CHERRY VALLEY 1.0 MW PV ARRAY

146 HENSHAW STREET · LEICESTER · MASSACHUSETTS

PERMITTING DOCUMENTS

MARCH 2016 REVISED JUNE 2016

APPLICANT

ZPT ENERGY SOLUTIONS, LLC

309 EAST COUNTY ROAD RUTLAND, MA 01543 774-696-8729



SHEET INDEX

SHEET No. SHEET TITLE

GI-001 COVER SHEET
CN-001 GENERAL NOTES AND LEGEND
CS-101 EXISTING CONDITIONS PLAN
CS-102 SITE PREPARATION PLAN

CS-103 SITE PLAN CD-501 - CD-504 DETAILS

PROJECT TEAM

NATIONAL LAND SURVEYORS

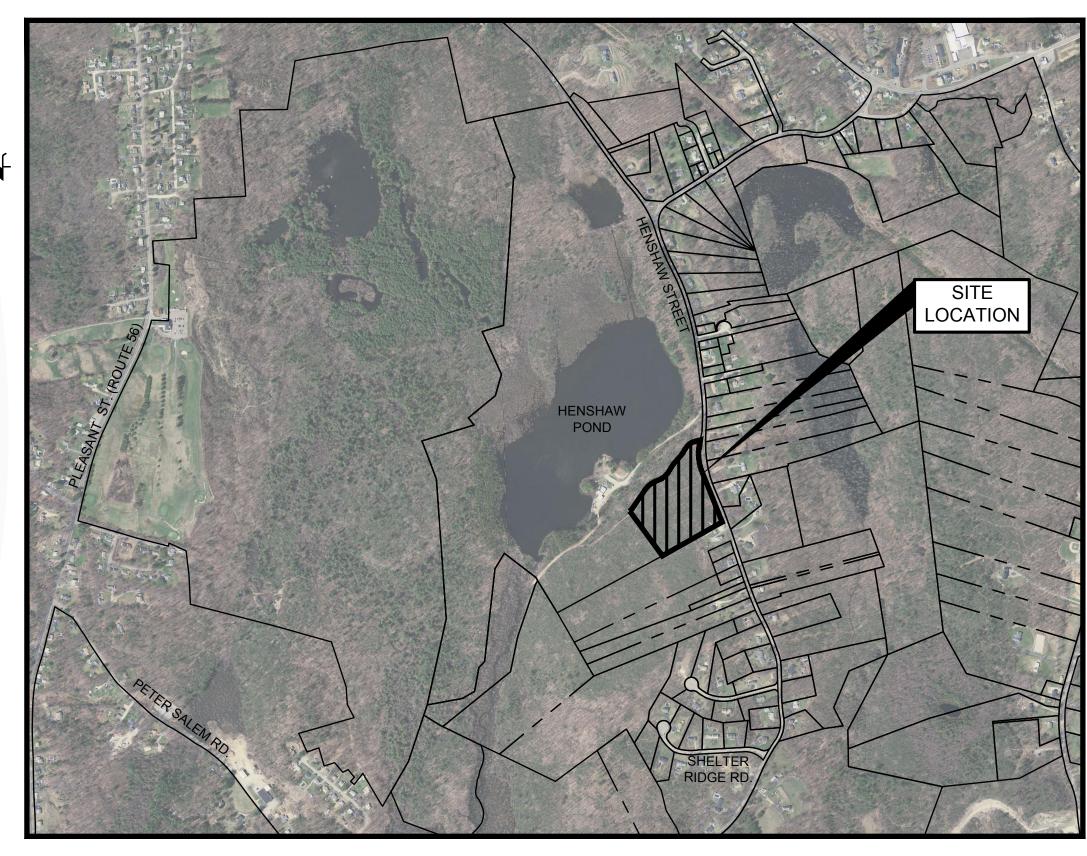
42 HAMLET AVENUE
WOONSOCKET, RI 02895
401-769-7779

NATURAL RESOURCE SERVICES

180 TINKHAM LANE
HARRISVILLE, RI 02830
401-568-7390

PROPERTY OWNER

CHERRY VALLEY AND ROCHDALE WATER DISTRICT PO BOX 138 ROCHDALE, MA 01542 508-892-9616

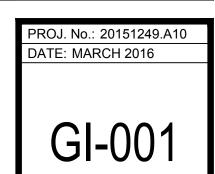


LOCATION MAP

SCALE: 1" = 800'

NOT FOR CONSTRUCTION





APPROX APPROXIMATE

ELEVATION

MAXIMUM

PROPOSED

TYPICAL

NOT TO SCALE

MINIMUM

EXISTING

ELEV

EXIST

MAX

MIN

NTS

TYP

PROP

BITUMINOUS PAVEMENT

INV

INVERT ELEVATION

CONCRETE PIPE

RCP REINFORCED

SMH SEWER MANHOLE

UP UTILITY POLE

GENERAL NOTES EXISTING CONDITIONS:

PROPERTY BOUNDARY AND TOPOGRAPHICAL INFORMATION WERE OBTAINED FROM FIELD SURVEY AND PLANS OF RECORD. TOPOGRAPHIC AND PHYSICAL FEATURES WERE OBTAINED BY NATIONAL LAND SURVEYORS DURING MARCH 2016. TOPOGRAPHIC ELEVATIONS ARE BASED ON NAVD88 DATUM.

FRESHWATER WETLAND DELINEATIONS WERE COMPLETED BY NATURAL RESOURCE SERVICES, INC. RESULTS ARE IDENTIFIED IN THE REPORT OF FINDINGS, 148 HENSHAW STREET, PREPARE BY NATURAL RESOURCES SERVICES, DATED MARCH 7, 2016.

FLOOD ZONE:
THE SUBJECT SITE LIES WITHIN ZONE X, AN AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, PER FLOOD INSURANCE RATE MAP (FIRM) NO. 25027C0782E, WORCESTER COUNTY, MASSACHUSETTS, DATED JULY 4, 2011.

<u>UTILITIES:</u>
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY AND HAVE NOT YET BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO 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 ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR IS TO CONTACT 'DIG SAFE' AT 1-888-344-7233, 72-HOURS PRIOR, EXCLUDING WEEKENDS AND HOLIDAYS, TO ANY EXCAVATION PERFORMED ON SITE.

ZONE DISTRICT: THE SUBJECT SITE LIES WITHIN THE SUBURBAN/AGRICULTURAL DISTRICT, AND THE WATER RESOURCES

INVERTER. SEE ELECTRICAL PAGES AND INVERTER SPECIFICATION SHEETS.

UTILITIES:

PROTECTION OVERLAY DISTRICT.

LOCATION AND ELEVATIONS:
THE LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON THE INFORMATION IN THE EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

STORM DRAIN PIPING SHALL BE REINFORCED CONCRETE PIPE WITH PRECAST CONCRETE FLARED END SECTIONS.

ELECTRIC:
THE CONTRACTOR SHALL COORDINATE AND INSTALL ELECTRIC UTILITIES IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE APPROPRIATE UTILITY COMPANIES.

PV ARRAY NOTES

THE PROJECT ENTAILS THE INSTALLATION OF A 1,380,000 W DC RATED PHOTOVOLTAIC SYSTEM AT CHERRY VALLEY, 148 HENSHAW STREET, LEICESTER, MA.

THIS PHOTOVOLTAIC SYSTEM WILL FUNCTION WITH PHOTOVOLTAIC MODULES (SOURCE CIRCUITS) INSTALLED ON A GROUND MOUNTED FIXED AXIS SYSTEM AT THE SPECIFIED PROJECT LOCATION. PHOTOVOLTAIC DIRECT CURRENT POWER WILL BE INVERTED TO AC POWER BY THE SPECIFIED UL APPROVED

2. INTERCONNECTION

THIS PHOTOVOLTAIC SYSTEM WILL CONNECT WITH THE EXISTING ELECTRICAL SYSTEM AT ONE LOCATION SPECIFIED AS THE POINT OF COMMON COUPLING (POCC)

THIS SYSTEM IS INTENDED TO BE OPERATED IN PARALLEL WITH THE UTILITY SERVICE PROVIDER. ANTI-ISLANDING PROTECTION IS A REQUIREMENT OF UL 1741 AND IS INTENDED TO PREVENT THE OPERATION OF THE PV SYSTEM WHEN THE UTILITY GRID IS NOT OPERATIONAL.

