

79 OLD UPTON ROAD

79 OLD UPTON ROAD, GRAFTON, MA 01516

649.040 kW DC STC RATED SOLAR ELECTRIC SYSTEM

THIS DOCUMENT IS PROVIDED BY BORREGO SOLAR SYSTEMS INC. TO FACILITATE THE SALE AND INSTALLATION OF A SOLAR POWER SYSTEM FROM BORREGO SOLAR SYSTEMS. REPRODUCTION, RELEASE OR UTILIZATION FOR ANY OTHER PURPOSE, WITHOUT PRIOR WRITTEN CONSENT IS STRICTLY PROHIBITED.



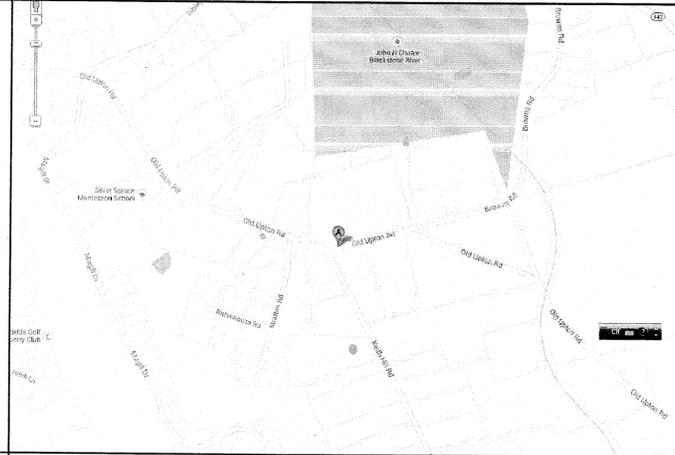
GENERAL NOTES

- AS CONTAINED HEREIN, "CONTRACTOR" IS ASSUMED TO BE BORREGO SOLAR SYSTEMS, INC AND "SUBCONTRACTOR" IS BORREGO'S INSTALLATION SUBCONTRACTOR.
- THESE NOTES SET MINIMUM STANDARDS FOR CONSTRUCTION. THE DRAWINGS GOVERN OVER THESE NOTES TO THE EXTENT SHOWN.
- ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING: LOCAL BUILDING CODE, LOCAL ELECTRICAL CODE, ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK AND THOSE CODES AND STANDARDS LISTED IN THESE DRAWINGS AND IN THE SUBCONTRACTOR AGREEMENT.
- EXCEPTIONS TO THE CONTRACT DOCUMENTS ARE PERMITTED ONLY WITH THE APPROVAL OF BORREGO.
- COORDINATE THESE DRAWINGS WITH SPECIFICATIONS AND MANUFACTURER INSTALLATION AND OPERATION MANUALS AND NOTIFY BORREGO OF ANY DISCREPANCIES PRIOR TO BEGINNING WORK.
- DRAWINGS HAVE BEEN DETAILED IN COMPLIANCE WITH U.L. LISTING REQUIREMENTS AND THE BUILDING CODE FOR THE MATERIALS SPECIFIED. IF AN ALTERNATE OR SUBSTITUTED MATERIAL IS ACCEPTED AS AN EQUAL BY BORREGO, THE SUBCONTRACTOR WILL ASSUME THE RESPONSIBILITY FOR WHATEVER CONSTRUCTION MODIFICATION AND/OR ADDITIONAL COST THAT IS REQUIRED BY REASON OF THIS ACCEPTANCE.
- PRIOR TO THE COMMENCEMENT OF ANY WORK, EACH TRADE SHALL VERIFY EXISTING CONDITIONS AND NOTIFY BORREGO OF ANY DISCREPANCIES TO THAT WHICH IS SHOWN IN THESE DRAWINGS, INCLUDING BUT NOT LIMITED TO DIMENSIONS OF THE WORK AREA, STRUCTURE, EXISTING ELECTRICAL SERVICE, CONDUIT PATHS, OBSTRUCTIONS, ACCESSIBILITY ISSUES, AND WORKING CLEARANCES. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE SUBCONTRACTOR AT HIS OWN EXPENSE.
- SUBCONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO BORREGO FOR APPROVAL PRIOR TO MAKING ANY CHANGES. APPROVED CHANGES REQUIRE A DRAWING REVISION TO MAINTAIN CONTROL OVER THE APPROVED DESIGN. DEVIATION FROM THESE PLANS PRIOR TO BORREGO APPROVAL PLACES ALL LIABILITY ON THE SUBCONTRACTOR.
- UNLESS INDICATED AS EXISTING (E), ALL PROPOSED MATERIALS AND EQUIPMENT ARE NEW.
- ALL ITEMS TO BE REMOVED AND RELOCATED OR REPLACED SHALL BE HANDLED WITH PROPER CARE AND STORED IN A SAFE PLACE TO PREVENT DAMAGE; OR BE REPLACED AT THE SUBCONTRACTOR'S EXPENSE.
- ALL EQUIPMENT SHALL BE MOUNTED AS SHOWN. WHERE DETAILS ARE NOT PROVIDED, THE SUBCONTRACTOR SHALL USE DILIGENT EFFORTS TO MOUNT EQUIPMENT SUCH THAT IT WILL BE CLEAN, LEVEL AND SOLID.
- ALL SURFACES SHALL BE PATCHED AND PAINTED AROUND NEW DEVICES AND EQUIPMENT TO MATCH EXISTING FINISHES.
- ANY METAL SHAVINGS RESULTING FROM SITE WORK SHALL BE CLEANED FROM ROOF SURFACES, ENCLOSURES AND ANY ADDITIONAL AREAS WHERE OXIDIZED OR CONDUCTIVE METAL SHAVINGS MAY CAUSE RUST, ELECTRICAL SHORT CIRCUITS OR OTHER DAMAGE.
- NO STRUCTURAL MEMBER SHALL BE DRILLED UNLESS SPECIFICALLY AUTHORIZED BY BORREGO.
- SUBCONTRACTOR ACKNOWLEDGES THAT THE SYSTEM AS INDICATED ON THE PLANS REQUIRES ALL COMPONENTS TO BE INSTALLED TO PROPERLY RESIST WIND LOADS, SUCH AS BALLAST, WIND DEFLECTORS, ETC. IT IS THE RESPONSIBILITY OF THE SUBCONTRACTOR TO PROVIDE TEMPORARY MEANS TO RESIST WIND LOADS FOR ALL COMPONENTS NOT YET INSTALLED DURING AND AFTER REGULAR WORKING HOURS. THIS MAY INCLUDE TEMPORARY TIE DOWNS, COVERING, BALLAST OR ANY OTHER MEANS. DAMAGE TO ANY INSTALLED SYSTEM COMPONENT OR THE EXISTING FACILITY AS A RESULT OF THE UNFINISHED CONDITION NOT ADEQUATELY RESISTING WIND SHALL BE THE RESPONSIBILITY OF THE SUBCONTRACTOR TO REPAIR OR REPLACE AT THE SUBCONTRACTOR'S COST.
- TREES MAY GROW DURING THE LIFE OF THE SYSTEM AND IMPACT THE PRODUCTION.

PROJECT SCOPE

THIS PROJECT CONSISTS OF THE INSTALLATION OF SOLAR MODULES, PER THE SYSTEM DESCRIPTION, BELOW. THE MODULES WILL BE INSTALLED ON A GROUND MOUNTED RACKING SYSTEM. THE MODULES WILL BE WIRED IN SERIES STRINGS TO COMBINER BOXES, WHERE THEY WILL BE WIRED IN PARALLEL. THE OUTPUT OF THE COMBINER BOXES WILL BE CONNECTED IN PARALLEL TO THE INVERTERS, WHICH CONVERT THE PHOTOVOLTAIC OUTPUT POWER FROM DC TO AC. THE SOLAR ELECTRIC SYSTEM WILL BE INTERCONNECTED WITH THE EXISTING SITE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE APPLICABLE ELECTRIC CODE AND NGRID REQUIREMENTS.

LOCATION MAP



DRAWING LIST

SHEET NUMBER	SHEET TITLE	REV. NUMBER
T-1	TITLE PAGE	
CML		
C-0.0	CIVIL NOTES	
C-1.0	EXISTING CONDITIONS PLAN	
C-2.0	LAYOUT AND MATERIALS PLAN	
C-3.0	GRADING AND EROSION CONTROL PLAN	
C-4.0	RE-VEGETATION PLAN	
C-4.1	LANDSCAPE PLAN	
C-5.0	CIVIL DETAILS	
C-5.1	SHADING PLAN	
STRUCTURAL		
S-0.0	STRUCTURAL NOTES	
S-1.0	ARRAY LAYOUT PLAN	
S-2.0	FOUNDATION LAYOUT PLAN	
S-3.0	STRUCTURAL DETAILS	
S-3.1	STRUCTURAL DETAILS	
ELECTRICAL		
E-0.0	ELECTRICAL NOTES	
E-0.1	ELECTRICAL SPECIFICATIONS	
E-0.2	ELECTRICAL SPECIFICATIONS	
E-1.0	ELECTRICAL SITE PLAN	
E-1.1	PLAN DETAILS	
E-2.0	DC SINGLE LINE DIAGRAM	
E-2.1	AC SINGLE LINE DIAGRAM	
E-2.2	DAS SINGLE LINE DIAGRAM	
E-2.3	AC THREE LINE DIAGRAM	
E-3.0	ELECTRICAL SCHEDULES	
E-4.0	STRINGING PLAN	
E-5.0	ELECTRICAL DETAILS	
E-5.1	ELECTRICAL DETAILS	
E-5.2	ELECTRICAL DETAILS	
E-6.0	PLACARDS	
E-6.1	PLACARDS	
E-7.0	DATA SHEETS	
E-7.1	DATA SHEETS	

SYSTEM DESCRIPTION

SYSTEM SIZE (DC STC)	649.040 KW	SYSTEM SIZE (AC)	672.000 KW
MODULES	(2128) YINGLI YL305P - 35B	CEC RATING	280.3 W
MODULES PER STRING	19	# OF STRINGS	112
RACKING	TERRASmart TERRAFARM	TILT ANGLE	20°
INVERTER(S)	(28) SMA TRIPower 24000TL - US	CEC EFFICIENCY	98.0 %
AZIMUTH	159.13° (SOUTH = 180°)		

AERIAL VIEW



PROJECT DIRECTORY

OWNER NATIONAL GRID INTERCONNECTION #16974617 JUSTIN WOODARD 40 SYLVAN RD WALTHAM, MA 02451	PROJECT MANAGER FIRM: BORREGO SOLAR CONTACT: ELIZABETH DRISCOLL PHONE: (978)-221-3085
HOST CHRISTY PEASE 79 OLD UPTON ROAD GRAFTON, MA 01516	CIVIL ENGINEER FIRM: BORREGO SOLAR CONTACT: STEVE LONG, PE PHONE: (978)-221-3086
AUTHORITY HAVING JURISDICTION: TOWN OF GRAFTON BUILDING INSPECTOR 30 PROVIDENCE ROAD GRAFTON, MA 01519	STRUCTURAL ENGINEER FIRM: BORREGO SOLAR CONTACT: MICHAEL MARTEL PHONE: (978)-221-3079
UTILITY: NGRID	ELECTRICAL ENGINEER FIRM: BORREGO SOLAR CONTACT: MICHAEL CONWAY PHONE: (978)-610-2860
	DESIGN ENGINEER FIRM: BORREGO SOLAR CONTACT: JOHN LAGASSE PHONE: (978)-221-3087
	SURVEYOR FIRM: NORTHEAST SURVEY CONSULTANTS CONTACT: DANIEL STASZ PHONE: (413)-203-5144

