

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

FRANKLIN, MASSACHUSETTS

NOVEMBER 21, 2018

REV: MARCH 11, 2019

**APPLICANT:**

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

**LAND SURVEYOR & CIVIL ENGINEER:**

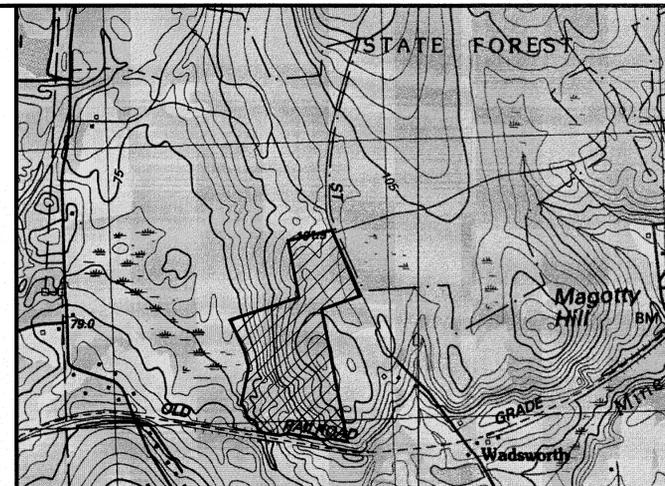
ANDREWS SURVEY & ENGINEERING, INC.  
104 MENDON STREET  
UXBRIDGE, MA 01569  
P: 508.278.3897  
F: 508.278.2289

**ENVIRONMENTAL:**

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

**CONSULTANT:**

NEXAMP, INC.  
101 SUMMER STREET  
BOSTON, MA 02110



**LOCUS MAP**  
SCALE: 1" = 1,000'



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  
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

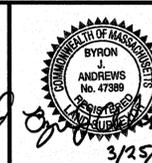
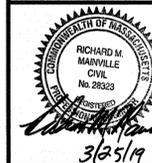
APPLICANT:  
SPRING ST. RENEWABLES, LLC  
101 SUMMER STREET  
BOSTON, MA 02110

**REVISIONS**

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

**SHEET TITLE**

**COVER SHEET**



DES BY: KNP DATE: NOVEMBER 21, 2018

CHK BY: RMM PROJECT NO. 2018-101

**C0.0**

PLAN NO. L-5691

**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

DRAWING DATE	LAST REVISION	SHEET NO.	SHEET TITLE
11/21/18	2/1/19	C0.0	COVER SHEET
11/21/18	2/1/19	C0.1	LEGEND, ABBREVIATIONS, & GENERAL NOTES
11/21/18	2/1/19	C1.0	VICINITY MAP
11/21/18	3/11/19	C1.1 - C1.3	EXISTING CONDITION PLANS
11/21/18	3/11/19	C2.0 - C2.3	SITE PLAN
11/21/18	3/11/19	C3.1 - C-3.3	EROSION & SEDIMENT CONTROL PLAN
11/21/18	3/11/19	C3.4	EROSION & SEDIMENT CONTROL NOTES & DETAILS
11/21/18	2/1/19	C4.1-C4.2	CONSTRUCTION DETAILS
11/21/18	3/11/19	C5.1	WETLAND CROSSING & REPLICATION PLAN
11/21/18	3/11/19	C5.2	LANDSCAPE PLAN
11/21/18	3/11/19	C5.3	SPRING ST IMPROVEMENTS PLAN & PROFILE
11/21/18		E-101	AC 1-LINE ELECTRIC DIAGRAM (NEXAMP)

**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

**GENERAL ABBREVIATIONS**

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

**UNIT ABBREVIATIONS**

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

**PIPE AND VALVE ABBREVIATIONS**

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

**SURVEY AND HIGHWAY ABBREVIATIONS**

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

**GEOPHYSICAL LEGEND**

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

**UTILITIES LEGEND**

EXISTING	PROPOSED
STORM DRAIN WITH FLARED END W/ RIPRAP APRON	STORM DRAIN WITH FLARED END W/ RIPRAP APRON
STORM DRAIN WITH HEADWALL	STORM DRAIN WITH HEADWALL
OVERHEAD WIRE	OVERHEAD WIRE
ELECTRIC MANHOLE & UNDERGROUND ELECTRIC LINES	ELECTRIC MANHOLE & UNDERGROUND ELECTRIC LINES
WATER SERVICE	WATER SERVICE
FIRE SERVICE	FIRE SERVICE
FORCE MAIN	FORCE MAIN
TELEPHONE MANHOLE & UNDERGROUND TELEPHONE LINES	TELEPHONE MANHOLE & UNDERGROUND TELEPHONE LINES
SEWER LINE & MANHOLE SIZE MATERIAL & FLOW DIRECTION	SEWER LINE & MANHOLE SIZE MATERIAL & FLOW DIRECTION
DRAINLINE W/ PIPE SIZE, MATERIAL & FLOW DIRECTION; CATCH BASIN MANHOLE & ROUND CATCH BASIN	DRAINLINE W/ PIPE SIZE, MATERIAL & FLOW DIRECTION; CATCH BASIN MANHOLE & ROUND CATCH BASIN
ROOF DRAIN AND DOWNSPOUT	ROOF DRAIN AND DOWNSPOUT
PERFORATED UNDERDRAIN	PERFORATED UNDERDRAIN
FOUNDATION DRAIN	FOUNDATION DRAIN
WATER MAIN AND VALVE	WATER MAIN AND VALVE
FUEL OR CRUDE OIL	FUEL OR CRUDE OIL
PROPANE LINE	PROPANE LINE
GAS LINE AND VALVE	GAS LINE AND VALVE
BURIED COMMUNICATIONS AND MANHOLE	BURIED COMMUNICATIONS AND MANHOLE
CATCH BASIN	CATCH BASIN
DOUBLE GRATE CATCH BASIN	DOUBLE GRATE CATCH BASIN
PULLBOX OR HANDHOLE	PULLBOX OR HANDHOLE
TRANSFORMER PAD	TRANSFORMER PAD
BOLLARD LIGHT	BOLLARD LIGHT
UTILITY POLE WITH GUY & DESTINATION	UTILITY POLE WITH GUY & DESTINATION
STREET LIGHT OR SITE LIGHT / POLE	STREET LIGHT OR SITE LIGHT / POLE
FIRE HYDRANT	FIRE HYDRANT
WATER SPIGOT	WATER SPIGOT
WATER METER	WATER METER
GAS METER	GAS METER
TELEPHONE BOX	TELEPHONE BOX
FIRE ALARM BOX	FIRE ALARM BOX
DOMESTIC WELL	DOMESTIC WELL

**SURVEY AND HIGHWAY LEGEND**

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

**SITE IMPROVEMENTS LEGEND**

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

**ASE**  
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 SPRING STREET FRANKLIN, MA

APPLICANT: SPRING ST. RENEWABLES, LLC  
 101 SUMMER STREET

**ZONING REQUIREMENTS**

ZONE: RURAL RESIDENTIAL 1  
PROPOSED USE: GROUND-MOUNTED SOLAR PV SYSTEM

	REQUIRED	PROPOSED
AREA	40,000 SF	2,098,739 SF
FRONTAGE	200 FT	967 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 NASSOY  
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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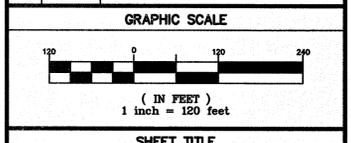
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101 SUMMER STREET BOSTON, MA 02110

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2	03/11/19	DEP COMMENTS



SHEET TITLE

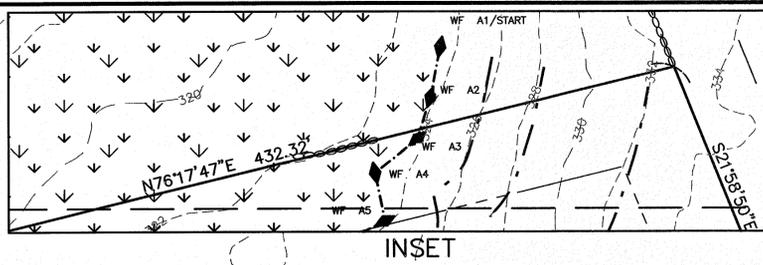
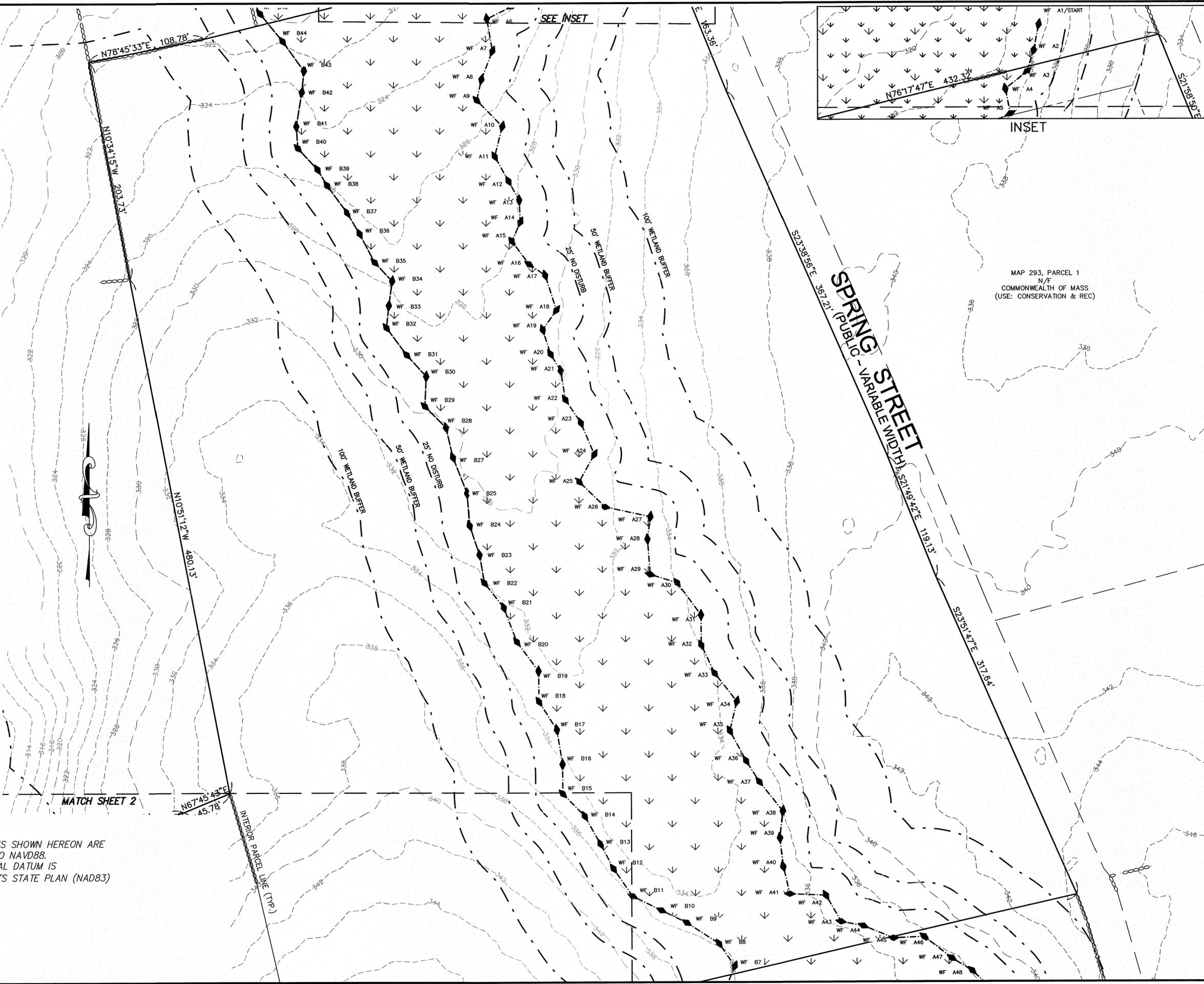
**VICINITY MAP**

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

**C1.0**  
PLAN NO. L-5681

F:\ACAD\2018 PROJECTS\2018-101\DWG\PERMIT\2018-101\_SF\_R2.DWG 03-28-18 11:52:57 AM - LAYOUT 1.1

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



**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 FRANKLIN PLANNING BOARD HAS BEEN RECEIVED AND RECORDED ON AT \_\_\_\_\_

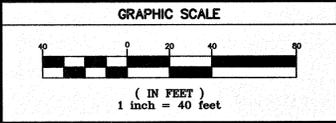
AND NO APPEAL WAS RECEIVED DURING THE 20 DAYS NEXT AFTER SUCH RECEIPT OF SAID NOTICE.

