PERMANENTLY STABILIZED BY ESTABLISHED VEGETATION, FINISH LANDSCAPE MATERIALS, PAVED SURFACES, AND/OR ROOF AREA.

5. ONCE THE SITE IS PERMANENTLY STABILIZED AND CERTIFIED AS SUCH BY ENGINEER, REMOVE TEMPORARY CONTROL MEASURES WHILE PROTECTING STABILIZED SURFACES.

1.02 SUBMITTALS

A. SUBMIT PRODUCT DATA, WARRANTY, AND TEST REPORTS AS INDICATED ON THE DRAWINGS.

B. SUBMIT SKETCH SHOWING LOCATIONS OF PROPOSED STOCKPILE AREAS, CONSTRUCTION ENTRANCES AND EROSION CONTROLS IF NOT SHOWN ON THE SITE PLAN OR DIFFERENT FROM THOSE LOCATIONS SHOWN ON THE SITE PLAN.

C. A SITE SPECIFIC SEQUENCE OF CONSTRUCTION FOR EACH PORTION OF THE SITE. NO PORTION OF THE SITE SHALL EXCEED FIVE (5) ACRES.

1.03 QUALITY ASSURANCE

A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS FROM ACCEPTABLE MANUFACTURERS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. CONFORM TO CONDITIONS OF APPROVAL ISSUED BY REGULATORY AGENCIES INCLUDING, BUT NOT NECESSARILY LIMITED TO, LOCAL PLANNING BOARD, CONSERVATION COMMISSION, CITY COUNCIL, BOARD OF HEALTH, PUBLIC WORKS / HIGHWAY DEPARTMENT, STATE ENVIRONMENTAL PROTECTION DEPARTMENT, AND U.S. GOVERNMENT, ENVIRONMENTAL PROTECTION AGENCY. WHERE CONDITIONS OF REGULATORY APPROVAL DIFFER FROM REQUIREMENTS CONTAINED HEREIN OR ON THE DRAWINGS, COMPLY WITH THE MORE STRINGENT REQUIREMENT.

PART 2 – PRODUCTS

2.01 MATERIALS

A. DOUBLE ROW 12" COMPOST BIODEGRADABLE FILTERMITT: EACH FILTERMITT ROW SHALL BE STAKED WITH A MINIMUM OF 1"x1"x36" LONG HARDWOOD STAKES, PLACED AT 4' O.C (SEE DETAIL).

B. MULCH: ORGANICS INCLUDING STRAW, PROCESSED PINE / HEMLOCK TWIGS AND NEEDLES.

C. SEED MIXES: SHALL MEET THE REQUIREMENTS OF MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION SECTION 6.03.0 OR 6.03.1 AS APPROPRIATE.

D. EXCELSIOR BLANKET: CURLED WOOD FIBER ON PHOTODEGRADABLE EXTRUDED PLASTIC MATRIX, 80% OF FIBERS 6-INCHES LONG OR LONGER, WEIGHT 0.975 POUNDS / SY, CONTAINING NO CHEMICAL ADDITIVES. USE CURLEX I BLANKET BY AMERICAN EXCELSIOR COMPANY, OR APPROVED EQUAL.

E. ROCK RIPRAP: SOUND, ANGULAR, 6-INCH MINUS PROCESSED ROCK, BLAST ROCK, OR TAILINGS.

F. CRUSHED STONE: SOUND, ANGULAR, 2-INCH MINUS PROCESSED CRUSHED STONE.

PART 3 – EXECUTION

3.01 THROUGHOUT CONSTRUCTION

A. DEVISE WORK SEQUENCE SO AS TO LIMIT DRAINAGE AREA THAT IS TRIBUTARY TO DISTURBED AREAS. DEVISE, EMPLOY, AND MAINTAIN CONTROL MEASURES SUCH AS DIVERSION CHANNELS AND BERMS, STRATEGICALLY LOCATED STOCKPILES, AND SEDIMENT BASINS TO SUBDIVIDE DRAINAGE AREAS INTO SMALL, MANAGEABLE SUBAREAS, THEREBY MINIMIZING RUNOFF AND THE POTENTIAL FOR EROSION.

B. MAINTAIN BARRIER AT LIMIT OF WORK AND PROTECT EXISTING VEGETATION / FACILITIES OUTSIDE OF LIMIT OF WORK.

C. MAINTAIN SPARE MATERIAL STOCKPILES FOR IMMEDIATE EMPLOYMENT / REPAIR / EXPANSION OF CONTROL MEASURES. AT A MINIMUM, SUCH MATERIALS SHALL INCLUDE HAY BALES, SILT FENCE AND STAKES, AND CRUSHED STONE.

D. INSPECT AND MAINTAIN EFFECTIVENESS OF CONTROL MEASURES BY REPAIRING AS NECESSARY TO ENSURE INTENDED FUNCTION; BY SUPPLEMENTING AS NECESSARY FOR ADEQUATE EXTENT; BY REMOVING TRAPPED PRODUCTS OF EROSION AS NECESSARY TO MAINTAIN EFFECTIVE TRAP VOLUME.

E. LIMIT EXTENT OF WORK AREA SO THAT ALL DISTURBED AREAS CAN BE STABILIZED WITH CONTROL MEASURES WITHIN A 24-HOUR PERIOD.

F. INSTALL CONTROL MEASURES AS SOON AS PRACTICABLE AFTER EACH MANAGEABLE PORTION OF EARTHWORK IS COMPLETE. EMPLOY TEMPORARY MEASURES AS NECESSARY TO STABILIZE DISTURBED AREAS, EVEN WHERE SUBSEQUENT CONSTRUCTION OPERATIONS MAY REQUIRE RE-DISTURBANCE.

PART 3 – CONTINUED

G. WHEN INTENSE RAINFALL IS EXPECTED, CONSIDER, DEVISE, AND EMPLOY REINFORCING CONTROL MEASURES PRIOR TO THE RAINFALL EVENT TO MEET THE REQUIREMENTS DESCRIBED IN 1.01.A. IF NECESSARY, EMPLOY TEMPORARY CONTROL MEASURES ON MATERIAL STOCKPILES TO COUNTERACT POTENTIAL SEDIMENT TRANSPORT DURING INTENSE RAINFALL.

H. WHEN VEHICLE REFUELING IS REQUIRED ON SITE, CONDUCT REFUELING OPERATIONS OUTSIDE OF ENVIRONMENTALLY SENSITIVE AREAS.

I. PROPERLY DISPOSE OF DEBRIS, SOLID WASTE, TRASH, AND CONSTRUCTION WASTE / BYPRODUCTS OFF SITE.

J. SWEEP ON-SITE PAVED AREAS AND OFF-SITE STREETS AS NECESSARY TO PREVENT SILT AND DEBRIS ORIGINATING ON SITE FROM ENTERING CLOSED DRAINAGE SYSTEMS AND / OR ENVIRONMENTALLY SENSITIVE AREAS. WHEN NECESSARY UTILIZE WATER SPRAYING, SURFACE ROUGHENING AND/OR APPLY POLYMERS, SPRAY-ON TACKIFIERS, CHLORIDES AND BARRIERS FOR DUST CONTROL.

K. INSPECT EROSION CONTROLS DAILY THROUGHOUT CONSTRUCTION REPAIR DAMAGED CONTROLS IMMEDIATELY.

3.02 SITE PREPARATION AND ACCESS

A. WALK SITE AND IDENTIFY LOCATIONS OF LIMIT OF WORK AND ENVIRONMENTALLY SENSITIVE AREAS. ESTABLISH CONSTRUCTION STAGING AREA, LOCATED BEYOND ENVIRONMENTALLY SENSITIVE AREAS.

B. INSTALL CONTROL MEASURES AS SHOWN ON THE DRAWINGS, INCLUDING THOSE DEFINING THE LIMIT OF WORK.

C. LIMIT VEHICULAR TRAFFIC TO AND FROM SITE TO MINIMIZE TRANSPORT OF SEDIMENT.

3.03 CLEARING, GRUBBING, AND STRIPPING

A. SCHEDULE GRUBBING AND STRIPPING TO OCCUR IMMEDIATELY PRIOR TO EARTH DISTURBANCE. DEPENDING ON SITE AREA, CONSIDER MULTIPLE GRUBBING PHASES, SEQUENCED TO TAKE ADVANTAGE OF THE EROSION PREVENTION POTENTIAL OF EXISTING VEGETATIVE COVER.

B. MINIMIZE THE AREA OF EXISTING VEGETATION REMOVED WHEREVER POSSIBLE. NO GREATER THAN FIVE (5) ACRES SHALL BE UNSTABLE AT ANY TIME.

C. LOCATE AND SIZE STOCKPILES TO MINIMIZE EROSION POTENTIAL, TAKING ADVANTAGE OF TERRAIN SLOPE AND ASPECT, WHERE APPROPRIATE.

D. PROTECT VEGETATION, INCLUDING ROOT SYSTEMS, BEYOND LIMIT OF CLEARING.

E. PROCESS TIMBER, STUMPS, SLASH, AND BRUSH SO AS TO PROTECT ENVIRONMENTALLY SENSITIVE AREAS AND INSTALLED CONTROL MEASURES. PROPERLY DISPOSE OF EXCESS OFF SITE. BURIAL OF STUMPS ON SITE IS PROHIBITED.

3.04 EXCAVATION FOR BUILDING FOUNDATIONS AND UTILITIES

A. DEVISE AND INSTALL CONTROL MEASURES ADEQUATE TO HANDLE DISCHARGES AND TRAP SEDIMENT FROM FOOTING SUMP AND WELL POINT PUMPS PRIOR TO EXCAVATION.

B. ARMOR SUMP PUMP DISCHARGE LOCATIONS TO PREVENT EROSION AT POINT OF DISCHARGE AND AREAS DOWNSTREAM.

C. IF FOUNDATION EXCAVATIONS GRADE TO DAYLIGHT ON THE LOW SIDE, DEVISE AND INSTALL CONTROL MEASURES TO HANDLE SURFACE AND GROUNDWATER FLOW FROM EXCAVATION LOW POINT.