APPLICABLE CODES AND STANDARDS

2014 MASSACHUSETTS ELECTRICAL CODE 527 CMR12.00
MASSACHUSETTS BUILDING CODE 8TH EDITION
UL-1703 - SOLAR MODULES
UL-1741 - INVERTERS, COMBINER BOXES
UL-2703 - RACKING MOUNTING SYSTEMS AND CLAMPING DEVICES FOR PV MODULES
NATIONAL GRID ESB SERIES
IEEE 1547
2012 NATIONAL ELECTRIC SAFETY CODE(NESC)

GENERAL ABBREVIATIONS

(E) EXISTING	NS NORTH-SOUTH
AHJ AUTHORITY HAVING JURISDICTION	NTS NOT TO SCALE
AL ALUMINUM	OAE OR APPROVED EQUAL
APPROX APPROXIMATE	OC ON CENTER
ARY ARRAY	OD OUTSIDE DIAMETER
BLDG BUILDING	OFCl OWNER FURNISHED CONTRACTOR
BSS BORREGO SOLAR SYSTEM	INSTALLED
CL CENTERLINE	PV PHOTOVOLTAIC
DAS DATA ACQUISITION SYSTEM	PVC POLY VINYL CHLORIDE
DIA DIAMETER	SCH SCHEDULE
DO DITTO	SS STAINLESS STEEL
EW EAST-WEST	SSS SOLAR SUPPORT STRUCTURE
FBO FURNISHED BY OTHERS	STC STANDARD TEST CONDITIONS
FF FORWARD FACING	TBD TO BE DETERMINED
GALV GALVANIZED	TP TAMPER PROOF
HDG HOT DIP GALVANIZED	TYP TYPICAL
HVAC HEATING VENTILATION AND AIR CONDITIONING	UON UNLESS OTHERWISE NOTED
ID INSIDE DIAMETER	VF VERIFY IN FIELD
MFR MANUFACTURER	WP WEATHER PROOF
MOD SOLAR MODULE	

REV 1.0

650 kW SOLAR ELECTRIC SYSTEM
79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
905-0467

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
	12/24/14	JPL	BM	PERMIT SET
	01/19/15	JPL	BM	CD SET - PRELIMINARY - NFC
	01/21/15	JAW	SNL	REVISION PER ABBREVIATIONS COMMENTS
	02/11/15	JPL	BM	CD SET
	08/10/15	LD	JPL	CD SET

SCALES STATED ON DRAWINGS
ARE VALID ONLY WHEN PLOTTED
ARCH D 24" X 36"

T-1
TITLE PAGE

GENERAL CIVIL NOTES

I-GENERAL NOTES

- AS CONTAINED HEREIN, "CONTRACTOR" IS ASSUMED TO BE BORREGO SOLAR SYSTEMS, INC. "SUBCONTRACTOR" IS BORREGO'S INSTALLATION SUBCONTRACTORS (INCLUDING SITE WORK SUBCONTRACTOR) AND CIVIL ENGINEER OF RECORD (CEOR) IS BORREGO'S IN-HOUSE CIVIL ENGINEER.
- EXISTING CONDITIONS INFORMATION WAS PROVIDED DOUCET SURVEYING, INC., NEWMARKET, NH. UURVEY IS BASED ON GEOGRAPHIC INFORMATION SYSTEMS DATA LAYERS SUPPLIED BY THE COMMONWEALTH OF MASSACHUSETTS AS WELL AS INFORMATION GATHERED FROM GOOGLE EARTH.
- THE SUBCONTRACTORS SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
- A COPY OF THE TOWN OF GRAFTON APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES.
- THE SITE CONTRACTOR SHALL ALLOW THE TOWN OF GRAFTON ON SITE DURING CONSTRUCTION HOURS ONLY AS LONG AS ALL SAFETY MEASURES ARE IN PLACE.
- THE SITE SUBCONTRACTOR SHALL FIELD SURVEY THE AREA OF CLEARED TREES PRIOR TO ANY GRADING OR SOLAR EQUIPMENT INSTALLATIONS. THE CONTRACTOR SHALL REVIEW STORM WATER MANAGEMENT AND ELECTRICAL EQUIPMENT DESIGN ELEVATIONS TO CONFIRM DESIGN INTENT IS MET AND NOTE ABOUT TREE CLEARING AND DCR BEETLE PROGRAM.
- THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON THE SURVEY REFERENCED ABOVE. THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIG-SAFE) (1-888-344-7233) AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES AT LEAST 72 HOURS PRIOR TO COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
- SUBCONTRACTOR(S) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
- ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTOR/CEOR FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
- PARKING AREA(S), CONSTRUCTION TRAILERS AND LAYDOWN AREAS SHALL BE AS DESIGNATED ON THESE PLANS UNLESS OTHER AREAS APPROVED BY BORREGO SOLAR SITE SUPERINTENDENT. PARKING AREAS SHALL BE CONSTRUCTED USING A MINIMUM OF 12-INCHES OF 6" MINUS STONE UNDERLAIN BY MIRAFI 500X ROAD STABILIZATION FABRIC AND SURROUNDED BY AN ORANGE SNOW FENCE. POST-CONSTRUCTION THE PARKING AREA(S) SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS, INCLUDING, BUT NOT LIMITED TO RE-GRADING, LOAMING AND SEEDING.
- DIMENSIONS SHOWN ARE FROM PROPERTY LINES, WETLANDS LIMITS AND FROM FACE OF CHAIN LINK FENCE AND FACE OF SOLAR MODULES. DIMENSIONS ARE IN FEET AND DECIMALS.
- UPON THE COMPLETION OF THE PROJECT, THE APPLICANT SHALL SUBMIT AN AS-BUILT (RECORD) PLAN PREPARED BY A PROFESSIONAL LAND SURVEYOR TO THE PLANNING BOARD AND REQUEST A FINAL INSPECTION AND CERTIFICATION OF COMPLETION TO MEET RELEVANT PERMIT CONDITIONS.
- UTILITY-OWNED EQUIPMENT ON ELECTRIC POLES TO BE INSTALLED WILL CONSIST OF LOAD-BREAK DISCONNECT, RECLOSER, AND METERING EQUIPMENT. UTILITY SHALL OVERSEE THE PERMITTING OF THIS EQUIPMENT. SEE ELECTRICAL PLANS FOR INSTALLATION AND LAYOUT DETAILS OF CUSTOMER-OWNED ELECTRIC POLES.

II-SITE PREPARATION NOTES

- AREAS DESIGNATED FOR CLEARING SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. TOPSOIL SHALL BE STOCKPILED. ALL TREES, VEGETATION, ROOTS AND OTHER UNACCEPTABLE MATERIAL SHALL BE REMOVED.
- SUBCONTRACTOR SHALL DEFINE AREAS DESIGNATED FOR ONLY CLEARING AND NO GRUBBING AND AREAS TO BE CLEARED AND GRUBBED. PRIOR TO WORK COMMENCING IN THESE AREAS THE CONTRACTOR SHALL APPROVE METHOD OF TREE REMOVAL AND LIMITS. SUBCONTRACTOR(S) IS/ARE RESPONSIBLE FOR ANY DAMAGE TO EXISTING CONDITIONS TO REMAIN THAT ARE DUE TO SUBCONTRACTOR(S) OPERATIONS.
- ALL ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR DELIVERED TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE SUBCONTRACTOR(S).
- THE SUBCONTRACTOR(S) SHALL BE RESPONSIBLE FOR COORDINATING HIS EFFORTS OF THE DEMOLITION WITH ALL TRADES.
- THE CONTRACTOR SHALL COORDINATE ALL ADJUSTMENT OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
- THE SUBCONTRACTOR(S) SHALL MAINTAIN OR ADJUST TO NEW FINISH GRADE AS NECESSARY ALL UTILITY AND SITE STRUCTURES SUCH AS LIGHT POLES, SIGN POLES, MAN HOLES, CATCH BASINS HAND HOLES, WATER AND GAS GATES, HYDRANTS, ETC., FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED OR DIRECTED BY THE CONTRACTOR/CEOR.
- TEMPORARY CONSTRUCTION HAUL ROADS (IF REQUIRED) SHALL BE EXCAVATED AND THE SUB-BASE COMPACTED TO 95% SPMDD. THE USE OF SEPARATION FABRICS MAY BE USED TO FACILITATE FUTURE REMOVAL AND RECOVERY OF GRANULAR MATERIALS. HAUL ROAD SHALL HAVE AT LEAST 12" OF 6" MINUS STONE AND SHALL BE MAINTAINED DURING CONSTRUCTION.

III-EROSION AND SEDIMENT CONTROL MEASURES

- EROSION CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE SEQUENCE OF STAGED CONSTRUCTION. THE CONTRACTOR HAS SUBMITTED A DETAILED EROSION CONTROL PLAN. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE.
- EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR DISTURBANCE AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
- SEDIMENT TRAPS SHALL BE INSTALLED AT DRAINAGE STRUCTURES NOTED IN OLD UPTON ROAD. SILTATION FENCES ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE BEEN STABILIZED.
- SEDIMENT BARRIERS SHALL BE INSPECTED AND APPROVED BY THE CONTRACTOR/CEOR BEFORE CONSTRUCTION CAN START.
- STRAW BALES AND MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE OF NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY WHEN INSTALLED.
- THE UNDERSIDE OF STRAW BALES SHALL BE TRENCHED A MINIMUM OF 4" INTO THE EARTH AND RESET AS NECESSARY.
- ALL DISTURBED AREAS SHALL BE BLANKETED OR SEEDED AND MULCHED AS SOON AS PRACTICAL AFTER CONSTRUCTION ACTIVITIES IN THAT AREA HAVE CONCLUDED. ALL ERODABLE/BARE AREAS SHALL BE BLANKETED OR SEEDED AND MULCHED WITHIN 7 DAYS WITH TEMPORARY EROSION CONTROL SEEDING.