FRANKLIN TOWN CLERK DATE \_\_\_\_\_

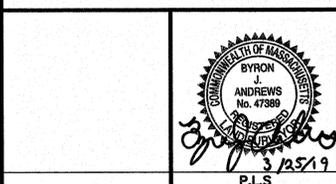
MAP 293, PARCEL 1  
 N/F  
 COMMONWEALTH OF MASS  
 (USE: CONSERVATION & REC)

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



SHEET TITLE  
**EXISTING CONDITIONS**  
 SHEET 1 OF 3



DES BY: KNP DATE: NOVEMBER 21, 2018  
 CHK BY: RMM PROJECT NO. 2018-101  
**C1.1**  
 PLAN NO. L-5681



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FRANKLIN PLANNING BOARD

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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

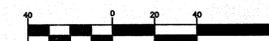
APPLICANT:

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

GRAPHIC SCALE

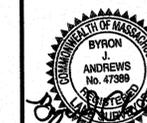


( IN FEET )  
1 inch = 40 feet

SHEET TITLE

EXISTING CONDITIONS

SHEET 2 OF 3



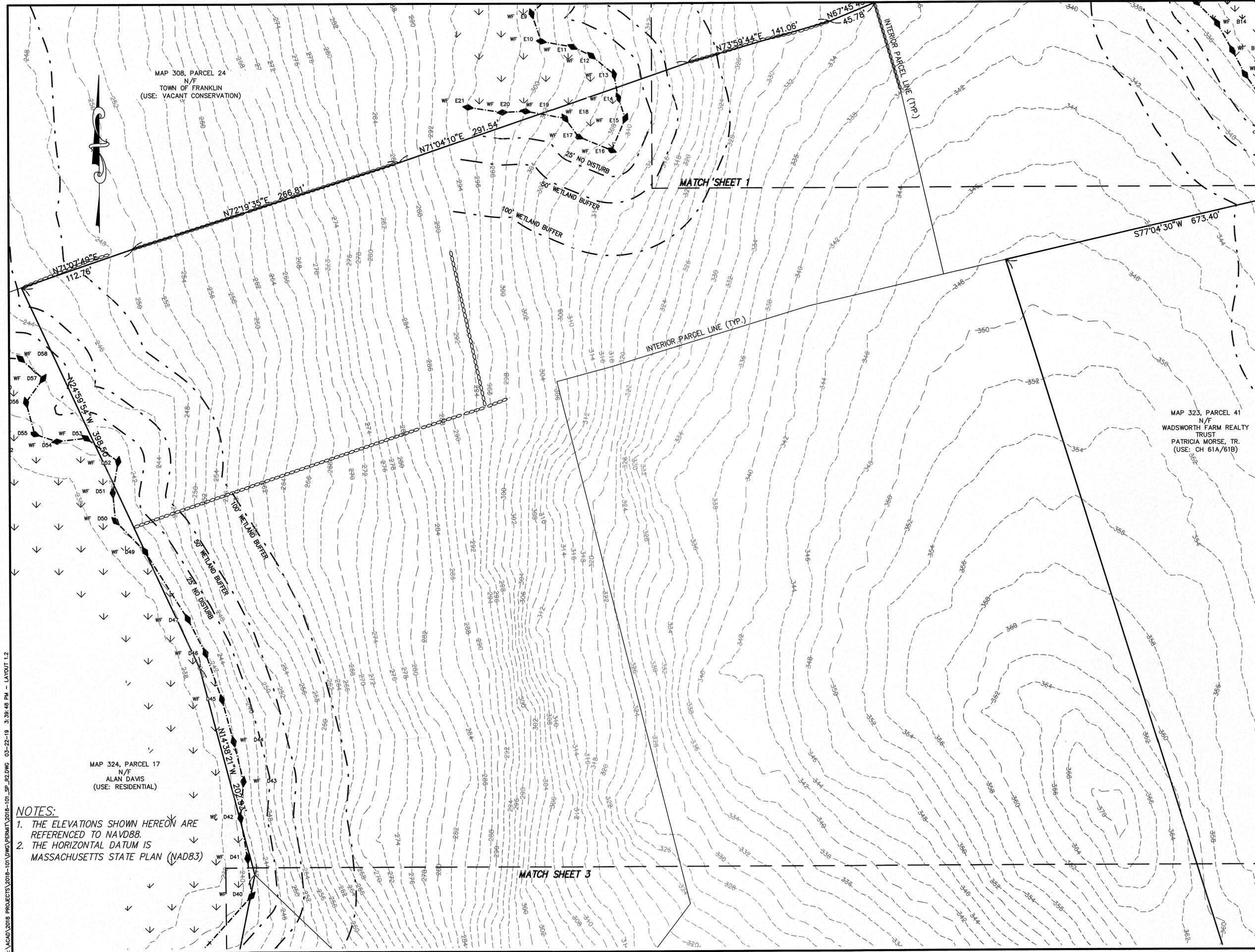
PLS

DES BY: KNP DATE: NOVEMBER 21, 2018

CHK BY: RMM PROJECT NO. 2018-101

C1.2

PLAN NO. L-5691



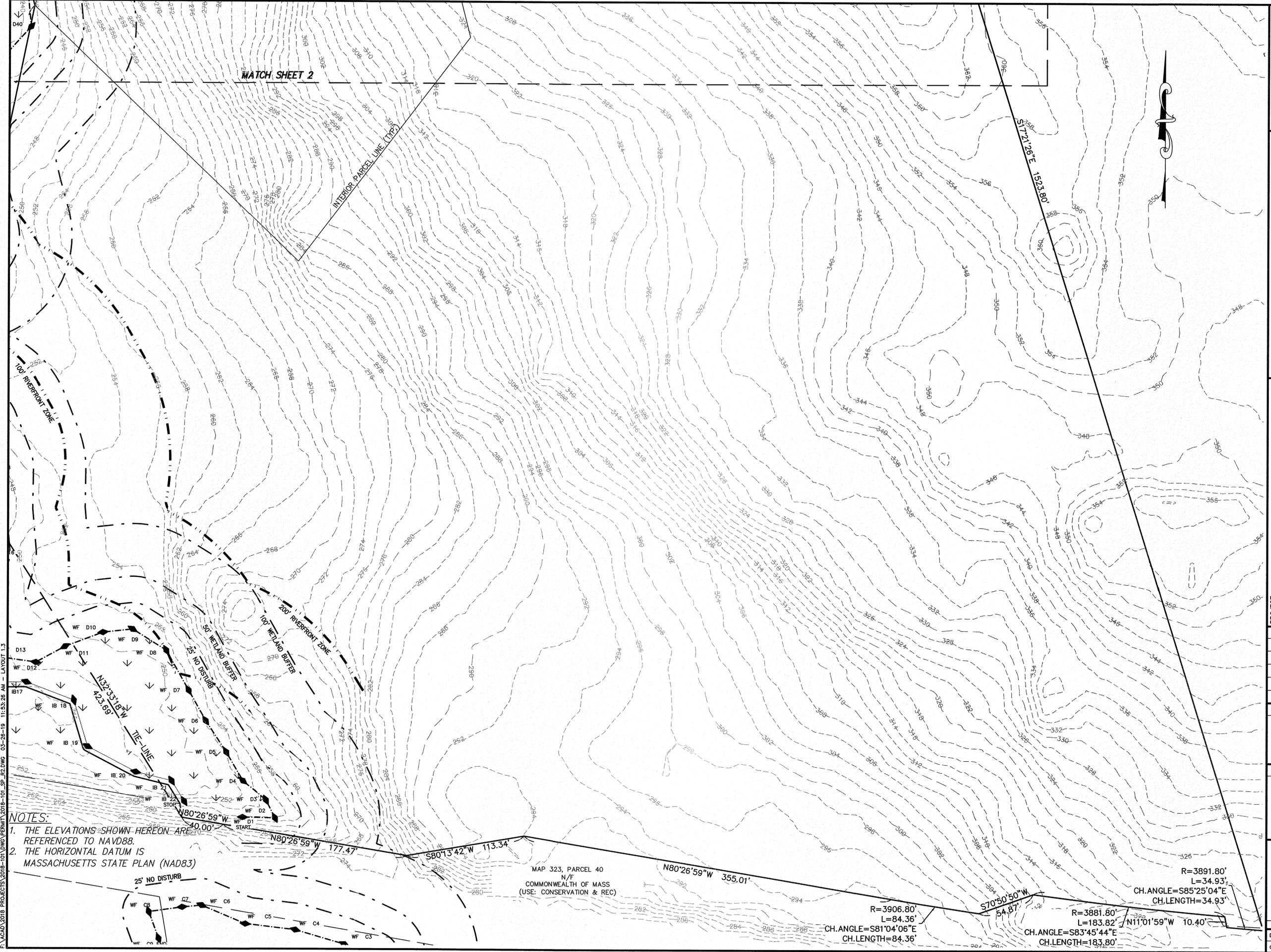
MAP 308, PARCEL 24  
N/F  
TOWN OF FRANKLIN  
(USE: VACANT CONSERVATION)

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)

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

F:\CAD\2018 PROJECTS\2018-101\_SF\_RZ.DWG 03-22-18 3:39:48 PM - LAYOUT 1.2



F:\ACAD\2018 PROJECTS\2018-101\DWG\PERMIT\2018-101\_SP\_E2.DWG 03-26-19 11:53:26 AM - LAYOUT 1.3

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

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'  
 CH. ANGLE=S83°45'44"E  
 CH. LENGTH=183.80'

R=3891.80'  
 L=34.93'  
 CH. ANGLE=S85°25'04"E  
 CH. LENGTH=34.93'

**ASE**  
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 500 East Washington Street  
 North Attleboro, Massachusetts 02760  
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APPROVAL UNDER SITE PLAN REVIEW.  
 FRANKLIN PLANNING BOARD


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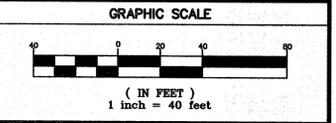
FRANKLIN TOWN CLERK DATE:

**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
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2	03/11/19	DEP COMMENTS



**SHEET TITLE**  
 EXISTING CONDITIONS  
 SHEET 3 OF 3

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

PLS

**C1.3**  
 PLAN NO. L-5691

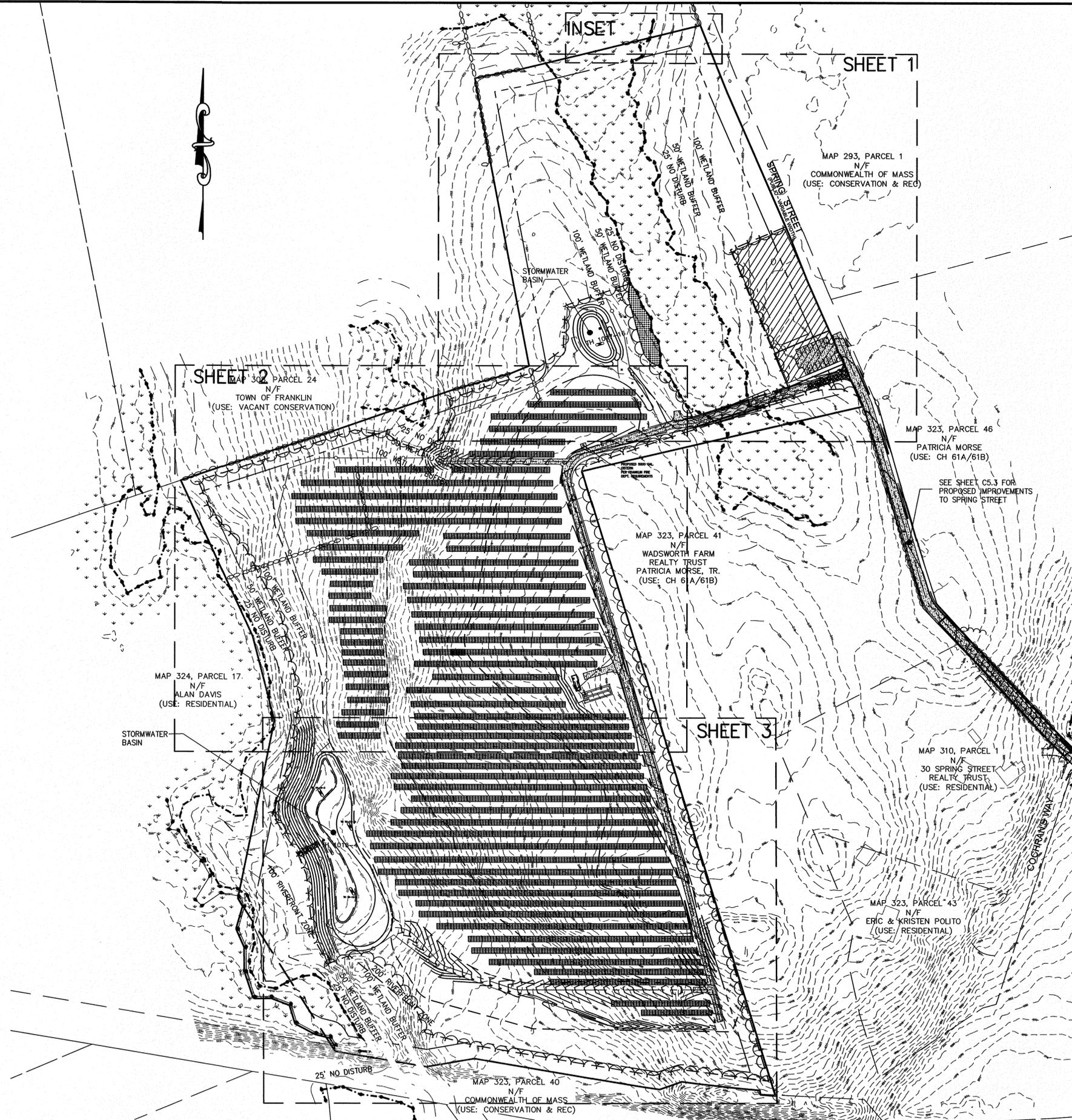
**ZONING REQUIREMENTS**

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

	REQUIRED	PROPOSED
AREA	40,000 SF	2,088,739 SF
FRONTAGE	200 FT	967 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 / 1,924,655) 0.05%

OBSERVATION TEST HOLE DATA  
 PERFORMED BY: JOHN MADEROS, 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
	ESHWGT @ 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
	ESHWGT @ 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
	ESHWGT @ 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
	ESHWGT @ 4.0' (263.0)
	WATER @ 7.0' (260.0)
	REFUSAL @ N/A
TH 1017-16 (ELEV. = 338.8)	0-10" A FSL
	10-18" B FSL
	18-120" C SL
	ESHWGT @ 5' (333.8)
	WATER @ 9' (329.8)
	REFUSAL @ N/A



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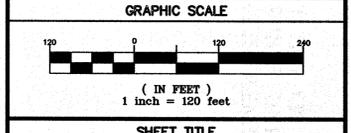
FRANKLIN TOWN CLERK DATE

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



SHEET TITLE

**SITE PLAN**

**INDEX SHEET**

SEAL OF RICHARD M. MARVILLE, CIVIL ENGINEER, No. 28923, State of Massachusetts. Signature and date: 3/25/19, P.E.

