

THERE ARE MANY UNDERGROUND CRITICAL UTILITIES IN AND AROUND BUILDING 13 AND BUILDING 2, AS WELL AS THROUGHOUT SITE. ALL DEMOLITION, EXCAVATION, AND CONSTRUCTION WORK MUST BE DONE WITH CARE. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ALL SITE UTILITIES AND ROUTING AROUND AND BELOW AS DIRECTED BY VA COTR.

CONTRACTORS SHALL VERIFY AND CONFIRM NUMBER, TYPE, HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES BEFORE PERFORMING ANY WORK. DISCREPANCIES BETWEEN DRAWINGS AND FIELD CONDITIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE COTR. THIS PROJECT WILL REQUIRE SOME FORENSIC TRENCHING TO CONFIRM EXISTING UNDERGROUND OBSTACLES. THE CONTRACTOR SHALL INCLUDE IN HIS BID SUCH TRENCHING AND AN ALLOWANCE FOR MODIFYING PLANNED BUSDUCT ROUTING AS MAY BE REQUIRED DUE TO EXISTING CONDITIONS.

RACEWAY ROUTING INDICATED IS PROPOSED AND SUBJECT TO EXISTING CONDITIONS. CONTRACTOR SHALL ROUTE ALL RACEWAYS AROUND OBSTACLES ENCOUNTERED, AS ACCEPTABLE TO COTR. WHERE NECESSARY, TRENCHING MAY REQUIRE ADDITIONAL DEPTH TO AVOID AND RUN BELOW EXISTING UTILITIES.

ALL WORK NEAR UNDERGROUND UTILITIES SHALL BE HAND-EXCAVATED.

WHEN UTILITY LINES ARE EXPOSED THEY SHALL BE SUPPORTED UNTIL WORK IS COMPLETE.

OWNER PROVIDED SITE UTILITIES PLANS ARE FOR REFERENCE ONLY AND ARE NOT TO BE SCALED OR CONSIDERED ALL-INCLUSIVE.

CONTRACTOR SHALL OBTAIN FROM VA A COPY OF RECENT SITE SURVEYS. HOWEVER, SURVEYS AND OTHER PROJECT DESIGNS SHOULD NOT BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR REMAINS RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS.

GENERAL NOTES:

1. VERIFY LOCATIONS OF ALL EXISTING UTILITIES IN AREA OF WORK AND COORDINATE SAME WITH NEW WORK AS REQUIRED.
2. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR ADDITIONAL INFORMATION.
3. EXISTING CONDUIT FOUND TO BE REUSABLE MAY BE USED. SUPPORT ALL EXISTING CONDUIT BEING RE-USED PER NEC. ALL OTHER MATERIAL SHALL BE REMOVED FROM THE JOB SITE UNLESS OTHERWISE DIRECTED BY THE CONTRACTING OFFICER.
4. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND EQUIPMENT QUANTITIES PRIOR TO REMOVAL.
5. PROVIDE GROUNDING FOR ALL METALLIC FENCE ELEMENTS AND METAL GATES OR DOORS.

KEY NOTES:

1. SEE DUCTBANK DETAIL 1 ON SHEET E-501.
2. SEE DUCTBANK DETAIL 2 ON SHEET E-501.
3. ALTERNATE - SEE DUCTBANK DETAIL 3 ON SHEET E-501 TO SERVE PV SYSTEM AND OTHER FUTURE LOADS.
4. SEE SHARED DUCTBANK DETAIL 4 ON SHEET E-501.
5. ROUTE IN COMMON TRENCH WITH FIBER COMMUNICATION DUCTBANK INSTALLED WITH RESEARCH LAB EXPANSION PROJECT. COORDINATE WITH VA COTR
6. PROVIDE SEPARATE MANHOLE FOR POWER FEEDERS.
7. SEE DUCTBANK DETAIL 5 ON SHEET E-501.