IN ORDER TO INTERCONNECT THE PHOTOVOLTAIC SYSTEM, A POWER OUTAGE AND CLEARANCE OF FACILITY EQUIPMENT MAY NEED TO OCCUR. THIS SHALL BE COORDINATED WITH THE FACILITY AND UTILITY SERVICE PROVIDER.

PERMISSION TO OPERATE THE SYSTEM IS NOT AUTHORIZED UNTIL FINAL INSPECTIONS AND APPROVALS ARE OBTAINED FROM THE LOCAL AUTHORITY HAVING JURISDICTION AND THE LOCAL UTILITY SERVICE PROVIDER.

3. SYSTEM DESCRIPTION

(4,075) 340 WATT LG SOLAR MODULES 1.38 MW DC 1.00 MW AC (2) SGI 500 XT INVERTERS FIXED TILT RACKING SYSTEM 180° AZIMUTH 15'-0" ROW SPACING

4. APPLICABLE CODES

INTERNATIONAL BUILDING CODE (IBC). 2009 EDITION. WITH MASSACHUSETTS AMENDMENTS NATIONAL ELECTRIC CODE (NATIONAL FIRE PREVENTION ASSOCIATION) NFPA-70 (2014 EDITION), WITH MASSACHUSETTS AMENDMENTS

5. U.L. LISTINGS

PHOTOVOLTAIC MODULES ARE U.L. LISTED FOR THEIR PURPOSE. ALL OF THE ELECTRICAL EQUIPMENT USED IN THIS SOLAR ELECTRIC SYSTEM SHALL BE U.L. LISTED AND IN OUTDOOR AREAS ENCLOSURES AND CABINETS WILL MEET APPROPRIATE NEMA STANDARDS.

ELECTRICAL COMPONENTS AND MATERIALS SUCH AS MODULES, INVERTERS, COMBINER BOXES, DISCONNECTS, CONDUIT, WIRING, ETC, SHALL BE LISTED FOR ITS PURPOSE AND INSTALLED IN A WORKMANLIKE MANNER.

6. ATTACHMENT

SOLAR MODULES WILL BE SUPPORTED BY A FIXED STRUCTURE

THE FIXED STRUCTURE SHALL MEET DEAD LOAD, WIND LOAD, AND SEISMIC STANDARDS.

STRUCTURAL STABILITY AND THE MEANS OF ATTACHMENT WILL BE CERTIFIED BY A LICENSED ENGINEER. SEE STRUCTURAL PAGES, AND ATTACHMENTS IF PROVIDED, FOR MORE DETAILS

ALL FASTENERS ARE TO BE STAINLESS STEEL UNLESS OTHERWISE NOTED. CONNECTORS SHALL BE TORQUED PER DEVICE LISTING OR ENGINEERING RECOMMENDATIONS. HEX OR SQUARE DRIVE SOCKET HEAD SCREWS ARE RECOMMENDED.

7. INSTALLATION

SEAL

ALL ELECTRICAL WORK TO BE INSTALLED BY A QUALIFIED LICENSED ELECTRICIAN AND APPRENTICES WORKING UNDER THE DIRECT SUPERVISION OF THE LICENSED CONTRACTOR.

ALL FABRICATION AND MANUFACTURING SHALL BE PERFORMED BY CERTIFIED INDIVIDUALS IN APPROVED ASSEMBLY AND FABRICATION SHOPS.

PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES NOTED AMONG SITE CONDITIONS, MANUFACTURER RECOMMENDATIONS, OR AUTHORITY

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ENGINEER IN THE FORM OF A "RFI", REQUEST FOR INFORMATION, PRIOR TO MAKING ANY CHANGES. APPROVED CHANGES SHALL REQUIRE A DRAWING REVISION TO MAINTAIN CONTROL OVER THE ENGINEER APPROVED DESIGN.

THE ELECTRICAL CONTRACTOR IS ADVISED THAT ALL DRAWINGS AND COMPONENT MANUALS ARE TO BE UNDERSTOOD PRIOR TO INSTALLATION. THE CONTRACTOR IS ADVISED TO HAVE ALL SWITCHES IN THE "OFF" POSITION AND FUSES REMOVED PRIOR TO INSTALLATION OF FUSE-BEARING COMPONENTS.

REGULATORY REQUIREMENTS

- 1. NOTIFY TOWN OF LEICESTER CONSERVATION COMMISSION A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION.
- 2. FIELD INSPECTOR SHALL BE NOTIFIED 48 HOURS PRIOR TO CONSTRUCTION.
- 3. POST DEP SIGN NUMBER ASSIGNED IN ACCORDANCE WITH THE ORDER OF CONDITIONS.
- 4. APPROVED PLANS TO BE ON SITE AT ALL TIMES.
- 5. WITHIN LOCAL RIGHTS-OF-WAY, PERFORM THE WORK IN ACCORDANCE WITH LOCAL MUNICIPAL STANDARDS.
- 6. THE CONTRACTOR IS RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. PERFORM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
- 7. DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
- 8. THIS PROJECT DISTURBS MORE THAN ONE ACRE OF LAND OR IS A PHASE OF A LARGER PROJECT THAT DISTURBS MORE THAN AN ACRE AND REQUIRES THE COMPLETION OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND THE FILING OF A CONSTRUCTION GENERAL PERMIT (CGP). THE SWPPP SHALL REMAIN ON SITE AT ALL TIMES.
- 9. CALL DIG-SAFE 811 OR 1-888-DIG-SAFE A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION.

GENERAL CONSTRUCTION REQUIREMENTS

- 1. THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING OR PROCFFDING WITH WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, BONDS, ETC. AND OTHER APPROVAL RELATED ITEMS WITH THE TOWN OF LEICESTER. NO CONSTRUCTION SHALL COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED.
- METHODS AND MATERIALS USED IN THE CONSTRUCTION OF IMPROVEMENTS FOR THIS PROJECT SHALL CONFORM TO THE CURRENT CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE TOWN OF LEICESTER AND THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION.
- 4. DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE ANY EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF NECESSARY. THE EXISTENCE AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT AND THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS/HER EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION OR BLASTING AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION. ALL WATER, GAS, SEWER AND OTHER UTILITY SERVICES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- RELOCATION OF ANY UTILITIES SHALL BE AT THE OWNERS EXPENSE AND COMPLETED WITH THE UTILITY WORK. THE OWNER SHALL BE NOTIFIED AS TO THE RELOCATIONS REQUIRED PRIOR TO THE START OF CONSTRUCTION.
- 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY PAVEMENT, WALKS, CURBS, ETC. THAT MUST BE CUT OR THAT ARE DAMAGED DURING CONSTRUCTION.
- AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE.
- 10. CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS: AND THAT THE CONTRACTOR SHALL DEFEND. INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM "THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
- CONTRACTOR SHALL IDENTIFY TREES TO BE REMOVED PRIOR TO CONSTRUCTION AND MARK THEM WITH CONSTRUCTION TAPE FOR REVIEW BY THE OWNER AND ENGINEER. CONTRACTOR SHALL NOT REMOVE TREES UNTIL REVIEWED AND
- 12. THE CONTRACTOR SHALL RESTORE DISTURBED AREAS TO ORIGINAL CONDITION. AREAS DAMAGED DURING CONSTRUCTION SHALL BE RESODDED, RESEEDED, OR OTHERWISE RESTORED TO THEIR ORIGINAL STATE. TREES AND OTHER EXISTING VEGETATION SHALL BE RETAINED WHEREVER FEASIBLE.
- 13. ALL EXCESS EXCAVATED MATERIALS, EXCESS FILL, EXCESS CONSTRUCTION MATERIALS, AND DEBRIS SHALL BE REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS.