DES BY: KNP DATE: NOVEMBER 21, 2018  
 CHK BY: RMM PROJECT NO. 2018-101 **C2.0**



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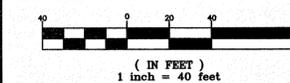
PROJECT:  
**LARGE-CAPACITY GROUND  
MOUNTED SOLAR ENERGY SYSTEM  
SPRING STREET  
FRANKLIN, MA**

APPLICANT:  
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101 SUMMER STREET  
BOSTON, MA 02110**

REVISIONS

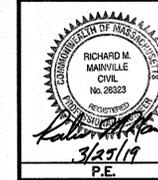
NO.	DATE	DESCRIPTION
1	02/1/19	PEER REVIEW COMMENTS
2	03/11/19	DEP COMMENTS

GRAPHIC SCALE



SHEET TITLE

**SITE PLAN  
SHEET 1 OF 3**

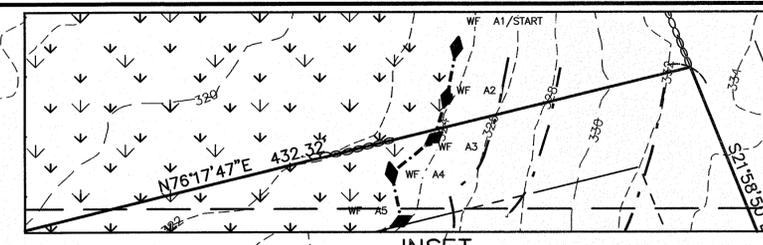
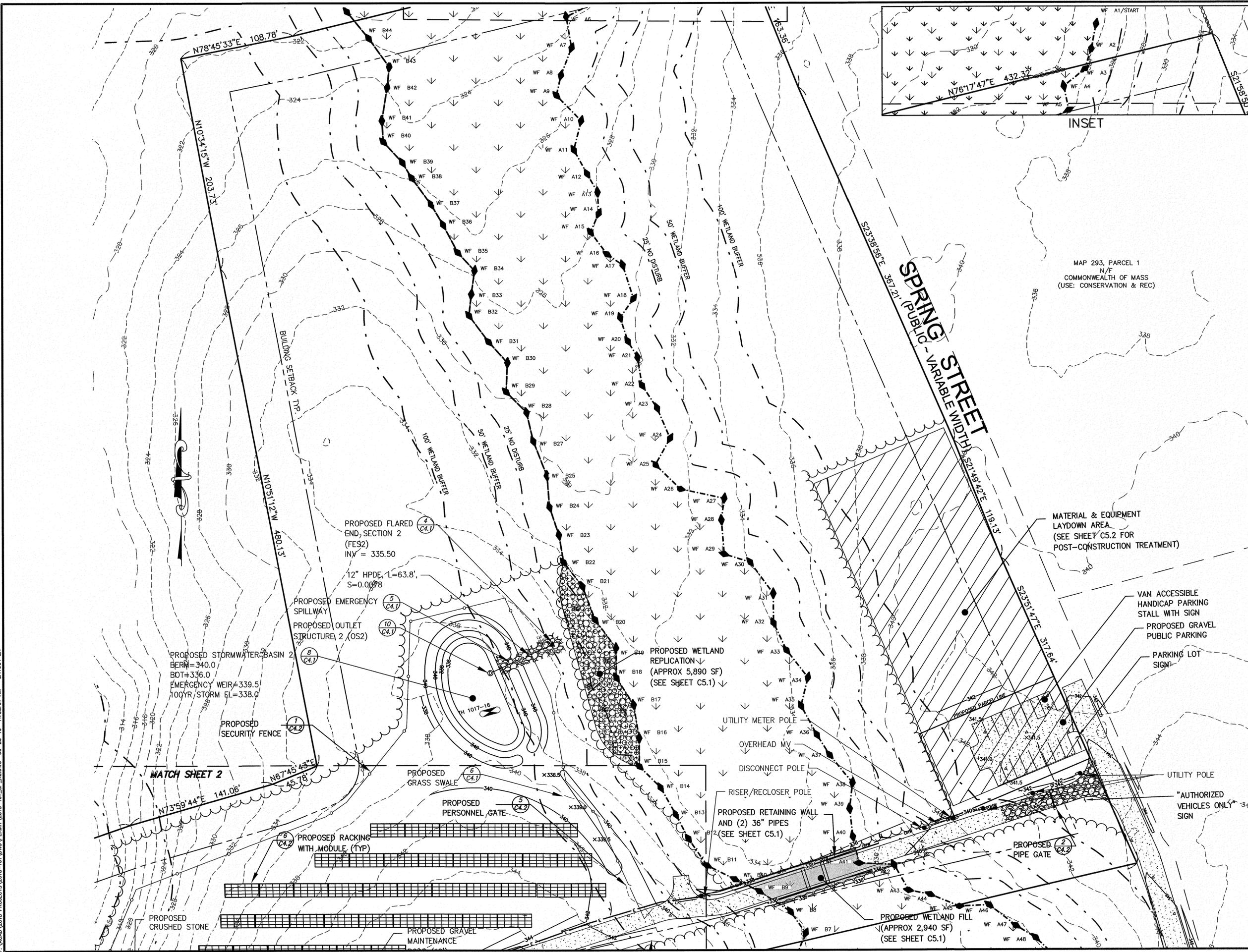


DES BY: KNP DATE: NOVEMBER 21, 2018  
CHK BY: RMM PROJECT NO. 2018-101

**C2.1**

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MAP 293, PARCEL 1  
N/F  
COMMONWEALTH OF MASS  
(USE: CONSERVATION & REC)

MATERIAL & EQUIPMENT  
LAYDOWN AREA.  
(SEE SHEET C5.2 FOR  
POST-CONSTRUCTION TREATMENT)

VAN ACCESSIBLE  
HANDICAP PARKING  
STALL WITH SIGN  
PROPOSED GRAVEL  
PUBLIC PARKING  
PARKING LOT  
SIGN

UTILITY POLE  
"AUTHORIZED  
VEHICLES ONLY"  
SIGN

UTILITY METER POLE  
OVERHEAD MV  
DISCONNECT POLE  
RISER/RECLOSER POLE  
PROPOSED RETAINING WALL  
AND (2) 36" PIPES  
(SEE SHEET C5.1)

PROPOSED WETLAND FILL  
(APPROX 2,940 SF)  
(SEE SHEET C5.1)

PROPOSED WETLAND  
REPLICATION  
(APPROX 5,890 SF)  
(SEE SHEET C5.1)

PROPOSED FLARED  
END, SECTION 2  
(FES2)  
INV = 335.50  
12" HPDE, L=63.8',  
S=0.0078

PROPOSED EMERGENCY  
SPILLWAY  
PROPOSED OUTLET  
STRUCTURE 2 (OS2)

PROPOSED STORMWATER BASIN 2  
BERM=340.0  
BOT=336.0  
EMERGENCY WEIR=339.5  
100YR STORM EL=338.0

MATCH SHEET 2  
N73°59'44"E 141.06'

PROPOSED CRUSHED STONE

PROPOSED GRASS SWALE

PROPOSED PERSONNEL GATE

PROPOSED RACKING  
WITH MODULE (TYP)

PROPOSED GRAVEL  
MAINTENANCE

SPRING STREET  
VARIABLE WIDTH (PUBLIC)

BUILDING SETBACK TYP.

N10°51'12"W 480.13'

N78°45'33"E 108.78'

N10°34'15"W 203.73'

N10°51'12"W 480.13'

N73°59'44"E 141.06'

N67°45'43"E 45.18'

PROPOSED CRUSHED STONE

PROPOSED GRAVEL  
MAINTENANCE

SPRING STREET  
VARIABLE WIDTH (PUBLIC)

BUILDING SETBACK TYP.

N10°51'12"W 480.13'

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PROPOSED CRUSHED STONE

PROPOSED GRAVEL  
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PROPOSED GRAVEL  
MAINTENANCE

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PROPOSED GRAVEL  
MAINTENANCE

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MAINTENANCE

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PROPOSED GRAVEL  
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PROPOSED GRAVEL  
MAINTENANCE

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PROPOSED CRUSHED STONE

PROPOSED GRAVEL  
MAINTENANCE

SPRING STREET  
VARIABLE WIDTH (PUBLIC)

BUILDING SETBACK TYP.

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PROPOSED GRAVEL  
MAINTENANCE

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MAINTENANCE

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PROPOSED GRAVEL  
MAINTENANCE

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PROPOSED CRUSHED STONE

PROPOSED GRAVEL  
MAINTENANCE

SPRING STREET  
VARIABLE WIDTH (PUBLIC)

BUILDING SETBACK TYP.

N10°51'12"W 480.13'

N78°45'33"E 108.78'

N10°34'15"W 203.73'

N10°51'12"W 480.13'

N73°59'44"E 141.06'

N67°45'43"E 45.18'

PROPOSED CRUSHED STONE

PROPOSED GRAVEL  
MAINTENANCE

SPRING STREET  
VARIABLE WIDTH (PUBLIC)

BUILDING SETBACK TYP.

N10°51'12"W 480.13'

N78°45'3



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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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AT  
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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



( IN FEET )  
1 inch = 40 feet

SHEET TITLE

**SITE PLAN**

**SHEET 2 OF 3**



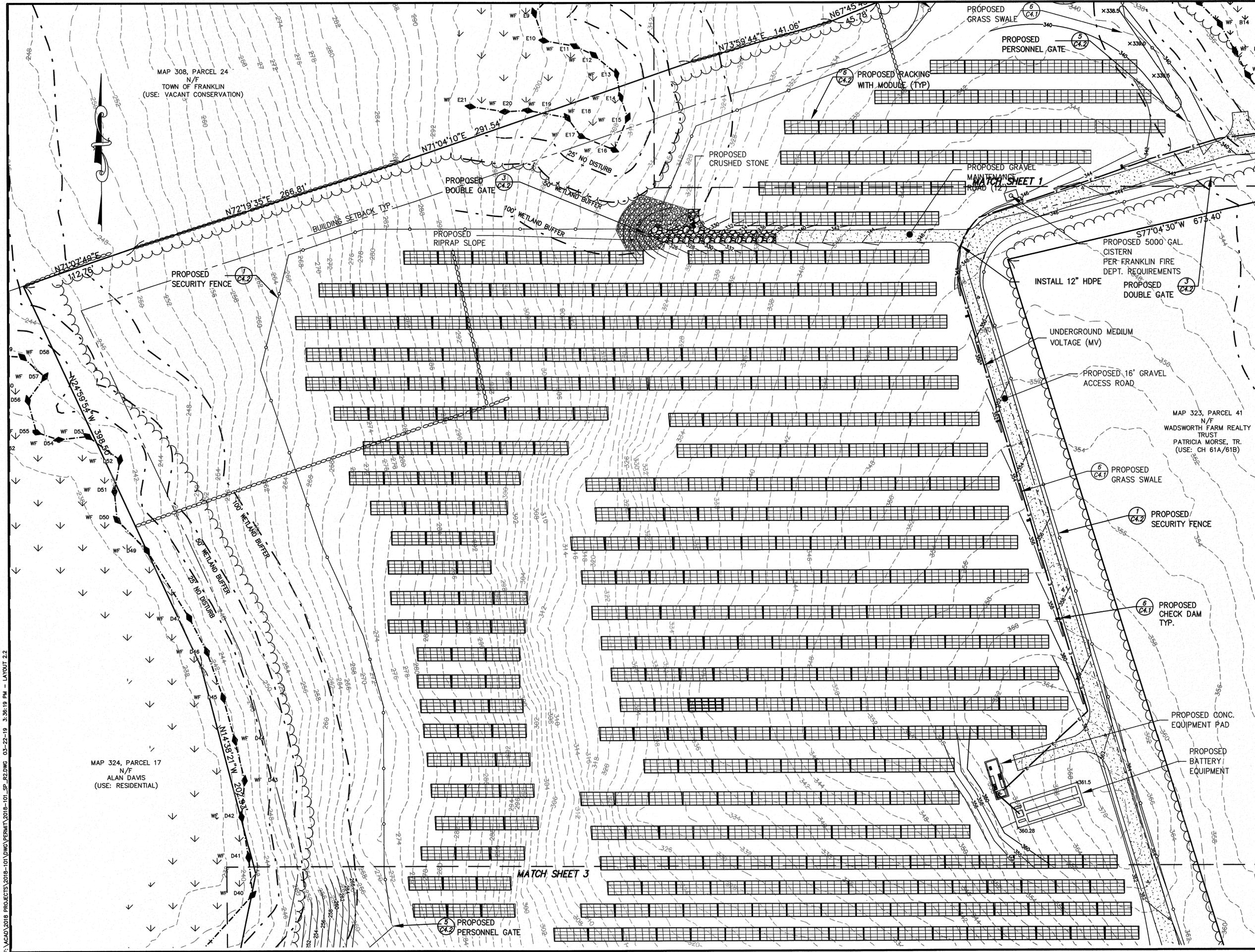
Richard M. Marville  
3/25/19  
P.E.

