

GENERAL NOTES:

- CONSULT STANDARD SOLAR ENGINEERING BEFORE DEVIATING FROM THIS DRAWING PACKAGE.
- PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES NOTED AMONG SITE CONDITIONS, MANUFACTURER RECOMMENDATIONS, OR AUTHORITY HAVING JURISDICTION.
- ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE APPLICABLE STATE ELECTRICAL CODE, APPLICABLE STATE BUILDING CODE, BUILDING OR SITE MANAGEMENT AND ALL AUTHORITIES HAVING JURISDICTION AND APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK. ALL FURNISHED AND INSTALLED ELECTRICAL COMPONENTS AND MATERIALS SHALL BE LISTED FOR ITS PURPOSE. CONTRACTOR IS TO INFORM SSI OF ANY EXISTING WORK OR MATERIALS WHICH MAY VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED AT CONTRACTORS EXPENSE AND AT NO EXPENSE TO SSI.
- THE DRAWINGS AND SPECIFICATIONS INDICATE THE INTENT OF THE DESIGN AND SHALL BE CONSIDERED AS DIAGRAMMATIC ONLY. EXACT EQUIPMENT LOCATIONS AND INSTALLATION MEANS SHALL BE DETERMINED AT THE SITE, AS WORK PROGRESSES DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE. FINAL WORK SHALL BE DOCUMENTED ON AS-BUILT RECORD DRAWINGS.
- PRIOR TO SUBMISSION OF THE BID, THE CONTRACTOR SHALL VISIT THE JOB SITE TO ASCERTAIN THE ACTUAL FIELD CONDITIONS AS THEY RELATE TO THE WORK AS INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN. DISCREPANCIES, IF ANY, SHALL BE BROUGHT TO THE ATTENTION OF SSI PRIOR TO SUBMISSION OF THE BID AND IF NOT RESOLVED TO SATISFACTION, SHALL BE SUBMITTED AS A WRITTEN QUALIFICATION OF THE ABOVE BID. SUBMISSION OF A BID SHALL BE EVIDENCE THAT SITE VERIFICATION HAS BEEN PERFORMED AS DESCRIBED ABOVE.
- IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWINGS THAT HAS NOT BEEN ADDRESSED BEFORE THE BID, OR THE DOCUMENTS ARE UNCLEAR, THE MORE STRINGENT SITUATION SHALL APPLY.
- ANY EQUIPMENT, SUPPORTS, PARTS, MATERIALS, ACCESSORIES, OR LABOR THAT IS NECESSARY FOR PROPER PERFORMANCE OF THE ELECTRICAL WORK, ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED AND INSTALLED AS IF CALLED FOR IN DETAIL WITHOUT ADDITIONAL COST.
- 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.
- 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.
- 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.
- FOR ROOF MOUNTED SYSTEMS, SOLAR ARRAY CONSTRUCTION TO MAINTAIN ADEQUATE CLEARANCE FROM EXISTING ROOF EQUIPMENT TO ALLOW FOR MAINTENANCE.
- ROOF IS TO BE LOADED IN A MANNER PRESCRIBED BY THE STRUCTURAL ENGINEER SO AS NOT TO OVERLOAD ANY PARTICULAR POINT ON THE ROOF.
- THIS SYSTEM IS INTENDED TO CONNECT TO THE EXISTING FACILITY POWER SYSTEM AT TWO POINTS, TWO POINTS OF COMMON COUPLING (POCC). THIS CONNECTION SHALL BE IN COMPLIANCE WITH THE NEC ARTICLE 690.64 "POINT OF CONNECTION".
- DO NOT SCALE DRAWINGS. ALL DIMENSIONS AND LAYOUT SHALL BE FIELD VERIFIED. REPORT ANY DIMENSIONAL CONFLICTS IMMEDIATELY TO SSI.

SCOPE OF WORK:

- THE PROJECT SCOPE INCLUDES THE INSTALLATION OF A 217.1KW DC RATED GRID-TIED PHOTOVOLTAIC SYSTEM AT HOWARD COUNTY - LPWRP.
- THE INSTALLATION CONSISTS OF TWO ROOFTOP SOLAR ARRAYS, TWO CARPORTS, AND TEN INVERTERS AND RELATED ELECTRICAL METERING AND SAFETY EQUIPMENT. ALL EQUIPMENT WILL BE INSTALLED AS REQUIRED BY APPLICABLE CODES AND THE LOCAL UTILITY COMPANY.
- DURING DAYLIGHT HOURS, THIS PV SYSTEM (SOLAR ELECTRIC) WILL PROVIDE ELECTRICITY IN PARALLEL WITH THE LOCAL UTILITY SERVICE PROVIDER.

WIRING, EQUIPMENT AND INSTALLATION METHODS:

- EXPOSED PV SOLAR PANEL WIRING WILL BE PV-WIRE, 90 DEGREE C, WET RATED AND UV RESISTANT. ALL EXPOSED CABLES, SUCH AS MODULE LEADS SHALL BE SECURED WITH MECHANICAL OR OTHER SUNLIGHT RESISTANT MEANS.
- FOR GROUNDED MONO-POLAR SYSTEMS, GROUNDED CONDUCTORS ARE WHITE. FOR UNGROUNDED MONO-POLAR SYSTEMS, POSITIVE CONDUCTORS ARE RED, NEGATIVE CONDUCTORS ARE BLACK. FOR BI-POLAR SYSTEMS, POSITIVE/HOT CONDUCTORS ARE RED, NEGATIVE/HOT CONDUCTORS ARE BLACK AND NEUTRAL (GROUNDED) CONDUCTORS ARE WHITE. REGARDLESS OF SYSTEM TYPE EQUIPMENT GROUNDING CONDUCTORS ARE GREEN OR BARE (NEC 200.6).
- ALL FIELD WIRING LARGER THAN 6 AWG THAT IS NOT COLOR CODED SHALL BE TAGGED AT BOTH ENDS WITH PERMANENT WIRE MARKERS TO IDENTIFY POLARITY AND GROUND.
- ALL LV (600V AND LESS) AC AND DC WIRING SHALL BE COPPER WIRE, TYPE THHN/THWN-2 RATED AT 90 DEGREES C, AND RATED FOR AT LEAST 600V UNLESS NOTED OTHERWISE.
- ALL DC MATERIALS SHALL BE LISTED FOR A MINIMUM OF 600V DC.
- ALL OUTDOOR EQUIPMENT SHALL MEET APPROPRIATE NEMA STANDARDS.
- ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL OR GALVANIZED FOR PROTECTION FROM ENVIRONMENTAL ELEMENTS.
- SPLIT BOLTS/SPLICES/CONNECTORS SHALL BE INSULATED WITH APPROVED MEANS. ELECTRICAL TAPE ALONE IS NOT SUITABLE AS THE ONLY INSULATION MEANS. FOLLOW MANUFACTURERS INSTRUCTIONS FOR APPLICATION OF INSULATING PRODUCT. ALL ENCLOSURES SHALL HAVE TOUCH UP PAINT APPLIED TO ALL SCRATCHES AND OTHER WEAR AND TEAR THAT MAY HAVE OCCURRED DURING CONSTRUCTION.

10. ALL HARDWARE AND CONNECTORS SHALL BE TORQUED PER DEVICE LISTING OR MANUFACTURERS RECOMMENDATIONS.

11. FURNISH AND INSTALL ALL STEEL SUPPORTING MEMBERS, HANGERS, BRACKETS OR OTHER SPECIAL DETAILS REQUIRED AND NECESSARY FOR THE PROPER INSTALLATION OF ELECTRICAL EQUIPMENT.

12. WHEN ALL WORK UNDER THIS CONTRACT HAS BEEN COMPLETED AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN AND IS READY FOR FINAL INSPECTION, SUCH AN INSPECTION SHALL BE MADE AT THIS TIME, THE CONTRACTOR SHALL DEMONSTRATE THAT THE REQUIREMENTS OF THESE SPECIFICATION HAVE BEEN MET TO THE SATISFACTION OF SSI.

13. ALL WIRE SHOULD BE SECURED IN A MANNER THAT ENSURES PROTECTION AGAINST ABRASION, SHARP EDGES AND POTENTIAL INSULATION DAMAGING ELEMENTS.