CONSTRUCTION SEQUENCE

CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT ARE EXPECTED TO COMMENCE IN SUMMER 2016. IT IS ANTICIPATED THAT CONSTRUCTION WILL BE COMPLETED BY FALL 2016. THE GENERAL SEQUENCE FOR EACH PHASE OF CONSTRUCTION IS AS FOLLOWS:

INSTALL PERIMETER SEDIMENT CONTROL BARRIERS AND PROPOSED CONSTRUCTION ENTRANCES, AS SHOWN ON THE CONSTRUCTION PLANS. EROSION CONTROL MEASURES WILL BE MAINTAINED OR REPLACED AS REQUIRED THROUGHOUT CONSTRUCTION PERIOD. ANY TEMPORARY SOIL STOCKPILE AREAS DURING CONSTRUCTION WILL ALSO BE ENCOMPASSED BY STRAW BALES.

- 2. COMPLETE CLEARING AND GRUBBING UP TO LIMIT OF CLEARING SHOWN ON PLANS.
- 3. COMPLETE GRADING FOR INVERTER PAD AND TURNAROUND AREA.
- 4. INSTALL CULVERT.
- 5. CONSTRUCT GRAVEL ACCESS ROAD AND TURNAROUND AREA.
- 6. INSTALL PERIMETER FENCING.
- 7. INSTALL PHOTOVOLTAIC ARRAY, INCLUDING EARTH SCREW INSTALLATION, TRENCHING AND CONDUIT
- INSTALLATION, RACKING AND SOLAR PANEL INSTALLATION.
- 8. INSTALL INVERTER PAD, POLES, AND EQUIPMENT. 9. PAVE BITUMINOUS CONCRETE ENTRANCE.
- 10. INSTALL LANDSCAPE BUFFER.
- 11. SEED ALL REMAINING NON-VEGETATED AREAS AND MULCH. ANY VEGETATED AREA DISTURBED BY CONSTRUCTION SHALL BE REVEGETATED IMMEDIATELY UPON COMPLETION OF WORK IN THAT AREA..
- 12. REMOVE SEDIMENTATION CONTROLS ONCE ALL DISTURBED AREAS HAVE STABILIZED.

EROSION AND SEDIMENT CONTROL NOTES

- 1. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO STUMP REMOVAL AND CONSTRUCTION. STABILIZATION OF ALL REGRADED AND SOIL STOCKPILE AREAS WILL BE INITIATED AND MAINTAINED DURING ALL
- 2. SEDIMENT REMOVED FROM EROSION CONTROL STRUCTURES WILL BE DISPOSED OF IN A MANNER WHICH IS CONSISTENT WITH THE INTENT OF THIS PLAN. ALL STRAW BALES OR SILT FENCE RETAINING SEDIMENT OVER 6" HIGH SHALL HAVE THE SEDIMENT REMOVED AND ALL DAMAGED EROSION CONTROLS REMOVED AND REPLACED.
- 3. THE CONTRACTOR WILL BE ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER TOWN AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY. THE OWNER SHALL BE RESPONSIBLE FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE LIFE OF HIS CONTRACT. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO, SPRINKLING OF WATER ON EXPOSED SOILS AND HAUL ROADS. CONTRACTOR SHALL CONTROL DUST TO PREVENT A HAZARD TO TRAFFIC ON ADJACENT ROADWAYS.
- 5. IF FINAL GRADING IS TO BE DELAYED FOR MORE THAN THIRTY (30) DAYS AFTER LAND DISTURBANCES CEASE, TEMPORARY VEGETATION OR MULCH SHALL BE USED TO STABILIZE SOILS. OUTSIDE OF THE GROWING SEASON, ONLY WOOD MULCH SHALL BE USED.
- 6. STRAW BALES SHALL BE USED ONLY AS A TEMPORARY MEASURE. WHERE CONTROL MEASURES WILL BE REQUIRED FOR LONGER THAN SIXTY (60) DAYS, SILT FENCE SHALL BE USED.
- 7. WHERE DEWATERING IS NECESSARY, THERE SHALL NOT BE A DISCHARGE DIRECTLY INTO WETLANDS OR WATERCOURSES. PROPER METHODS AND DEVICES SHALL BE UTILIZED TO THE EXTENT PERMITTED BY LAW, SUCH AS PUMPING WATER INTO A TEMPORARY SEDIMENTATION BASIN, PROVIDING SURGE PROTECTION AT THE INLET AND THE OUTLET OF PUMPS, FLOATING THE INTAKE OF THE PUMP. OR OTHER METHODS TO MINIMIZE AND RETAIN THE SUSPENDED SOLIDS. IF A PUMPING OPERATION IS CAUSING TURBIDITY PROBLEMS. SAID OPERATION SHALL CEASE UNTIL SUCH TIME AS FEASIBLE MEANS OF CONTROLLING TURBIDITY ARE DETERMINED AND IMPLEMENTED. THE CONTRACTOR MUST SUBMIT HIS DESIGN ALONG WITH THE LOCATIONS OF THE BASIN TO THE TOWN PRIOR TO CONSTRUCTION.
- 8. INSPECTION A CERTIFIED SOIL SCIENTIST OR ENGINEER SHALL INSPECT ALL DISTURBED AREAS OF THE CONSTRUCTION ACTIVITY THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AT LEAST ONCE EVERY WEEK AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 1.0 INCH OR GREATER. INSPECTION REPORTS SHALL BE SUBMITTED TO THE OWNER WEEKLY, AND TO THE TOWN OF GRAFTON MONTHLY. WHERE SITES HAVE BEEN FINALLY STABILIZED, SUCH INSPECTION SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH FOR THREE MONTHS. CONTROLS SHALL BE CLEANED, REPAIRED, AND OR REPLACED AS REQUIRED. ANY DAMAGED CONTROLS SHALL BE REPAIRED IMMEDIATELY.
- 9. PERFORM CONSTRUCTION SEQUENCING IN SUCH A MANNER TO CONTROL EROSION AND TO MINIMIZE THE TIME THAT EARTH MATERIALS ARE EXPOSED BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED.

CONSTRUCTION OPERATION AND MAINTENANCE PLAN

OPERATION AND MAINTENANCE ACTIVITIES DURING CONSTRUCTION ARE DESCRIBED AS FOLLOWS:

- 1. ZERO-POINT CONSTRUCTION (CONTRACTOR) SHALL BE RESPONSIBLE FOR ALL OPERATION AND MAINTENANCE OF THE
- 2. NO EARTHWORK ACTIVITIES SHALL COMMENCE UNTIL PERIMETER EROSION CONTROLS HAVE BEEN INSTALLED. EROSION CONTROLS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS.
- 3. AREAS LEFT EXPOSED TO EROSION FOR MORE THAN SEVEN DAYS SHALL BE ROUGH GRADED AND TEMPORARILY STABILIZED. AREAS DISTURBED BUT INACTIVE FOR MORE THAN THIRTY DAYS SHALL BE TEMPORARILY SEEDED.
- 4. EROSION AND SEDIMENTATION CONTROLS SHALL BE MAINTAINED INITIAL SUCCESSFUL ESTABLISHMENT OF GROUND
- 5. TEMPORARY SOIL STOCKPILES SHALL BE LOCATED WITHIN AREAS CONSISTING OF FORMERLY PAVED OR DEVELOPED
- SURFACES, AND WILL BE MOVED AS NECESSARY TO ACCOMMODATE ONGOING WORK. 6. SEDIMENT STOCKPILES SHALL HAVE A SIDE SLOPE OF NO GREATER THAN 2:1. ALL STOCKPILES SHALL BE ROUGH GRADED OR MAINTAIN A ROUGHENED SURFACE TO PREVENT EROSION. STOCKPILES THAT ARE NOT TO BE USED WITHIN
- 7. THE CONTRACTOR IS RESPONSIBLE TO INSPECT AND REPAIR EROSION AND SEDIMENTATION CONTROL MEASURES AS

FENCE SHALL BE INSTALLED AROUND STOCKPILE AREA APPROXIMATELY 10 FEET FROM TOE OF SLOPE.