**Westlake
Reed
Leskosky**

One East Camelback Road
Suite 690
Phoenix, Arizona 85012
www.WRLdesign.com

C. APS RECORD COMMENTS		ROC	ROC	07/10/2013
B	100% CD	ROC	ROC	01/12/2012
A	UTILITY COMMENTS	ROC	ROC	12/09/2011
REV	DESCRIPTION	BY	CHK	DATE

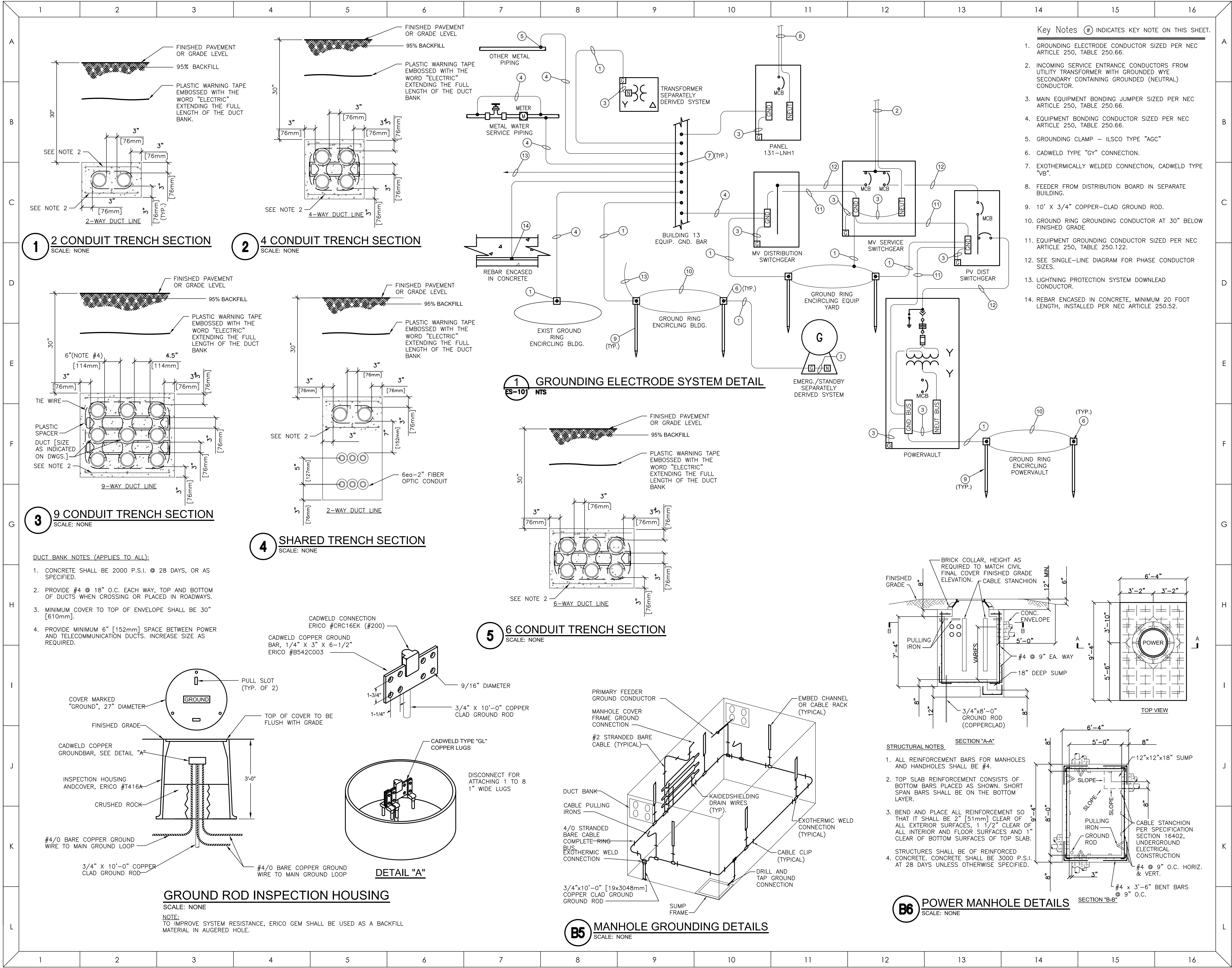


1155 Flatbush Rd., Kingston, NY 12401
Tel: 845-336-0146 Fax: 845-336-0457
WWW.SUNWIZE.COM

THIS DRAWING IS THE CONFIDENTIAL
PROPERTY OF SUNWIZE TECHNOLOGIES

PROJECT NAME:
PHOENIX PHASE II
PROJECT / CUSTOMER INFORMATION:
CARL T. HAYDEN VA MEDICAL CENTER 650 E. INDIAN SCHOOL ROAD, PHOENIX, AZ 85102