D. STOCKPILE EXCAVATED MATERIALS TO BAFFLE OVERLAND RUNOFF, AVOIDING THE CREATION OF LENGTHY PATHS OF CONCENTRATED RUNOFF. STOCKPILE SLOPES SHALL NOT EXCEED 2:1.

E. BACKFILL UTILITY TRENCHES AS SOON AS PRACTICABLE TO PREVENT FLOODING, SLOUGHING, POTENTIAL OVERFLOW, AND REPETITIVE EARTH DISTURBANCE.

3.05 SITE GRADING

A. WHERE APPLICABLE, FOLLOW EXCAVATION AND FILL PRACTICES SHOWN ON DRAWINGS TO LOCALIZE AND MINIMIZE EROSION.

B. MONITOR SEDIMENT VOLUME IN TEMPORARY SEDIMENT BASINS AND AT DIVERSION BERMS AND CHECK DAMS. IN ALL AREAS EXCEPT THOSE THAT DO NOT PRESENT POTENTIAL PROBLEMS WITH REGARD TO FUTURE SOIL STABILITY, DRAINAGE, OR BEARING CAPACITY, REMOVE AND PROPERLY DISPOSE OF TRAPPED SEDIMENT BEFORE BRINGING SITE TO FINAL SUBGRADE.

C. EXPOSED SOILS SHALL BE PERMANENTLY STABILIZED WITHIN FIVE (5) BUSINESS DAYS OF COMPLETION OF CONSTRUCTION OF A GIVEN AREA. EXPOSED AREAS WHERE NO WORK HAS OCCURRED FOR FOURTEEN (14) DAYS SHALL BE TEMPORARILY STABILIZED WITH HYDROSEED OR OTHER APPROVED METHOD.

D. SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED IMMEDIATELY AFTER COMPLETION.

3.06 LANDSCAPING

A. COMPLETE LANDSCAPING AS SOON AS POSSIBLE AFTER COMPLETION OF FINAL SUBGRADE.

B. IMMEDIATELY AFTER PLACEMENT OF TOPSOIL, STABILIZE WITH CONTROL MEASURES INCLUDING, BUT NOT NECESSARILY LIMITED TO, SEED MIX, MULCH, AND / OR BLANKET.

C. PERMANENT SEEDING MAY BE PERFORMED IN THE SPRING PRIOR TO JULY 1 AND IN BETWEEN AUGUST 1 AND OCTOBER 15. PERMANENT SEEDING AT OTHER TIMES SHALL BE APPROVED AND SHALL ONLY BE ALLOWED WITH AN APPROVED MULCHING AND IRRIGATION PROGRAM.

GENERAL SEQUENCE OF CONSTRUCTION

THE INTENDED CONCEPTUAL SEQUENCE OF CONSTRUCTION ACTIVITIES FOR SPRING STREET RENEWABLES, LLC ARE AS FOLLOWS. IT IS ANTICIPATED THAT A SUMMER OF 2019 START TO THIS SEQUENCE WOULD OCCUR, AND THAT THE SEQUENCE WOULD REQUIRE SIX MONTHS TO COMPLETE:

A. CONTACT DIG SAFE (888-344-7233) AND OBTAIN CLEARANCE AT LEAST 72 HOURS BEFORE INITIATING ANY EXCAVATION.

B. NOTIFY THE FRANKLIN CONSERVATION COMMISSION/ AGENT A MINIMUM OF 72 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.

C. STAKE SILTATION FENCE AND/OR HAYBALE LINES THAT SHALL ALSO SERVE AS THE LIMIT OF ACTIVITY FOR WORK CREWS. ALSO, INSTALL THE EROSION AND SEDIMENTATION CONTROL MEASURES AROUND PROPOSED AREAS OF DISTURBANCE AND MAINTAIN THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH THE ORDER OF CONDITIONS

D. COORDINATE ONSITE PRE-CONSTRUCTION MEETING WITH THE SITE CONTRACTOR, THE APPLICANT, THE APPLICANT'S ENGINEER, THE FRANKLIN CONSERVATION COMMISSION AGENT, AND ANY OTHER INTERESTED CITY OFFICIALS TO REVIEW THE SEDIMENTATION AND EROSION CONTROL MEASURES PRIOR TO ANY TREE CLEARING IN THE MODULE AREA.

E. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONSTRUCT A TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT PAD AT THE END OF THE EXISTING GRAVEL DRIVE AT SPRING STREET PRIOR TO CLEARING AND GRUBBING FOR SPRING STREET EXTENSION. IN ADDITION, INSTALL THE APPROVED WETLAND CROSSING PER THE ORDER OF CONDITIONS PRIOR TO ACCESS INTO THE SITE WITH ANY CONSTRUCTION EQUIPMENT.

F. LIMITED SITE PREPARATION IN THE AREAS OF THE PROPOSED SPRING STREET EXTENSION IMPROVEMENTS, THE GRAVEL ACCESS DRIVE WITHIN THE SITE AND UP TO THE PROPOSED SOLAR ARRAY AND THE DETENTION BASINS SHALL INCLUDE CLEARING, GRUBBING AND REMOVAL OF EXISTING TREES, VEGETATION, AND DEBRIS.

G. LIMITED ROUGH GRADING AND STABILIZATION IN AREAS WHERE CONSTRUCTION ACCESS IS RESTRICTED DUE TO EXISTING CONDITIONS.

H. CLEAR AND ESTABLISH LAYDOWN AREAS FOR CONSTRUCTION.

I. CONSTRUCT ALL SWALES, TEMPORARY DETENTION BASINS, AND DRAINAGE SYSTEMS AS SHOWN ON THE APPROVED PLANS.

J. ON THE EXTERIOR FACE OF THE DETENTION BASINS, FOR AREAS OF SLOPE WITHOUT SWALE, VEGETATION SHALL CONSIST OF 3:1 MAX SLOPE TO BE SEEDED. IN THE EVENT THAT THE SEEDING FALLS OUTSIDE OF THE RECOMMENDED SEEDING DATES, THE EXTERIOR SLOPES OF THE PONDS SHALL BE STABILIZED.

K. SITE PREPARATION SHALL INCLUDE CLEARING, GRUBBING AND REMOVAL OF EXISTING VEGETATION AND DEBRIS. ALL TREES, STUMPS, BRUSH, SHRUBS, ROOTS, GRASS, WEEDS, RUBBISH, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF FROM THE PROJECT AREA (GRUBBING OF STUMPS SHALL NOT OCCUR IN THE NO-GRUB STUMP ZONES SHOWN ON THE PLANS). AREAS OUTSIDE OF THE LIMITS OF WORK SHALL BE PROTECTED FROM DAMAGE AND NO EQUIPMENT OR MATERIALS SHALL BE STORED IN THESE AREAS. NO STUMPS, TREES, LIMBS, OR BRUSH SHALL BE BURIED IN ANY FILLS OR EMBANKMENTS.

L. UPON SIGNS OF CONCENTRATED FLOW BY EVIDENCE OF GULLYING OR RILLING IN DISTURBED AREAS, HAYBALES OR STONE CHECK DAMS SHALL BE PLACED IN THESE AREAS.

M. CONSTRUCT GRAVEL ACCESS ROAD FROM THE END OF THE EXISTING GRAVEL SPRING STREET ROAD UP TO THE PERIMETER OF THE PROPOSED SOLAR ARRAY, AS SHOWN ON THE PLANS.

N. ESTABLISH A TEMPORARY CONSTRUCTION SUPPORT AREA AND MATERIAL STAGING AREA PRIOR TO THE DELIVERY OF MODULAR UNITS.

O. RECEIVE AND STAGE MATERIALS. RELOCATE COMPONENTS (E.G., CONDUIT, WIRING AND FRAME) TO SOLAR DEVELOPMENT AREA AS THEY ARE REQUIRED.

P. INSTALL PHOTOVOLTAIC (PV) FRAMING POSTS (TYPICALLY SCREWS), MODULE RACKING, TRENCHING, AND INSTALLING UNDERGROUND CONDUIT AND CABLE.

Q. MOUNT THE PV PANELS ON FRAME AT THE SPECIFIED ORIENTATION AND EXPOSURE AND ADJUST AS NECESSARY.

R. ALL DISTURBED AREAS WITHIN THE SOLAR ARRAY AREA SHALL BE RE-ESTABLISHED WITH TOPSOIL AND LOAM WITH MEADOW OR POLLINATOR SEED MIX, AS SHOWN ON THE PLANS. IN THE EVENT THAT THE SEEDING FALLS OUTSIDE OF THE RECOMMENDED SEEDING DATES, DISTURBED AREAS SHALL BE RE-ESTABLISHED USING ALTERNATIVES METHODS AS APPROVED BY THE PROJECT SITE ENGINEER.

S. RUN ABOVE GROUND ELECTRICAL CONDUIT TO PV FRAMES AND INSTALL PANEL WIRING.

T. CONSTRUCT CONCRETE PADS FOR INVERTERS, TRANSFORMERS, ETC. INSTALL AND CONNECT GROUND MOUNTED INVERTERS. A DISCONNECT LOCATION WILL BE ON THE OUTSIDE ON THE NARROWEST SIDE OF THE PLATFORM.