REQUIRED TO PREVENT DAMAGE OR SEDIMENTATION. 8. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROL MEASURES, CLEAN SEDIMENT AND DEBRIS FROM TEMPORARY MEASURES AND FROM PERMANENT STORM DRAIN SYSTEMS.

7 DAYS SHALL BE SEEDED AFTER FORMATION OF STOCKPILE AS TO PREVENT EROSION. STRAW BALE BARRIER AND SILT

POST CONSTRUCTION OPERATION AND MAINTENANCE PLAN

OPERATION AND MAINTENANCE ACTIVITIES AFTER CONSTRUCTION ARE DESCRIBED AS FOLLOWS

- 1. ZPT ENERGY SOLUTIONS (OPERATOR) WILL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE SITE AND ARRAY AFTER CONSTRUCTION IS COMPLETED.
- 2. ARRAY PANELS AND MOUNTING STRUCTURES SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURES INSTRUCTIONS. AT A MINIMUM, QUARTERLY INSPECTIONS SHALL BE PERFORMED.
- 2.1. INSPECT PANELS FOR CLEANLINESS, CRACKED/CHIPPED/SCRATCHED/SHATTERED PANELS, FADING/DISCOLORATION, BURN MARKS, SEAL CONDITION, FRAME DAMAGE, OR RUST.
- 2.2. INSPECT MOUNTING STRUCTURE FOR LOOSE PANELS, LOOSE RACKS/CLIPS, MISSING HARDWARE, RUSTED BOLTS,
- FLASHING ISSUES, BALLAST CONDITION, AND RACK ANCHOR CONDITION.
- 2.3. INSPECT CONDITIONS UNDER PANELS AND REMOVE ANY LARGE DEBRIS OR PESTS.
- MINIMUM, ANNUAL INSPECTIONS SHALL BE PERFORMED. 3.1. INSPECT INVERTER STRUCTURE AND ENCLOSURE FOR SEAL CONDITION, RUSTS, DAMAGE, DOOR CONDITION,
- SWITCH/HANDLE CONDITIONS, AND LOCKS.

3. INVERTER SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. AT A

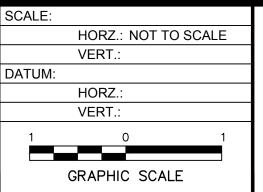
- 3.2. CLEAN AND VACUUM ENCLOSURE, VENTS, AND HEAT SINK. REMOVE ANY IDENTIFIABLE DEBRIS AND CLEAN ANY ACCUMULATION OF DUST
- 3.3. CHANGE AIR FILTERS.
- 3.4. CHECK FUSES AND SWITCHBOARDS FOR SIGNS OF CORROSION OR DAMAGED COMPONENTS.
- 3.5. CHECK WIRING FOR BREAKS, DETERIORATION OR SIGNS OF CORROSION OR DAMAGED WIRE PROTECTION.
- 4. ENERGY DISSIPATOR SHALL BE INSPECTED MONTHLY. THIS WILL INCLUDE CHECKING FOR SIGNS OF RILLING AND GULLYING. ALSO THIS WILL INCLUDE CHECKING FOR THE ACCUMULATION OF SEDIMENTS AND POLLUTANTS. ENERGY DISSIPATOR SHALL BE CLEANED AT LEAST FOUR TIMES PER YEAR.

5. AFTER MAJOR STORM EVENTS, AND A MINIMUM OF TWICE A YEAR, GRAVEL ACCESS ROAD SHALL BE INSPECTED FOR

- EVIDENCE OF EROSION. ANY EROSION SHALL BE CLEANED UP AND REPAIRED. DEPRESSIONS SHALL BE DRESSED WITH CRUSHED STONE AS NECESSARY TO MAINTAIN SLOPE AND GRADE. 6. CULVERT SHALL BE INSPECTED AFTER EVERY MAJOR STORM EVENT FOR THE FIRST THREE MONTHS AND A MINIMUM
- TWICE A YEAR THEREAFTER. CULVERT SHALL BE INSPECTED FOR, BUT NOT LIMITED TO, EVIDENCE OF DIFFERENTIAL SETTLEMENT, CRACKING, EROSION, LEAKAGE IN THE EMBANKMENTS, TREE GROWTH ON THE EMBANKMENTS, CONDITION OF RIPRAP, AND SEDIMENT ACCUMULATION AND THE HEALTH OF THE VEGETATION. TRASH AND DEBRIS SHALL BE REMOVED AT LEAST TWICE A YEAR AND ACCUMULATED SEDIMENT SHALL BE REMOVED AT LEAST TWICE A YEAR.
- 7. LAWN AREAS SHALL BE MOVED TWICE PER YEAR. VEGETATED AREAS SHALL BE INSPECTED FOR EVIDENCE OF EROSION. ANY EROSION SHALL BE REPAIRED AND RESEEDED.

6/7/2016 | FINAL PLANS SMM 6/2/2016 | RESPONSE TO COMMENTS AGG SMM 5/12/2016 RESPONSE TO COMMENTS AGG SMM 3/23/2016 ISSUED FOR PERMITTING AGG SMM DATE DESCRIPTION DESIGNER REVIEWS

NOT FOR **CONSTRUCTION**







GENERAL NOTES AND LEGEND

CHERRY VALLEY 1.0 MW PV ARRAY

ZPT ENERGY SOLUTIONS, LLC

DATE: MARCH 2016

ROJ. No.: 20151249.A10

CN-001

LEICESTER

MASSACHUSETTS



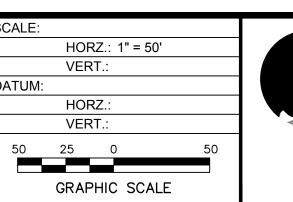
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4. 6/7/2016 FINAL PLANS AGG SMM
3. 6/2/2016 RESPONSE TO COMMENTS AGG SMM
2. 5/12/2016 RESPONSE TO COMMENTS AGG SMM
1. 3/23/2016 ISSUED FOR PERMITTING AGG SMM
No. DATE DESCRIPTION DESIGNER REVIEWER