DES BY: KNP DATE: NOVEMBER 21, 2018

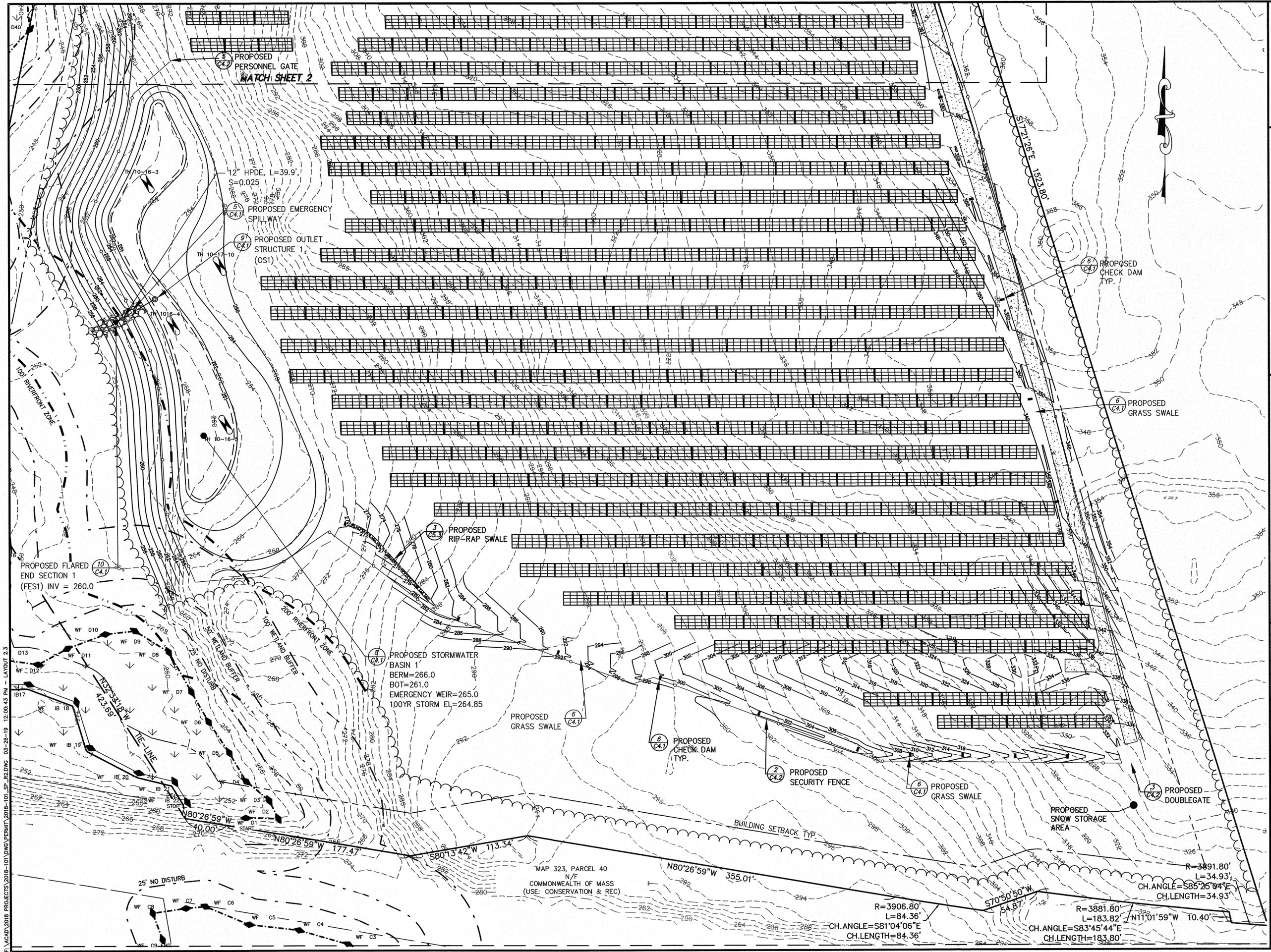
CHK BY: RMM PROJECT NO. 2018-101

**C2.2**

PLAN NO. L-5691



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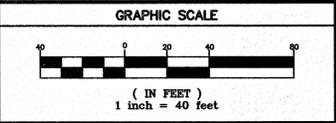
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FRANKLIN TOWN CLERK DATE

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.	DESCRIPTION
1	02/1/19 PEER REVIEW COMMENTS
2	03/11/19 DEP COMMENTS



SHEET TITLE  
**SITE PLAN**  
 SHEET 3 OF 3

RICHARD M. MAINVILLE  
 CIVIL ENGINEER  
 No. 20523  
 3/25/19  
 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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500 East Washington Street  
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FRANKLIN PLANNING BOARD

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FRANKLIN TOWN CLERK DATE

PROJECT:

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

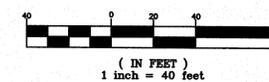
APPLICANT:

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

REVISIONS

NO.	DATE	DESCRIPTION
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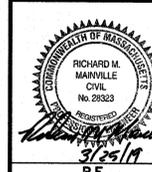
GRAPHIC SCALE



SHEET TITLE

**EROSION & SEDIMENT  
CONTROL PLAN**

**SHEET 1 OF 3**



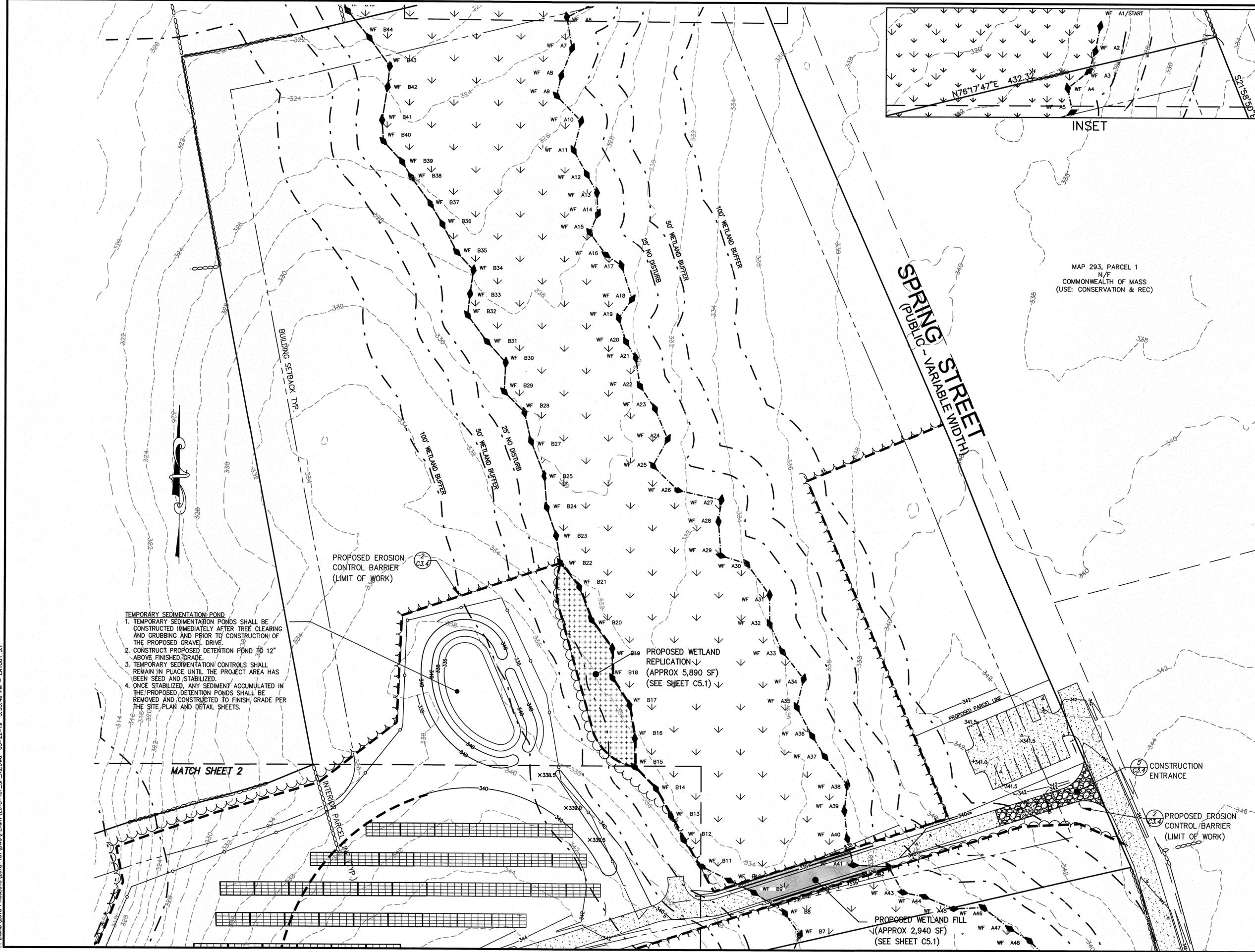
DES BY: KNP DATE: NOVEMBER 21, 2018  
CHK BY: RMM PROJECT NO. 2018-101

**C3.1**

PLAN NO. L-5691

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- TEMPORARY SEDIMENTATION POND**
- TEMPORARY SEDIMENTATION PONDS SHALL BE CONSTRUCTED IMMEDIATELY AFTER TREE CLEARING AND GRUBBING AND PRIOR TO CONSTRUCTION OF THE PROPOSED GRAVEL DRIVE.
  - CONSTRUCT PROPOSED DETENTION POND TO 12" ABOVE FINISHED GRADE.
  - TEMPORARY SEDIMENTATION CONTROLS SHALL REMAIN IN PLACE UNTIL THE PROJECT AREA HAS BEEN SEED AND STABILIZED.
  - 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.

PROPOSED EROSION CONTROL BARRIER (LIMIT OF WORK)

PROPOSED WETLAND REPLICATION (APPROX 5,890 SF) (SEE SHEET C5.1)

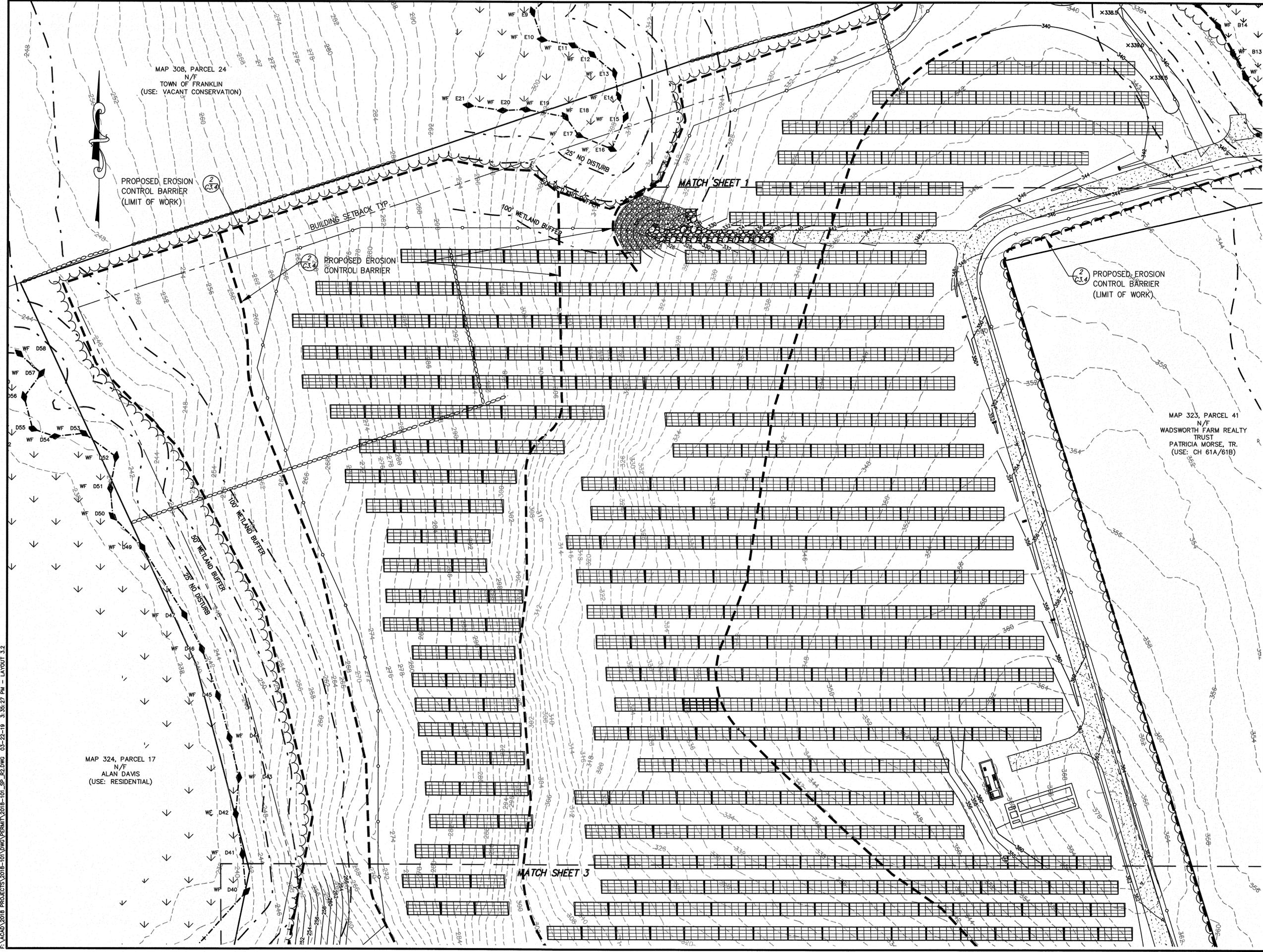
PROPOSED WETLAND FILL (APPROX 2,940 SF) (SEE SHEET C5.1)

MAP 293, PARCEL 1  
N/F  
COMMONWEALTH OF MASS  
(USE: CONSERVATION & REC)

SPRING STREET  
(PUBLIC - VARIABLE WIDTH)

MATCH SHEET 2

INSET



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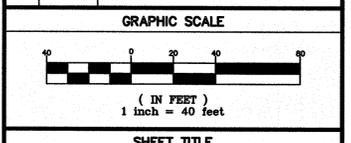
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PROJECT: **LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM**  
 APPLICANT: **SPRING ST. RENEWABLES, LLC**  
 101 SUMMER STREET  
 BOSTON, MA 02110