- STABILIZE SLOPES GREATER THAN 3:1 (HORIZONTAL:VERTICAL) WITH SEED, SECURED GEOTEXTILE FABRIC, SPRAYED COMPOST BLANKET, OR RIP-RAP AS REQUIRED TO PREVENT EROSION DURING CONSTRUCTION.
- SEDIMENT BARRIERS SHALL BE CONSTRUCTED AROUND ALL SOIL STOCKPILE AREAS.
- CLEAN OUT DRAINAGE FEATURES AND STRUCTURES AFTER COMPLETION OF CONSTRUCTION.
- SEDIMENT COLLECTED DURING CONSTRUCTION BY THE VARIOUS TEMPORARY EROSION CONTROL SYSTEMS SHALL BE DISPOSED OF ON THE SITE ON A REGULAR BASIS. SEDIMENT SHALL BE REMOVED FROM EROSION CONTROL SYSTEMS WHEN THE HEIGHT OF THE SEDIMENT EXCEEDS ONE-HALF OF THE HEIGHT OF THE FILTER DEVICE.
- THE BOTTOM OF TEMPORARY SEDIMENTATION BASINS SHALL BE PERIODICALLY CLEANED PER THE DIRECTION OF THE CONTRACTOR/CEOR. THE SUBCONTRACTOR(S) SHALL DISPOSE OF SEDIMENT PROPERLY.
- AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE SUBCONTRACTOR(S) SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AT THE CONTRACTOR/CEOR DIRECTION.
- AFTER THE REMOVAL OF TEMPORARY EROSION CONTROL MEASURES, THE SUBCONTRACTOR(S) SHALL GRADE AND SEED AREA OF TEMPORARY EROSION CONTROL MEASURE.
- DAMAGED OR DETERIORATED ITEMS WILL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION OR AS DIRECTED BY THE CONTRACTOR, SITE SUPERINTENDENT/CEOR.
- THE CONTRACTOR'S SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR DAILY INSPECTIONS, MAINTENANCE, AND REPAIR ACTIVITIES. THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES EVERY TWO (2) WEEKS AND WITHIN 24 HOURS OF ANY STORM EXCEEDING 1/2 INCH PRECIPITATION OR EVERY SEVEN (7) CALENDAR DAYS. DAMAGED AND INEFFECTIVE EROSION CONTROL MEASURES SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS.
- ALL PIPE OUTLETS SHALL BE STABILIZED WITH STONE.
- TEMPORARY SEEDING SHALL BE AT A RATE OF 45 LBS PER ACRE. ERODABLE AREAS OUTSIDE AND DOWN SLOPE FROM THE CONSTRUCTION LIMITS SHALL BE SIMILARLY SEEDED.
- WATER PUMPED OR OTHERWISE DISCHARGED FROM THE SITE DURING CONSTRUCTION DEWATERING SHALL BE FILTERED. DEWATERING PLAN SHALL BE SUBMITTED FOR APPROVAL BY THE CEOR.
- WHEN TEMPORARY DRAINAGE IS ESTABLISHED, EROSION CONTROL MEASURES MAY BE REQUIRED BY CONTRACTOR/CEOR.
- GRAVEL ROADS, ACCESS DRIVES, PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH, AND VEHICLE WASH DOWN FACILITIES, SHALL BE PROVIDED TO PREVENT SOIL FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. ANY SOIL REACHING A PUBLIC OR PRIVATE ROADWAY SHALL BE REMOVED BEFORE THE END OF EACH WORKDAY AND AS NEEDED.
- ALL NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR POLLUTION RUNOFF. LEAKING EQUIPMENT OR SUPPLIES SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE.
- THE COST OF REPAIRING OR REMOVING SEDIMENT FROM EROSION CONTROL SYSTEMS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE APPLICABLE EROSION CONTROL ITEM.
- ALL EROSION CONTROL MEASURES SHALL BE KEPT OPERATIONAL AND MAINTAINED CONTINUOUSLY THROUGHOUT THE PERIOD OF LAND DISTURBANCE UNTIL PERMANENT SEDIMENT AND EROSION CONTROL MEASURES ARE OPERATIONAL.
- SUBCONTRACTOR SHALL SPRAY WATER FROM A WATER TRUCK ON DRY AND WINDY DAYS TO PREVENT DUST FROM FORMING.
- EROSION CONTROL MEASURES AS SHOWN ON THESE DRAWINGS ARE INTENDED TO CONVEY MINIMUM REQUIREMENTS. THE SUBCONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES AS NECESSARY TO PREVENT SOIL EROSION AND TO COMPLY WITH THE PROJECT'S STORMWATER POLLUTION PREVENTION PLAN.
- SOILS ON SLOPES THAT ARE 3:1 OR STEEPER SHOULD BE ROUGHENED PER THE EPA'S NPDES SOIL ROUGHENING FACT SHEET IF THEY ARE TO BE SEEDED WITHIN 2 WEEKS OF DISTURBANCE. IF NOT, EROSION CONTROL BLANKETS SHOULD BE INSTALLED ON THESE SLOPES.

IV-LAYOUT AND MATERIAL NOTES

- THE FOLLOWING LAYOUT CRITERIA SHALL CONTROL UNLESS OTHERWISE NOTED ON THE PLAN: ALL TIES TO PROPERTY LINES ARE PERPENDICULAR TO THE PROPERTY LINE UNLESS OTHERWISE NOTED, ALL PRODUCTS AND MATERIALS SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO NORTH.
- SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED STRUCTURES AND/OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND/OR CAPPED OR DEMOLISHED AS REQUIRED.
- THE CONTRACTOR SHALL HAVE ELECTRICAL TRENCHES AND RACKING STAKED OUT BY A LICENSED LAND SURVEYOR AFTER EARTHWORK IS COMPLETED AND PRIOR TO ANY INSTALLATION OF RACKING OR EXCAVATION OF TRENCHES.
- SOLAR PANEL RACKING SYSTEM SHALL NOT EXCEED MAXIMUM HEIGHT OF 6'-7".

V-GRADING AND UTILITY NOTES

- PRIOR TO THE START OF ANY EXCAVATION FOR THE PROJECT, BOTH ON AND OFF THE SITE, THE CONTRACTOR SHALL NOTIFY DIGSAFE AND BE PROVIDED WITH A DIGSAFE NUMBER INDICATING THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE CONTRACTOR. THE SUBCONTRACTOR(S) SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UNDERGROUND UTILITIES.
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE SUBCONTRACTOR(S), AND THE INFORMATION FURNISHED TO THE CONTRACTOR/CEOR FOR RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ALL GAS, ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE SUBCONTRACTOR(S) OPERATIONS SHALL BE RESTORED BY THE SUBCONTRACTOR(S) TO THEIR ORIGINAL CONDITION, AT THE SUBCONTRACTOR(S) EXPENSE.
- THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE ELECTRIC UTILITY COMPANY. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY CONNECTIONS WITH THE RESPECTIVE COMPANIES PRIOR TO ANY UTILITY CONSTRUCTION.
- WHERE PROPOSED GRADES MEET EXISTING GRADES, SUBCONTRACTOR(S) SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.

- SUBCONTRACTOR(S) SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES.
- MAXIMUM SLOPES SHALL NOT EXCEED 10:1 ALONG GRAVEL ROADS AND WITHIN FENCED SOLAR ARRAY AREAS, AND 3:1 IN ALL OTHER DISTURBED AREAS, UNLESS OTHERWISE NOTED.
- SUBCONTRACTOR(S) SHALL VERIFY EXISTING GRADES AND NOTIFY THE CONTRACTOR/CEOR OF ANY DISCREPANCIES.

VI-PLANTING NOTES

- SUBCONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL WRITTEN ACCEPTANCE OF PLANT MATERIAL.
- MAXIMUM SLOPE WITHIN DISTURBED AREAS SHALL NOT EXCEED 3:1, UNLESS OTHERWISE NOTED.
- THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN ON THE DRAWINGS.
- MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
- PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS TO ORIGINAL GRADES BEFORE DIGGING.
- PLANTS TO BE BALLED IN BURLAP OR CONTAINERIZED.
- AREAS PLANTED WITH EVERGREEN TREES SHALL BE COVERED WITH A MINIMUM 3" OF MULCH. MULCH FOR PLANTED AREAS TO BE AGED PINE BARK: PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH.
- THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
- PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE CONTRACTOR/CEOR, AT THE NURSERY, AND AT THE SITE.
- THE SITE SUBCONTRACTOR/LANDSCAPE SUBCONTRACTOR SHALL COLLECT A MINIMUM OF ONE SOIL SAMPLE PER ACRE FOR TOPSOIL ANALYSIS. SOIL SAMPLES LOCATIONS SHALL BE EVENLY DISTRIBUTED WITHIN THE LIMIT OF WORK, AND EACH SAMPLE SHALL BE TESTED SEPARATELY. THE SOIL ANALYSES SHALL BE PERFORMED BY A QUALIFIED SOIL-TESTING LABORATORY OR A RECOGNIZED COMMERCIAL OR GOVERNMENTAL AGENCY SUCH AS UNIVERSITY OF MASSACHUSETTS EXTENSION SERVICES. THE ANALYSIS REPORTS SHALL STATE PERCENTAGES OF ORGANIC MATTER; GRADATION OF SAND, SILT, AND CLAY CONTENT; CATION EXCHANGE CAPACITY; DELETERIOUS MATERIAL; PH; AND MINERAL AND PLANT-NUTRIENT CONTENT OF TOPSOIL. THE ANALYSIS REPORT SHALL ALSO INCLUDE RECOMMENDED QUANTITIES OF NITROGEN, PHOSPHORUS, AND POTASH NUTRIENTS AND SOIL AMENDMENTS TO BE ADDED TO PRODUCE SATISFACTORY TOPSOIL FOR LAWN GROWTH.
- TOPSOIL FOR AREAS SEEDED WITH "ERNST SOLAR FARM SEED MIX #186" OR EQUAL SHALL HAVE THE FOLLOWING MINIMUM CHARACTERISTICS:
 DEPTH: 3" MIN.
 PH: 5.5 TO 7
 ORGANIC MATTER: 3.5% MINIMUM
 SAND: 40-70%
 SILT: 20-40%
 CLAY: 5-20%
- TOPSOIL ANALYSIS REPORTS THAT DO NOT MEET THESE MINIMUM REQUIREMENTS SHALL BE SUBMITTED TO THE CEOR/OWNER REPRESENTATIVE FOR REVIEW AND SHALL BE ACCOMPANIED BY A SOLUTION TO MEET THESE REQUIREMENTS.
- PLANT SPECIES AS INDICATED IN THE PLANT LIST ARE SUGGESTIONS ONLY. FINAL SELECTION OF SPECIES SHALL OCCUR AT THE TIME OF PLANT PURCHASE, DEPENDING ON AVAILABILITY. PLANT SIZE AND QUANTITY SHALL NOT CHANGE WITHOUT APPROVAL OF CONTRACTOR/CEOR.

CIVIL SUBMITTALS

- SUBMITTALS SHALL INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
- EROSION CONTROL MATERIALS
 - STRAW BALES (CERTIFIED AS WEED-FREE)
 - WIRE-BACKED SILT FENCE
 - EROSION CONTROL BLANKETS
 - GEOTEXTILE FABRIC
 - CHAIN LINK FENCE AND GATES
 - CRUSHED STONE FOR GRAVEL ACCESS ROADS
 - SEED MIX
 - AS-BUILT SURVEY OF SITE TOPOGRAPHY

ABBREVIATIONS

BC	BOTTOM OF CURB
BW	BORDERING VEGETATED WETLANDS
CB	CATCH BASIN
CLF	CHAIN LINK FENCE
DIP	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
ECB	EROSION CONTROL BARRIER
FES	FLARED END SECTION
FH	FIRE HYDRANT
FOC	FACE OF CURB
GG	GAS GATE
HW	HEADWALL
ILSF	ISOLATED LANDS SUBJECT TO FLOODING
ISW	ISOLATED WETLANDS (FEDERAL JURISDICTION)
LA	LANDSCAPED AREA
LOW	LIMIT OF WORK
NTS	NOT TO SCALE
OCS	OUTLET CONTROL STRUCTURE
PCC	PRECAST CONCRETE CURB
RCP	REINFORCED CONCRETE PIPE
SLC	STREET LIGHT CIRCUIT
SMH	SEWER MANHOLE
TC	TOP OF CURB
TEL	TELEPHONE CABLE
VGC	VERTICAL GRANITE CURB
WG	WATER GATE

REV 1.0

LEGEND

	SOLAR MODULES
	ROAD (GRAVEL)
	FENCE LINE
	PROPERTY LINE
	FLOW DIRECTION
	BANK LINE/FLAG
	WETLAND LINE/FLAG
	(E) MAJOR CONTOUR
	(E) MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	100' WETLAND BUFFER ZONE
	200' RIVERFRONT AREA
	100-YEAR FLOOD LINE
	WATER RESOURCE OVERLAY DISTRICT
	EDGE OF WATER
	TREELINE
	STONE WALL
	SILT FENCE
	LIMIT OF WORK
	DRAIN PIPE
	ELECTRICAL TRENCH
	OVERHEAD ELECTRIC
	SEWER LINE
	WATER LINE
	GAS MAIN

	OMITTED MODULE		ASSESSORS MAP-LOT
	SPARE MODULE	CB/DH	CONCRETE BOUNDRILL/HOLE
	NON-ACTIVE MODULE	DH	DRILLHOLE
SB/DH	STONE BOUND DRILL/HOLE	FND	FOUND
N/F	NOW OR FORMERLY	CMP	CORRUGATED METAL PIPE
IP	IRON PIPE	BIT CONC	BITUMINOUS CONCRETE
		RET WALL	RETAINING WALL