SEAL
SHAWNM.
MARTIN
QIVIL
NO. WG75

GISTER®

NOT FOR CONSTRUCTION



FUSS & O'NEILL

317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

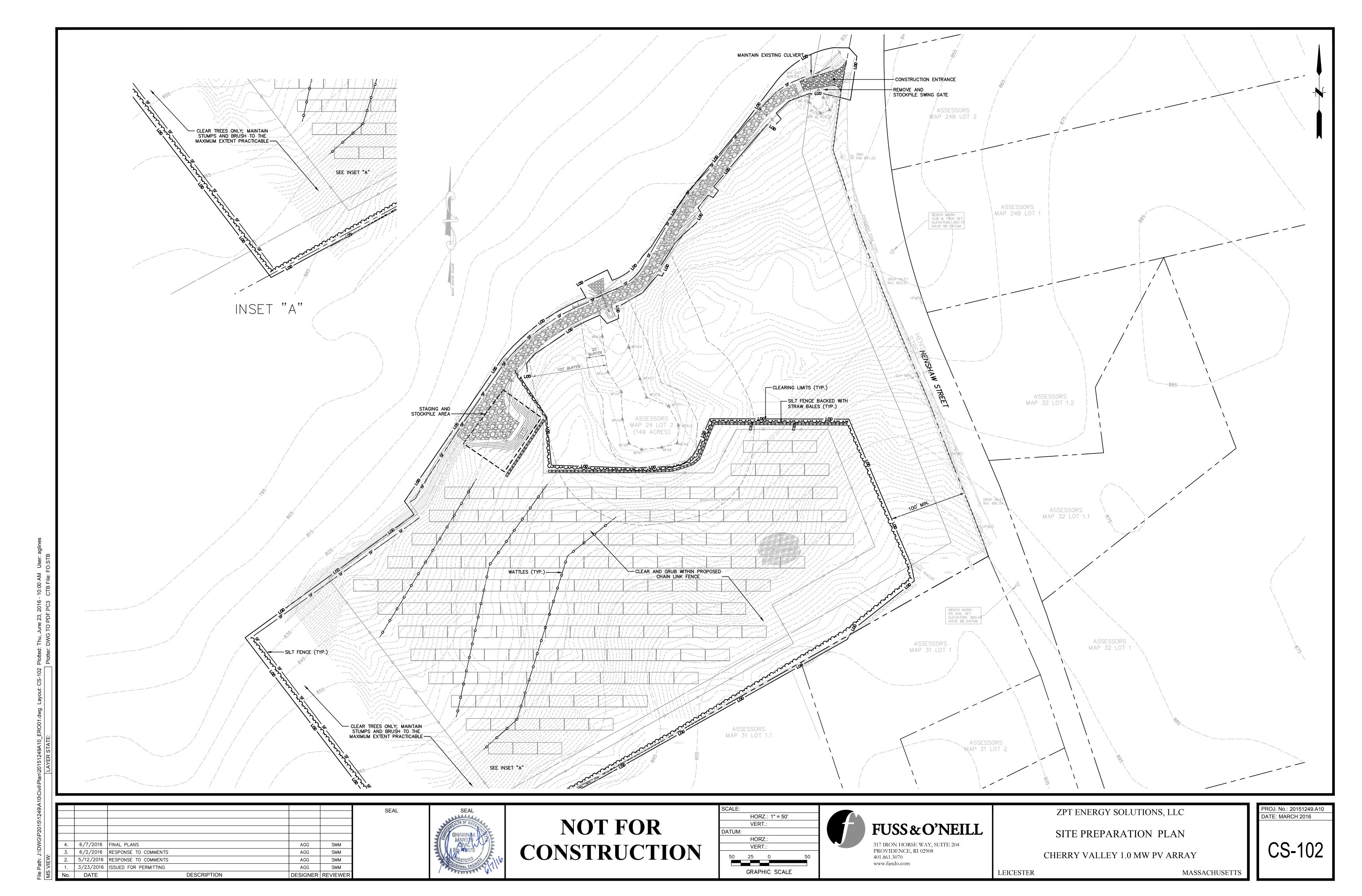
ZPT ENERGY SOLUTIONS, LLC
EXISTING CONDITIONS PLAN

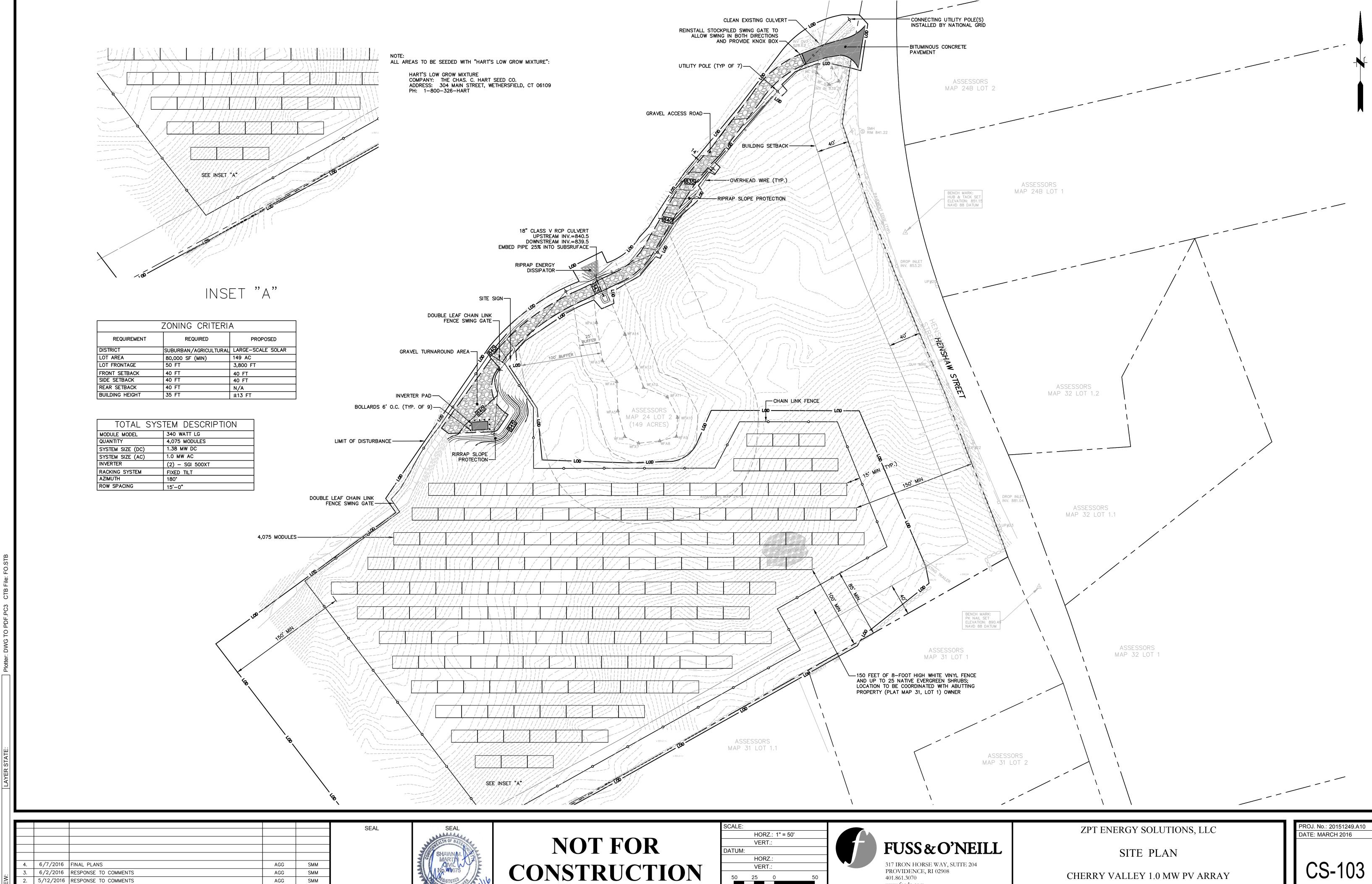
CHERRY VALLEY 1.0 MW PV ARRAY

LEICESTER

CS-101

MASSACHUSETTS





CHERRY VALLEY 1.0 MW PV ARRAY

LEICESTER

MASSACHUSETTS

401.861.3070

GRAPHIC SCALE

www.fando.com

6/2/2016 RESPONSE TO COMMENTS

5/12/2016 RESPONSE TO COMMENTS

3/23/2016 ISSUED FOR PERMITTING

DATE

DESCRIPTION

AGG

AGG

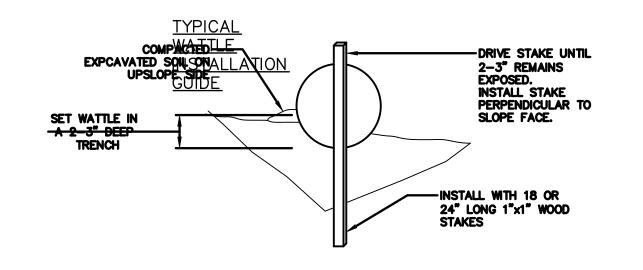
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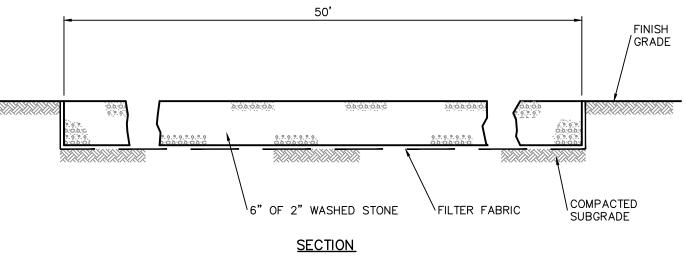
SMM