14. AFTER FINAL TORQUE CHECK, CONTRACTOR SHALL PROVIDE TORQUE MARKS.

CONDUIT AND RACEWAY:

- ALL WIRES SHALL BE RUN IN CONDUIT AS SPECIFIED HEREINAFTER, AND EACH LENGTH OF CONDUIT SHALL BEAR THE MARKER'S TRADEMARK OR STAMP. THE PLANS INDICATE GENERAL ROUTING. THE CONDUIT RUNS FOR THESE CIRCUITS MAY BE MODIFIED AT THE TIME OF INSTALLATION TO ADAPT SAME TO BUILDING CONSTRUCTION WITH APPROVAL FROM SSI.
- CONDUIT SHALL BE SECURELY FASTENED IN PLACE AND HANGERS, SUPPORTS OR FASTENING SHALL BE PROVIDED AT EACH ELBOW AND AT EACH END OF EACH STRAIGHT RUN TERMINATED AT EQUIPMENT. WHERE RISER CONDUITS PIERCE FLOOR SLABS, THEY SHALL REST ON EACH FLOOR WITH APPROVED BEAM CLAMPS, PIPE STRAPS OR HEAVY IRON TIES WIRED TO THE STRUCTURAL MEMBERS SUPPORTING EQUIPMENT. SIZE AND TYPE OF ANCHOR SHALL BE BASED ON THE COMBINED WEIGHTS OF CONDUIT, HANGER AND WIRE.
- INSTALL CONDUIT EXPANSION FITTINGS IN EACH CONDUIT RUN WHEREVER IT CROSSES AN EXPANSION JOINT AND SHALL HAVE EXPANSION DEFLECTION TYPE FITTINGS AND WHEREVER THE CONDUIT LENGTH EXCEEDS AS ALLOWED IN NEC 342-354.
- LAY OUT AND INSTALL ALL CONDUIT RUNS TO AVOID PROXIMITY TO STEAM AND HOT WATER PIPES. DO NOT RUN CONDUIT WITHIN THREE INCHES OF SUCH PIPES EXCEPT WHERE CROSSINGS ARE UNAVOIDABLE, THEN THE CONDUIT SHALL BE KEPT AT LEAST 1 INCH FROM THE COVERING OF THE PIPE CROSSING.
- ALL CONDUITS WILL ENTER ENCLOSURES FROM BELOW OR THE SIDE. ENTRY FROM THE SIDE IS ONLY PERMITTED IF THE ENCLOSURE IS DESIGNED IN SUCH A WAY AS TO PERMIT WATERTIGHT SIDE ENTRY.
- USE ONLY LISTED RAIN-TIGHT FITTINGS AND MYERS CONDUIT HUBS, OR EQUAL APPROVED BY SSI, FOR ALL EXTERIOR CONDUIT.
- FURNISH GROUNDING/BONDING BUSHINGS ONTO ALL CONDUIT ENTERING/LEAVING BOXES.
- PIPING, CONDUITS AND EQUIPMENT OF ALL TRADES SHALL BE PROPERLY COORDINATED AND SET TO MAINTAIN THE PROPER CLEARANCES REQUIRED BY APPLICABLE FEDERAL, STATE AND LOCAL CODES.
- FOR CARPORT SYSTEMS, THE FIRST 3-5 INCHES OF CONDUIT ENTERING COMBINERS AND OTHER ENCLOSURES SHALL BE FILLED WITH A SILICONE SEALING COMPOUND OR EQUIVALENT TO STOP INTRUSION INTO THE ENCLOSURE BY INSECTS, RODENTS, GECKOS AND OTHER LIVING THINGS.
- UNLESS MARKED AS UV RESISTANT, PVC IS NOT APPROVED FOR INSTALLATION IN LOCATIONS SUBJECTED TO DIRECT SUNLIGHT AND SHALL NOT BE EMPLOYED IN ANY SUCH LOCATION.
- ZINC AND DIECAST CONDUIT FITTINGS ARE NOT PERMITTED UNLESS SPECIFICALLY APPROVED IN WRITING BY SSI.
- ALL CONDUIT ENTERING COMBINERS, INVERTERS OR OTHER ENCLOSURES WHICH DO NOT UTILIZE WEATHERPROOF CORD GRIPS WILL HAVE THE INSIDE OF THE CONDUIT SEALED FROM THE INSIDE OF THE ENCLOSURE WITH A SILICONE OR SIMILAR EXPANDING GAP-FILLER COMPOUND.
- ALL CONDUIT FITTINGS AND CONNECTORS SHALL BE OF THE SAME MANUFACTURER AND BE SIMILAR IN STYLE AND DESIGN.
- ALL CONDUIT TRANSITIONS FROM BELOW GRADE TO ABOVE GRADE SHALL BE RIGID GALVANIZED CONDUIT STARTING AT THE BEGINNING OF THE 90° SWEEP.

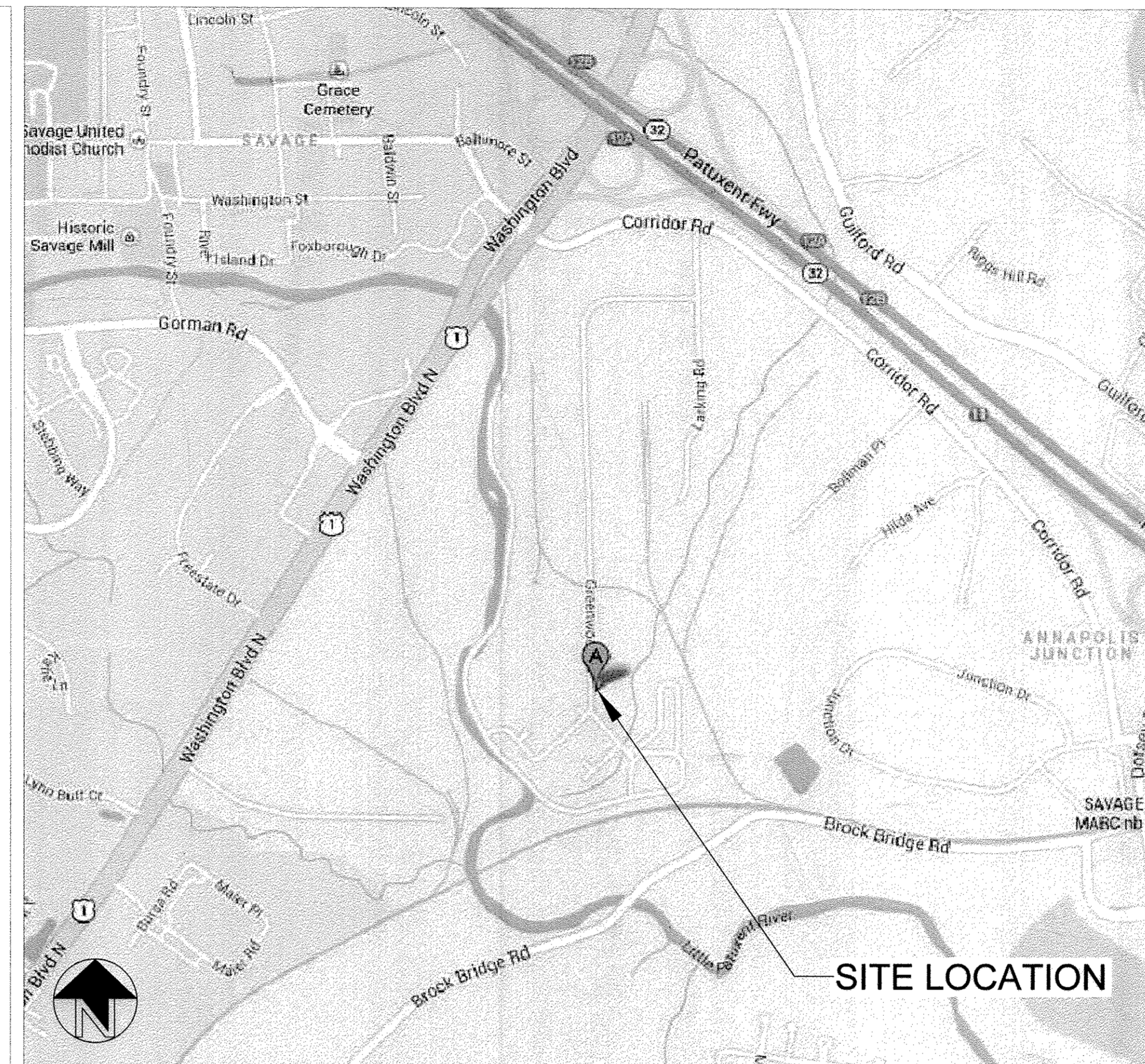
GROUNDING:

- ONLY ONE CONNECTION TO DC CIRCUITS AND ONE CONNECTION TO AC CIRCUITS WILL BE USED FOR SYSTEM GROUNDING (NEC 690.42) (REFERENCED TO THE SAME POINT).
- EQUIPMENT GROUNDING CONDUCTORS AND SYSTEM GROUNDING CONDUCTORS WILL HAVE AS SHORT A DISTANCE TO GROUND AS POSSIBLE AND A MINIMUM NUMBER OF TURNS.
- NON-CURRENT CARRYING METAL PARTS SHALL BE CHECKED FOR PROPER GROUNDING; NOTING THAT TERMINAL LUGS BOLTED ON AN ENCLOSURE'S FINISHED SURFACE MAY BE INSULATED BECAUSE OF PAINT/FINISH. PAINT/FINISH AT POINT OF CONTACT SHALL BE PROPERLY REMOVED.
- THE CONNECTION TO THE MODULE OR PANEL OF THE PROPOSED SOLAR ELECTRIC SYSTEM SHALL BE SO ARRANGED THAT REMOVAL OF A MODULE OR A PANEL FROM THE PHOTOVOLTAIC SOURCE CIRCUIT DOES NOT INTERRUPT A GROUNDED CONDUCTOR TO ANOTHER PHOTOVOLTAIC SOURCE CIRCUIT.