REVISIONS		
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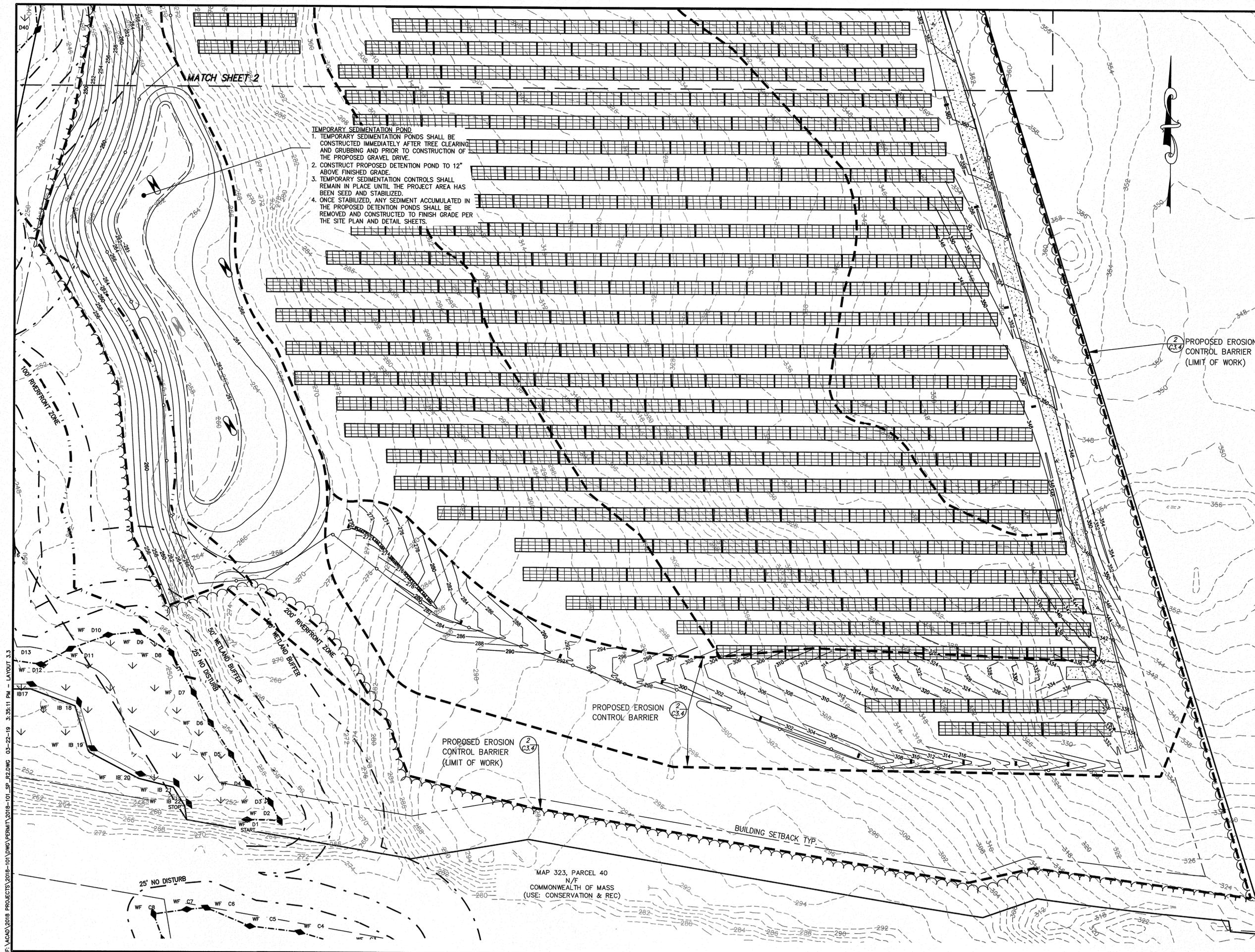
SHEET TITLE  
**EROSION & SEDIMENT CONTROL PLAN**  
 SHEET 2 OF 3

RICHARD M. MAINVILLE  
 CIVIL  
 No. 28283  
 3/28/19  
 P.E.

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 CHK BY: RMM PROJECT NO. 2018-101

**C3.2**  
 PLAN NO. L-5691

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- 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.

**ASE**  
 Andrews Survey & Engineering, Inc.  
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APPROVAL UNDER SITE PLAN REVIEW.  
 FRANKLIN PLANNING BOARD

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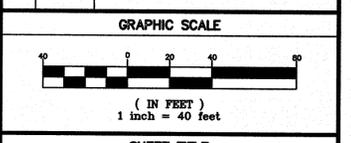
BEING A MAJORITY DATE: \_\_\_\_\_  
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FRANKLIN TOWN CLERK DATE \_\_\_\_\_

PROJECT: **LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM**  
 APPLICANT: **SPRING ST. RENEWABLES, LLC**  
 101 SUMMER STREET  
 FRANKLIN, MA 02110

**REVISIONS**

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



**SHEET TITLE**  
**EROSION & SEDIMENT CONTROL PLAN**  
**SHEET 3 OF 3**

**RICHARD M. MARVILLE**  
 CIVIL  
 No. 28323  
 9/25/19  
 P.E.

DES BY: KNP DATE: NOVEMBER 21, 2018  
 CHK BY: RMM PROJECT NO. 2018-101 **C3.3**

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SPRING STREET  
FRANKLIN, MA**

APPLICANT:  
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101 SUMMER STREET  
BOSTON, MA 02110**

REVISIONS

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GRAPHIC SCALE

SHEET TITLE

**CONSTRUCTION  
DETAILS**

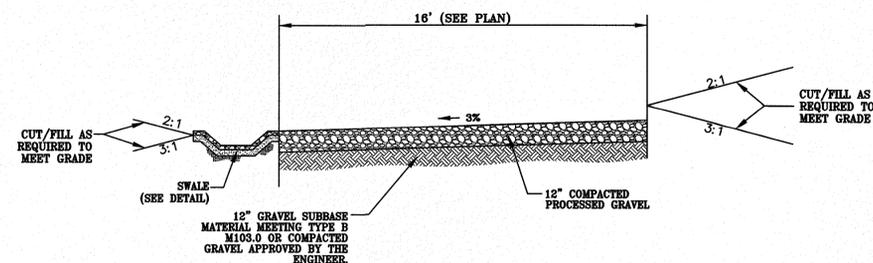
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DES BY: KNP DATE: NOVEMBER 21, 2018

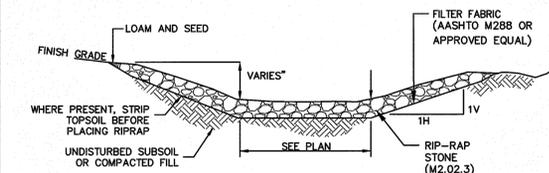
CHK BY: RMM PROJECT NO. 2018-101

**C4.1**

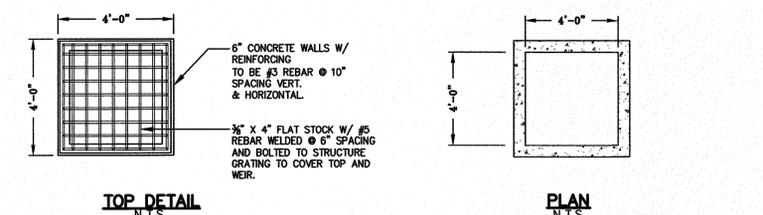
PLAN NO. L-5691



**1 GRAVEL ROADWAY CROSS-SECTION**  
SCALE: N.T.S.

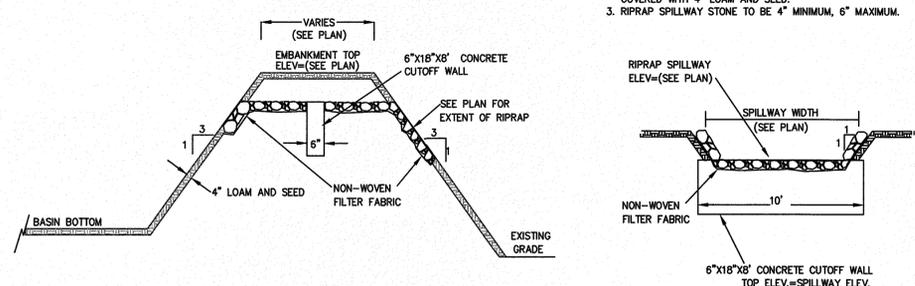


**5 STONE RIP-RAP EMERGENCY SPILLWAY**  
SCALE: N.T.S.



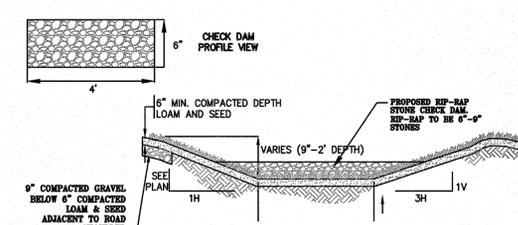
**9 OUTLET STRUCTURE (OS1) - ORIFICE/GRATE DETAIL**  
SCALE: N.T.S.

- NOTES:
- EMBANKMENT TO BE CONSTRUCTED OF CLEAN GRAVEL FREE OF ORGANIC SOILS/MATERIALS WITH NO STONES OVER 12" MAX. DIMENSION. EMBANKMENT TO BE CONSTRUCTED IN COMPACTED LIFTS NOT TO EXCEED 8".
  - BASIN BOTTOM AND SIDE SLOPES (INSIDE AND OUT) TO BE COVERED WITH 4" LOAM AND SEED.
  - RIP-RAP SPILLWAY STONE TO BE 4" MINIMUM, 6" MAXIMUM.



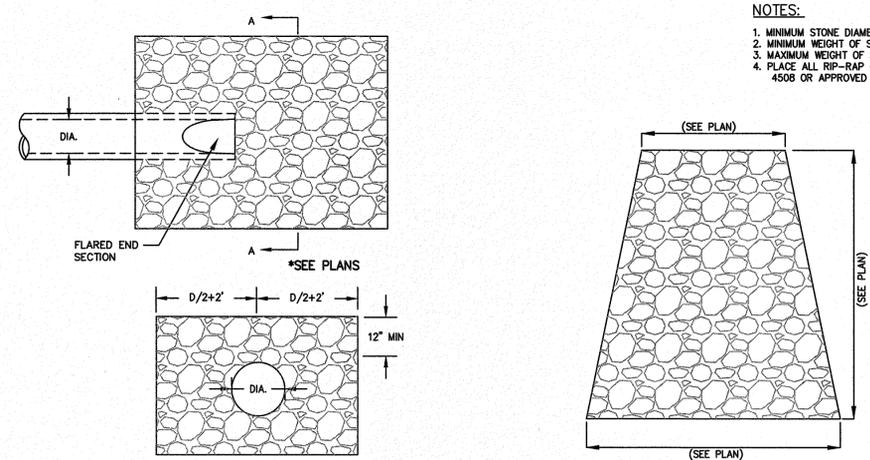
**2 TYPICAL EMBANKMENT/SPILLWAY**  
SCALE: N.T.S.

**SPILLWAY PROFILE**



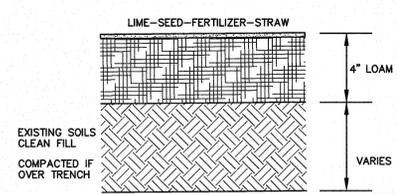
**6 GRASS SWALE WITH CHECK DAM**  
SCALE: N.T.S.

- NOTES:
- MINIMUM STONE DIAMETER: 6"
  - MINIMUM WEIGHT OF STONE: 50 LBS.
  - MAXIMUM WEIGHT OF STONE: 125 LBS.
  - PLACE ALL RIP-RAP OVER FILTER FABRIC, AMOCO 450B OR APPROVED EQUAL.

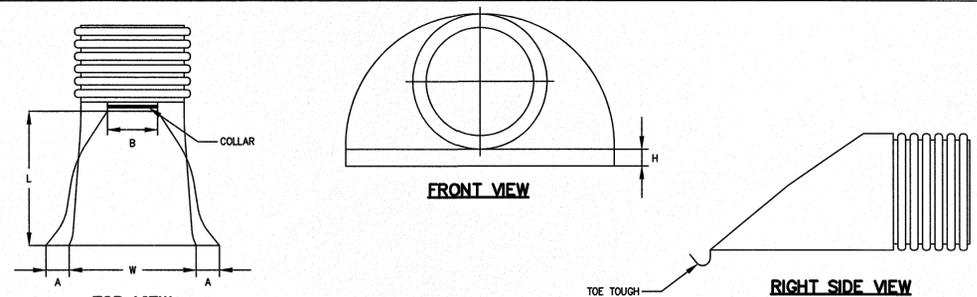


**3 STONE RIP-RAP FOR PIPE ENDS**  
SCALE: N.T.S.

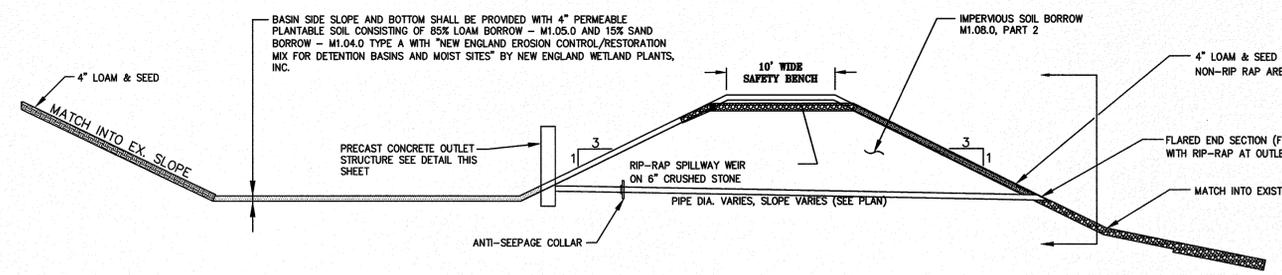
**TYPICAL OUTFALL RIP-RAP APRON**



**7 LOAM & SEED DETAIL**  
SCALE: N.T.S.



**4 FLARED-END SECTION**  
SCALE: N.T.S.



**8 STORMWATER BASIN**  
SCALE: N.T.S.



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FRANKLIN PLANNING BOARD

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

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

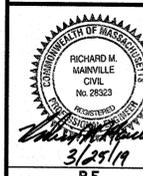
REVISIONS

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

GRAPHIC SCALE

SHEET TITLE

CONSTRUCTION  
DETAILS



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

C4.2

PLAN NO. L-5691

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

END & CORNER POST 2 1/2" O.D.  
TOP (TYPICAL)  
GALVANIZED TIE WIRE OR APPROVED EQUIVALENT 18" O.C.  
EXPANSION SLEEVE  
1 5/8" O.D. TOP RAIL  
2" -9GA. MESH CHAIN LINK T&B SELVAGE KNUCKLED (KK)  
LINE POST TOP  
LINE POST 2" O.D.  
GALVANIZED TIE WIRE @ 15" INTERVALS  
6" AVERAGE CLEARANCE  
TENSION WIRE  
10'-0" O.C. MAX. SPACING  
CONCRETE FOR CORNER POSTS  
18" MIN. DIA. (TYP.)  
PILE DRIVEN POSTS (TYP.)