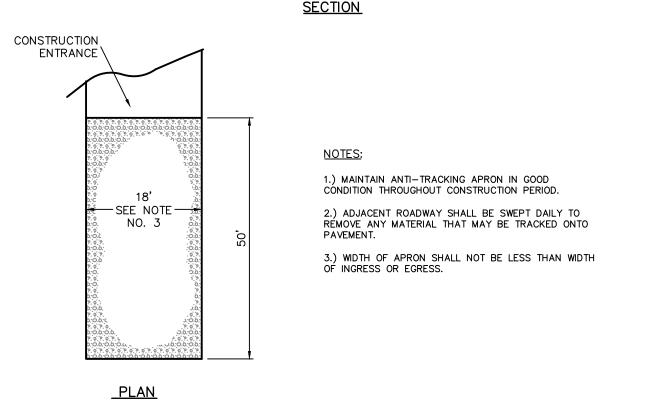
SMM

SMM

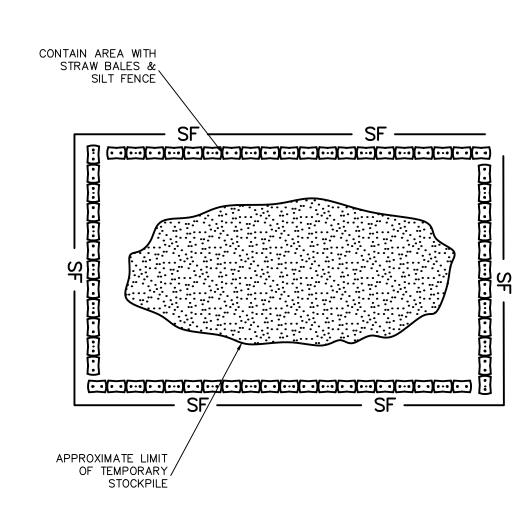


- 1. WATTLES SHALL BE INSTALLED AT LOCATIONS AS INDICATED ON THE DRAWINGS. WOTERATTLES SHALL BE TRENCHED APEROXIMATES 2-3/INCHES AND STAKED SUCH THAT WATTLES DIRECTLY CONTACT SOIL AND PRECLUDE UNDERMINING OR BLOWOUTS. THE TRENCH SHALL BE APPROXIMATELY 9 INCHES WIDE. STAKES SHALL BE DRIVEN THROUGH THE CENTER OF THE WATTLE AT A SPACING OF 3-4 FEET ON CENTER AND NO GREATER THAN 6"FROM THE EACH END OF THE WATTLE. STAKES SHALL BE 1-INCH BY 1-INCH WOODEN STAKES WITH A LENGTH OF 18-24 INCHES. COMPACT SOIL EXCAVATED TO CREATE TRENCH ON UPHILL SIDE SIDE.
- 3. ENDS OF ADJACENT WATTLES SHALL BE TIGHTLY BUTTED OR OVERLAPPED SO THAT NO OPENING EXISTS FOR WATER TO PASS THROUGH. WATTLES SHALL BE FREE OF DAMAGE OR DEFECTS WHEN DELIVERED TO THE SHIPPER. NO VEHICLES SHALL BE DRIVEN OVER WATTLES.
- 4. WATTLES SHALLABE 12-INCF WS1210 MANUFACTURED BY NORTH AMERICAN GREEN, ORTAPPROVED EQUAL SCALE: N.T.S.

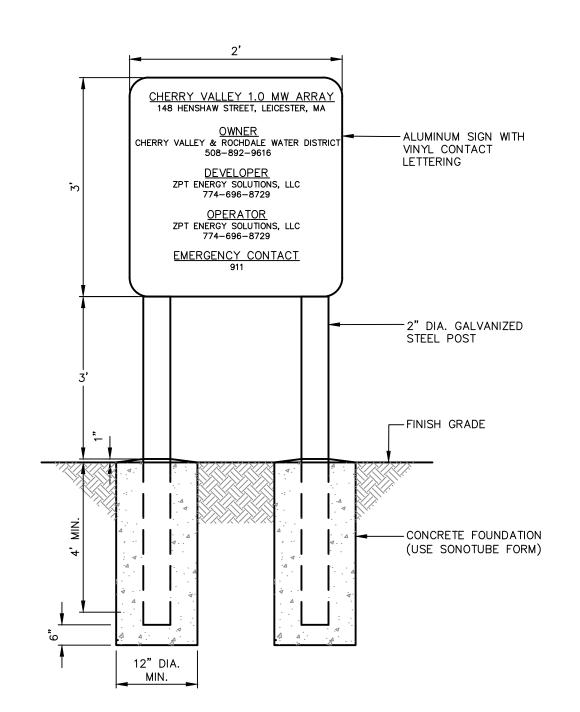




CONSTRUCTION ENTRANCE SCALE: N.T.S.



TEMPORARY SOIL STOCKPILE

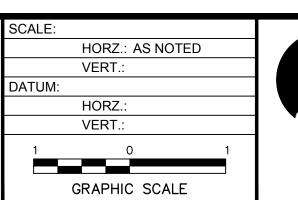


SITE SIGN SCALE: N.T.S.

LEICESTER

6/2/2016 RESPONSE TO COMMENTS AGG SMM AGG 5/12/2016 RESPONSE TO COMMENTS 3/23/2016 ISSUED FOR PERMITTING AGG SMM DESCRIPTION DATE DESIGNER REVIEWER

NOT FOR CONSTRUCTION





ZPT ENERGY SOLUTIONS, LLC

DETAILS

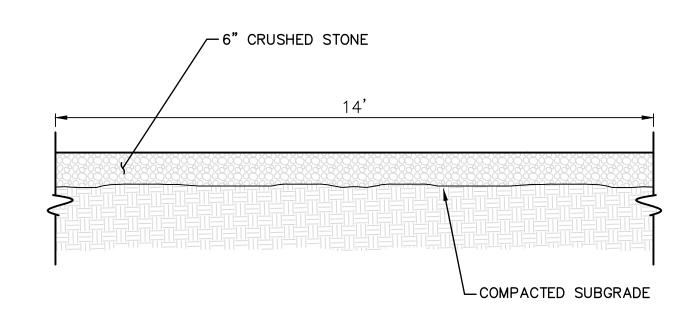
CHERRY VALLEY 1.0 MW PV ARRAY

CD-501

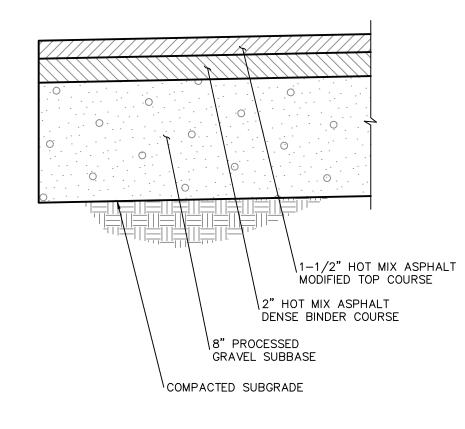
MASSACHUSETTS

PROJ. No.: 20151249.A10

DATE: MARCH 2016



- 1. MAINTAIN FINISH GRADE AND CROSS SLOPE OF EXISTING DIRT ROAD.
- 2. CRUSHED STONE SHALL BE IN ACCORDANCE WITH SECTION M2.01.0 AND CONFORM TO M2.01.5 GRADATION OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND



GRAVEL ACCESS ROAD

BITUMINOUS CONCRETE PAVEMENT

- CHAIN LINK DOUBLE LEAF SWING GATE LEGEND 1) 2" SQUARE FRAME WELDED TO FORM FOUR SIDES OF LEAF
- (2) 1 1/4" SQUARE UPRIGHT BRACING WELDED TO FRAME
- (3) 1 1/4" SQUARE HORIZONTAL BRACING WELDED TO FRAME (4) TENSION BAR ATTACHED TO FRAME ON ALL FOUR SIDES WITH HOOK BOLTS
- (5) KNOX-BOX AND LATCH DEVICE
- 6 12" DIA. x 12" DEEP CONC. COLLAR WITH STEEL PIPE FOR SET PIN. COLLAR AND PIPE SET FLUSH WITH PAVEMENT. PIPE TO DRAIN INTO GRAVEL BASE.
- 7) 9 GAUGE 2" WIRE MESH GALVANIZE COATED.
- 8 HINGE POST FOOTING SHALL BE 3000 PSI CONCRETE. DIAMETER SHALL BE 4 TIMES POST
- (9) 3" HINGE POST

SEAL

6" CLEAR SPACE BETWEEN BOTTOM RAIL AND FINISH GRADE —10'-0" C.C. MAX.— ——10'-0" C.C. MAX.—— 6" CLEAR SPACE BETWEEN FABRIC AND FINISH GRADE

ELEVATION

- 1. FOOTING DESIGN TO BE CHECKED BY AN ENGINEER FOR WIND LOADS IF SLATS ARE USED OR IF POOR SOIL CONDITIONS EXIST.
- 2. STRAIGHT RUNS BETWEEN BRACED POSTS SHALL NOT EXCEED 500 FT.
- 3. FENCE DETAILS ARE INTENDED AS A GUIDE ONLY. ALL FENCE MATERIALS AND CONSTRUCTION METHODS SHALL BE APPROVED BY THE ENGINEER AND FENCE

CHAIN LINK FENCE LEGEND

- 1 5/8" O.D. TOP RAIL ATTACH FABRIC WITH 9 GUAGE WIRE CLIP EVERY 24"
- 2 1 5/8" O.D. BRACE FOR RAIL FENCES OVER 6 FEET HIGH AND ALL FENCES WITHOUT TOP
- 3) 5/16" TRUSS ROD AND TURNBUCKLE
- (4) INTERMEDIATE POST
 - FENCE HEIGHT 6 FEET AND LESS SQUARE POST 1 7/8" ROUND POST OVER 6 FEET 2 1/2" ATTACH TO C.L. FABRIC WITH CLIPS EVERY 15"
- 5 END OR CORNER POST FENCE HEIGHT 6 FEET AND LESS OVER 6 FEET
- (6) 6 GAUGE BOTTOM TENSION WIRE ATTACH TO FABRIC WITH HOG RING AT 24" C.C.
- (7) TENSION ROD ATTACHED TO END OR CORNER POST
- 8 2 30" MIN. LENGTH DRIVE ANCHORS DRIVEN THROUGH FITTINGS AT 90" TO FENCE LINE INTO EARTH AT 45° (TO BE USED IN PLACE OF CONCRETE FOOTING. SEE FOOTING DESIGN
- 9 CONCRETE FOOTING 36" DEEP WITH 12" DIA. AT END POST AND 10" DIA. AT INTERMEDIATE POST. HOLE CORE IN UNDISTURBED OR COMPACTED SOIL. (SEE NOTE NO.
- (10) 6 GAUGE TENSION WIRE WHEN TOP RAIL IS NOT USED.
- FABRIC SELVAGE:
 UNDER 6 FEET SHALL BE KNUCKLED TOP AND BOTTOM
 6 FEET AND OVER SHALL BE KNUCKLED BOTTOM AND TWISTED ON THE TOP RECREATIONAL FENCING, REGARDLESS OF HEIGHT, SHALL BE KNUCKLED TOP AND BOTTOM
- (12) 9 GAUGE 2" WIRE MESH GALVANIZE COATED.

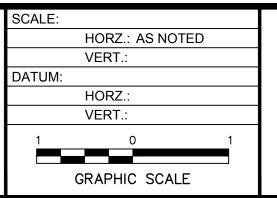
DOUBLE LEAF CHAIN LINK SWING GATE SCALE: N.T.S.

OPENING

CHAIN LINK FENCE

6/7/2016 | FINAL PLANS AGG SMM 6/2/2016 RESPONSE TO COMMENTS AGG SMM 5/12/2016 RESPONSE TO COMMENTS AGG SMM 3/23/2016 ISSUED FOR PERMITTING AGG SMM DATE DESCRIPTION DESIGNER REVIEWE

NOT FOR CONSTRUCTION





FUSS&O'NEILL 317 IRON HORSE WAY, SUITE 204

PROVIDENCE, RI 02908 401.861.3070 www.fando.com

ZPT ENERGY SOLUTIONS, LLC

DETAILS

CHERRY VALLEY 1.0 MW PV ARRAY

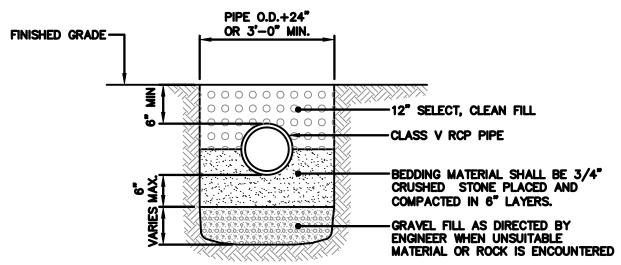
MASSACHUSETTS LEICESTER

CD-502

PROJ. No.: 20151249.A10

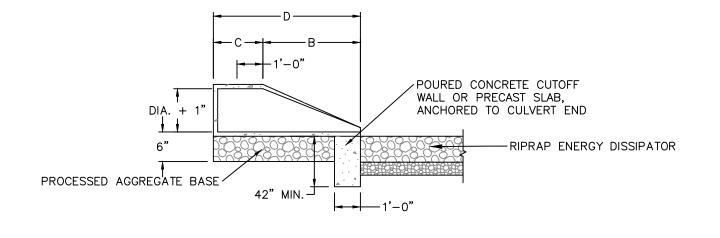
DATE: MARCH 2016

DIMENSIONS								
DIA.	А	В	С	D	E	F		
15"	6"	2'-3"	3'-10"	6'-1"	2'-6"	2'-0 5/16"		

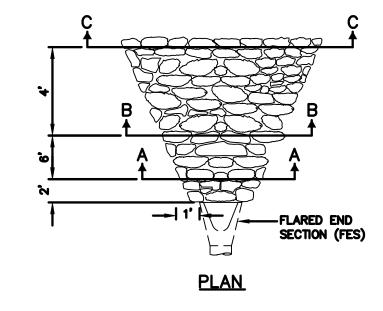


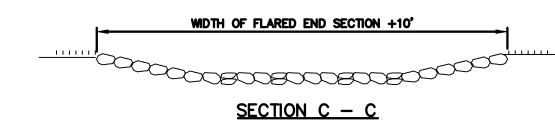
END VIEW

CONCRETE CULVERT END

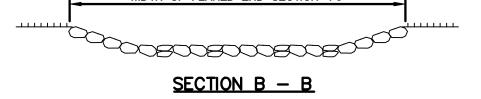


SECTION A-A





WIDTH OF FLARED END SECTION +6'





SECTION A - A

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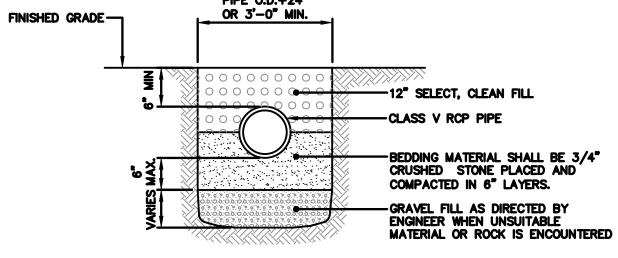
NOTES:

NATIONAL STONE ASSOCIATION (NSA) NO. "R-4" RIP-RAP, IN ACCORDANCE WITH THE FOLLOWING GRADATION FROM THE NSA MANUAL: QUARRIED STONE FOR EROSION AND SEDIMENT CONTROL.