UTILITY INFORMATION:

UTILITY: BALTIMORE GAS AND ELECTRIC - BGE
ACCOUNT#: 4448270000

TELEPHONE: VERIZON
(410) 803-5425



FOR OFFICIAL USE ONLY:

SYSTEM DESCRIPTION

DESIGN WIND SPEED:	105 MPH	HIGH TEMP:	36° C,
EXPOSURE CATEGORY:	B	LOW TEMP:	-15° C
MODULE TYPE:	SUNIVA 295 (295W DC STC)		
QUANTITY:	736 MODULES (56 STRINGS OF 10, 8 STRINGS OF 9, 7 STRINGS OF 9, AND 7 STRINGS OF 7)		
SYSTEM SIZE (DC):	DISINFECTION BUILDING: 42.5 KW ADMINISTRATION BUILDING: 47.2 KW CARPORT: 127.4 KW TOTAL: 217.1 KW		
BUILDING HEIGHT:	HIGHEST: 20ft, LOWEST: 15ft		
MOUNTING SYSTEM:	PANEL CLAW GRIZZLY BEAR AND BAJA CARPORT		
TILT ANGLE:	ROOF: 13°, CARPORT: 7°		
ARRAY AZIMUTH:	180°		
MONITORING SYSTEM:	LOCUS ENERGY LGATE 101E		
INVERTER(S):	SMA SUNNY TRIPOWER: [1] 12000TL-US (12kW), [2] 15000TL-US (15kW), AND [7] 20000TL-US (20kW) INVERTERS.		

DRAWING INDEX:

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- A2 - ROOFTOP RACK DETAILS
- A3 - CARPORT ELEVATIONS
- A4 - BUILDING ELEVATIONS
- E1 - OVERALL ELECTRICAL PLAN
- E1.1 - DISINFECTION BLDG. ELECTRICAL DETAIL PLAN
- E1.2 - CARPORT ELECTRICAL DETAIL PLAN
- E1.3 - ADMIN. BLDG. ELECTRICAL DETAIL PLAN
- E2 - ELECTRICAL BLOCK DIAGRAM
- E3 - ELECTRICAL 3-LINE DIAGRAM
- E4 - ELECTRICAL EQUIPMENT ELEVATIONS
- E4.1 - ELECTRICAL EQUIPMENT ELEVATION - VAULT
- E5 - ROOFTOP RACK WIRE MANAGEMENT DETAILS
- E6 - LIGHTING & TRENCH DETAILS
- E7 - CARPORT INVERTER & J-BOX ELEVATIONS
- E7.1 - CARPORT ARRAY GROUNDING DETAILS
- E8 - EV CHARGING STATION ELEVATIONS & DETAILS
- E9 - MONITORING SYSTEM DIAGRAM & DETAILS
- E10 - LABELS AND MARKINGS
- S1 - CARPORT FRAMING AND FOUNDATION PLAN (BAJA CONSTRUCTION CO.)
- S2 - CARPORT STRUCTURAL DETAILS (BAJA CONSTRUCTION CO.)
- S3 - DISINFECTION BLDG. STRUCTURAL PLAN
- S4 - CARPORT STRUCTURAL PLAN
- S5 - ADMIN. BLDG. STRUCTURAL PLAN

PROJECT TEAM:

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(443) 571-6118

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(301) 944-1200

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FMC & Associates, LLC
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(202) 863-0911

STRUCTURAL ENGINEER (CARPORTS):
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ELECTRICAL ENGINEER:
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502 McCormick Drive, Suite M
Glen Burnie, MD 21061
(410) 761-9600

SIGNATURE BLOCK:

	SIGNATURE	DATE
PROJECT MANAGER		
SITE SUPERINTENDENT		
ENGINEERING MANAGER		
PROJECT ENGINEER		

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ESG
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CERTIFICATION

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PROJECT TITLE
Howard County - Little Patuxent WRP

PROJECT ADDRESS
8900 Greenwood Pl.
Savage, MD 20763

SHEET TITLE
TITLE PAGE

REVISIONS

- 12.2.13 EXPANSION ANCHORS, CARPORT GROUNDING
- 7.7.14 REVISED FOR AS-BUILTS

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PROJECT NUMBER
13-C005

DRAWN BY
RCE

APPROVED BY
CJC

DATE
7.07.2014

ORIGINAL SHEET SIZE
36X24
SHOULD MEASURE 1"

SCALE
NTS

DRAWING
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] 2/3/15
Chief, Bureau of Engineering: [Signature] 1/30/15
Chief, Bureau of Utilities: [Signature] 1/27/15
Chief, Utility Design Division: [Signature]

Howard County - Little Patuxent WRP AS-BUILT DRAWINGS PHOTOVOLTAIC SYSTEM

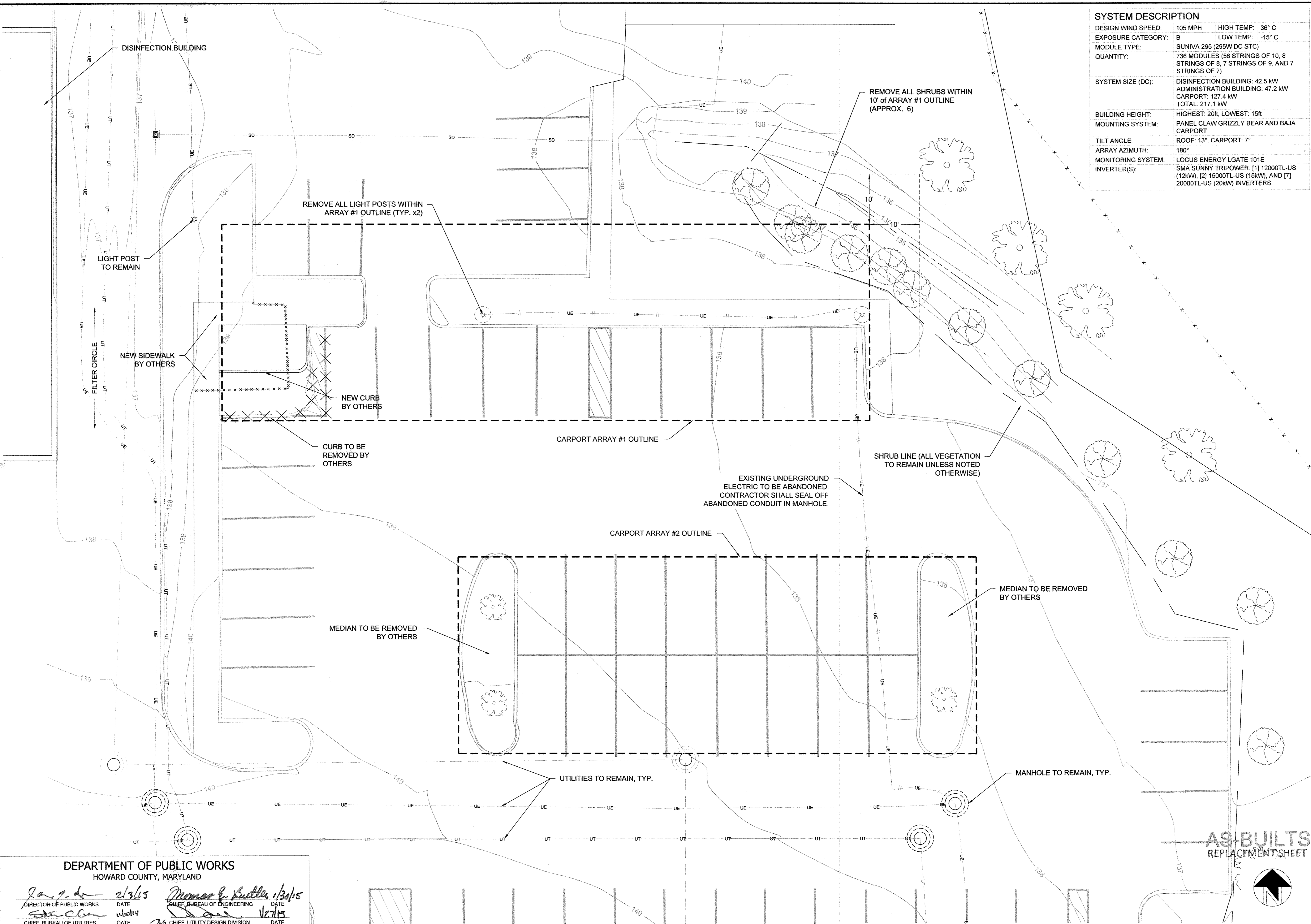
LITTLE PATUXENT WATER RECLAMATION PLANT
PHOTOVOLTAIC SYSTEM

CAPITAL PROJECT S-6264
CONTRACT NO. 20-4833

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

AS-BUILTS
REPLACEMENT SHEET



SYSTEM DESCRIPTION		
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PROJECT TITLE: Howard County - Little Patuxent WRP
PROJECT ADDRESS: 8900 Greenwood Pl., Savage, MD 20763
SHEET TITLE: SITE DEMOLITION PLAN