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 FAX: (603) 898-6278
 WWW.BORREGOSOLAR.COM



650-KW SOLAR ELECTRIC SYSTEM
 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
 905-0467

DATE	DRAWN	CHECKED	RELEASE LEVEL
12/24/14	JPL	BM	PERMIT SET
01/19/15	JPL	BM	CD SET - PRELIMINARY - NFC
04/21/15	JAW	SKL	REVISION PER SUBMITTERS COMMENTS
02/11/15	JPL	BM	CD SET
08/10/15	LD	JPL	CD SET

SCALES SHOWN ON DRAWINGS ARE VALID ONLY WHEN PLOTTED AT 1/8" = 1' OR 1/4" = 1'

C-0.0
 CIVIL NOTES

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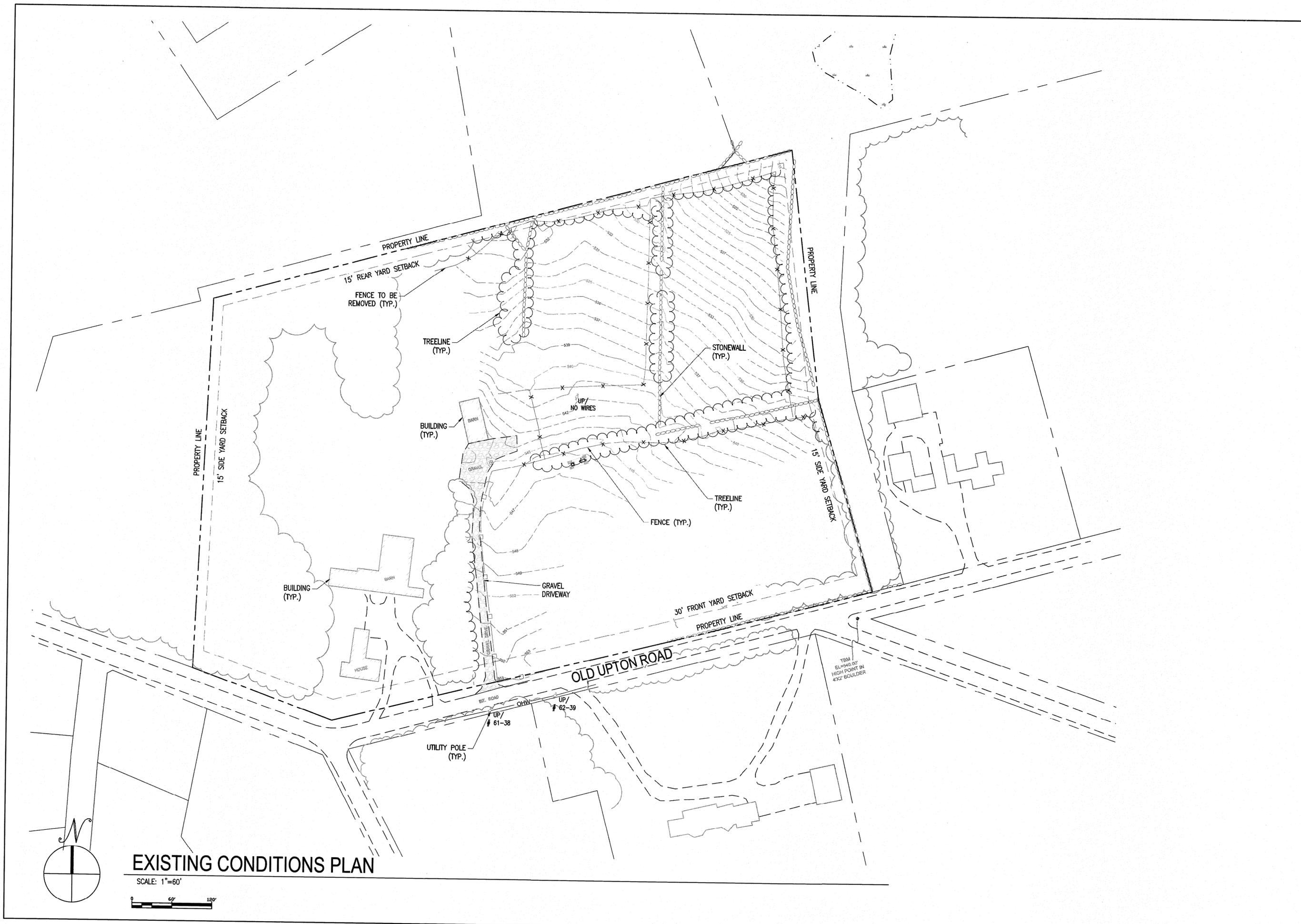
650 KW SOLAR ELECTRIC SYSTEM
 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
 905-0467

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
	12/24/14	JPL	BM	PERMIT SET
	01/19/15	JPL	BM	CD SET - PRELIMINARY - INFC
	01/21/15	JAW	SML	REVISION PER ABUTTERS COMMENTS
	02/11/15	JPL	BM	CD SET
	08/10/15	LD	JPL	CD SET

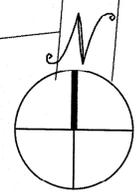
SCALE: SHOWN ON DRAWINGS ARE VALID ONLY WHEN PLOTTED INCH D 24" x 36"

C-1.0
 EXISTING CONDITIONS PLAN



EXISTING CONDITIONS PLAN

SCALE: 1"=60'





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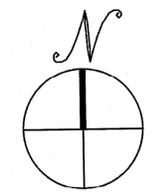
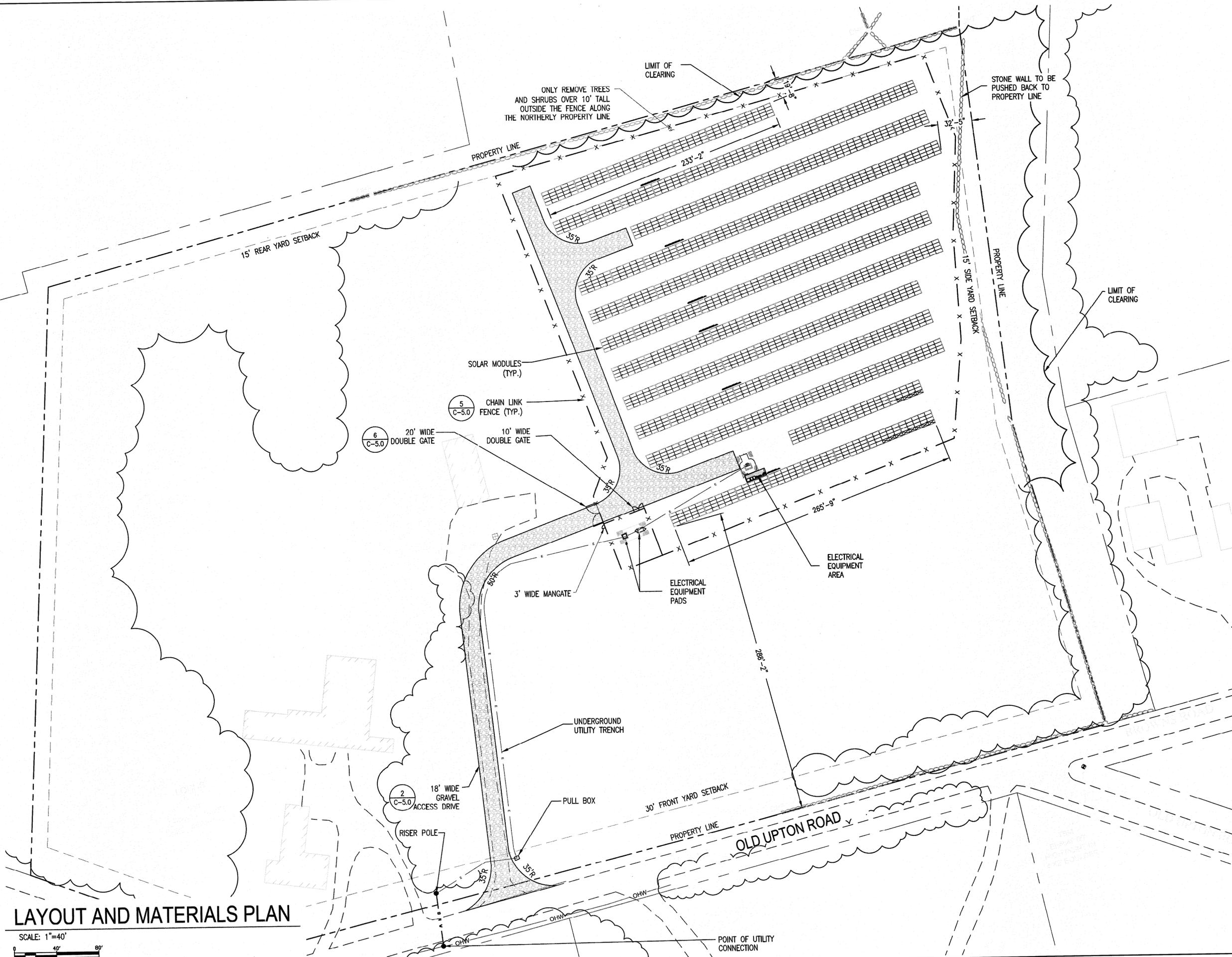
650 kW SOLAR ELECTRIC SYSTEM
 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
 905-0467

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
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	01/19/15	JPL	BM	CD SET - PRELIMINARY - NFC
	01/21/15	JAW	SML	REVISION PER ABUTTERS COMMENTS
	02/11/15	JPL	BM	CD SET
	06/10/15	LD	JPL	CD SET

SCALES STATED ON DRAWINGS
 ARE VALID ONLY WHEN PLOTTED
 ARCH D 24" X 36"

C-2.0
 LAYOUT AND
 MATERIALS PLAN



LAYOUT AND MATERIALS PLAN

SCALE: 1"=40'
 0 40' 80'

SHEET NOTES

1. SOLAR PANEL RACKING SYSTEM SHALL NOT EXCEED MAXIMUM HEIGHT OF 6'-7".

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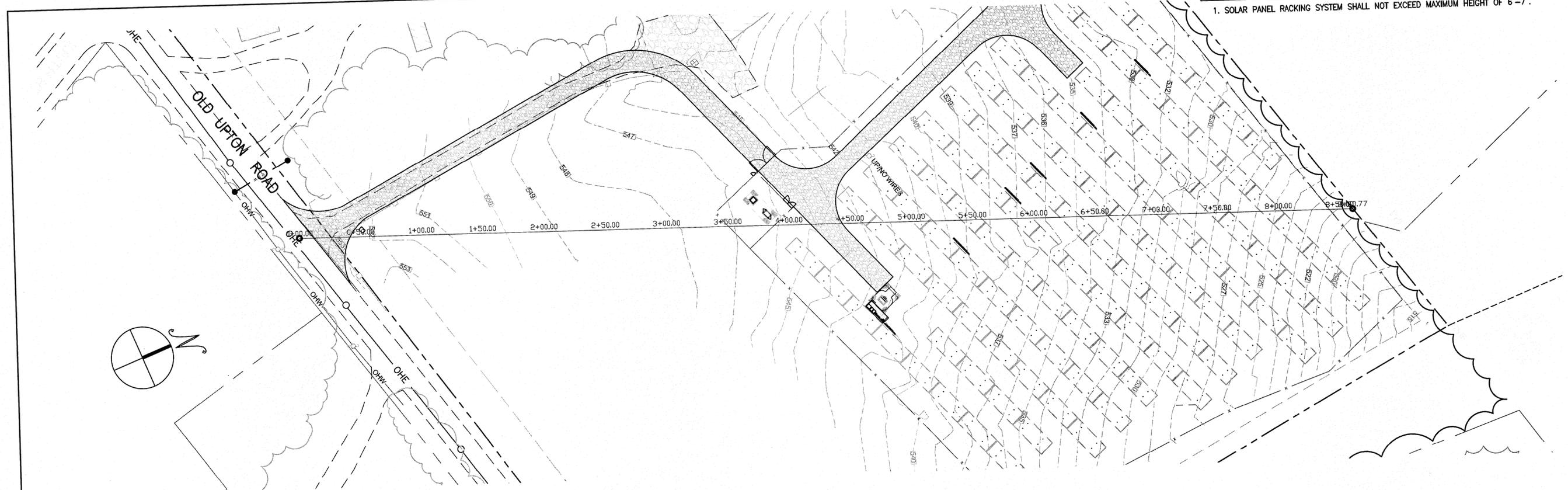
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 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
 905-0467