SHEET TITLE:		
ELECTRICAL SITE PLAN 3.9 MVA AC PV SYSTEM		
PROJECT NUMBER:	6019	
DRAWING NUMBER:	503-6019-A200	REV:
PAPER SIZE:	ARCH D (36"X24")	
SHEET NO:	ES-101	



Westlake Reed Leskosky

One East Camelback Road
Suite 690
Phoenix, Arizona 85012
www.WRLdesign.com

C. APS RECORD COMMENTS		ROC ROC 07/10/2013	
B	100% CD	ROC	ROC 01/12/2012
A	UTILITY COMMENTS	ROC	ROC 12/09/2011
REV	DESCRIPTION	BY	CHK DATE

SunWize
1155 Flatbush Rd., Kingston, NY 12401
Tel: 845-336-0146 Fax: 845-336-0457
WWW.SUNWIZE.COM

THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SUNWIZE TECHNOLOGIES

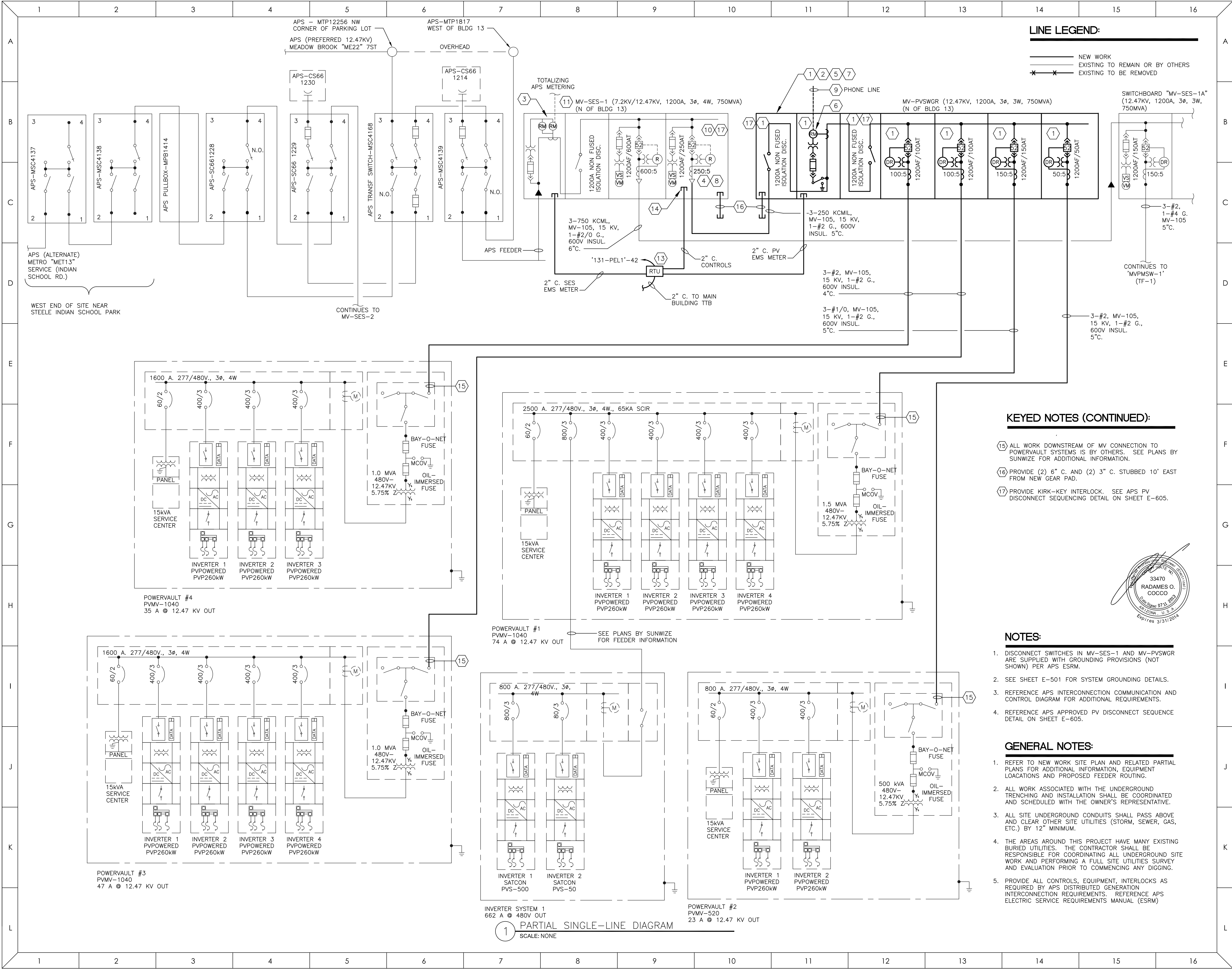
PROJECT NAME:
PHOENIX PHASE II

PROJECT / CUSTOMER INFORMATION:

CARL T. HAYDEN VA MEDICAL CENTER
650 E. INDIAN SCHOOL ROAD, PHOENIX, AZ 85102

SHEET TITLE: ELECTRICAL DETAILS 3.9 MVA AC PV SYSTEM	
PROJECT NUMBER:	6019
DRAWING NUMBER:	503-6019-A200 REV:
PAPER SIZE:	ARCH D (36"X24")
SHEET NO:	

E-501



LINE LEGEND:

- NEW WORK
- EXISTING TO REMAIN OR BY OTHERS
- EXISTING TO BE REMOVED

KEYED NOTES:

- NEW SECTION TO SERVE PHOTOVOLTAIC CONNECTION. NEW SECTION SHALL MATCH EXISTING SWITCHGEAR SECTIONS IN ALL RESPECTS. EXISTING SWITCHGEAR IS SIEMENS GMSG. PROVIDE SIEMENS 9510 MFM ON MAIN. REFERENCE APS INTERCONNECTION REQUIREMENTS FOR DISTRIBUTED GENERATION AND APS ELECTRIC SERVICE REQUIREMENTS MANUAL (ESRM)
- COORDINATE WITH APS AND PROVIDE ALL CONTROLS OR LOCK-OUTS AS REQUIRED. REFERENCE APS INTERCONNECTION REQUIREMENTS FOR DISTRIBUTED GENERATION.
- BI-DIRECTIONAL UTILITY TOTALIZING METER PROVIDED BY APS. PROVIDE DOUBLE METER CABINET PER EUSERC 332. METERING CABINETS TO BE PER EUSERC 401 AS AMENDED BY APS.
- PROVIDE LABEL ON BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE PER NEC 705.10. PROVIDE BREAKER SUITABLE FOR BACKFEED CONNECTION PER NEC 690.64(b)(5). LABEL WITH MAXIMUM OPERATING CURRENT AND VOLTAGE PER NEC 690.54.
- PROVIDE LABEL ON SWITCH "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH". SWITCH TO BE LOCKABLE, VISIBLE OPEN AND ACCESSIBLE TO UTILITY AT ALL TIMES. CONFORM TO ALL REQUIREMENTS PER NEC 705.22.
- PROVIDE LABEL "PHOTOVOLTAIC SYSTEM METER". PROVIDE METER ENCLOSURE AND SOCKETS PER APS ESRM. METER, CT'S AND TEST SWITCHES PROVIDED BY APS. PROVIDE DOUBLE METER CABINET PER EUSERC 332. METERING CABINETS TO BE PER EUSERC 401 AS AMENDED BY APS.
- PROVIDE RED WARNING SIGN WITH THE FOLLOWING MESSAGE IN 1" HIGH ENGRAVED LETTERS: "WARNING - ELECTRIC SHOCK HAZARD. DO NOT TOUCH TERMINALS - TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION."
- PROVIDE LABEL "INVERTER OUTPUT CONNECTION" PROVIDE BREAKER SUITABLE FOR BACK-FEED CONNECTION.
- PROVIDE DEDICATED PHONE LINE TO THE PV SYSTEM METER. CONNECT TO APS PROVIDED TELEPHONE INTERFACE MODULE.
- PROVIDE BREAKER LISTED AS SUITABLE FOR BACK-FEED PER NEC 690.64(B)(3) AND 690.64(B)(5). BREAKER SUPPLIED WITH PROTECTIVE RELAYING. REFER TO SIEMENS SUBMITTAL DRAWINGS FOR DETAILS.
- PROVIDE PLACARD AT SES WITH EXPLICIT DIRECTIONS TO THE LOCATION OF THE PV SYSTEM UTILITY DISCONNECT SWITCH AS REQUIRED PER APS IROG 8.6.4.
- MV-SES-1 TO BE INSTALLED UNDER PRIOR PROJECT - "EXPAND ELECTRICAL SERVICE".
- REMOTE TERMINAL UNIT (RTU) FURNISHED BY APS.
- PROVIDE HARD-WIRED OPEN/CLOSE CONTACT STATUS POINTS IN CB FOR MONITORING BY APS RTU. BREAKER CONTROL SCHEME SHALL ACCEPT A TRIP-OPEN / BLOCK-CLOSE / PERMISSIVE-CLOSE SIGNAL FROM RTU.