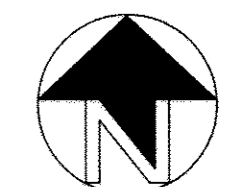
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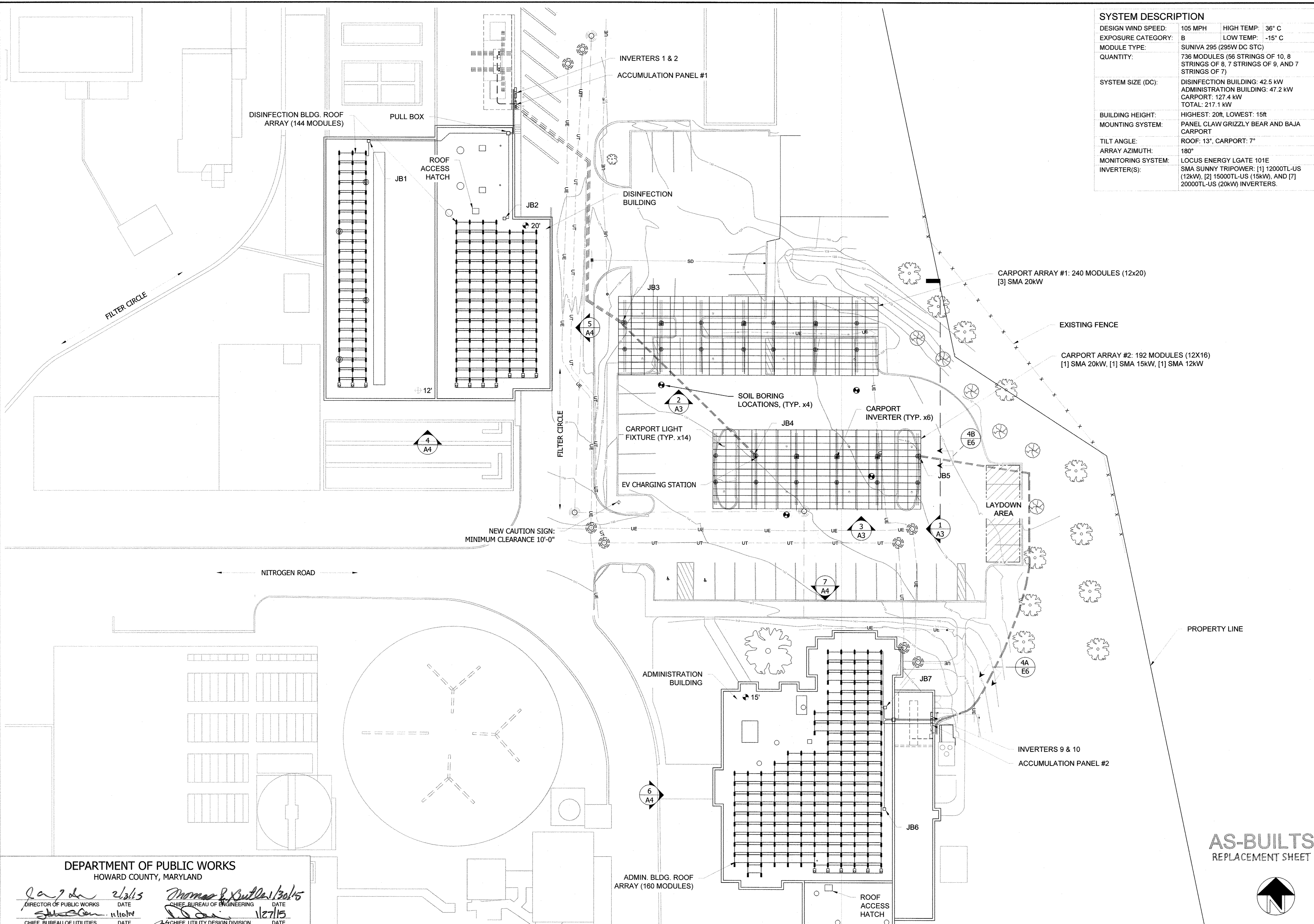
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APPROVED BY: CJC
DATE: 7.07.2014
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SCALE: 1/8" = 1'-0"

DRAWING: D1

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2/3/15
DATE
1/30/15
DATE
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DATE

AS-BUILTS
REPLACEMENT SHEET





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PROJECT TITLE: Howard County - Little Patuxent WRP
PROJECT ADDRESS: 8900 Greenwood Pl, Savage, MD 20763
SHEET TITLE: OVERALL SITE PLAN

REVISIONS

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APPROVED BY: CJC
DATE: 7.07.2014
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HOWARD COUNTY, MARYLAND

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DIRECTOR OF PUBLIC WORKS DATE

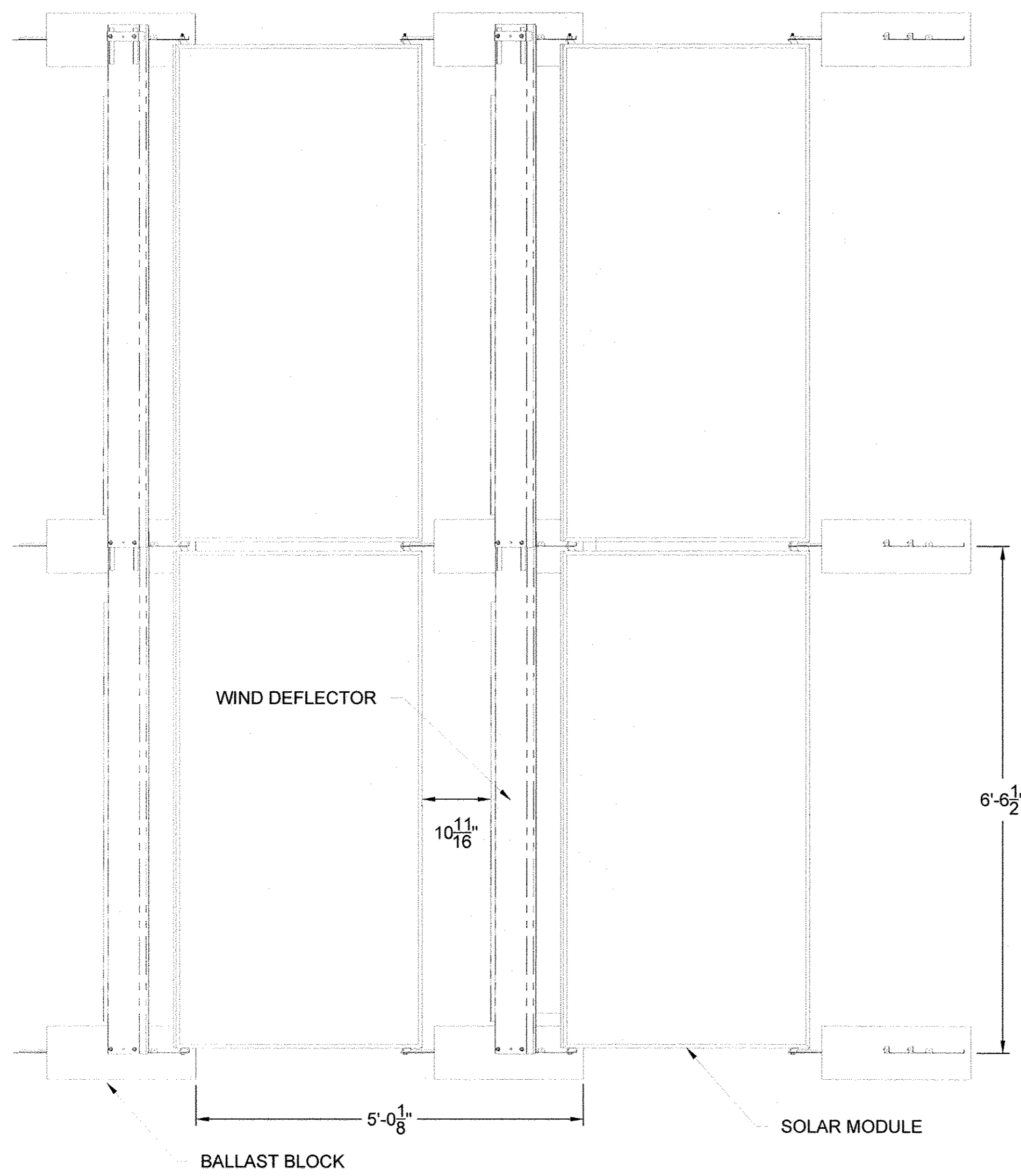
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CHIEF, BUREAU OF ENGINEERING DATE