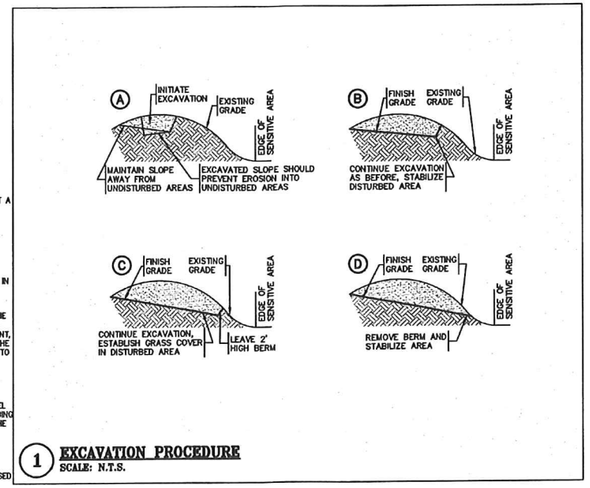
U. CONSTRUCT ALL 7-FOOT-HIGH CHAIN LINK FENCE AND GATES, AS SHOWN ON THE PLANS

V. INSTALL UTILITY OVERHEAD POLES (SHOWN ON PLANS) AT INTERCONNECTION POINT. INSTALL OVERHEAD WIRING.

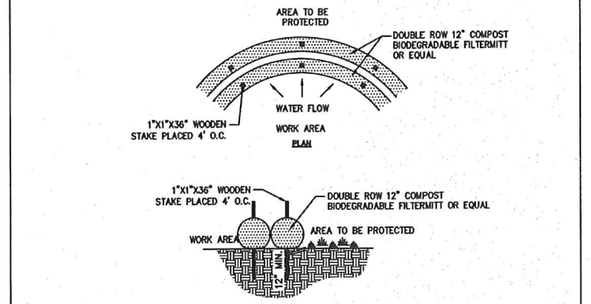
W. CONFIRM ESTABLISHMENT OF ALL VEGETATIVE COVER AND PROPOSED TREE PLANTINGS AS SHOWN ON THE APPROVED PLANS.

X. OBTAIN CERTIFICATE OF COMPLIANCE FROM THE FRANKLIN CONSERVATION COMMISSION. AN INTERIM APPROVAL MAY BE ISSUED UNTIL VEGETATIVE COVER HAS SURVIVED A FULL GROWING SEASON TO ENSURE LONG-TERM VIABILITY.

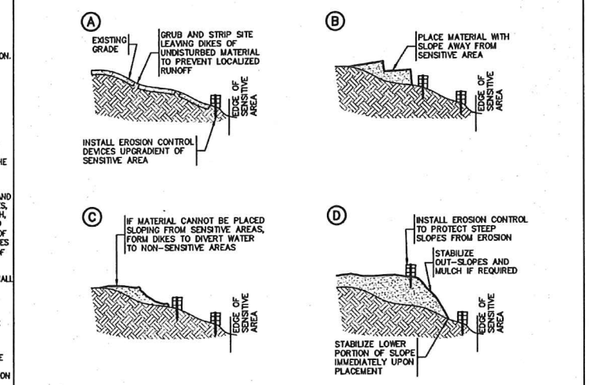
Y. REMOVE AND PROPERLY DISPOSE OF THE PERIMETER EROSION AND SEDIMENTATION CONTROLS.



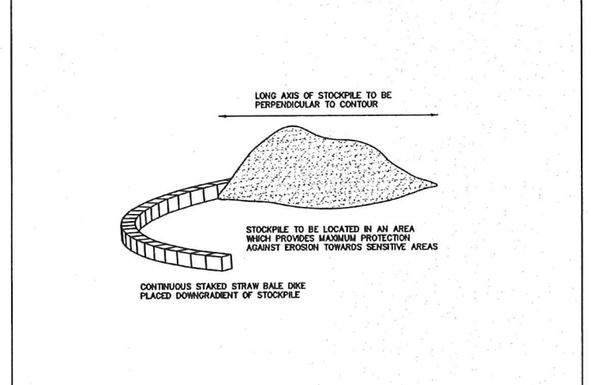
1 EXCAVATION PROCEDURE
SCALE: N.T.S.



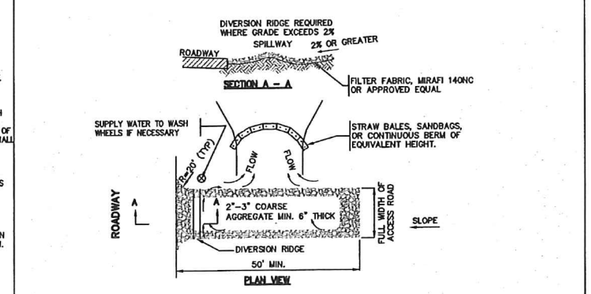
2 EROSION CONTROL BARRIER (ECB)
SCALE: N.T.S.



3 FILL PROCEDURE
SCALE: N.T.S.



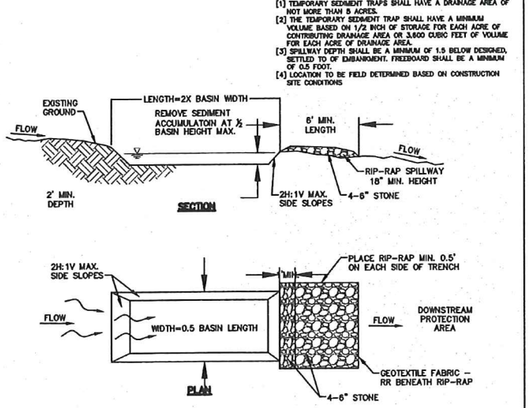
4 TEMPORARY STOCKPILE
SCALE: N.T.S.



NOTES:
[1] THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
[2] WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
[3] WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
[4] USE SANDBAGS, STRAW BALES OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.

5 CONSTRUCTION ENTRANCE
SCALE: N.T.S.

NOTES:
[1] TEMPORARY SEDIMENT TRAPS SHALL HAVE A DRAINAGE AREA OF NOT MORE THAN 5 ACRES.
[2] THE TEMPORARY SEDIMENT TRAP SHALL HAVE A MINIMUM VOLUME BASED ON 1/2 INCH OF STORAGE FOR EACH ACRE OF CONTRIBUTING DRAINAGE AREA OR 3,600 CUBIC FEET OF VOLUME FOR EACH ACRE OF DRAINAGE AREA.
[3] SPILLWAY DEPTH SHALL BE A MINIMUM OF 1.5 BELOW DESIGNED, SETTLED TO 0' EMBANKMENT. FREEBOARD SHALL BE A MINIMUM OF 0.5 FOOT.
[4] LOCATION TO BE FIELD DETERMINED BASED ON CONSTRUCTION SITE CONDITIONS



6 TEMPORARY SEDIMENT TRAP
SCALE: N.T.S.

ASE
Andrews Survey & Engineering, Inc.
Land Surveying - Civil Engineering - Site Planning
P.O. Box 312, 104 Meadon Street
Uxbridge, Massachusetts 01569
P: 508-278-3897 F: 508-278-2289
500 East Washington Street
North Attleboro, Massachusetts 02760
P: 508-316-0452 F: 508-316-8963

APPROVAL UNDER SITE PLAN REVIEW.
FRANKLIN PLANNING BOARD

BEING A MAJORITY DATE:

THIS CERTIFIES THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE FRANKLIN PLANNING BOARD HAS BEEN RECEIVED AND RECORDED ON AT

AND NO APPEAL WAS RECEIVED DURING THE 20 DAYS NEXT AFTER SUCH RECEIPT OF SAID NOTICE.

FRANKLIN TOWN CLERK DATE

PROJECT: LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM
SPRING STREET
FRANKLIN, MA

APPLICANT: SPRING ST. RENEWABLES, LLC
101 SUMMER STREET
BOSTON, MA 02110

REVISIONS

NO.	DATE	DESCRIPTION
1	02/1/19	PEER REVIEW COMMENTS
2	03/11/19	DEP COMMENTS
3	03/28/19	PER 3/28/19 WSI REVIEW
4	04/08/19	PER TOWN/PEER REVIEW COMMENTS

GRAPHIC SCALE

SHEET TITLE

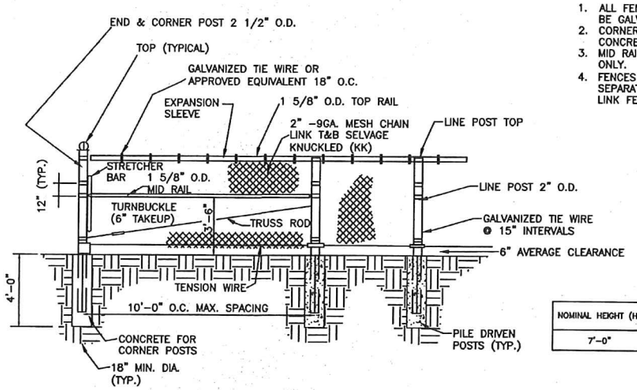
EROSION & SEDIMENT CONTROL NOTES & DETAILS

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MANVILLE
CIVIL
No. 29323
REGISTERED PROFESSIONAL ENGINEER
4/9/19
P.E.

DES BY: KNP DATE: NOVEMBER 21, 2018
CHK BY: RMM PROJECT NO. 2018-101

C3.4
PLAN NO. L-5691

F:\ACAD\2018 PROJECTS\2018-101\DWG\PERMIT\2018-101_SP_R3.DWG 04-08-19 7:55:31 PM - LAYOUT 3.4

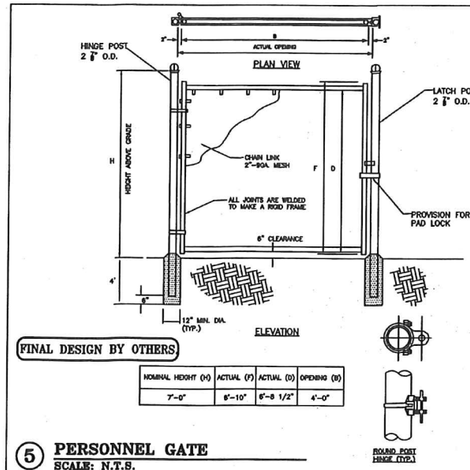


1. ALL FENCING AND HARDWARE SHALL BE GALVANIZED.
2. CORNER POSTS SHALL BE SET IN CONCRETE.
3. MID RAIL AT ANGLES AND CURVES ONLY.
4. FENCES TO HAVE 6" AVERAGE SEPARATION FROM BOTTOM OF CHAIN LINK FENCE TO FINISHED GRADE

NOMINAL HEIGHT (H)	ACTUAL (F)	ACTUAL (D)
7'-0"	6'-10"	6'-8 1/2"

(1) SECURITY FENCE
SCALE: N.T.S.