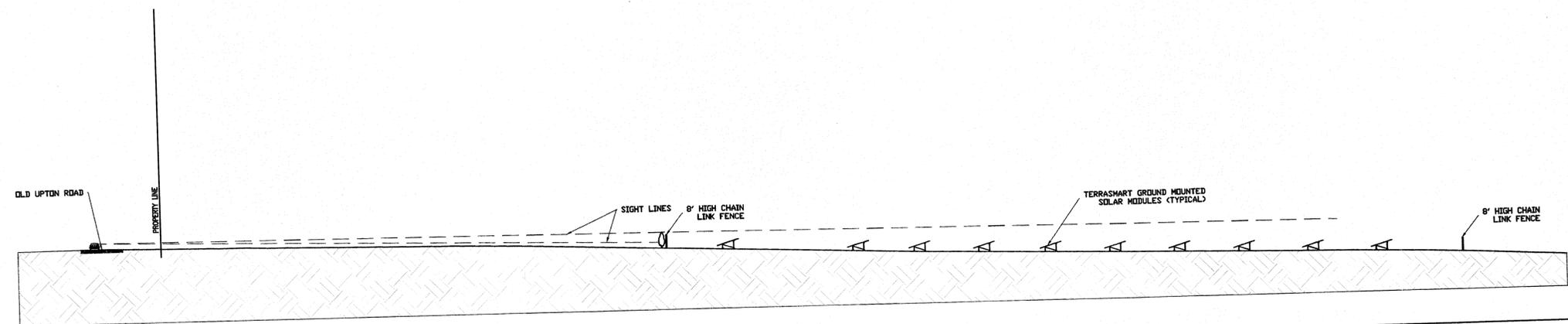
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	02/11/15	JPL	BM	CD SET
	08/10/15	LD	JPL	CD SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

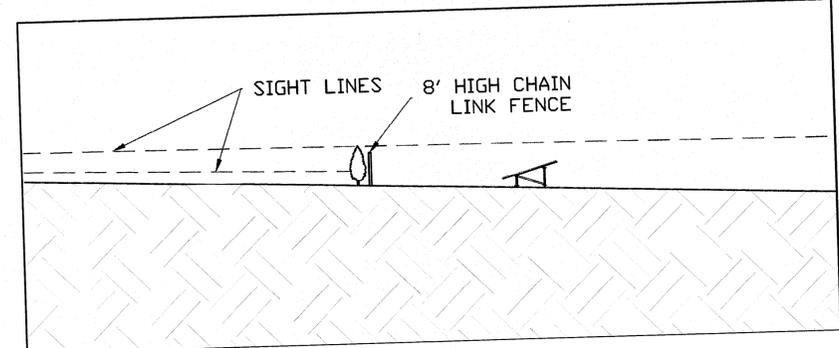
C-2.1
 VIEW STUDY



PLAN:
 SCALE: 1"=40'



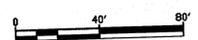
PROFILE:
 SCALE: 1"=40'
 (HOR. & VERT.)



DETAIL VIEW AT THE CHAIN LINK FENCE
 PROFILE:
 SCALE: 1"=20'
 (HOR. & VERT.)

VIEW STUDY

SCALE: 1"=40'

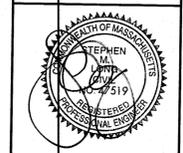


SHEET NOTES

1. SOLAR PANEL RACKING SYSTEM SHALL NOT EXCEED MAXIMUM HEIGHT OF 6'-7".

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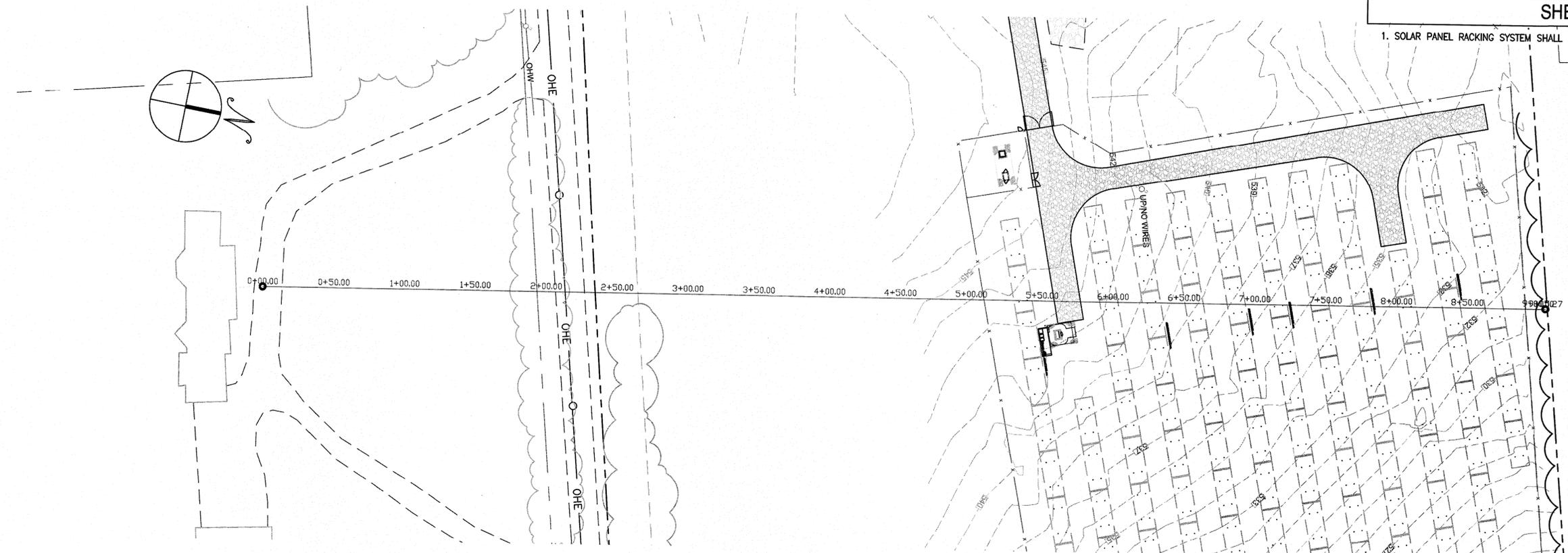
650 KW SOLAR ELECTRIC SYSTEM
 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
 905-0467

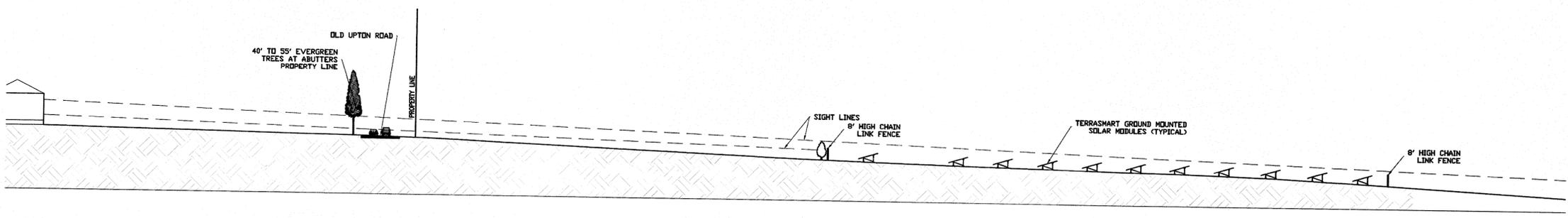
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	01/21/15	JAW	SML	REVISION PER ABUTTERS COMMENTS
	02/11/15	JPL	BM	CD SET
	08/10/15	LD	JPL	CD SET

SCALES SHOWN ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

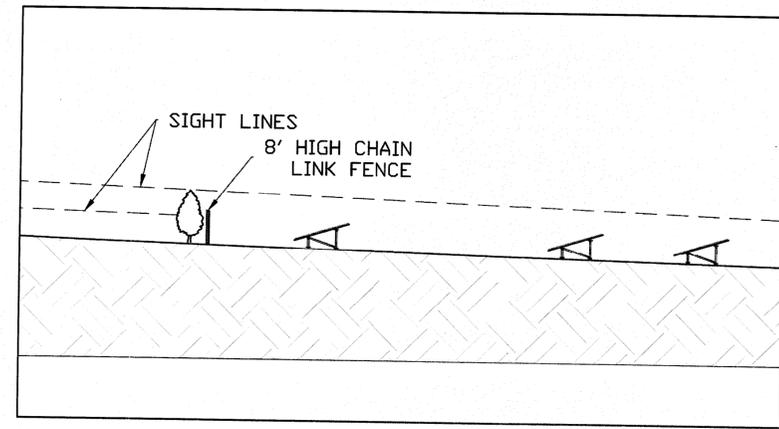
C-2.2
 VIEW STUDY



PLAN:
 SCALE: 1"=40'



PROFILE:
 SCALE: 1"=40'
 (HOR. & VERT.)

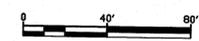


DETAIL VIEW AT THE CHAIN LINK FENCE

PROFILE:
 SCALE: 1"=20'
 (HOR. & VERT.)

VIEW STUDY

SCALE: 1"=40'