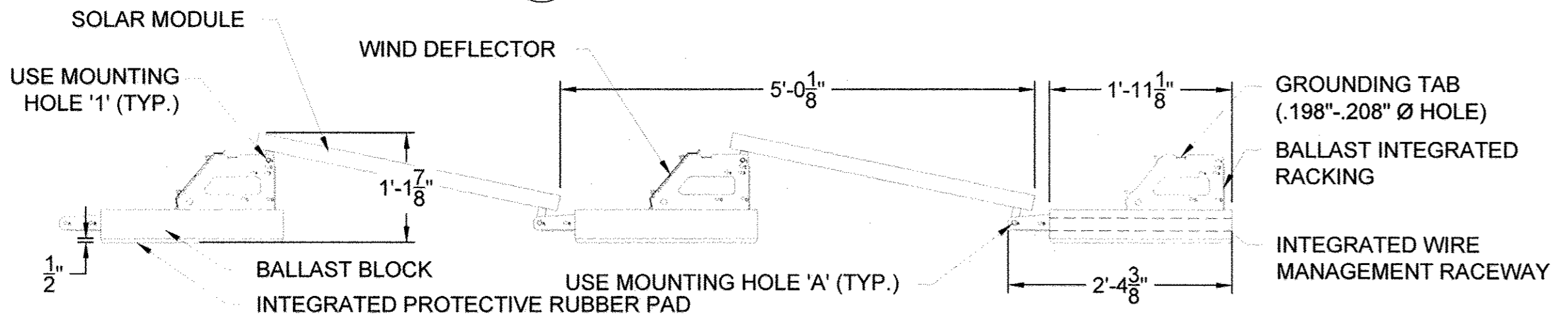
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REPLACEMENT SHEET