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

SCALE: N.T.S. FINAL DESIGN BY OTHERS

HINGE SPACE 6.5"  
20'-0"  
1"  
3'-4"  
BACK FILL WITH CONCRETE AFTER INSTALLATION  
FINISHED ROAD SURFACE  
TOPS OF ALL BASES TO BE AT THE SAME LEVEL  
CONCRETE FOUNDATION 2'-6"x2'-6"x2' DEEP  
CONCRETE FOUNDATION 1'-4"x1'-4"x10" DEEP  
C/L BARRIER  
C/L BARRIER  
NOTE: CONCRETE TO BE CAST A MINIMUM OF 7 DAYS BEFORE INSTALLATION OF EQUIPMENT

SCALE: N.T.S. FINAL DESIGN BY OTHERS

**WARNING**  
HIGH VOLTAGE - KEEP AWAY  
AUTHORIZED PERSONNEL ONLY  
NO TRESPASSING. THIS SITE IS MONITORED BY SURVEILLANCE.

IN CASE OF EMERGENCY, PLEASE CONTACT NEARBY AT (817) 434-1440 X 6

1. ALL FENCING SHALL BE GALVANIZED.  
2. CONCRETE ENCASMENT 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.

GATE POST  
2"  
ACTUAL OPENING  
PLAN VIEW  
CHAIN LINK 2"-9GA. MESH  
ALL JOINTS ARE WELDED TO MAKE A RIGID FRAME  
6" CLEARANCE  
3'-0"  
SIGN IDENTIFYING OWNER AND EMERGENCY CONTACT  
ELEVATION  
HEIGHT ABOVE GRADE  
12" MIN. DIA. (TYP.)

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

SCALE: N.T.S. FINAL DESIGN BY OTHERS

HINGE POST 2 1/2" O.D.  
ACTUAL OPENING  
PLAN VIEW  
LATCH POST 2 1/2" O.D.  
PROVISION FOR PAD LOCK  
6" CLEARANCE  
ELEVATION  
12" MIN. DIA. (TYP.)  
ROUND POST HINGE (TYP.)

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

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"

MODULE RACK 2X PORTRAIT @ D° TILT  
GRADE

SCALE: N.T.S. FINAL DESIGN BY OTHERS

NOTE: FINAL DESIGN BY OTHERS

GEOTEXTILE FABRIC (MIRAFIBRON OR APPROVED EQUAL)  
MIN. 36" (TYP.)  
FINISH GRADE  
MIN. 6" (TYP.)  
BEDDING SAND  
COMPACTED SUBGRADE (SUITABLE SOIL MATERIAL)  
MIN. 4" SLAB ABOVE GRADE  
SEE STRUCTURAL DRAWINGS FOR CONCRETE PAD DETAILS  
MIN. 4" 1-1/2" STONE, FLUSH WITH PAD  
MIN. 6" 3/4" STONE  
MIN. 12" STRUCTURAL FILL  
3" COMPACTED SAND  
ELEC. CONDUIT SIZE VARIES

SCALE: N.T.S. FINAL DESIGN BY OTHERS

UNPAVED  
PAVED  
REPAVE AS SPECIFIED  
ORDINARY FILL COMPACTED AS SPEC.  
ELECTRIC CONDUIT (AS REQUIRED)  
COMPACTED SAND  
AS REQUIRED

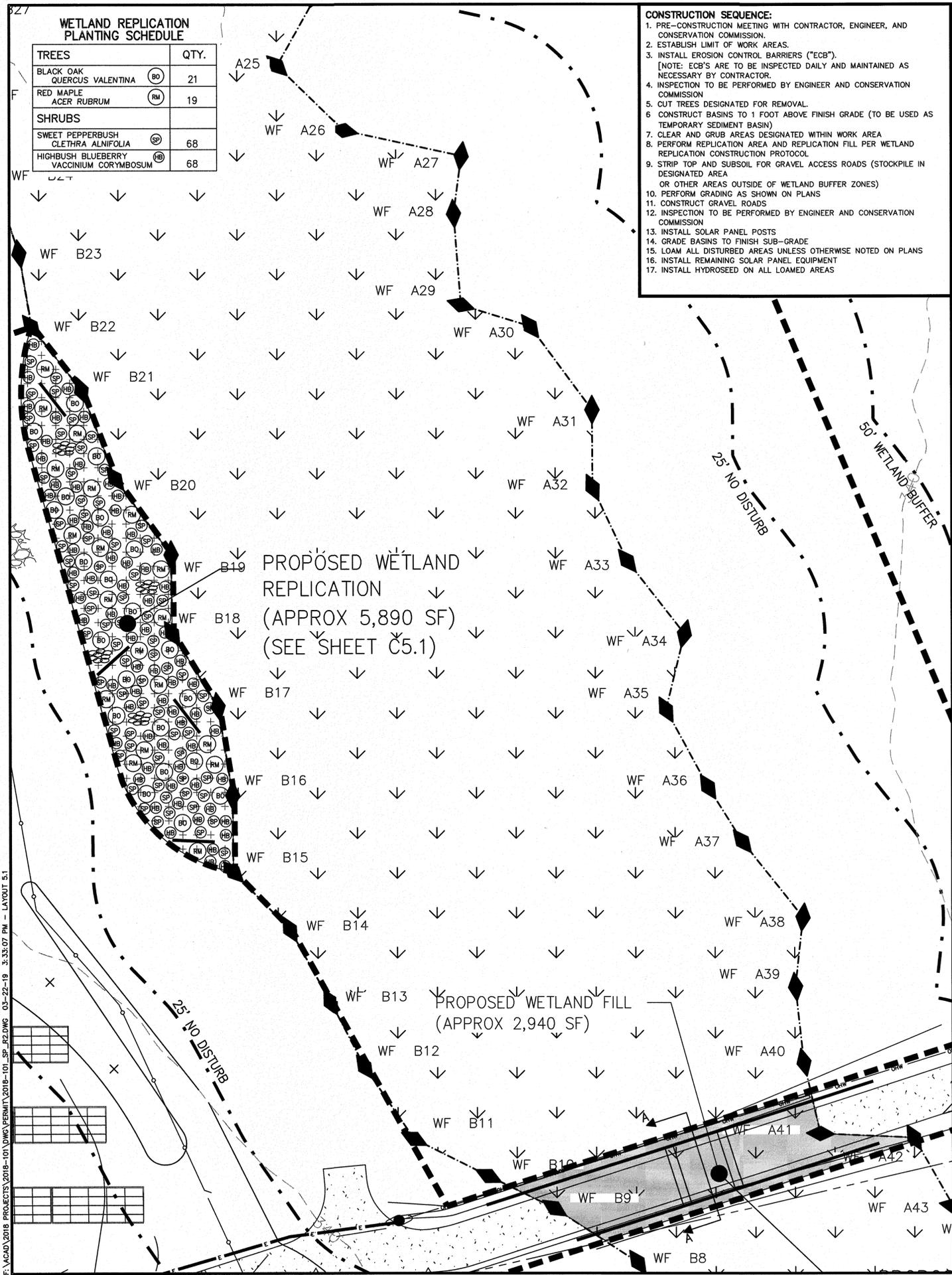
SCALE: N.T.S. FINAL DESIGN BY OTHERS

Move blocks forward during installation to engage shear knobs (Typical)  
Grade to drain surface water away from wall  
Setback = 1 1/4" (41 mm) (5° Wall Batter Angle)  
Top block  
28" (710 mm)  
2'-6"  
0'-6"  
0'-6"  
Leveling pad (As specified by Engineer)  
Solid bottom block  
Drain (As specified by Engineer)  
Backfill per design requirements. Install in lifts and compact per project specifications.  
Infill stone (No. 57 or equivalent) Fill between adjacent blocks (all blocks) Fill vertical core slot (PC blocks) Stone to extend at least 12" (305 mm) behind blocks.

250 lb / ft<sup>2</sup> (12 kPa)Non-woven geotextile fabric (If specified by Engineer based on site soil conditions)

SCALE: N.T.S. FINAL DESIGN BY OTHERS

F:\CAD\2018 PROJECTS\2018-101\DWG\PERMIT\2018-101\_SP\_R2.DWG 03-22-19 3:33:18 PM - LAYOUT 4.2



**CONSTRUCTION SEQUENCE:**

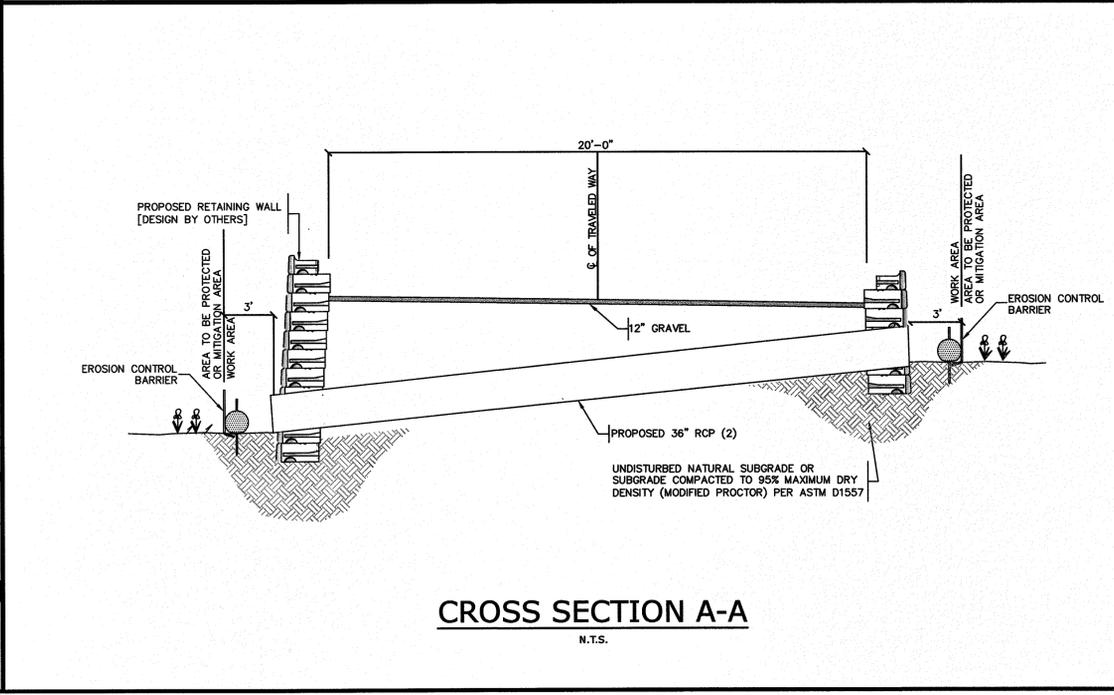
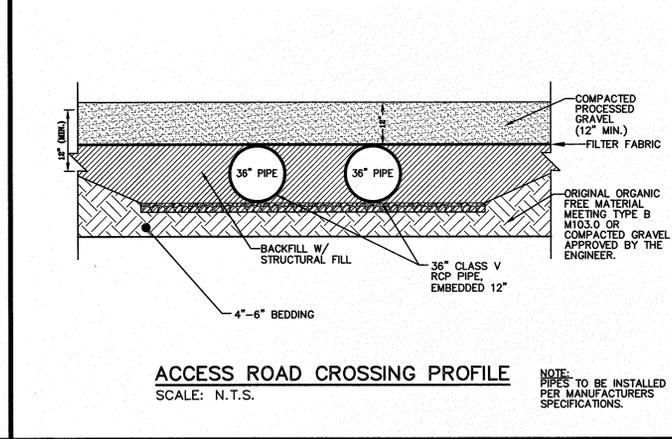
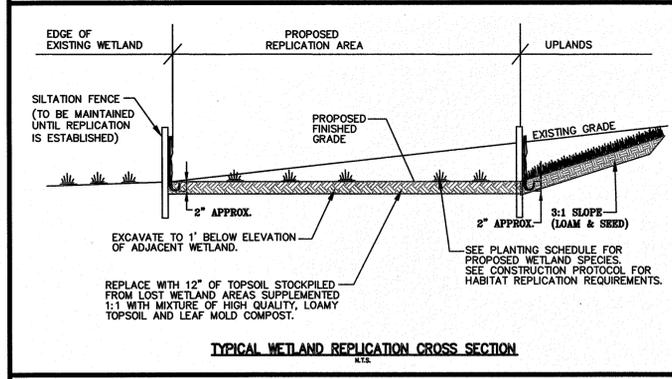
1. PRE-CONSTRUCTION MEETING WITH CONTRACTOR, ENGINEER, AND CONSERVATION COMMISSION.
2. ESTABLISH LIMIT OF WORK AREAS.
3. INSTALL EROSION CONTROL BARRIERS ("ECB").  
[NOTE: ECB'S ARE TO BE INSPECTED DAILY AND MAINTAINED AS NECESSARY BY CONTRACTOR.]
4. INSPECTION TO BE PERFORMED BY ENGINEER AND CONSERVATION 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 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 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.