KEYED NOTES (CONTINUED):

- ALL WORK DOWNSTREAM OF MV CONNECTION TO POWERVULT SYSTEMS IS BY OTHERS. SEE PLANS BY SUNWIZE FOR ADDITIONAL INFORMATION.
- PROVIDE (2) 6" C. AND (2) 3" C. STUBBED 10' EAST FROM NEW GEAR PAD.
- PROVIDE KIRK-KEY INTERLOCK. SEE APS PV DISCONNECT SEQUENCING DETAIL ON SHEET E-605.

NOTES:

- DISCONNECT SWITCHES IN MV-SES-1 AND MV-PVSWGR ARE SUPPLIED WITH GROUNDING PROVISIONS (NOT SHOWN) PER APS ESRM.
- SEE SHEET E-501 FOR SYSTEM GROUNDING DETAILS.
- REFERENCE APS INTERCONNECTION COMMUNICATION AND CONTROL DIAGRAM FOR ADDITIONAL REQUIREMENTS.
- REFERENCE APS APPROVED PV DISCONNECT SEQUENCE DETAIL ON SHEET E-605.

GENERAL NOTES:

- REFER TO NEW WORK SITE PLAN AND RELATED PARTIAL PLANS FOR ADDITIONAL INFORMATION, EQUIPMENT LOCATIONS AND PROPOSED FEEDER ROUTING.
- ALL WORK ASSOCIATED WITH THE UNDERGROUND TRENCHING AND INSTALLATION SHALL BE COORDINATED AND SCHEDULED WITH THE OWNER'S REPRESENTATIVE.
- ALL SITE UNDERGROUND CONDUITS SHALL PASS ABOVE AND CLEAR OTHER SITE UTILITIES (STORM, SEWER, GAS, ETC.) BY 12" MINIMUM.
- THE AREAS AROUND THIS PROJECT HAVE MANY EXISTING BURIED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL UNDERGROUND SITE WORK AND PERFORMING A FULL SITE UTILITIES SURVEY AND EVALUATION PRIOR TO COMMENCING ANY DIGGING.
- PROVIDE ALL CONTROLS, EQUIPMENT, INTERLOCKS AS REQUIRED BY APS DISTRIBUTED GENERATION INTERCONNECTION REQUIREMENTS. REFERENCE APS ELECTRIC SERVICE REQUIREMENTS MANUAL (ESRM)

Westlake
Reed
Leskosky

One East Camelback Road
Suite 690
Phoenix, Arizona 85012
www.WRLdesign.com

C	APS RECORD COMMENTS	ROC	ROC 07/10/2013
B	100% CD	ROC	ROC 01/12/2012
A	UTILITY COMMENTS	ROC	ROC 12/09/2011
REV	DESCRIPTION	BY	CHK DATE