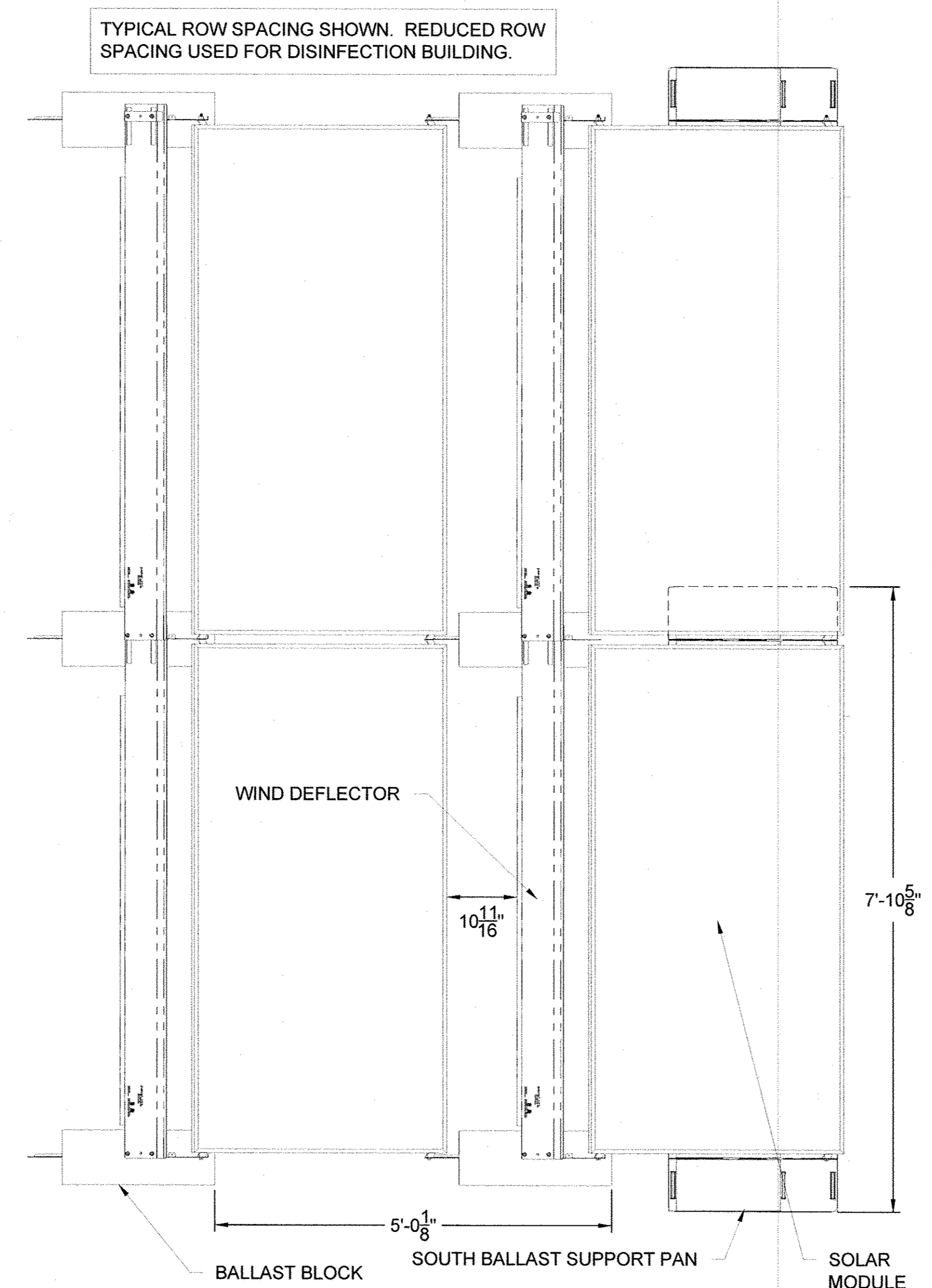




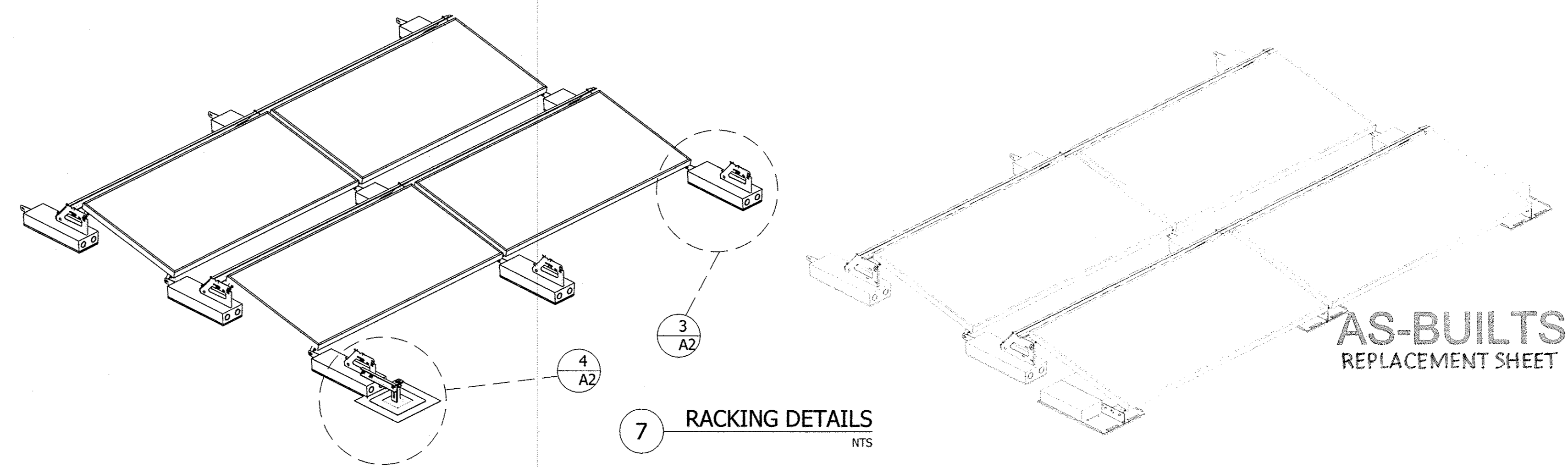
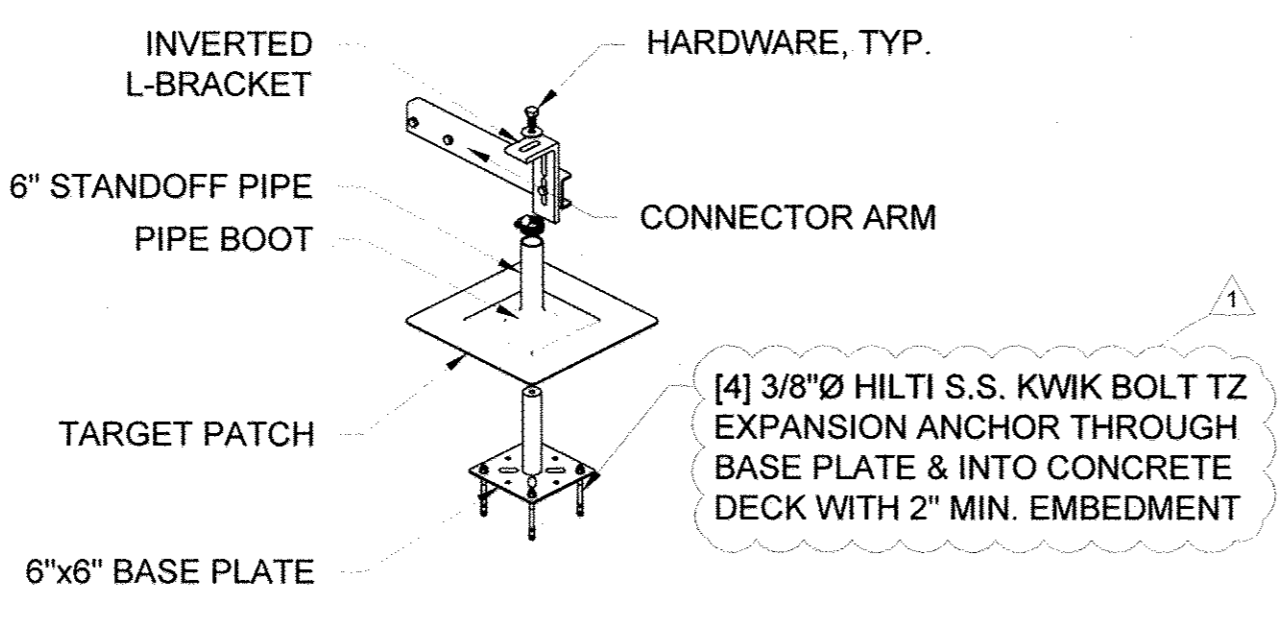
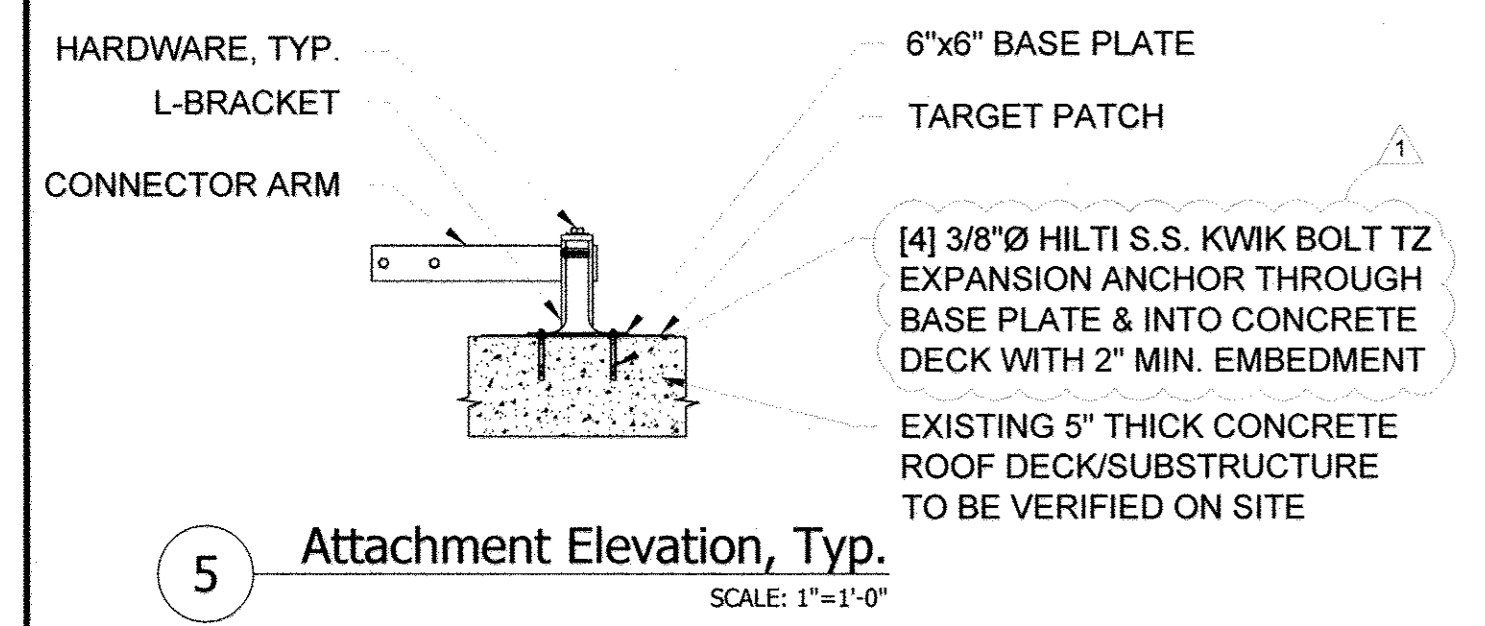