FINAL DESIGN BY OTHERS

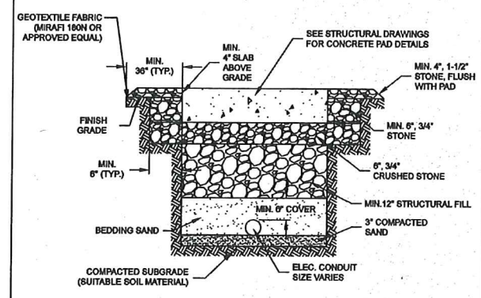


FINAL DESIGN BY OTHERS

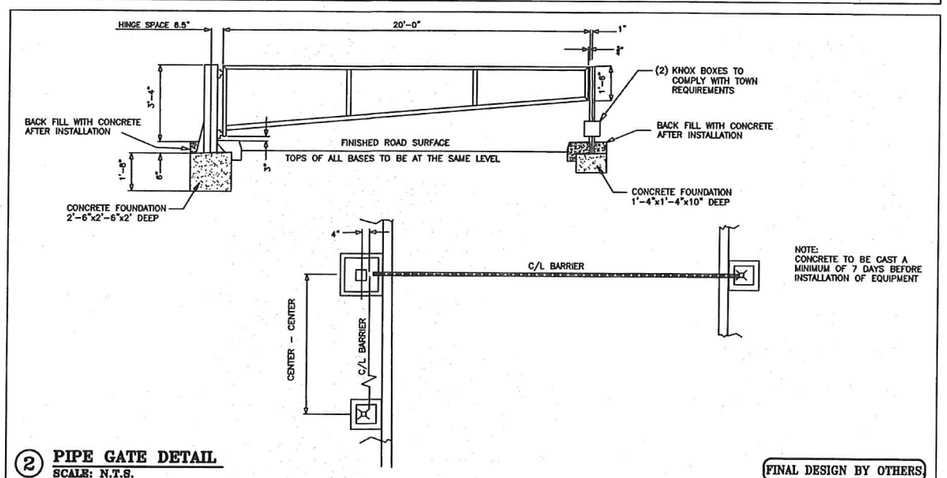
NOMINAL HEIGHT (H)	ACTUAL (F)	ACTUAL (D)	OPENING (B)
7'-0"	6'-10"	6'-8 1/2"	4'-0"

(5) PERSONNEL GATE
SCALE: N.T.S.

NOTE:
FINAL DESIGN BY OTHERS



(7) SUBSOIL EQUIPMENT FOUNDATION DETAIL
SCALE: N.T.S.

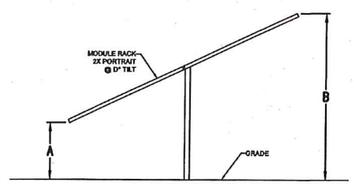


NOTE:
CONCRETE TO BE CAST A MINIMUM OF 7 DAYS BEFORE INSTALLATION OF EQUIPMENT

(2) PIPE GATE DETAIL
SCALE: N.T.S.

FINAL DESIGN BY OTHERS

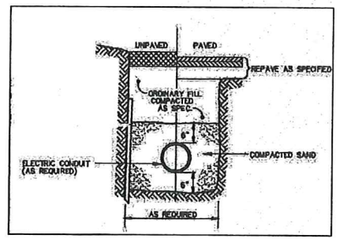
TILT (D)	HEIGHT A	HEIGHT B
20°	3'-0"	7'-9"
25°	3'-0"	8'-10"
30°	3'-0"	9'-10"



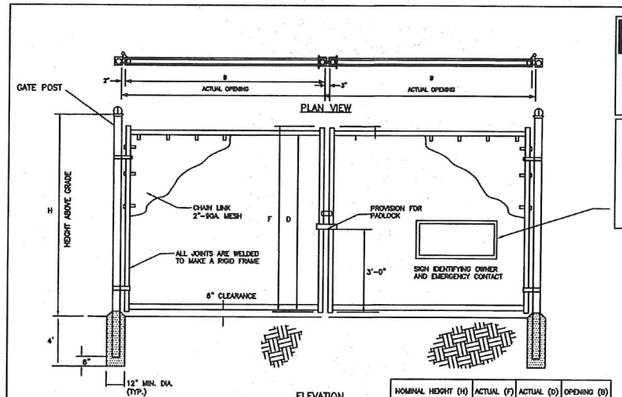
(6) TYPICAL RACKING WITH MODULE
SCALE: N.T.S.

FINAL DESIGN BY OTHERS

FINAL DESIGN BY OTHERS



(8) ELECTRIC CONDUIT TRENCH
SCALE: N.T.S.



DANGER

HIGH VOLTAGE - KEEP AWAY
AUTHORIZED PERSONNEL ONLY

NO TRESPASSING. THIS SITE IS MONITORED BY SURVEILLANCE.

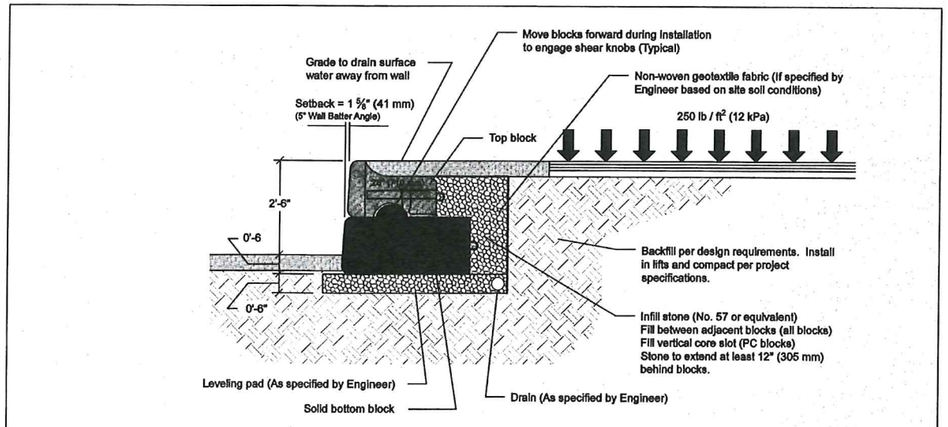
IN CASE OF EMERGENCY, PLEASE CONTACT NSI/ANSP AT (877) 455-4448 X 6

NOTES:
1. ALL FENCING SHALL BE GALVANIZED.
2. CONCRETE ENCASEMENT AT END AND GATE POSTS ONLY.
3. A KEYBOX MEETING THE SPECIFICATIONS OF THE FRANKLIN FIRE DEPARTMENT SHALL BE PROVIDED AT EVERY GATE LOCATION FOR EMERGENCY ACCESS.
4. EMERGENCY CONTACT INFORMATION TO BE PROVIDED AT THE ENTRANCE GATE TO THE PROPOSED FACILITY AND WARNING SIGNS, REQUIRED BY STATE AND LOCAL CODES, WILL BE MOUNTED ON THE FENCE AROUND THE PERIMETER OF THE PROJECT.

NOMINAL HEIGHT (H)	ACTUAL (F)	ACTUAL (D)	OPENING (B)
7'-0"	6'-10"	6'-8 1/2"	12'-0"

(3) SECURITY FENCE - DOUBLE GATE
SCALE: N.T.S.

FINAL DESIGN BY OTHERS



(4) RETAINING WALL SECTION
SCALE: N.T.S.

FINAL DESIGN BY OTHERS

ASE
Andrews Survey & Engineering, Inc.
Land Surveying - Civil Engineering - Site Planning
P.O. Box 312, 184 Meadon Street
Uxbridge, Massachusetts 01569
P: 508-278-3897 F: 508-278-2289
509 East Washington Street
North Attleboro, Massachusetts 02760
P: 508-316-8452 F: 508-316-8963

APPROVAL UNDER SITE PLAN REVIEW.
FRANKLIN PLANNING BOARD

BEING A MAJORITY DATE:

THIS CERTIFIES THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE FRANKLIN PLANNING BOARD HAS BEEN RECEIVED AND RECORDED ON _____ AT _____ AND NO APPEAL WAS RECEIVED DURING THE 20 DAYS NEXT AFTER SUCH RECEIPT OF SAID NOTICE.

FRANKLIN TOWN CLERK DATE

PROJECT:
LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM
SPRING STREET
FRANKLIN, MA

APPLICANT:
SPRING ST. RENEWABLES, LLC
101 SUMMER STREET
BOSTON, MA 02110

REVISIONS		
NO.	DATE	DESCRIPTION
1	02/1/19	PEER REVIEW COMMENTS
2	03/11/19	DEP COMMENTS
3	03/28/19	PER 3/28/19 WSI REVIEW
4	04/08/19	PER TOWN/PEER REVIEW COMMENTS

GRAPHIC SCALE

SHEET TITLE

CONSTRUCTION DETAILS

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MARVILLE
CIVIL
No. 28323
REGISTERED PROFESSIONAL ENGINEER
4/9/19
P.E.