**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.



**ASE**  
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 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 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.

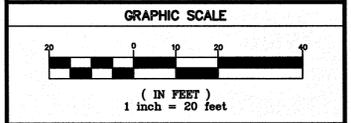
FRANKLIN TOWN CLERK DATE: \_\_\_\_\_

PROJECT: **LARGE-CAPACITY GROUND MOUNTED SOLAR ENERGY SYSTEM**

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



**SHEET TITLE**

**WETLAND CROSSING & REPLICATION PLAN**

DESIGNED BY: KNP DATE: NOVEMBER 21, 2018  
 CHECKED BY: RMM PROJECT NO. 2018-101

**C5.1**

PLANNING NO. L-5691

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# LANDSCAPE SCHEDULE

-  ERNST SOLAR FARM SEED MIX
-  NEW ENGLAND EROSION CONTROL/RESTORATION MIX
-  POLLINATOR SEED MIX
-  AREA TO BE CUT, STUMPS TO REMAIN
-  AREA TO BE GRAVELED

**PLANTING AND LANDSCAPING NOTES:**

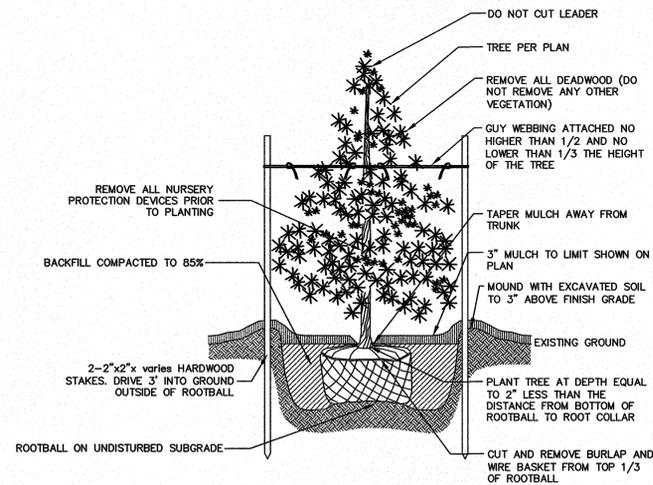
- ALL PLANT MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE OF LANDSCAPE WORK.
- LOAM: LOAM MOVED DURING THE COURSE OF CONSTRUCTION SHALL BE RETAINED AND DISTRIBUTED WITHIN THE SITE IN ACCORDANCE WITH THE LANDSCAPE PLAN. STOCKPILED LOAM SHALL NOT BE MIXED WITH ANY SUBSOIL OR UNSUITABLE MATERIALS. ALL EXCESS LOAM SHALL REMAIN ON THE PROPERTY OF THE OWNER. NEW LOAM IF REQUIRED TO PROVIDE A MINIMUM OF 4" DEPTH, SHALL BE A FERTILE, FRABLE MEDIUM TEXTURED SANDY LOAM FREE OF MATERIAL TOXIC TO HEALTHY PLANT GROWTH. LOAM SHALL ALSO BE FREE OF ALL STUMPS, ROOTS, STONES AND OTHER EXTRANEOUS MATTER ONE INCH (1") OR GREATER IN DIAMETER. THE PH SHALL BE BETWEEN 5.5 AND 7.5 WHEN TESTED.
- SOLAR SEED MIX: SEEDING SHALL TAKE PLACE AS DIRECTED BY NEMAP. SEED SHALL BE FRESH, CLEAN, AND SELECTED FROM THE PREVIOUS YEARS CROP. SHALL HAVE A MAXIMUM WEED SEED CONTENT OF 1% IN THE FOLLOWING PROPORTIONS:

ERNST SOLAR FARM SEED MIX		
Festuca rubra	(Creeping Red Fescue)	50.0%
Festuca brevipila, 'Cherish'	(Hard Fescue, Cherish)	15.0%
Festuca brevipila, 'Harpoon'	(Hard Fescue, Harpoon)	15.0%
Festuca rubra ssp. commutata	(Chewings Fescue)	10.0%
Poa pratensis, 'Moontrack'	(Kentucky Bluegrass, Moontrack)	5.0%
Poa pratensis, 'Shanrock'	(Kentucky Bluegrass, Shanrock)	5.0%
ERNST NORTHEASTERN POLLINATOR MIX		
Schizachyrium scoparium, Albany Pine-Bush - NY Ecotype	(Little Bluestem, Albany Pine-Bush - NY Ecotype)	42.0%
Chamaecrista fasciculata, PA Ecotype	(Partridge Pea, PA Ecotype)	10.0%
Coreopsis lanceolata	(Lanceolated Coreopsis)	10.0%
Echinacea purpurea	(Purple Coneflower)	9.80%
Agastache foeniculum	(Anise (Lavender) Hyssop)	8.0%
Helianthus scaberrimus, PA Ecotype	(Orange Sunflower, PA Ecotype)	6.0%
Zizia aurea	(Golden Alexanders)	2.30%
Asclepias syriaca, PA Ecotype	(Common Milkweed, PA Ecotype)	2.0%
Asclepias tuberosa, PA Ecotype	(Butterfly Milkweed, PA Ecotype)	2.0%
Aster lateriflorus	(Colic Aster)	1.10%
Eupatorium perfoliatum, PA Ecotype	(Boneseal, PA Ecotype)	1.0%
Penstemon hirtellus	(Hairy Beardtongue)	1.0%
Pycnanthemum tenuifolium	(Narrowleaf Mountainmint)	1.0%
Vernonia noveboracensis, PA Ecotype	(New York Ironweed, PA Ecotype)	1.0%
Solidago bicolor, PA Ecotype	(White (Silver Rod) Goldenrod, PA Ecotype)	0.70%
Solidago nemoralis, PA Ecotype	(Gray Goldenrod, PA Ecotype)	0.70%
Morone latifolia, Fort Indiantown-Cog-PA Ecotype	(Wild Bergamot, Fort Indiantown-Cog-PA Ecotype)	0.60%
Eupatorium maculatum, PA Ecotype	(Spotted Joe Pye Weed, PA Ecotype)	0.50%
Solidago juncea, PA Ecotype	(Early Goldenrod, PA Ecotype)	0.30%

NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES		
Elymus riparius	(Riverbank Wild Rye)	
Schizachyrium scoparium	(Little Bluestem)	
Festuca rubra	(Red Fescue)	
Andropogon gerardii	(Big Bluestem)	
Panicum virgatum	(Switch Grass)	
Vernonia noveboracensis	(New York Ironweed)	
Agrostis perennis	(Upland Bentgrass)	
Bidens frondosa	(Begger Ticks)	
Eupatorium maculatum	(Eutrochium maculatum) (Spotted Joe Pye Weed)	
Eupatorium perfoliatum	(Boneseal)	
Aster novae-angliae	(Symphyotrichum novae-angliae) (New England Aster)	
Scirpus cyperinus	(Wool Grass)	
Juncus effusus	(Soft Rush)	

SEEDING AREAS SHALL, AT A MINIMUM, INCLUDE ALL AREAS OF THE SITE THAT HAVE BEEN DISTURBED OR ARE BARREN UNLESS OTHERWISE NOTED ON THE PLANS. SEED SHALL BE APPLIED AT A RATE OF 0.5 LBS. PER 1000 SQUARE FEET.

4. DISTURBED AREAS: ANY AREAS DISTURBED DURING THE COURSE OF CONSTRUCTION ARE TO BE RESTORED TO ORIGINAL (OR BETTER) CONDITION BY CONTRACTOR BEFORE COMPLETION OF THE PROJECT, AND ARE SUBJECT TO APPROVAL BY LANDSCAPE ARCHITECT AND OWNER. ALL GRASS AREAS DISTURBED DURING CONSTRUCTION SHALL BE YORK RAKED TO REMOVE STONES AND LOAMED AND SEED AS PER SPECIFICATIONS.



**1 EVERGREEN TREE PLANTING**  
SCALE: N.T.S.

NOTE:  
ALL PROPOSED WORK IS NOT SHOWN FOR CLARITY.

**ASE**  
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APPROVAL UNDER SITE PLAN REVIEW.  
FRANKLIN PLANNING BOARD

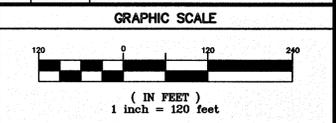
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FRANKLIN TOWN CLERK DATE

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



**LANDSCAPE PLAN**

Professional Engineer Seal for Andrew S. Andrews, No. 28343, dated 3/25/19.

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

**C5.2**  
PLAN NO. L-5691

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APPROVAL UNDER SITE PLAN REVIEW.  
FRANKLIN PLANNING BOARD

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

FRANKLIN TOWN CLERK DATE \_\_\_\_\_

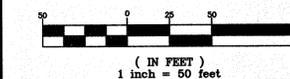
PROJECT:  
**LARGE-CAPACITY GROUND  
MOUNTED SOLAR ENERGY SYSTEM  
SPRING STREET  
FRANKLIN, MA**

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

REVISIONS

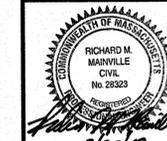
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2	03/11/19	DEP COMMENTS