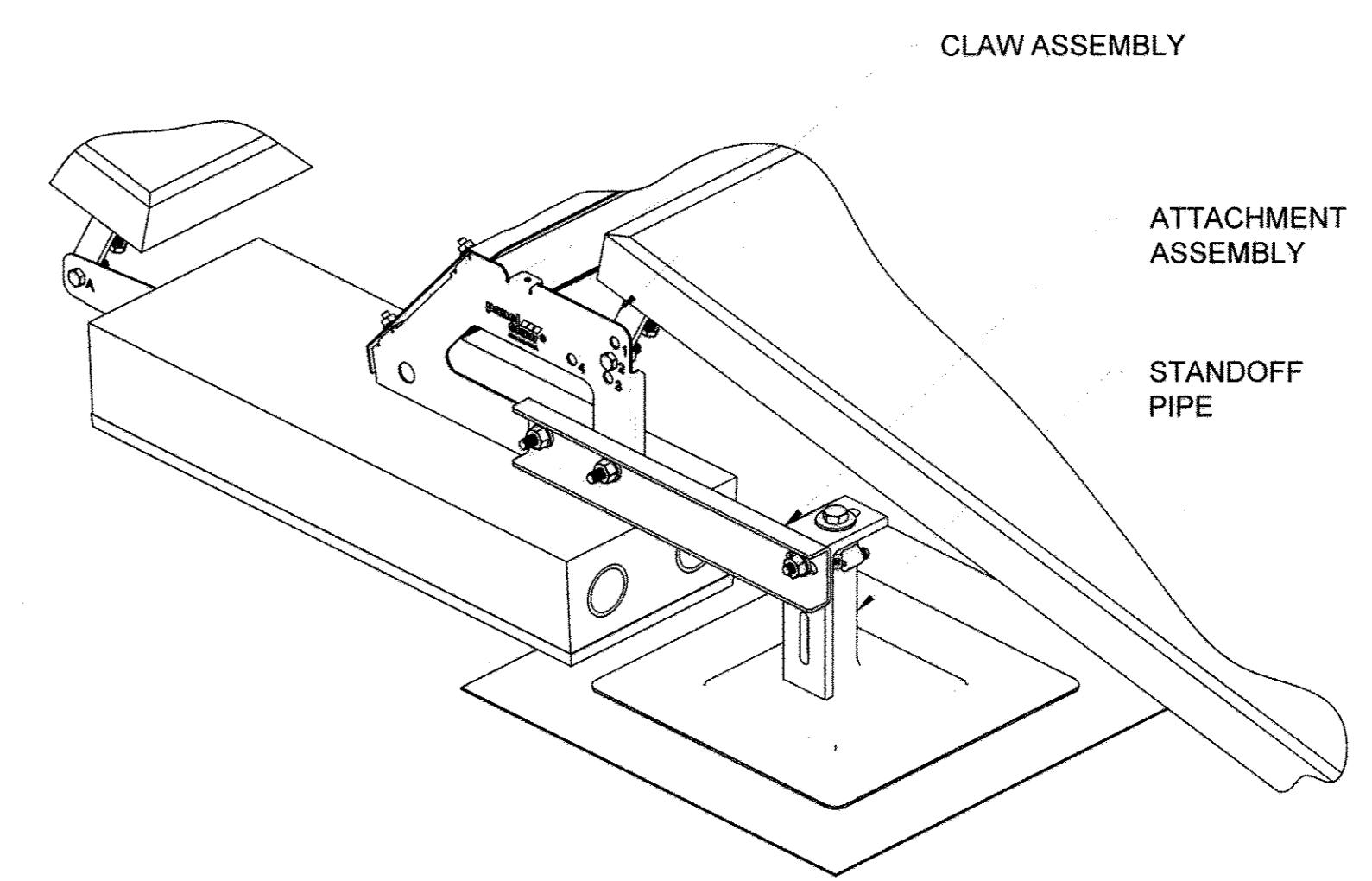
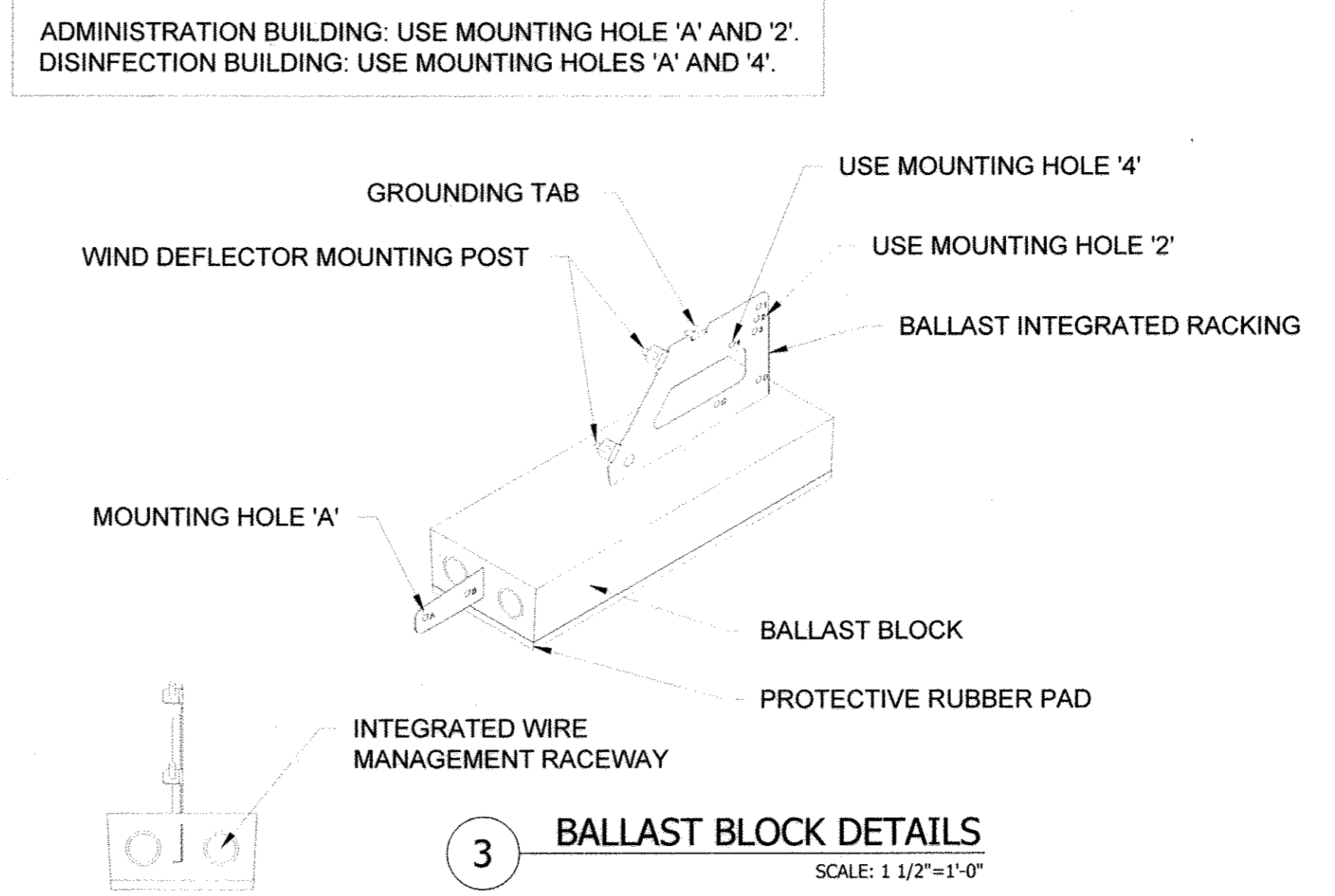
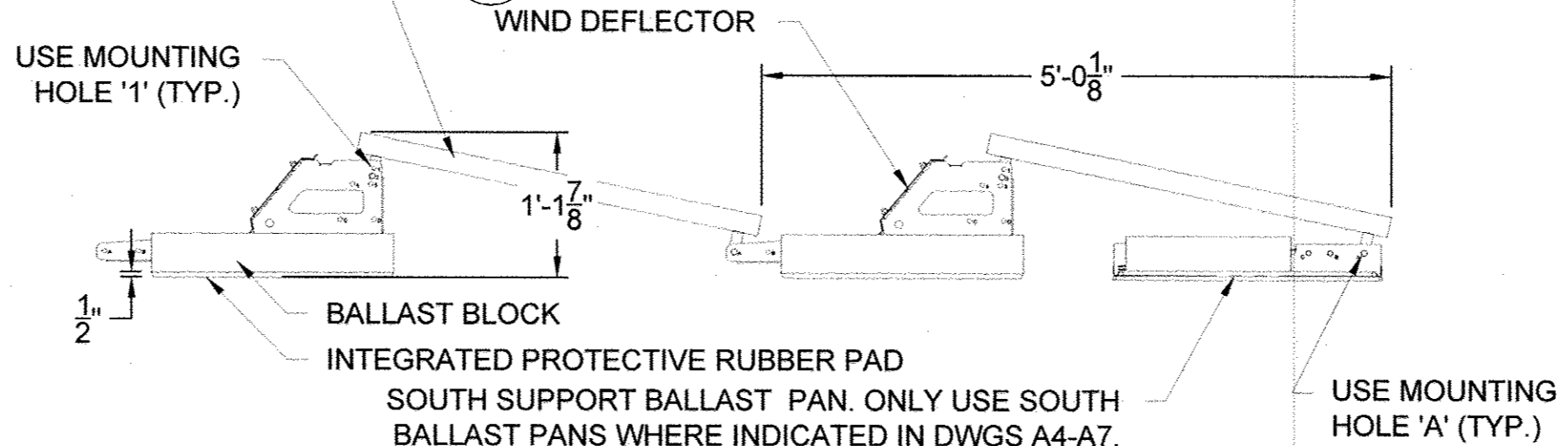
1 Typical Racking Details
SCALE: 3/4" = 1'-0"