PERCENT PASSING NSA No. 100% 0-50% 0-15%

- 2. RIPRAP THICKNESS SHALL BE 1.5 TIMES THE MAXIMUM STONE
- DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
- 4. UNLESS OTHERWISE SPECIFIED, RIPRAP SHALL BE PLACED.

RIPRAP ENERGY DISSIPATOR



-6" DIA. STANDARD STEEL PIPE FILLED

FINISH GRADE

SOLID WITH CONCRETE.

ROUND TOP AS SHOWN.

— CONCRETE FOUNDATION

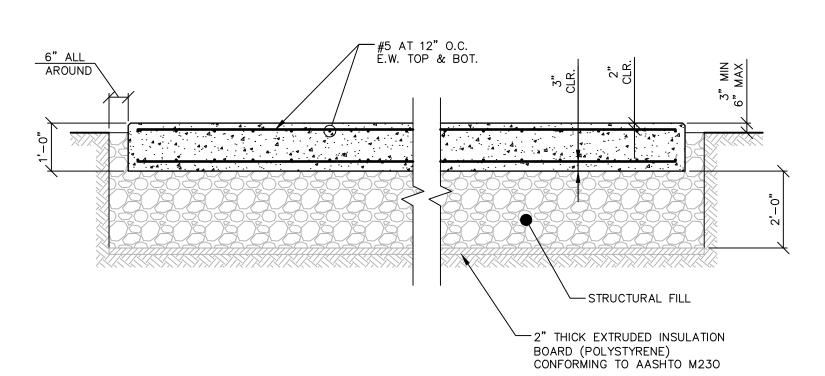
(USE SONOTUBE FORM)

-3/8" DIA. WELDED HOOPS,

18" DIA. AT TOP, BOTTOM

AND CENTER.

RCP CULVERT TRENCH



NOTES:

- 1. ALL CONCRETE WORK SHALL CONFORM TO ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
- 2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 AND BE DETAILED IN ACCORDANCE WITH ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
- 3. REBARS SHALL HAVE A MINIMUM CONCRETE COVER AS FOLLOWS:
- CONCRETE DEPOSITED AGAINST GROUND.......3 IN. CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
 - FOR BARS #5 AND LARGER......2 IN. FOR BARS SMALLER THAN #5...... 1/2 IN.
- CONCRETE NOT EXPOSED TO THE WEATHER OR THE GROUND: SLABS AND WALLS......3/4 IN.
- 4. ALL REINFORCING BARS SHALL BE CONTINUOUS AND LAPPED A MINIMUM OF 48 BAR DIAMETERS AT ALL SPLICES, CORNERS, AND INTERSECTIONS UNLESS NOTED OTHERWISE.
- 5. ALL REINFORCEMENT SHALL BE SECURELY TIED IN ITS PROPOSED LOCATION PRIOR TO AND DURING PLACEMENT OF CONCRETE USING APPROVED CHAIRS, SPACERS AND TIE WIRE AS REQUIRED. NO BARS SHALL BE CUT OR OMITTED IN THE FIELD WITHOUT THE APPROVAL OF THE ENGINEER.
- 6. CONCRETE PROTECTION FOR REINFORCEMENT SHALL IN ALL CASES BE AT LEAST EQUAL TO THE DIAMETER OF THE BAR EXCEPT FOR CONCRETE SLABS.
- 7. ALL CONCRETE SHALL BE CAST-IN-PLACE, NORMAL WEIGHT CONCRETE AND SHALL DEVELOP A COMPRESSIVE STRENGTH OF 4,000 PSI IN 28 DAYS. CONCRETE SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 3/4 INCH, A MINIMUM CEMENT CONTENT OF 560 LBS/CU. YD., AND A MAXIMUM SLUMP OF 4 INCHES.
- 8. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4 INCH CHAMFER UNLESS NOTED.
- 9. ALL CONCRETE EXPOSED TO THE WEATHER SHALL BE AIR-ENTRAINED.
- 10. SIZES AND LOCATIONS OF ALL REQUIRED EMBEDDED ITEMS FOR ALL TRADES SUCH AS ANCHOR BOLTS, PIPING SLEEVES, HOLDOWN ANCHORS, ETC., SHALL BE COORDINATED BY THE CONTRACTOR WITH OTHER TRADES.

CONCRETE EQUIPMENT PAD SCALE: N.T.S.

4.	6/7/2016	FINAL PLANS	AGG	SMM
3.	6/2/2016	RESPONSE TO COMMENTS	AGG	SMM
2.	5/12/2016	RESPONSE TO COMMENTS	AGG	SMM
1.	3/23/2016	ISSUED FOR PERMITTING	AGG	SMM

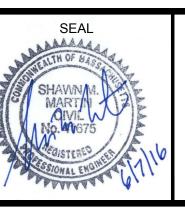
DESCRIPTION

2' DIA.

MIN.

BOLLARD

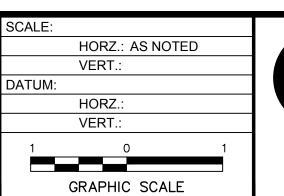
SCALE: N.T.S.



SEAL

DESIGNER REVIEWER

NOT FOR CONSTRUCTION





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SECTION B-B

ZPT ENERGY SOLUTIONS, LLC

DETAILS

CHERRY VALLEY 1.0 MW PV ARRAY

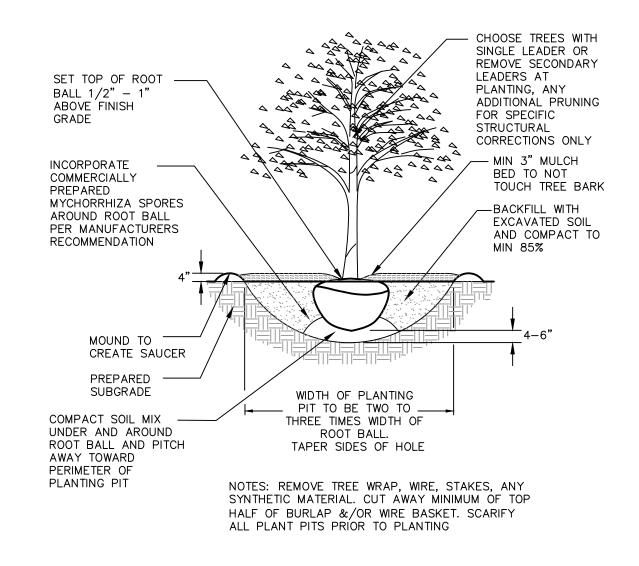
MASSACHUSETTS LEICESTER

CD-503

PROJ. No.: 20151249.A10

DATE: MARCH 2016

DATE

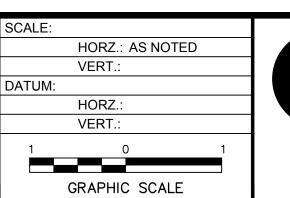


-PRUNE DEAD AND BROKEN BRANCHES -SHRUB SHALL BE PLANTED SO THAT CROWN IS 2" ABOVE FINISH GRADE AFTER SETTLEMENT 3" SHREDDED HARDWOOD MULCH -EXTEND OVER BERM. <u>DO NOT</u> PLACE IN CONTACT WITH BARK OF SHRUB. CONSTRUCT EARTH SAUCER
WITH 3" HIGH BERM PLACE ROOTBALL — ON UNEXCAVATED OR TAMPED SOIL -BACKFILL WITH PLANTING SOIL MIXTURE IN 9" LAYERS. WATER EACH LAYER UNTIL SETTLED. DO NOT TAMP. SHRUBS IN CONTAINER SCALE: N.T.S.

TREE PLANTING

AGG AGG 3. 6/2/2016 RESPONSE TO COMMENTS SMM 2. 5/12/2016 RESPONSE TO COMMENTS AGG 3/23/2016 ISSUED FOR PERMITTING AGG SMM DESCRIPTION DATE DESIGNER REVIEWER

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DETAILS

CHERRY VALLEY 1.0 MW PV ARRAY

CD-504

PROJ. No.: 20151249.A10

DATE: MARCH 2016

LEICESTER