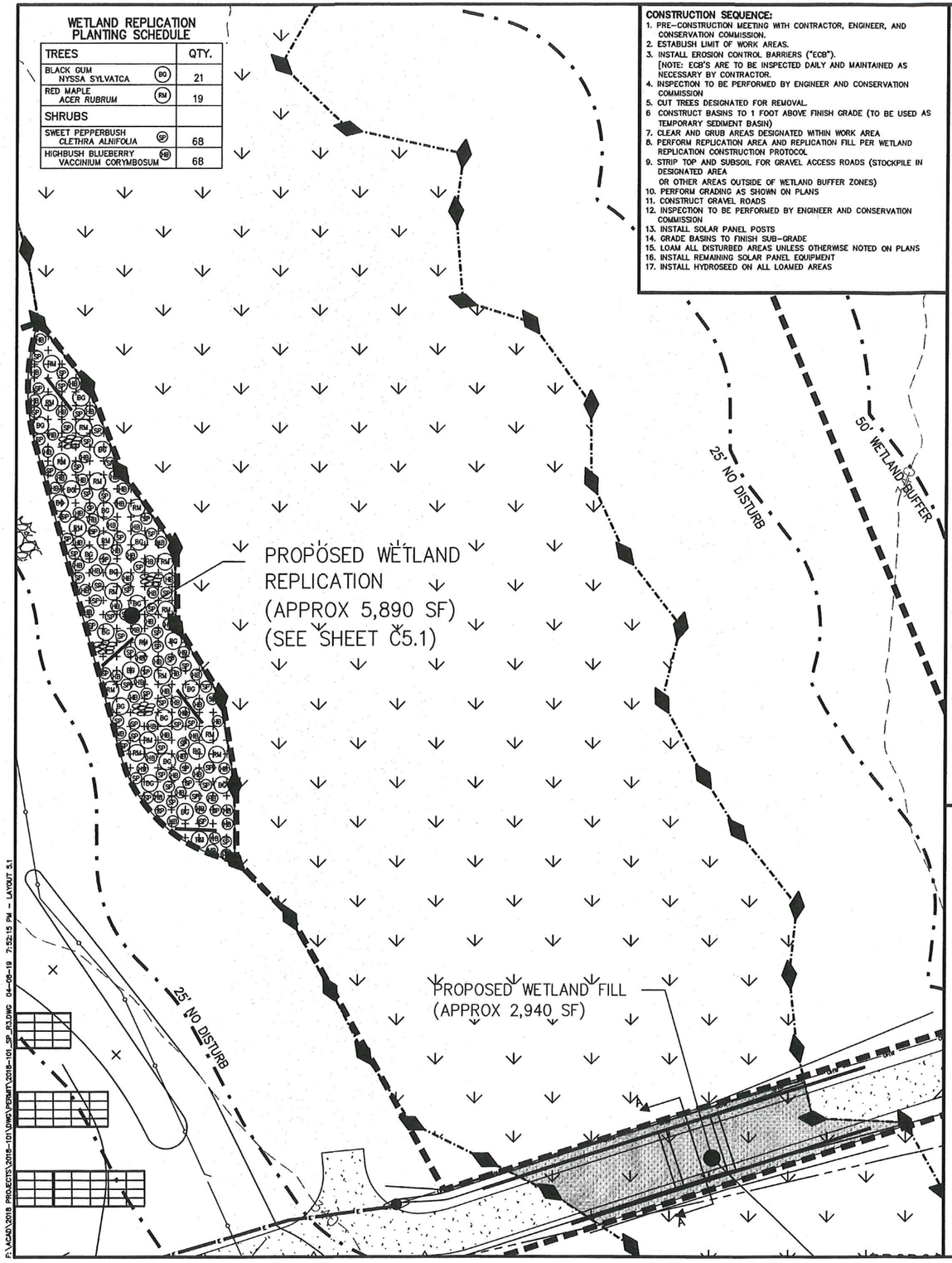
DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101

C4.2
PLAN NO. L-5691

P:\ACAD\2018 PROJECTS\2018-101\DWG\PERMIT\2018-101_SP_R1.DWG 04-08-19 7:52:39 PM - LAYOUT 4.2

WETLAND REPLICATION PLANTING SCHEDULE

TREES		QTY.
BLACK GUM *NYSSA SYLVATCA*	BG	21
RED MAPLE *ACER RUBRUM*	RM	19
SHRUBS		
SWEET PEPPERBUSH *CLETHRA ALNIFOLIA*	SP	68
HIGHBUSH BLUEBERRY *VACCINIUM CORYMBOSUM*	HB	68



CONSTRUCTION SEQUENCE:

1. PRE-CONSTRUCTION MEETING WITH CONTRACTOR, ENGINEER, AND CONSERVATION COMMISSION.
2. ESTABLISH LIMIT OF WORK AREAS.
3. INSTALL EROSION CONTROL BARRIERS ("ECB"). [NOTE: ECB'S ARE TO BE INSPECTED DAILY AND MAINTAINED AS NECESSARY BY CONTRACTOR.
4. INSPECTION TO BE PERFORMED BY ENGINEER AND CONSERVATION COMMISSION
5. CUT TREES DESIGNATED FOR REMOVAL.
6. CONSTRUCT BASINS TO 1 FOOT ABOVE FINISH GRADE (TO BE USED AS TEMPORARY SEDIMENT BASIN)
7. CLEAR AND GRUB AREAS DESIGNATED WITHIN WORK AREA
8. PERFORM REPLICATION AREA AND REPLICATION FILL PER WETLAND REPLICATION CONSTRUCTION PROTOCOL
9. STRIP TOP AND SUBSOIL FOR GRAVEL ACCESS ROADS (STOCKPILE IN DESIGNATED AREA OR OTHER AREAS OUTSIDE OF WETLAND BUFFER ZONES)
10. PERFORM GRADING AS SHOWN ON PLANS
11. CONSTRUCT GRAVEL ROADS
12. INSPECTION TO BE PERFORMED BY ENGINEER AND CONSERVATION COMMISSION
13. INSTALL SOLAR PANEL POSTS
14. GRADE BASINS TO FINISH SUB-GRADE
15. LOAM ALL DISTURBED AREAS UNLESS OTHERWISE NOTED ON PLANS
16. INSTALL REMAINING SOLAR PANEL EQUIPMENT
17. INSTALL HYDROSEED ON ALL LOAMED AREAS

WETLAND REPLICATION CONSTRUCTION PROTOCOL:

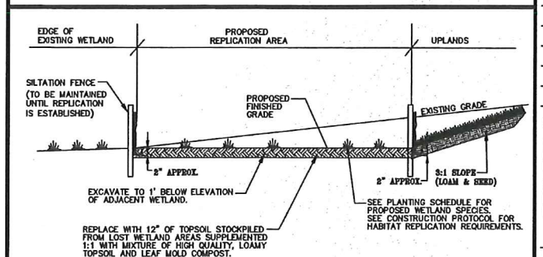
1. THE FOLLOWING PROTOCOL CONFORMS TO THE GENERAL PERFORMANCE STANDARDS IN THE MA WETLANDS PROTECTION ACT REGULATIONS AT 310 CMR 10.55(4)(B) AS SUMMARIZED IN TABLE 2. PLEASE NOTE THAT THE REPLICATION AREA WILL BE BROUGHT TO SUB-GRADE PRIOR TO INITIATING WORK AT THE WETLAND CROSSING.
2. THE WETLAND BOUNDARIES (I.E., DOWN GRADIENT EDGES OF THE WETLAND REPLICATION AREA) WILL BE MARKED IN THE FIELD.
3. PRIOR TO THE START OF EARTH-MOVING ACTIVITIES IN THE REPLICATION AREA, AN EROSION CONTROL BARRIER OF PROPERLY INSTALLED SILTATION FENCE (I.E., THE BOTTOM FEW INCHES OF THE SILTATION FENCE INSTALLED IN A NARROW TRENCH AND THE TRENCH FILLED WITH SOIL AROUND THE SILTATION FENCE) WILL BE INSTALLED ALONG THE WETLAND BOUNDARIES BETWEEN THE WETLAND AND THE WETLAND REPLICATION AREA. THE WETLAND REPLICATION AREA WILL THEN BE CLEARED AND GRUBBED, WITH THE EXCEPTION OF THE TREES THAT HAVE BEEN MARKED TO BE SAVED.
4. THE PROPOSED FINAL GRADE FOR THE REPLICATION AREA SHOULD APPROXIMATE THE ELEVATION OF THE ADJACENT WETLAND AREAS, AS NOTED ON THE SITE PLANS. THE REPLICATION AREA WILL BE EXCAVATED TO A DEPTH OF 12 INCHES BELOW THE PROPOSED FINAL GRADE. THE EXCAVATION AND PLANTING WORK WILL BE CLOSELY SUPERVISED BY A QUALIFIED WETLAND SCIENTIST. MINOR MODIFICATIONS TO THE PROPOSED GRADING MAY BE MADE IN THE FIELD BY THE WETLAND SCIENTIST IN RESPONSE TO OBSERVED SUBSURFACE HYDROLOGIC CONDITIONS. ALL EXCAVATED MATERIAL WILL BE DISPOSED OF AWAY FROM ALL WETLAND RESOURCE AREAS, EIGHT TO TEN BOULDERS (1 TO 2 FOOT DIAMETER) WILL BE PLACED IN TWO PILES, AT SUBGRADE, WITHIN THE REPLICATION AREA TO PROVIDE WILDLIFE SHELTERS. TWO TREE TRUNKS, APPROXIMATELY 20 FEET IN LENGTH, WILL BE "PLANTED" UPRIGHT, WITHIN THE REPLICATION AREA, TO PROVIDE NESTING CAVITIES AND FORAGE OPPORTUNITIES.
5. EXISTING TOPSOILS WITHIN THE IMPACT AREA WILL BE EXCAVATED, STOCKPILED AND KEPT MOIST BY WATERING AND/OR COVERING.
6. RELOCATED WETLAND TOPSOILS WILL BE SUPPLEMENTED WITH A 1:1 MIXTURE OF HIGH QUALITY, LOAMY TOPSOIL AND LEAF MOLD COMPOST, AS NECESSARY, TO APPROXIMATE 12 INCHES IN THICKNESS THROUGHOUT THE REPLICATION AREA. THE SUBSTRATE WILL BE ROUGHLY GRADED TO PROVIDE AN APPROPRIATE MICROTOPOGRAPHY. A MINIMUM OF 4 INCHES OF LOAMY TOPSOIL WILL BE APPLIED TO THE SIDE-SLOPES OF THE WETLAND REPLICATION AREA. THE SIDE SLOPES SHOULD BE STABILIZED AS NECESSARY TO PREVENT EROSION.
7. WILDLIFE ENHANCEMENT MEASURES INCLUDING FOUR TREE TRUNKS AND FOUR PILE WILL BE INSTALLED WITHIN EACH REPLICATION AREA. THE TREE TRUNKS WILL CONSIST OF 15 TO 20 FOOT LOGS PLACED RANDOMLY ON THE FINISHED SURFACE. THE TREE TRUNKS WILL PROVIDE FOOD, FORAGE AND CAVITY NESTING OPPORTUNITIES. THE ROCK PILES WILL CONSIST OF FOUR OR FIVE BOULDER EACH (APPROXIMATELY 24 INCHES IN DIAMETER) PILED AT SUB-GRADES SO AS TO CREATE CREVICES AND CAVITIES FOR SHELTER AND NESTING.
8. AN EROSION CONTROL BARRIER COMPRISING ONLY TOED-IN SILTATION FENCE WILL BE PROPERLY INSTALLED BETWEEN THE COMPLETED REPLICATION AREA AND THE ADJACENT UPLAND SIDESLOPES.
9. PLANTING WILL BE DONE ONLY DURING THE BEGINNING (APRIL 15 THROUGH JUNE) OR END (SEPTEMBER 1 TO NOVEMBER 15) OF THE GROWING SEASON. PLANTING IN THE MID-GROWING SEASON IS ONLY ACCEPTABLE IF IRRIGATION IS PROVIDED. THE PLANT SPECIES IDENTIFIED IN THE TABLE BELOW WILL BE PLANTED IN THE REPLICATION AREA EITHER BY TRANSPLANT OR FROM NURSERY STOCK. THE SAPLINGS WILL BE DISTRIBUTED THROUGHOUT THE AREA. THE SHRUBS WILL BE PLANTED RANDOMLY THROUGHOUT THE AREA WITH THE AVERAGE SPACING BETWEEN SHRUBS APPROXIMATELY 5 FEET ON-CENTER. THE WOODY VEGETATION SHOULD NOT BE PLANTED IN ROWS.
10. THE REPLICATION AREA WILL BE SEEDED WITH "NEW ENGLAND WETMIX" AS PER NEW ENGLAND WETLAND PLANTS, INC SPECIFICATIONS OR APPROVED EQUAL TO PROVIDE FOR TEMPORARY EROSION CONTROL AND MOISTURE RETENTION.
11. THE REPLICATION AREAS WILL BE INSPECTED, BY A QUALIFIED WETLAND SCIENTIST, AT THE END OF EACH GROWING SEASON FOR A MINIMUM OF TWO YEARS OR UNTIL SUCH TIME AS THE REQUIRED 75% OF VEGETATIVE COVER WITH WETLAND SPECIES HAS BEEN ESTABLISHED. WRITTEN RESULTS OF THESE INSPECTIONS WILL BE SUBMITTED TO THE CONSERVATION COMMISSION.
12. AFTER THE WETLAND REPLICATION AREA HAS BECOME VEGETATIVELY STABILIZED, AND FOLLOWING APPROVAL OF THE ISSUING AUTHORITY, THE SILTATION FENCE AND ALL WOODEN STAKES WILL BE REMOVED AND DISPOSED OF PROPERLY.