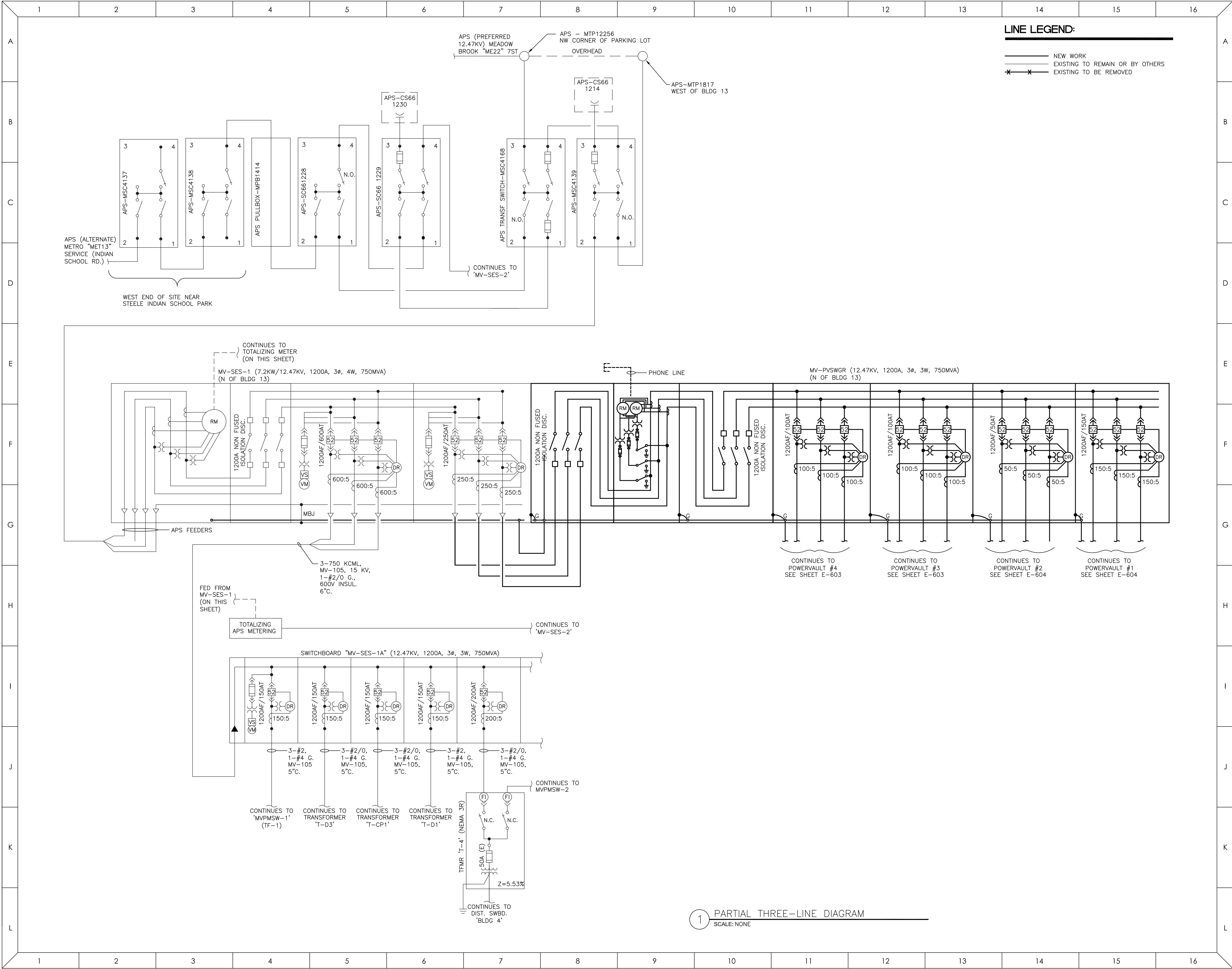
SunWize
1155 Flatbush Rd. Kingston, NY 12401
Tel: 845-336-0146 Fax: 845-336-0457
WWW.SUNWIZE.COM
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SUNWIZE TECHNOLOGIES

PROJECT NAME:
PHOENIX PHASE II

PROJECT / CUSTOMER INFORMATION:

CARL T. HAYDEN VA MEDICAL CENTER
650 E. INDIAN SCHOOL ROAD, PHOENIX, AZ 85102

SHEET TITLE:	SINGLE-LINE DIAGRAM 3.9 MVA AC PV SYSTEM
PROJECT NUMBER:	6019
DRAWING NUMBER:	503-6019-A200 REV:
PAPER SIZE:	ARCH D (36"X24")
SHEET NO:	E-601



GENERAL NOTES:

- REFER TO NEW WORK SITE PLAN AND RELATED PARTIAL PLANS FOR ADDITIONAL INFORMATION, EQUIPMENT LOCATIONS AND PROPOSED FEEDER ROUTING.
- ALL WORK ASSOCIATED WITH THE UNDERGROUND TRENCHING AND INSTALLATION SHALL BE COORDINATED AND SCHEDULED WITH THE OWNER'S REPRESENTATIVE.
- ALL SITE UNDERGROUND CONDUITS SHALL PASS ABOVE AND CLEAR OTHER SITE UTILITIES (STORM, SEWER, GAS, ETC.) BY 12" MINIMUM.
- THE AREAS AROUND THIS PROJECT HAVE MANY EXISTING BURIED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL UNDERGROUND SITE WORK AND PERFORMING A FULL SITE UTILITIES SURVEY AND EVALUATION PRIOR TO COMMENCING ANY DIGGING.