SHEET NOTES

1. SOLAR PANEL RACKING SYSTEM SHALL NOT EXCEED MAXIMUM HEIGHT OF 6'-7".

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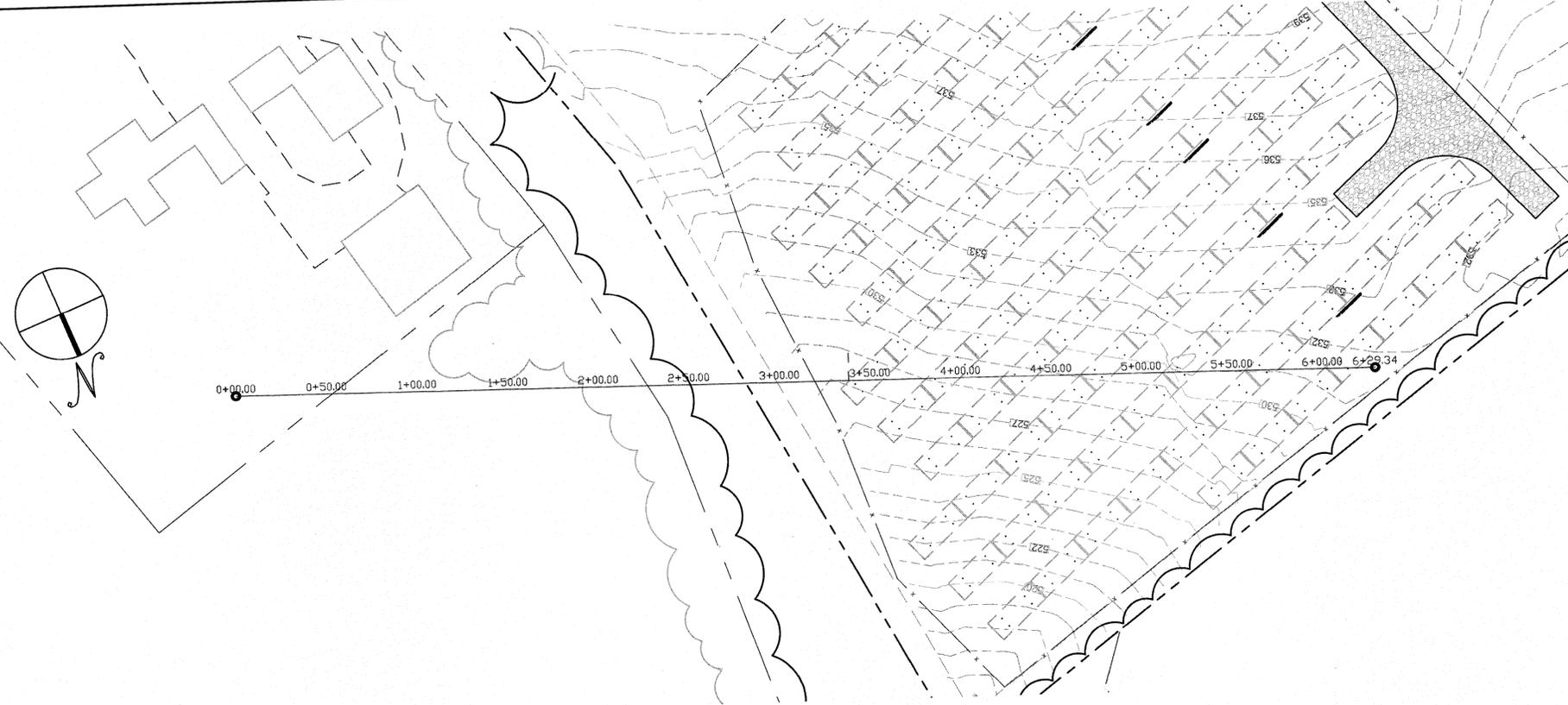
650 KW SOLAR ELECTRIC SYSTEM
 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
 905-0467

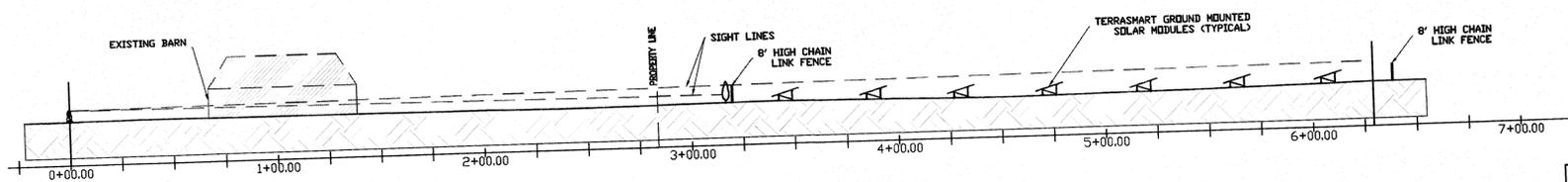
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	01/21/15	JAW	SML	REVISION PER ABUTTERS COMMENTS
	02/11/15	JPL	BM	CD SET
	08/10/15	LD	JPL	CD SET

SCALE STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

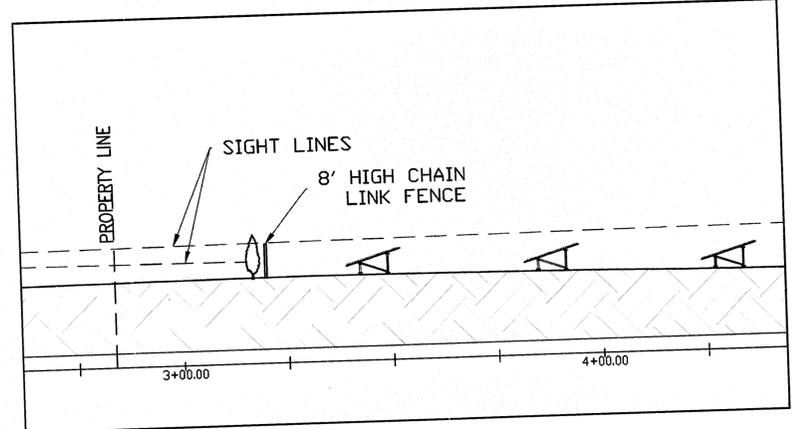
C-2.3
 VIEW STUDY



PLAN:
 SCALE: 1"=40'

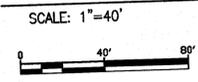


PROFILE:
 SCALE: 1"=40'
 (HOR. & VERT.)



DETAIL VIEW AT THE PROPERTY LINE
 PROFILE:
 SCALE: 1"=20'
 (HOR. & VERT.)

VIEW STUDY



SHEET NOTES

1. SOLAR PANEL RACKING SYSTEM SHALL NOT EXCEED MAXIMUM HEIGHT OF 6'-7".

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650 KW SOLAR ELECTRIC SYSTEM
 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
 905-0467

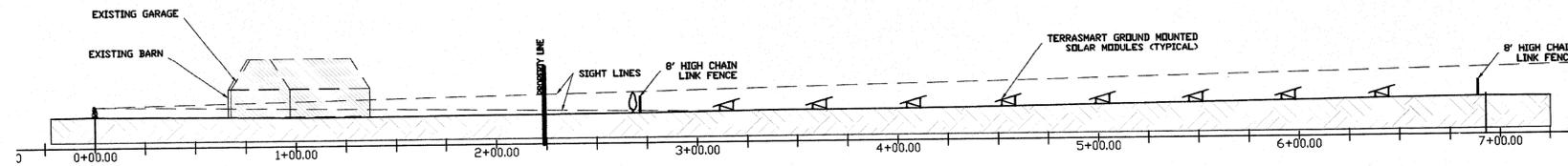
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	02/11/15	JPL	BM	CD SET
	08/10/15	LD	JPL	CD SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

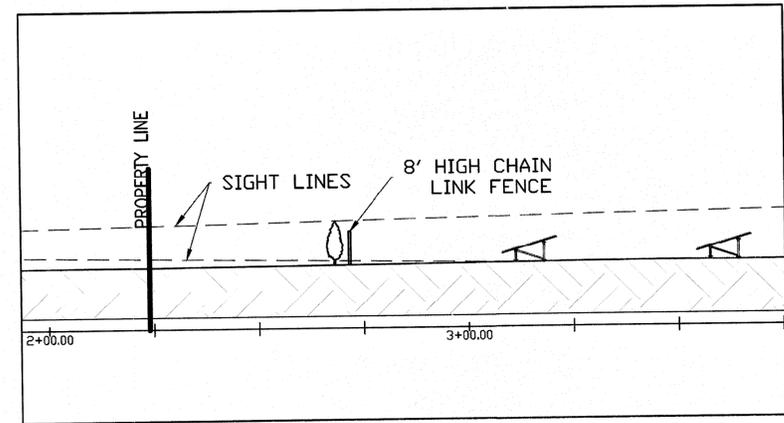
C-2.4
 VIEW STUDY



PLAN:
 SCALE: 1"=40'



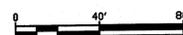
PROFILE:
 SCALE: 1"=40'
 (HOR. & VERT.)



DETAIL VIEW AT THE PROPERTY LINE
 PROFILE:
 SCALE: 1"=20'
 (HOR. & VERT.)

VIEW STUDY

SCALE: 1"=40'



SHEET NOTES

1. NO GRADING REQUIRED
2. ALL FENCING SHALL BE BLACK PVC COATED

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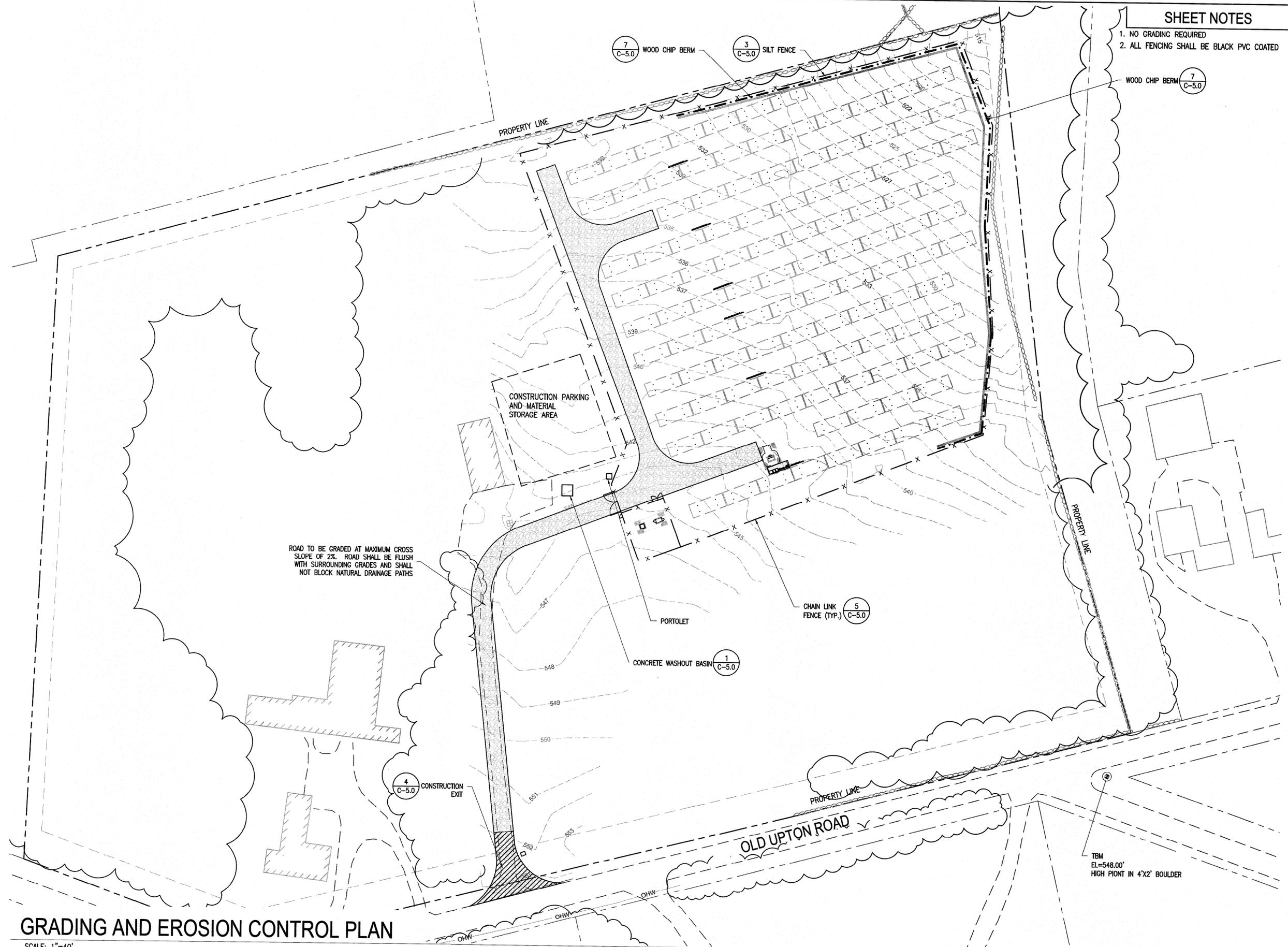
650 kW SOLAR ELECTRIC SYSTEM
79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
905-0467

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
	12/24/14	JPL	BM	PERMIT SET
	07/19/15	JPL	BM	CD SET - PRELIMINARY - NFC
	01/21/15	JAW	SM	REVISION PER ABUTTERS COMMENTS
	02/11/15	JPL	BM	CD SET
	08/10/15	LD	JPL	CD SET

SCALE: 1"=40'
ARE VALLD ONLY WHEN PLOTTED
MCH 0 24" X 36"