WETLANDS FILL AREA — REPLICATION AREA

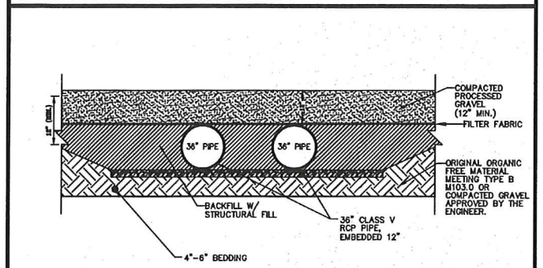
TOTAL WETLAND FILL AREA FROM CROSSING: 2,940 SQ. FT. ±
TOTAL REPLICATION AREA: 5,890 SQ. FT.±

TABLE 1.

PUBLIC INTERESTS:	VALUE OF AREAS TO BE ALTERED:	VALUE OF REPLICATION AREAS:
PUBLIC AND PRIVATE WATER SUPPLY, GROUNDWATER SUPPLY	YES. RECHARGES GROUNDWATER THROUGH INFILTRATION. SEASONALLY RECHARGES SURFACE WATER THROUGH OVERLAND FLOW. OVERLAND FLOW WILL BE MAINTAINED THROUGH CULVERTS.	YES. WILL ALSO RECHARGE GROUNDWATER THROUGH INFILTRATION IN FRIABLE SUBSOIL AND SUBSTRATE.
FLOOD CONTROL AND STORM DAMAGE PREVENTION	YES. SOME STORAGE OF RUNOFF IN SEASONALLY SATURATED SOILS	YES SEASONALLY SATURATED SOILS WILL STORE EQUAL OR GREATER VOLUMES OF RUNOFF.
PREVENTION OF POLLUTION	YES. CONTAMINANTS AND EXCESS NUTRIENTS RETAINED IN, AND DEGRADED BY, MINERAL AND ORGANIC COMPONENTS OF HYDRIC SOILS.	YES. CONTAMINANTS AND EXCESS NUTRIENTS RETAINED IN, AND DEGRADED BY, MINERAL AND ORGANIC COMPONENTS OF HYDRIC SOILS.
FISHERIES	N/A. NO PERENNIAL WATERWAY OR WATERBODY	N/A. NO PERENNIAL WATERWAY OR WATERBODY
WILDLIFE HABITAT	YES. EXISTING VEGETATIVE LAYERS, SOIL STRUCTURE, DEADWOOD AND SURFACE STONES PROVIDE FORAGING AND SHELTER OPPORTUNITIES.	YES. REPLICATED SOIL STRUCTURE, PLANTING, BOULDER PLACEMENT AND TREE SNAGS WILL PROVIDE OPPORTUNITIES FOR WILDLIFE SHELTER AND FORAGE.

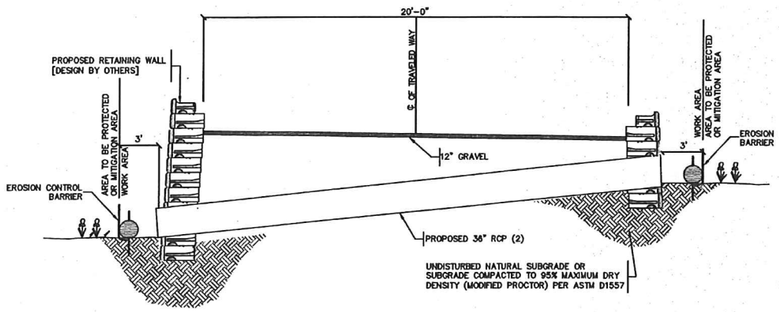


TYPICAL WETLAND REPLICATION CROSS SECTION
N.T.S.



ACCESS ROAD CROSSING PROFILE
SCALE: N.T.S.

NOTE: PIPES TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.



CROSS SECTION A-A
N.T.S.

ASE
Andrews Survey & Engineering, Inc.
Land Surveying - Civil Engineering - Site Planning
P.O. Box 312, 184 Mendon Street
Uxbridge, Massachusetts 01569
P: 508-278-3897 F: 508-278-2289
500 East Washington Street
North Attleboro, Massachusetts 02760
P: 508-316-0452 F: 508-316-8963

APPROVAL UNDER SITE PLAN REVIEW.
FRANKLIN PLANNING BOARD

BEING A MAJORITY DATE:

THIS CERTIFIES THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE FRANKLIN PLANNING BOARD HAS BEEN RECEIVED AND RECORDED ON AT

AND NO APPEAL WAS RECEIVED DURING THE 20 DAYS NEXT AFTER SUCH RECEIPT OF SAID NOTICE.

FRANKLIN TOWN CLERK DATE

PROJECT:
LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM
SPRING STREET
FRANKLIN, MA

APPLICANT:
SPRING ST. RENEWABLES, LLC
101 SUMMER STREET
BOSTON, MA 02110

REVISIONS

NO.	DATE	DESCRIPTION
1	02/1/19	PEER REVIEW COMMENTS
2	03/11/19	DEP COMMENTS
3	03/28/19	PER 3/28/19 WSI REVIEW
4	04/08/19	PER TOWN/PEER REVIEW COMMENTS

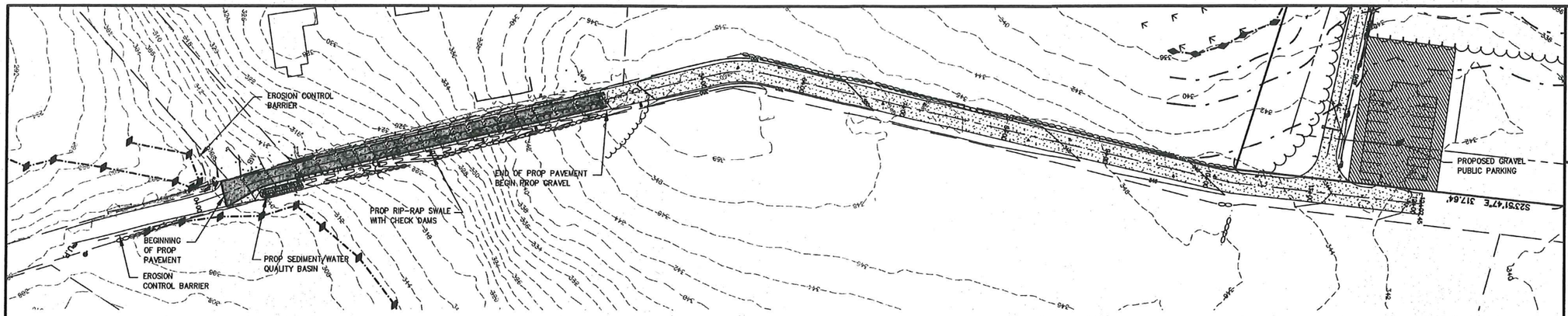
GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 feet