NOTES:

- DISCONNECT SWITCHES IN MV-SW-1 AND MV-PVSWGR ARE SUPPLIED WITH GROUNDING PROVISIONS (NOT SHOWN) PER APS ESRM.
- SEE SHEET E-501 FOR SYSTEM GROUNDING DETAILS.
- MV-SW-1 IS SUPPLIED WITH TWO CT RATED METERS WITH TEST SWITCHES, GROUNDABLE SWITCH AND FUSES.

Westlake Reed Leskosky

One East Camelback Road
Suite 690
Phoenix, Arizona 85012
www.WRLdesign.com

C APS RECORD COMMENTS		ROC ROC 07/10/2013		
B	100% CD	ROC	ROC 01/12/2012	
A	UTILITY COMMENTS	ROC	ROC 12/09/2011	
REV	DESCRIPTION	BY	CHK	DATE

SunWize
1155 Flatbush Rd. Kingston, NY 12401
Tel: 845-336-0146 Fax: 845-336-0457
WWW.SUNWIZE.COM
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SUNWIZE TECHNOLOGIES

PROJECT NAME:
PHOENIX PHASE II

PROJECT / CUSTOMER INFORMATION:

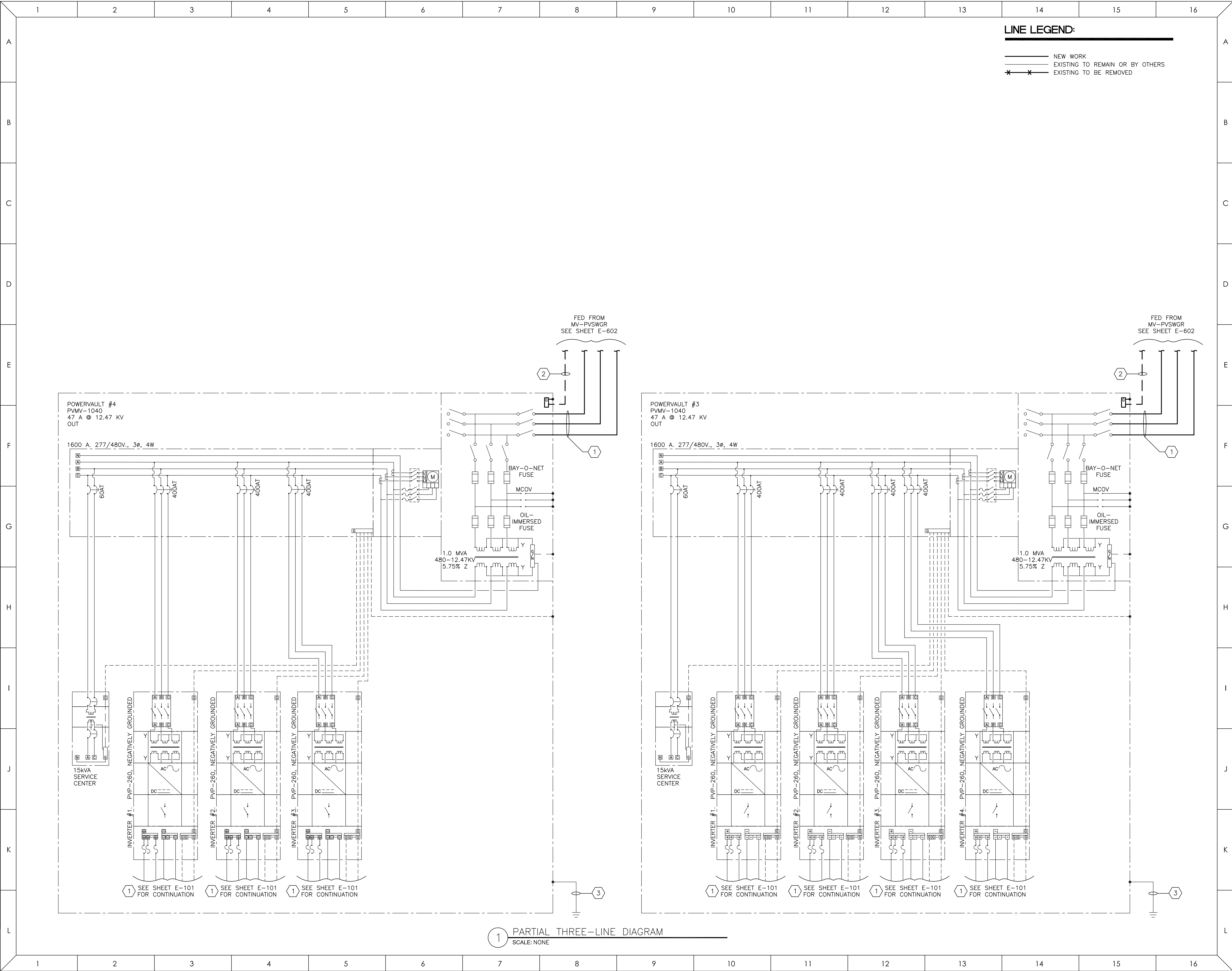
CARL T. HAYDEN VA MEDICAL CENTER
650 E. INDIAN SCHOOL ROAD, PHOENIX, AZ 85102

SHEET TITLE:

**THREE-LINE DIAGRAM
3.9 MVA AC PV SYSTEM**

PROJECT NUMBER:	6019
DRAWING NUMBER:	503-6019-A200
PAPER SIZE:	ARCH D (36"X24")
SHEET NO:	

E-602



GENERAL NOTES:

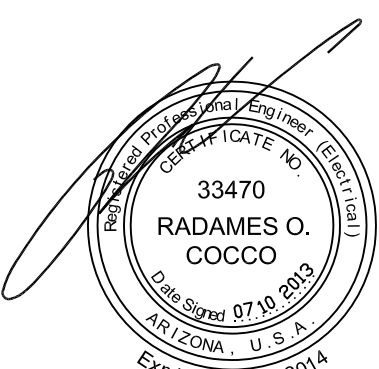
- REFER TO NEW WORK SITE PLAN AND RELATED PARTIAL PLANS FOR ADDITIONAL INFORMATION, EQUIPMENT LOCATIONS AND PROPOSED FEEDER ROUTING.
- ALL WORK ASSOCIATED WITH THE UNDERGROUND TRENCHING AND INSTALLATION SHALL BE COORDINATED AND SCHEDULED WITH THE OWNER'S REPRESENTATIVE.