GRAPHIC SCALE



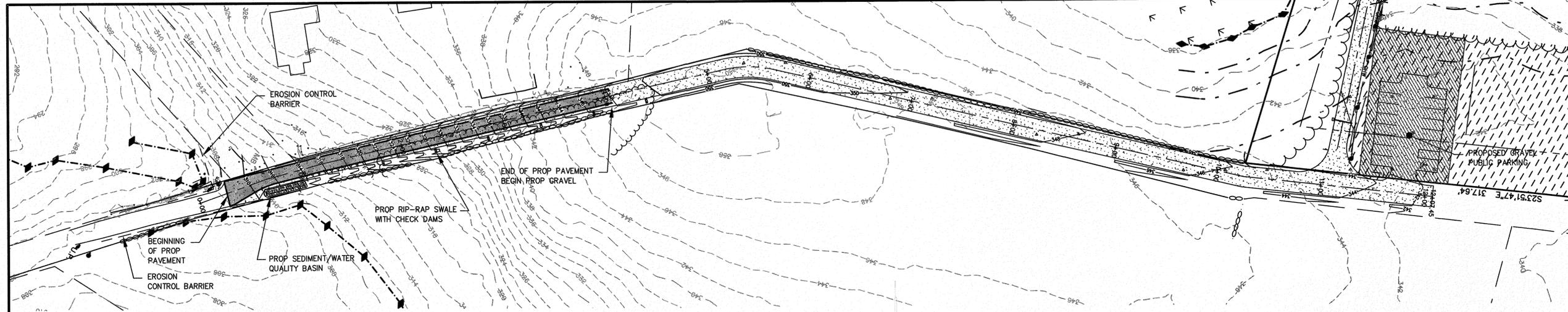
SHEET TITLE

**SPRING STREET  
IMPROVEMENTS  
PLAN AND PROFILE**

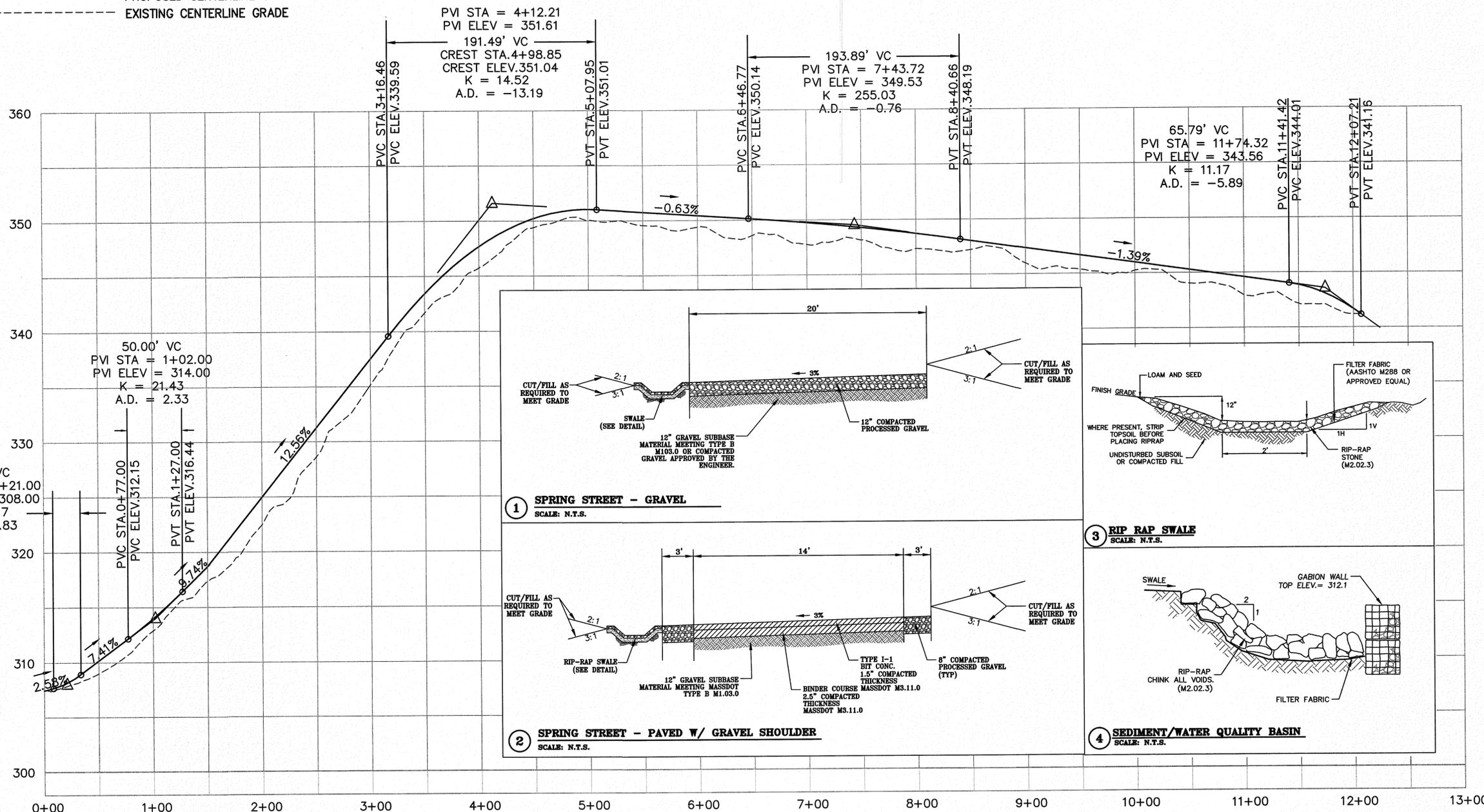


DES BY: KNP DATE: NOVEMBER 21, 2018  
CHK BY: RMM PROJECT NO. 2018-101

**C5.3**



— PROPOSED CENTERLINE GRADE  
- - - EXISTING CENTERLINE GRADE



CONDUCTOR SCHEDULE						
CIRCUIT ID	VOLTAGE	CONDUCTOR QUANTITY, SIZE, AND MATERIAL	INSULATION TYPE	QUANTITY OF CONDUITS	SIZE OF CONDUITS	CONDUIT TYPE
A	15kV	(5) #10 AWG AL (1) #10 AWG AL N	COVERED ACSR	-	-	-
B	15kV	(5) #10 AWG AL (1) #10 AWG AL N	COVERED ACSR	1	0-4"	PVC
C	15kV	(1) #10 AWG AL	COVERED ACSR	1	0-1.5000"	PVC
D	600V	(5) #10 AWG, (1) #10 AWG N	THWN-2	1	0-1"	PVC
E	600V	(2) #12 AWG	XPLE	1	0-1"	PVC
F	15kV	(2) #10 AWG AL	COVERED ACSR	1	0-1.5000"	-
G	600V	(1) #10 THWST SHIELDED PAR.CU	COVERED ACSR	1	0-1"	-

\* ALL CONDUCTORS SHALL BE COPPER UNLESS OTHERWISE NOTED.

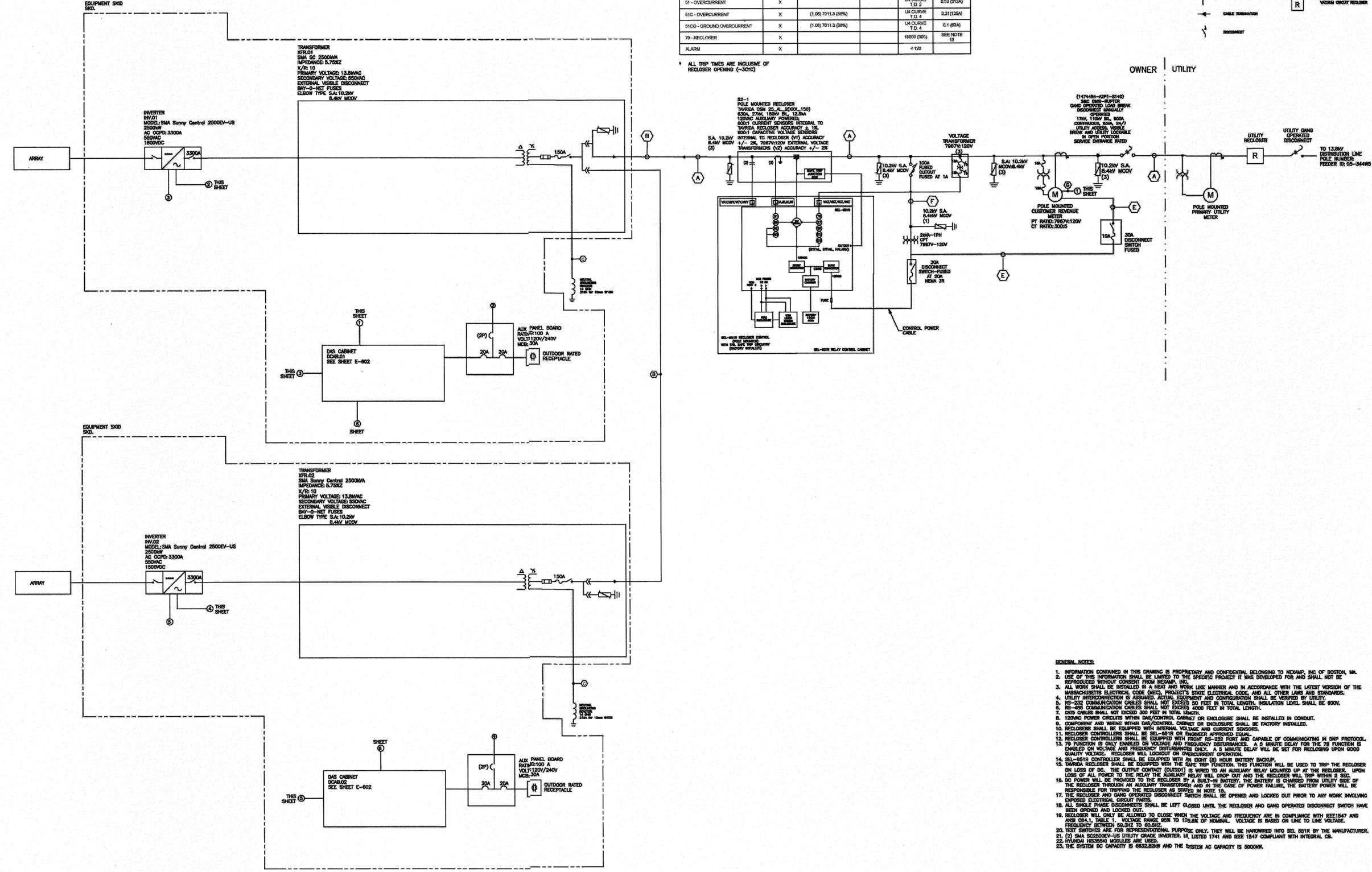
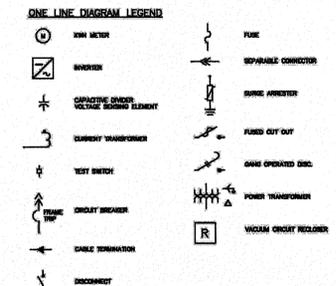
INVERTER PROTECTIVE SETTINGS (I)			
INVERTER PROTECTIVE FUNCTIONS	VOLTAGE SETTINGS (PU)	FREQUENCY SETTINGS (Hz)	TOTAL CLEARING TIME CYCLES (SEC)
27-FAST UNDERVOLTAGE	0.75 (80%)	-	0.8 (0.16)
27-UNDERVOLTAGE	0.8 (80%)	-	1.0 (0.2)
28-UNDERVOLTAGE	0.85 (100%)	-	1.0 (0.2)
29-OVERVOLTAGE	1.05 (105%)	-	0.8 (0.16)
30-FAST OVERVOLTAGE	1.1 (110%)	-	0.8 (0.16)
31-UNDERFREQUENCY	-	58.5	0.8 (0.16)
31-UNDERFREQUENCY	-	56.5	1000 (200)
31-OVERFREQUENCY	-	61.2	1000 (200)
31-OVERFREQUENCY	-	62.0	0.8 (0.16)

\* SETTINGS ARE BASED ON IEEE-1547 AND NPEC DIRECTIVE 12 FIGURE 1 SCHEMATIC

\* VOLTAGE SETTING VALUES ARE L-L

PROTECTIVE RELAY SETTINGS*					
RELAY PROTECTIVE FUNCTIONS	TRIP OUTPUT	VOLTAGE SETTINGS (SEC (PU) PU)	FREQUENCY SETTING (Hz)	TOTAL CLEAR TIME CYCLE	CURRENT SETTING (PU)
27P1-UNDERVOLTAGE	X	(0.80) 58.5 (7 (80%))	-	0.8 (0.16)	-
27P2-UNDERVOLTAGE	X	(1.05) 70.1 (3 (80%))	-	1.0 (0.2)	-
28P1-OVERVOLTAGE	X	(1.32) 74.5 (1 (10%))	-	1.0 (0.2)	-
28P2-OVERVOLTAGE	X	(1.40) 80.0 (9 (10%))	-	0.8 (0.16)	-
31UP1-UNDERFREQUENCY	X	-	56.5	0.8 (0.16)	-
31UP2-UNDERFREQUENCY	X	-	56.5	1000 (200)	-
31OP1-OVERFREQUENCY	X	-	61.2	1000 (200)	-
31OP2-OVERFREQUENCY	X	-	62.0	0.8 (0.16)	-
51-OVERCURRENT	X	-	-	1.0 (1.0)	0.52 (15A)
51C-OVERCURRENT	X	(1.05) 70.1 (3 (80%))	-	1.0 (0.2)	0.21 (125A)
51CO-GROUND OVERCURRENT	X	(1.05) 70.1 (3 (80%))	-	1.0 (0.2)	0.1 (85A)
79-RECLOSE	X	-	-	1000 (200)	-
ALARM	X	-	-	< 120	-

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



- GENERAL NOTES:**
- INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY AND CONFIDENTIAL BELONGING TO NEXAMP, INC. OF BOSTON, MA. 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.
  - ALL WORK SHALL BE INSTALLED IN A NEAT AND WORK LIKE MANNER AND IN ACCORDANCE WITH THE LATEST VERSION OF THE MASSACHUSETTS ELECTRICAL CODE (MELC), PROJECT'S STATE ELECTRICAL CODE, AND ALL OTHER LAWS AND STANDARDS.
  - UTILITY INTERCONNECTION IS ASSUMED. ACTUAL EQUIPMENT AND CONFIGURATION SHALL BE VERIFIED BY UTILITY.
  - RE-305 COMMUNICATION CABLES SHALL NOT EXCEED 50 FEET IN TOTAL LENGTH. INSULATION LEVEL SHALL BE 600V.
  - RE-285 COMMUNICATION CABLES SHALL NOT EXCEED 400 FEET IN TOTAL LENGTH.
  - DATA CABLES SHALL NOT EXCEED 300 FEET IN TOTAL LENGTH.
  - 120VAC POWER CIRCUITS WITHIN DAS/CONTROL CABINET OR ENCLOSURE SHALL BE INSTALLED IN CONDUIT.
  - COMPONENT AND WIRING WITHIN DAS/CONTROL CABINET OR ENCLOSURE SHALL BE FACTORY INSTALLED.
  - RECLOSER CONTROLLERS SHALL BE SEL-651R OR ENGINEER APPROVED EQUAL.
  - RECLOSER CONTROLLERS SHALL BE EQUIPPED WITH FRONT 18-225 PART AND CAPABLE OF COMMUNICATING IN DNP PROTOCOL.
  - 79 FUNCTION IS ONLY ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES. A 5 MINUTE DELAY WILL BE SET FOR RECLOSING UPON GOOD QUALITY RECLOSURE. RECLOSER WILL LOCKOUT ON OVERCURRENT OPERATION.
  - SEL-651R CONTROLLER SHALL BE EQUIPPED WITH AN EIGHT (8) HOUR BATTERY BACKUP.
  - SWING RECLOSER SHALL BE EQUIPPED WITH THE SAFE TRIP FUNCTION. THIS FUNCTION WILL BE USED TO TRIP THE RECLOSER ON LOSS OF DC. THE OUTPUT CONTACT (OUT201) 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 5 SEC.
  - DC POWER WILL BE PROVIDED TO THE RECLOSER BY A BUILT-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.
  - THE RECLOSER AND GANG OPERATED DISCONNECT SWITCH SHALL BE OPENED AND LOCKED OUT PRIOR TO ANY WORK INVOLVING EXPOSED ELECTRICAL CIRCUIT PARTS.
  - ALL SINGLE PHASE DISCONNECTS SHALL BE LEFT CLOSED UNTIL THE RECLOSER AND GANG OPERATED DISCONNECT SWITCH HAVE BEEN OPENED AND LOCKED OUT.
  - RECLOSER 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 105% OF NOMINAL. VOLTAGE IS BASED ON LINE TO LINE VOLTAGE. FREQUENCY BETWEEN 59.5HZ TO 60.5HZ.
  - TEST SWITCHES ARE FOR REPRESENTATIONAL PURPOSE ONLY. THEY WILL BE HARDED INTO SEL 651R BY THE MANUFACTURER.
  - (C) SMA REC5000V-US UTILITY GRADE INVERTER, LISTED 1741 AND IEEE 1547 COMPLIANT WITH INTEGRAL DC.
  - HYDRAUN HISS300 MODULES ARE USED.
  - THE SYSTEM DC CAPACITY IS 660A/240V AND THE SYSTEM AC CAPACITY IS 50000W.



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**Ac Electrical Diagram**

Project: \_\_\_\_\_  
Approved by: \_\_\_\_\_  
Scale: N.T.S.

Drawing Title	E-101	Sheet Rev	A
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