SHEET TITLE
WETLAND CROSSING & REPLICATION PLAN

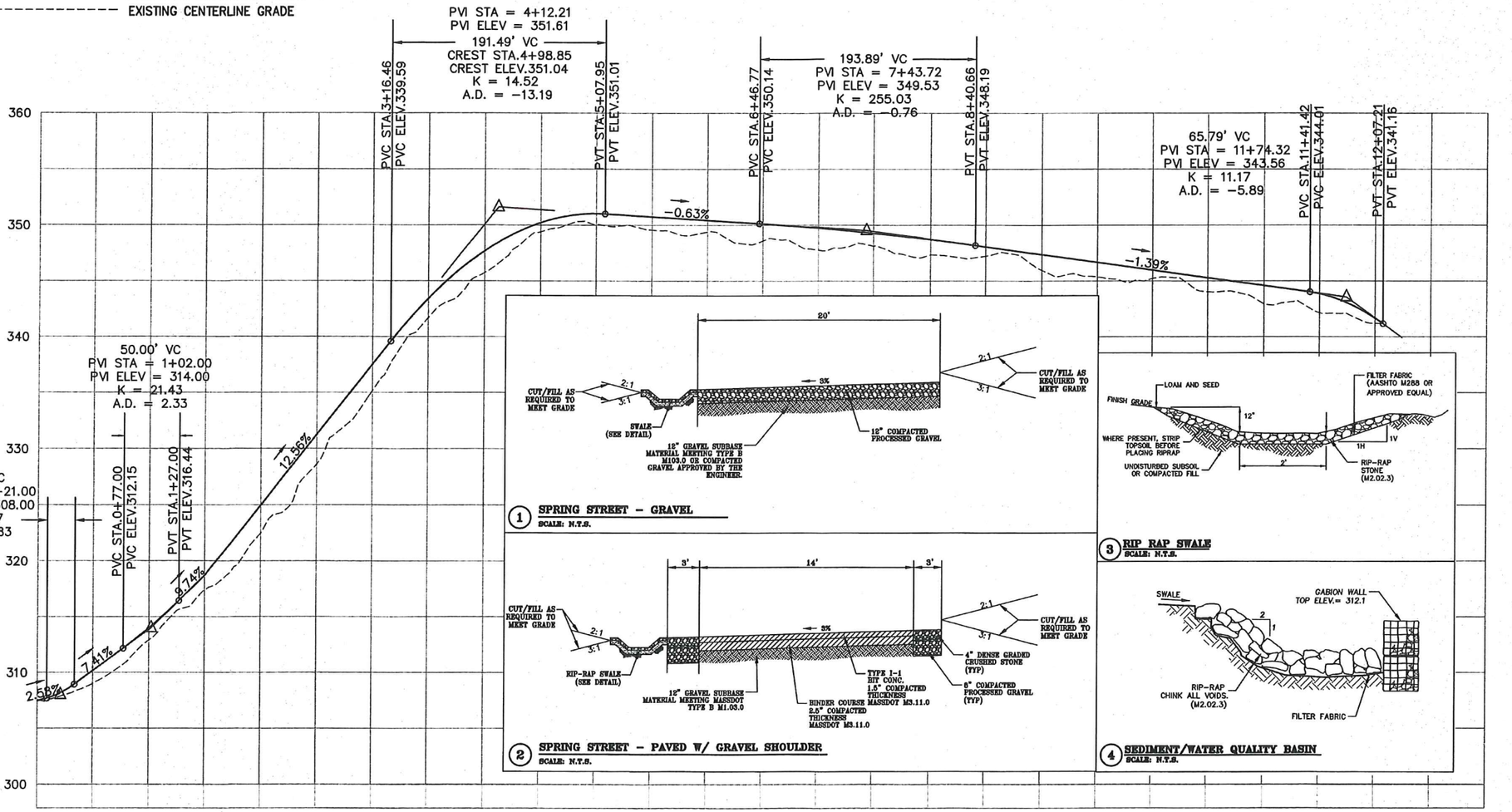
RICHARD M. MARVILLE CIVIL No. 26323 — COMMONWEALTH OF MASSACHUSETTS
4/9/19
P.E.

DES BY: KNP DATE: NOVEMBER 21,2018
CHK BY: RMM PROJECT NO. 2018-101

C5.1
PLAN NO. L-5891



PROPOSED CENTERLINE GRADE
EXISTING CENTERLINE GRADE



1 **SPRING STREET – GRAVEL**
SCALE: N.T.S.

2 **SPRING STREET – PAVED W/ GRAVEL SHOULDER**
SCALE: N.T.S.

3 **RIP RAP SWALE**
SCALE: N.T.S.

4 **SEDIMENT/WATER QUALITY BASIN**
SCALE: N.T.S.

ASE
Andrews Survey & Engineering, Inc.
Land Surveying - Civil Engineering - Site Planning
P.O. Box 312, 184 Meadon Street
Uxbridge, Massachusetts 01569
P: 508-278-3897 F: 508-278-2289
500 East Washington Street
North Attleboro, Massachusetts 02760
P: 508-316-0452 F: 508-316-0963

APPROVAL UNDER SITE PLAN REVIEW.
FRANKLIN PLANNING BOARD

BEING A MAJORITY DATE:

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AND NO APPEAL WAS RECEIVED DURING THE 20 DAYS NEXT AFTER SUCH RECEIPT OF SAID NOTICE.

FRANKLIN TOWN CLERK DATE

PROJECT:
LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM
SPRING STREET
FRANKLIN, MA

APPLICANT:
SPRING ST. RENEWABLES, LLC
101 SUMMER STREET
BOSTON, MA 02110

REVISIONS		
NO.	DATE	DESCRIPTION
1	02/1/19	PEER REVIEW COMMENTS
2	03/11/19	DEP COMMENTS
3	03/28/19	PER 3/28/19 WSI REVIEW
4	04/08/19	PER TOWN/PEER REVIEW COMMENTS

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 feet

SHEET TITLE
SPRING STREET IMPROVEMENTS PLAN AND PROFILE

COMMONWEALTH OF MASSACHUSETTS
RICHARD M. MANVILLE
CIVIL
No. 28323
REGISTERED PROFESSIONAL ENGINEER
4/8/19
P.E.

DES BY: KNP | DATE: NOVEMBER 21,2018
CHK BY: RMM | PROJECT NO. 2018-101

C5.3
PLAN NO. L-5691

P:\ACAD\2018 PROJECTS\2018-101\DWG\PERMIT\2018-101_SP_R3.DWG 04-08-19 7:51:38 PM - LAYOUT 5.3

CONDUCTOR SCHEDULE

CIRCUIT ID	VOLTAGE	CONDUCTOR QUANTITY, SIZE, AND MATERIAL	INSULATION TYPE	QUANTITY OF CONDUITS	SIZE OF CONDUITS	CONDUIT TYPE	NOTE
A	1SkV	(3) #1/0 AWG AL, (1) #1/0 AWG AL N	COVERED ACSR	-	-	-	
B	1SkV	(2) #1/0 AWG AL, (1) #1/0 AWG AL N	MV-105	1	0"-8"	PVC	XPLT/3Z% TYPE JNO
C	1SkV	(1) #1/0 AWG AL	MV-105	1	0'-1.5320"	PVC	XPLT/33%
D	600V	(3) #1/0 AWG, (1) #1/0 AWG N	THWN-2	1	0'-1"	PVC	
E	600V	(2) #12 AWG	XPLE	1	0'-1"	PVC	
F	1SkV	(3) #1/0 AWG AL	COVERED ACSR	1	0'-1.5000"		
G	600V	(1) #18 TWISTED SHIELDED PAIR,CU		1	0'-1"		

* ALL CONDUCTORS SHALL BE COPPER UNLESS OTHERWISE NOTED.

INVERTER PROTECTIVE SETTINGS (1)

INVERTER PROTECTIVE FUNCTIONS	VOLTAGE SETTING PU (V)	FREQUENCY SETTING HZ	TOTAL CLEARING TIME CYC (SEC.)
27 - FAST UNDERVOLTAGE	375 (50%)	-	5.0 (0.1S)
27 - UNDERVOLTAGE	494 (88%)	-	120 (2)
27 - UNDERVOLTAGE	369 (110%)	-	120 (2)
59 - OVERVOLTAGE	485 (3%)	-	6.0 (0.1S)
59 - FAST OVERVOLTAGE	777 (147%)	-	5.0 (0.1)
81 - INCREASEFREQUENCY	-	59.8	5.0 (0.1S)
81 - UNDERFREQUENCY	-	59.3	10000 (300)
81 - OVERFREQUENCY	-	61.3	10000 (300)
81 - OVERFREQUENCY	-	62	6.0 (0.1S)

* SETTINGS ARE BASED ON IEEE-1547 AND NYSD CRITERIA 13 PHASE 1 CLASS.