- ALL SITE UNDERGROUND CONDUITS SHALL PASS ABOVE AND CLEAR OTHER SITE UTILITIES (STORM, SEWER, GAS, ETC.) BY 12" MINIMUM.
- THE AREAS AROUND THIS PROJECT HAVE MANY EXISTING BURIED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL UNDERGROUND SITE WORK AND PERFORMING A FULL SITE UTILITIES SURVEY AND EVALUATION PRIOR TO COMMENCING ANY DIGGING.

NOTE:

- SEE SHEET E-501 FOR SYSTEM GROUNDING DETAILS.

KEYED NOTES


- ALL WORK DOWNSTREAM OF POWERVAULT MV CONNECTION IS BY OTHERS. SEE DRAWING SET BY SUNWIZE FOR ADDITIONAL INFORMATION.
- ROUTE EQUIPMENT GROUNDING CONDUCTOR TO THE GROUNDING CONNECTION POINT ON THE POWERVAULT.
- GROUNDING ELECTRODE CONDUCTOR TO GROUND RING AROUND POWERVAULT. SEE DETAILS ON SHEET E-501.



Westlake Reed Leskosky

One East Camelback Road
Suite 690
Phoenix, Arizona 85012
www.WRLdesign.com

C. APS RECORD COMMENTS		ROC ROC 07/10/2013		
B	100% CD	ROC	ROC 01/12/2012	
A	UTILITY COMMENTS	ROC	ROC 12/09/2011	
REV	DESCRIPTION	BY	CHK	DATE


1155 Flatbush Rd., Kingston, NY 12401
Tel: 845-336-0146 Fax: 845-336-0457
WWW.SUNWIZE.COM
THIS DRAWING IS THE CONFIDENTIAL PROPERTY OF SUNWIZE TECHNOLOGIES

PROJECT NAME:
PHOENIX PHASE II

PROJECT / CUSTOMER INFORMATION:

CARL T. HAYDEN VA MEDICAL CENTER
650 E. INDIAN SCHOOL ROAD, PHOENIX, AZ 85102

SHEET TITLE:

**THREE-LINE DIAGRAM
3.9 MVA AC PV SYSTEM**

PROJECT NUMBER:	6019
DRAWING NUMBER:	503-6019-A200 REV:
PAPER SIZE:	ARCH D (36"X24")
SHEET NO:	E-603