C-3.0
GRADING AND EROSION CONTROL PLAN



GRADING AND EROSION CONTROL PLAN

SCALE: 1"=40'
0 40' 80'



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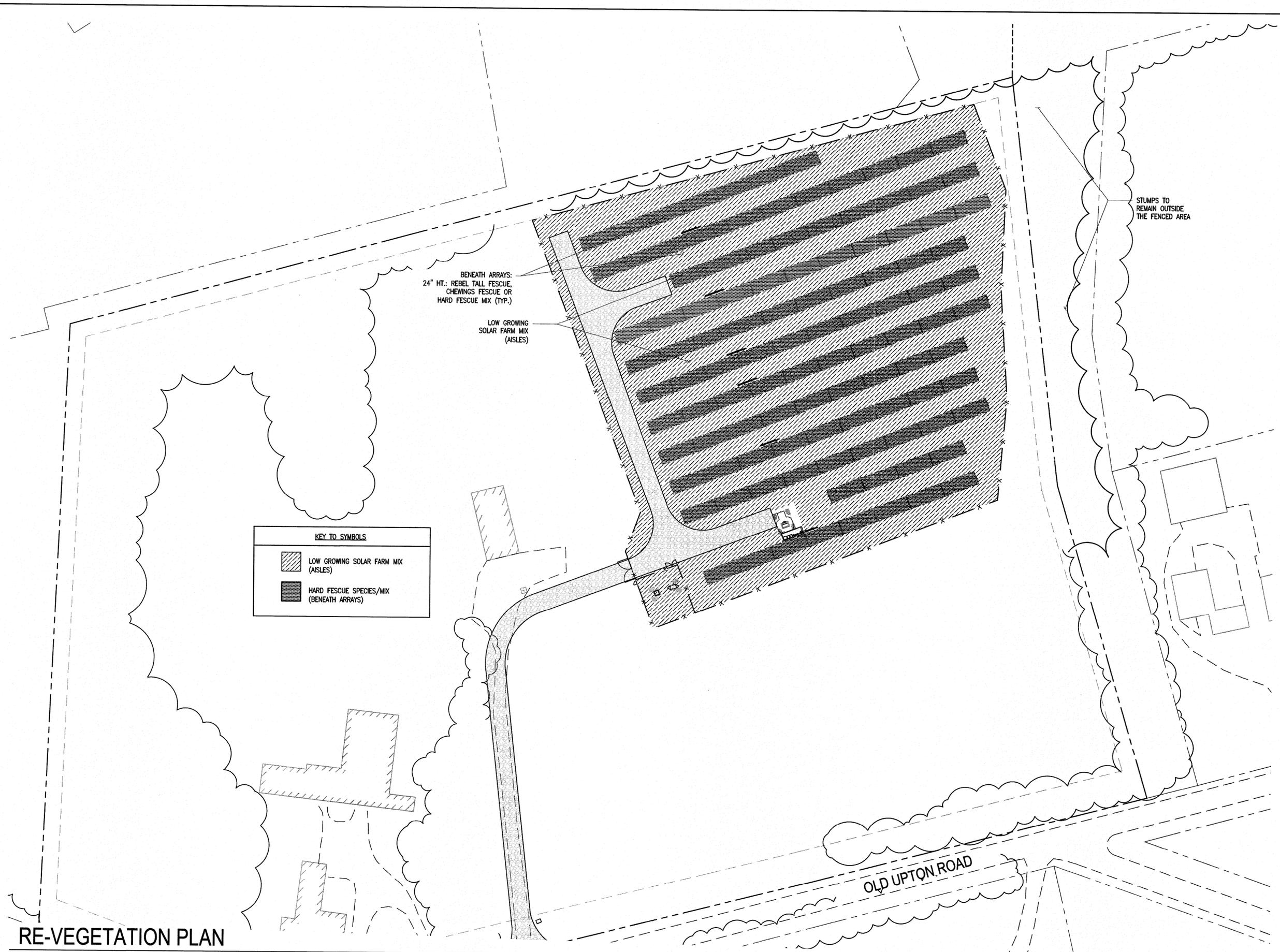
650 kW SOLAR ELECTRIC SYSTEM
 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER:
 905-0467

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL
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	01/19/15	JPL	BM	CD SET - PRELIMINARY - NFC
	01/21/15	JAW	SML	REVISION PER ABUTTERS COMMENTS
	02/11/15	JPL	BM	CD SET
	08/10/15	LD	JPL	CD SET

SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED AT THE SCALE INDICATED.

C-4.0
 RE-VEGETATION PLAN



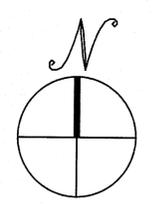
BENEATH ARRAYS:
 24" HT.: REBEL TALL FESCUE,
 CHEWINGS FESCUE OR
 HARD FESCUE MIX (TYP.)

LOW GROWING
 SOLAR FARM MIX
 (AISLES)

KEY TO SYMBOLS

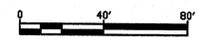
	LOW GROWING SOLAR FARM MIX (AISLES)
	HARD FESCUE SPECIES/MIX (BENEATH ARRAYS)

STUMPS TO
 REMAIN OUTSIDE
 THE FENCED AREA



RE-VEGETATION PLAN

SCALE: 1"=40'



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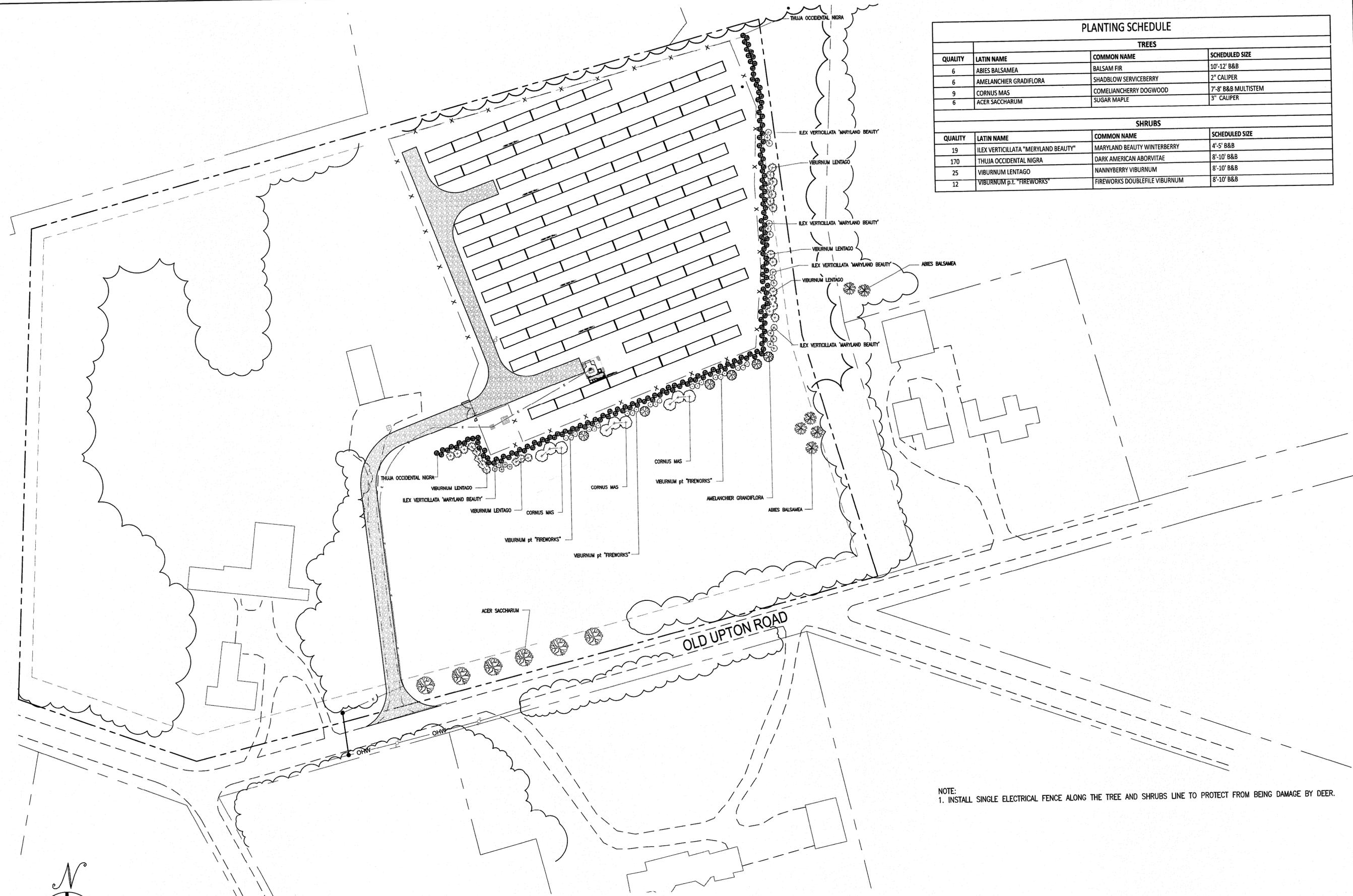
PROJECT NUMBER:
905-0467

REV	DATE	DRAWN	CHECKED	RELEASE LEVEL	REVISIONS PER PLANNING BOARD	REVISIONS PER ABUTTERS COMMENTS
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	01/21/14	JAW	SML			
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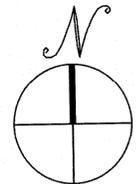
SCALES STATED ON DRAWINGS ARE VALID ONLY WHEN PLOTTED ARCH D 24" X 36"

C-4.1
LANDSCAPE PLAN

PLANTING SCHEDULE			
TREES			
QUALITY	LATIN NAME	COMMON NAME	SCHEDULED SIZE
6	ABIES BALSAMEA	BALSAM FIR	10'-12' B&B
6	AMELANCHIER GRADIFLORA	SHADBLow SERVICEBERRY	2" CALIPER
9	CORNUS MAS	COMELIANCHERRY DOGWOOD	7'-8' B&B MULTISTEM
6	ACER SACCHARUM	SUGAR MAPLE	3" CALIPER
SHRUBS			
QUALITY	LATIN NAME	COMMON NAME	SCHEDULED SIZE
19	ILEX VERTICILLATA "MARYLAND BEAUTY"	MARYLAND BEAUTY WINTERBERRY	4'-5' B&B
170	THUJA OCCIDENTAL NIGRA	DARK AMERICAN ARBORVITAE	8'-10' B&B
25	VIBURNUM LENTAGO	NANNYBERRY VIBURNUM	8'-10' B&B
12	VIBURNUM p.t. "FIREWORKS"	FIREWORKS DOUBLEFILE VIBURNUM	8'-10' B&B

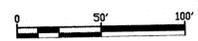


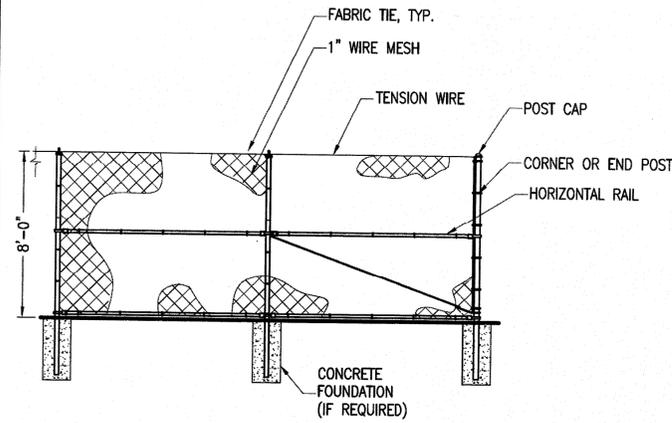
NOTE:
1. INSTALL SINGLE ELECTRICAL FENCE ALONG THE TREE AND SHRUBS LINE TO PROTECT FROM BEING DAMAGE BY DEER.