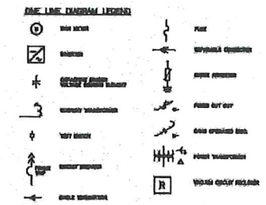
* VOLTAGE SETTING VALUES ARE L-L

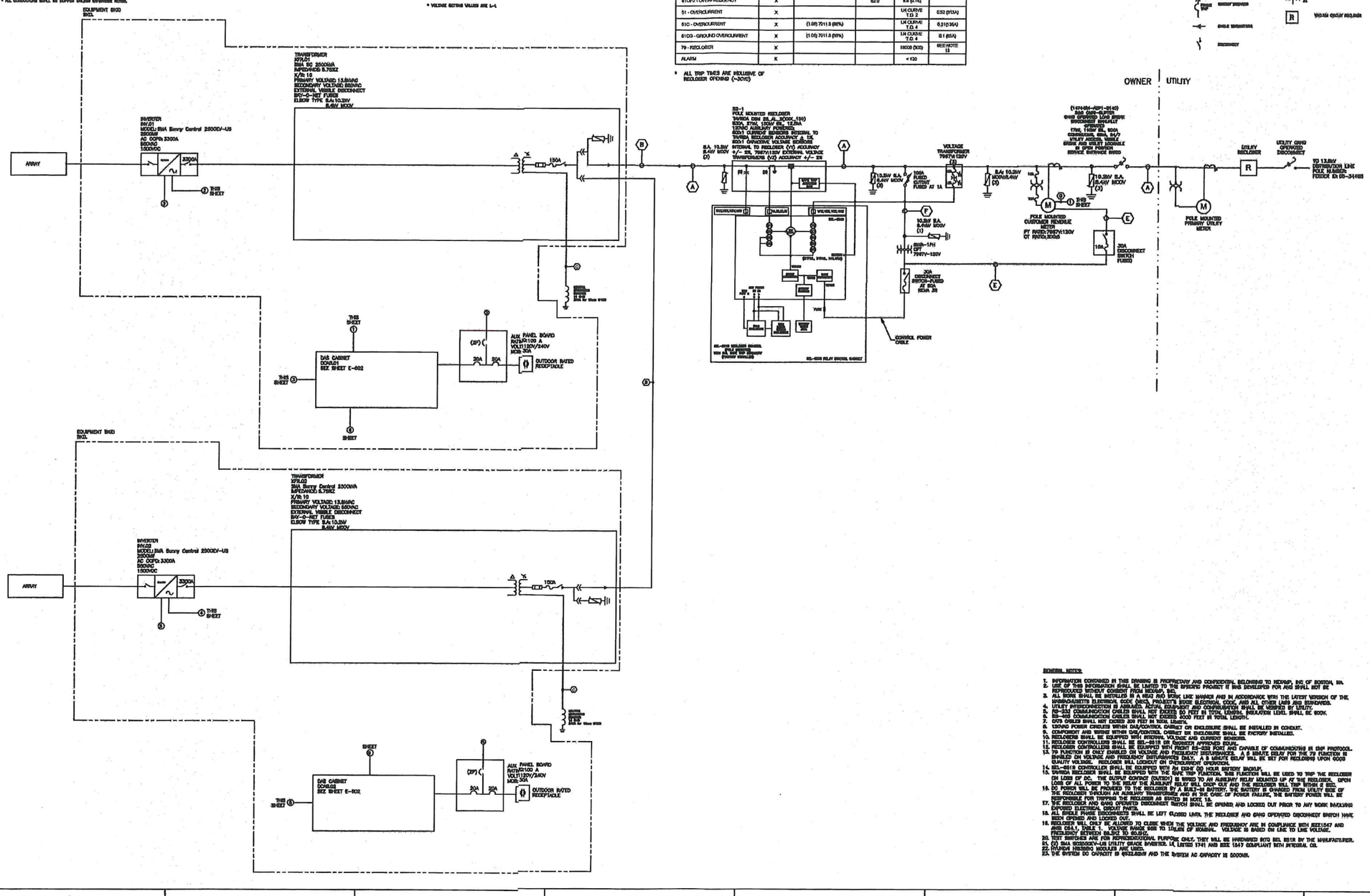
PROTECTIVE RELAY SETTINGS*

RELAY/R PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTINGS IEC (PU) PU	FREQUENCY SETTING HZ	TOTAL CLEAR TIME CYCLE	CURRENT SETTING PU
27P1 - UNDERVOLTAGE	X	(0.83) 359.7 (83%)		8.0 (0.1S)	
27P2 - UNDERVOLTAGE	X	(1.00) 7211.3 (88%)		120 (2)	
59P1 - OVERVOLTAGE	X	(1.32) 7243.1 (110%)		120 (2)	
59P2 - OVERVOLTAGE	X	(1.40) 8000.8 (120%)		8.0 (0.1S)	
81UP1 - UNDERFREQUENCY	X		59.8	8.0 (0.1S)	
81UP2 - UNDERFREQUENCY	X		59.5	18000 (300)	
81OP1-OVERFREQUENCY	X		61.2	18000 (300)	
81OP2 - OVERFREQUENCY	X		62.0	8.0 (0.1S)	
51 - OVERCURRENT	X			U4 CURVE TD 2	0.52 (513A)
51C - OVERCURRENT	X	(1.00) 7211.3 (88%)		U4 CURVE TD 4	0.31 (364)
51CG - GROUND OVERCURRENT	X	(1.00) 7211.3 (88%)		U4 CURVE TD 2	0.1 (85A)
79 - RECLOSER	X			18000 (300)	SEE NOTE 13
ALARM	X			< 120	

* ALL TRIP TIMES ARE INCLUSIVE OF RECLOSER OPENING (~30YC)

ONE LINE DIAGRAM LEGEND





GENERAL NOTES:

1. INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY AND CONFIDENTIAL BELONGING TO NEXAMP, INC OF BOSTON, MA.
2. USE OF THIS INFORMATION SHALL BE LIMITED TO THE SPECIFIC PROJECT IT WAS DEVELOPED FOR AND SHALL NOT BE REPRODUCED WITHOUT CONSENT FROM NEXAMP, INC.
3. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORK LIKE MANNER AND IN ACCORDANCE WITH THE LATEST VERSION OF THE MASSACHUSETTS ELECTRICAL CODE (MEC), PROJECT'S LOCAL ELECTRICAL CODE, AND ALL OTHER LAWS AND ORDINANCES.
4. UTILITY INTERCONNECTION IS ASSUMED. ACTUAL EQUIPMENT AND CONFIGURATION SHALL BE VERIFIED BY UTILITY.
5. RS-232 COMMUNICATION CABLES SHALL NOT EXCEED 50 FEET IN TOTAL LENGTH. INSULATION LEVEL SHALL BE 600V.
6. RS-485 COMMUNICATION CABLES SHALL NOT EXCEED 4000 FEET IN TOTAL LENGTH.
7. DC+ CABLES SHALL NOT EXCEED 300 FEET IN TOTAL LENGTH.
8. 120VAC POWER CABLES WITHIN DAS/CONTROL CABINET OR ENCLOSURE SHALL BE INSTALLED IN CONDUIT.
9. COMPONENT AND WIRING WITHIN DAS/CONTROL CABINET OR ENCLOSURE SHALL BE FACTORY INSTALLED.
10. RECLOSERS SHALL BE EQUIPPED WITH INTERNAL VOLTAGE AND CURRENT SENSORS.
11. RECLOSER CONTROLLERS SHALL BE SEL-651R OR SCHWEITZER EQUIVALENT.
12. RECLOSER CONTROLLERS SHALL BE EQUIPPED WITH FRONT RS-232 SERIAL PORT AND CAPABLE OF COMMUNICATING IN DNP PROTOCOL.
13. 79 FUNCTION IS ONLY ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES. A 5 MINUTE DELAY FOR THE 79 FUNCTION IS ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES ONLY. A 5 MINUTE DELAY WILL BE SET FOR RECLOSING UPON GOOD QUALITY VOLTAGE. RECLOSER WILL LOCKOUT ON OVERCURRENT OPERATIONS.
14. SEL-651R CONTROLLER SHALL BE EQUIPPED WITH 24 HOUR OR MORE BATTERY BACKUP.
15. 1VA504 RECLOSER SHALL BE EQUIPPED WITH THE SVR TRIP FUNCTION. SVR FUNCTION WILL BE USED TO TRIP THE RECLOSER ON LOSS OF DC. THE OUTPUT CONTACT (OUT01) IS WIRED TO AN AUXILIARY RELAY MOUNTED UP AT THE RECLOSER. UPON LOSS OF ALL POWER TO THE RELAY THE AUXILIARY RELAY WILL DROP OUT AND THE RECLOSER WILL TRIP WITHIN 0 SEC. DC POWER WILL BE PROVIDED TO THE RECLOSER BY A 24VDC-IN BATTERY. THE BATTERY IS CHARGED FROM UTILITY SIDE OF THE RECLOSER THROUGH AN AUXILIARY TRANSFORMER AND IN THE CASE OF POWER FAILURE, THE BATTERY POWER WILL BE RESPONSIBLE FOR TRIPPING THE RECLOSER AS STATED IN NOTE 15.
16. THE RECLOSER AND GANG OPERATED DISCONNECT SWITCH SHALL BE GROUNDED PER APPLICABLE NEC CODES.
17. EXPOSED ELECTRICAL CIRCUIT PARTS.
18. ALL SINGLE PHASE DISCONNECTS SHALL BE LEFT CLOSED UNTIL THE RECLOSER AND GANG OPERATED DISCONNECT SWITCH HAVE BEEN OPENED AND LOCKED OUT.
19. RECLOSERS WILL ONLY BE ALLOWED TO CLOSE WHEN THE VOLTAGE AND FREQUENCY ARE IN COMPLIANCE WITH IEEE1547 AND ANSI C84.1, TABLE 1. VOLTAGE RANGE SHALL BE TO VALUES OF NOMINAL. VOLTAGE IS BASED ON LINE TO LINE VOLTAGE. FREQUENCY BETWEEN 59.3HZ TO 60.5HZ.
20. TEST SWITCHES ARE FOR REPRESENTATIONAL PURPOSE ONLY. THEY WILL BE HARDWIRED INTO SEL 651R BY THE MANUFACTURER.
21. 2G SMA SC2500EV-US UTILITY SCALE INVERTER. UL LISTED 1741 AND IEEE 1547 COMPLIANT WITH INTEGRAL GFI.
22. SOLADECK MODULES ARE USED.
23. THE SYSTEM DC CAPACITY IS 4032.00 AND THE SYSTEM AC CAPACITY IS 5000KW.

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Drawing Title:
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