LANDSCAPE PLAN

SCALE: 1"=50'

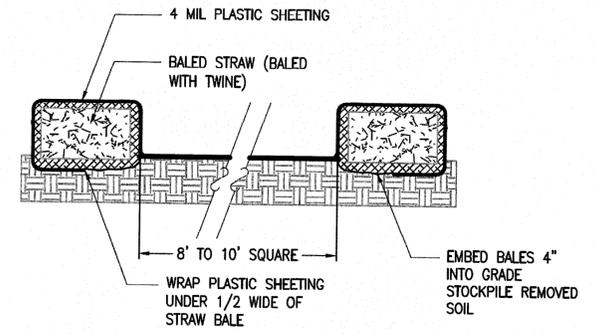




- NOTES:
1. THE FENCE SHOULD MEET OR EXCEED THE CHAINLINK FENCE MANUFACTURER INSTITUTE (CLFMI) GUIDELINES AND COMPLY WITH THE AMERICAN STANDARDS AND TESTING MATERIALS (ASTM INTERNATIONAL), AND RELATED FEDERAL SPECIFICATIONS FOR ALL SECURITY CHAIN LINK FENCE MATERIALS AND INSTALLATION.
 2. MATERIAL FOR FENCE POSTS SHOULD BE TYPE II ROUND POSTS COLD FORMED, HAVING MINIMUM YIELD STRENGTH OF 50,000 P.S.I. VERTICAL LINE FENCE POSTS SHOULD BE NO LESS THAN TWO AND THREE-EIGHTHS (2 3/8) INCHES O.D. CORNER POSTS AND TERMINAL POSTS SHOULD BE NO LESS THAN TWO AND SEVEN-EIGHTHS (2 7/8) INCHES O.D. POST BRACES SHOULD BE PROVIDED FOR EACH GATE, CORNER PULL, AND END POST. BRACE SHOULD BE A ROUND TUBULAR BRACE EXTENDING TO THE ADJACENT VERTICAL LINE FENCE POSTS AT MID-HEIGHT OF THE FENCE FABRIC WITH A TRUSS ROD NOT LESS THAN FIVE-SIXTEENTH (5/16) INCH DIAMETER. EACH TRUSS ROD SHOULD BE EQUIPPED WITH A TURNBUCKLE TO ACCOMMODATE ADJUSTMENT.
 3. THE FENCE SHOULD BE ABLE TO RESIST WINDS OF SIXTY (60) MPH WITH A POINT THREE-FIVE (0.35) COEFFICIENT FACTOR FOR WIND GUSTS AND ICE. BASED ON CLFMI GUIDELINES, HORIZONTAL RAILS SHOULD BE INSTALLED TO SECURE THE FENCE ALONG THE BOTTOM. INSTALL A TOP TENSION WIRE AT THE TOP EDGE OF THE FENCE. INSTALL AN ADDITIONAL RAIL AT THE MID-POINT OF THE FENCE FOR ONE (1) INCH MESH.
 4. THE FENCE MUST EXTEND TO WITHIN TWO (2) INCHES OF FIRM GROUND AND BE INSTALLED BELOW THE SURFACE IF THE SOIL IS SANDY, OR EASILY SHIFTED BY THE WEATHER. DITCHES, TROUGHS, AND DIPS IN THE TOPOGRAPHY MUST BE FILLED IN WITH FINE SOIL, OR CULVERTS SHOULD BE INSTALLED TO PREVENT WASHOUTS. IN GENERAL, ANY OPENING GREATER THAN THREE (3) INCHES MUST BE SECURED.
 5. ALL FENCING SHALL BE BLACK PVC COATED.

5 8' HIGH FENCE WITH 1" MESH

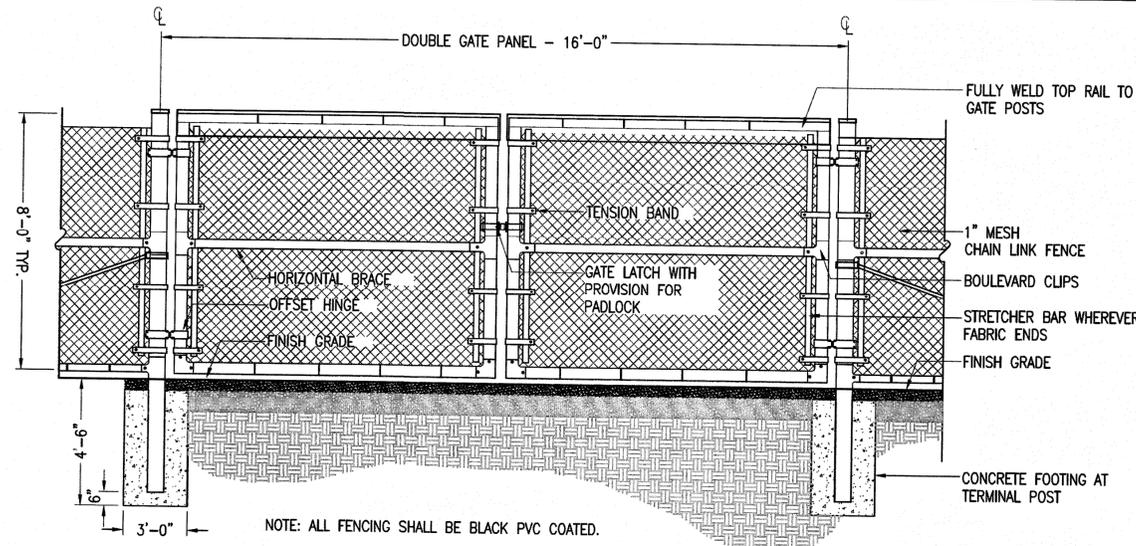
SCALE: 1/4"=1'-0"
 20_CML_FENCE_8' CHAIN LINK WIRE, 1" MESH 2014-12-03



NOTE: PLASTIC SHEETING SHOULD BE FREE OF TEARS OR HOLES. AFTER BASIN IS USED, WASHWATER FROM WASHOUT BASIN SHOULD BE ALLOWED TO EVAPORATE OR BE VACUUMED OUT. REMOVE REMAINING HARDENED SOLIDS. REPLACE PLASTIC SHEETING AND STRAWBALES AS REQUIRED.

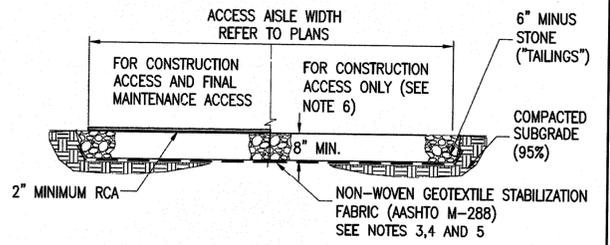
1 CONCRETE WASHOUT BASIN

SCALE: N.T.S.
 20_CML_BASIN_CONCRETE WASHOUT BASIN 2014-8-2



6 VEHICLE GATE

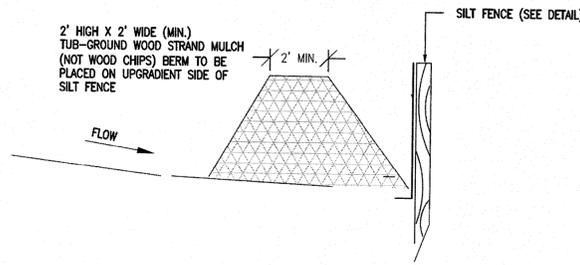
SCALE: N.T.S.
 20_CML_GATE_CONSTRUCTION VEHICLE GATE, 1" MESH, 8' HGT 2014-12-03



- NOTES:
1. SUBCONTRACTOR SHALL EXCAVATE TO SUITABLE MATERIAL FOR SUBGRADE.
 2. SUBCONTRACTOR SHALL COMPACT SUBGRADE TO PROVIDE SUITABLE SURFACE TO PLACE ROAD.
 3. GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS:
 - TENSILE STRENGTH: 150 LB MIN.
 - ELONGATION: 50%
 - CBR PUNCTURE: 400 LB MIN.
 - MINIMUM WATER FLOW RATE: 120 GPM / FT²
 4. SUBCONTRACTOR SHALL FOLLOW GEOTEXTILE FABRIC MANUFACTURER INSTALLATION PROCEDURES.
 5. WHERE OVERLAPPING OF GEOTEXTILE FABRIC IS REQUIRED, SUBCONTRACTOR SHALL OVERLAP A MINIMUM OF 24".
 6. SUBCONTRACTOR SHALL REMOVE CONSTRUCTION ACCESS ONLY AND RESTORE TO PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE COER AND THE GOVERNING AGENCIES.

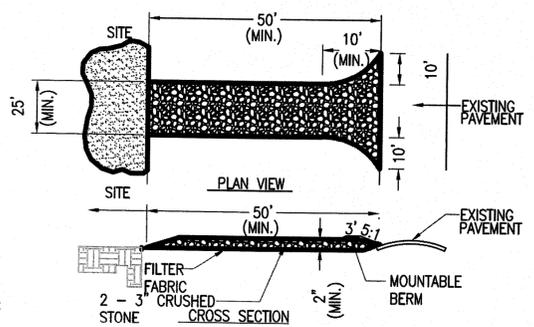
2 GRAVEL ACCESS AISLE CROSS SECTION

SCALE: N.T.S.



7 WOOD CHIP BERM

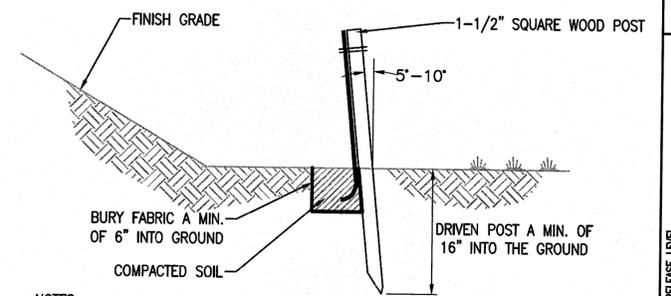
SCALE: N.T.S.



- NOTE:
1. ENTRANCE WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
 2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.

4 STABILIZED CONSTRUCTION ENTRANCE

SCALE: N.T.S.
 20_CML_ENTRANCE_STABILIZED CONSTRUCTION ENTRANCE 2014-8-2

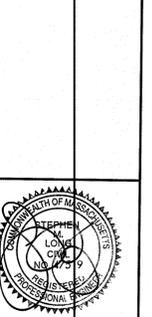


- NOTES:
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POST WITH WIRE TIES OR STAPLES. POST SHALL BE STEEL EITHER "T" OR "U" SHAPED OR HARDWOOD.
 2. FILTER CLOTH SHALL BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID-SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE 6" MAXIMUM MESH OPENING.
 3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED. FILTER CLOTH SHALL BE FILTER X, MIRAFI 100X, STABLENKA T140N, OR APPROVED EQUAL.
 4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.
 5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SEDIMENT FENCE.

3 SEDIMENT FENCE DETAIL

SCALE: N.T.S.

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650 KW SOLAR ELECTRIC SYSTEM
 79 OLD UPTON ROAD, GRAFTON, MA 01519

PROJECT NUMBER: 905-0467

REV	DATE	DRAWN	CHECKED	RELEASE	DATE	DESCRIPTION
	12/24/14	JPL	BM	PERMIT SET		
	01/19/15	JPL	BM	CD SET - PRELIMINARY		
	01/21/15	JAW	SML	REVISION PER ABUTTERS COMMENTS		
	02/11/15	JPL	BM	CD SET		
	08/10/15	LD	JPL	CD SET		

SCALE: 1/4" = 1'-0"

C-5.0
 CIVIL DETAILS