TYPICAL ROW SPACING SHOWN. REDUCED ROW SPACING USED FOR DISINFECTON BUILDING.



2 South Support Racking Details
SCALE: 3/4" = 1'-0"



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] 2/3/15
 Chief, Bureau of Engineering: [Signature] 1/30/15
 Chief, Bureau of Utilities: [Signature] 1/16/15
 Chief, Utility Design Division: [Signature]

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PROJECT TITLE: Howard County - Little Patuxent WRP
 PROJECT ADDRESS: 8900 Greenwood Pl., Savage, MD 20763
 SHEET TITLE: RACKING DETAILS

REVISIONS
 1 12.2.13 ADDED EXPANSION ANCHOR DETAILS

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PROJECT NUMBER: 13-C005
 DRAWN BY: RCE
 APPROVED BY: CJC
 DATE: 7.07.2014
 ORIGINAL SHEET SIZE: 36x24
 SHOULD MEASURE 1": [Scale bar]
 SCALE: AS NOTED
 DRAWING: A2

REVISIONS

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PROJECT NUMBER

13-C005

DRAWN BY

RCE

APPROVED BY

CJC

DATE

7.07.2014

ORIGINAL SHEET SIZE

36X24 SHOULD MEASURE 1"

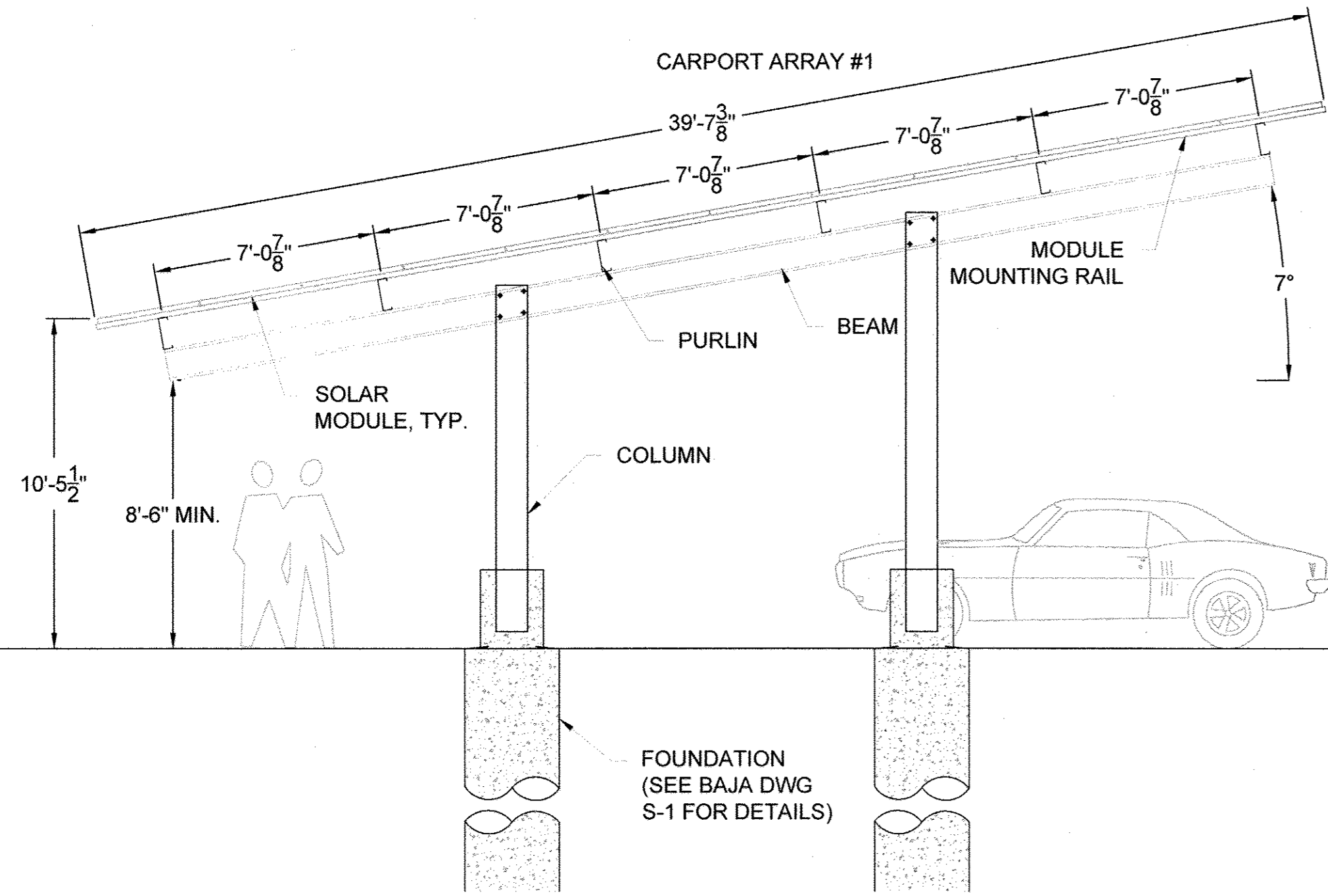
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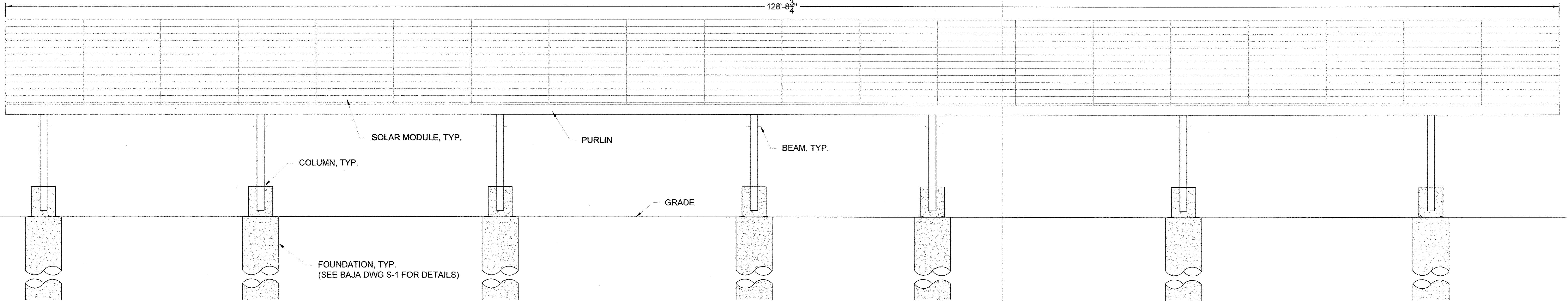
DRAWING

A3

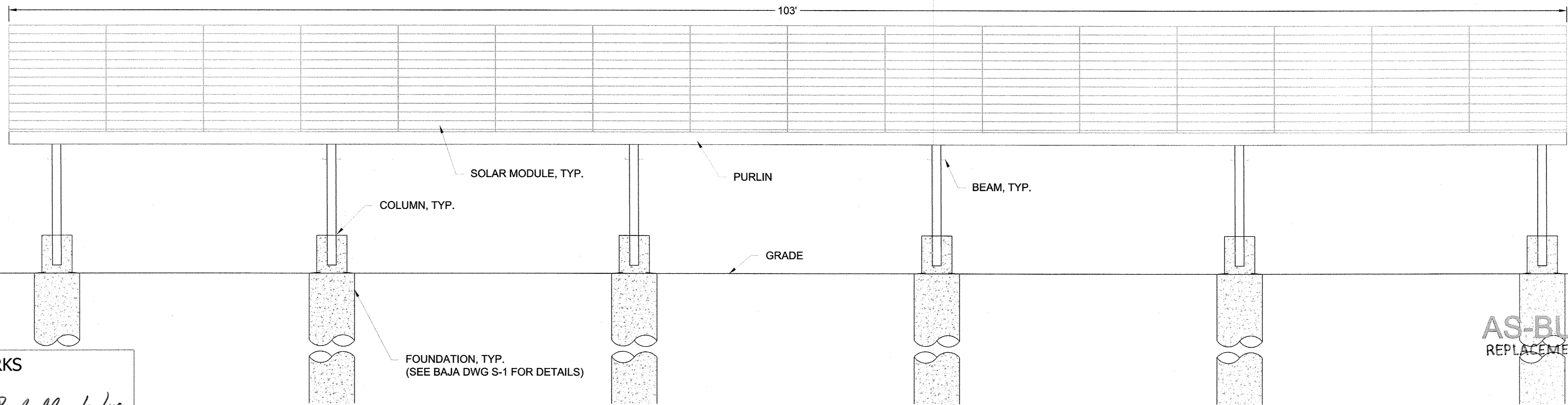
DISINFECTION BUILDING



1 WEST ELEVATION
1/4"=1'-0"



2 CARPORT ARRAY #1 FRONT ELEVATION
1/4"=1'-0"

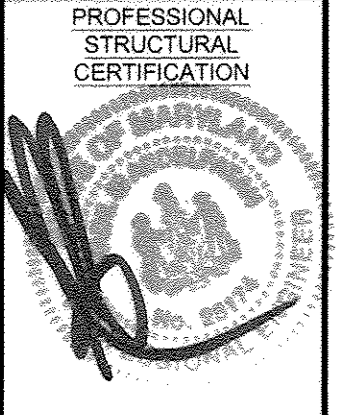


3 CARPORT ARRAY #2 FRONT ELEVATION
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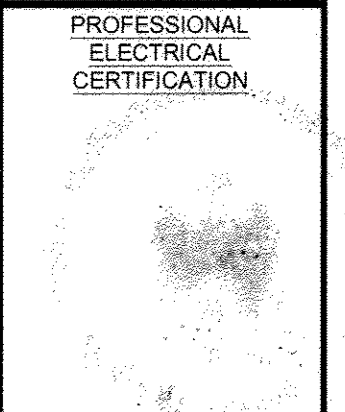
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Greg De...* 2/3/15
Chief, Bureau of Engineering: *Thomas R. Buttle* 1/30/15
Chief, Bureau of Utilities: *...* 1/27/15
Chief, Utility Design Division: *...* 1/27/15

AS-BUILTS
REPLACEMENT SHEET



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PROJECT TITLE
 HOWARD COUNTY - Little Patuxent WRP
 PROJECT ADDRESS
 8900 Greenwood Pl.
 Savage, MD 20763
 SHEET TITLE
BUILDING ELEVATIONS

REVISIONS

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PROJECT NUMBER
13-C005

DRAWN BY
CAS

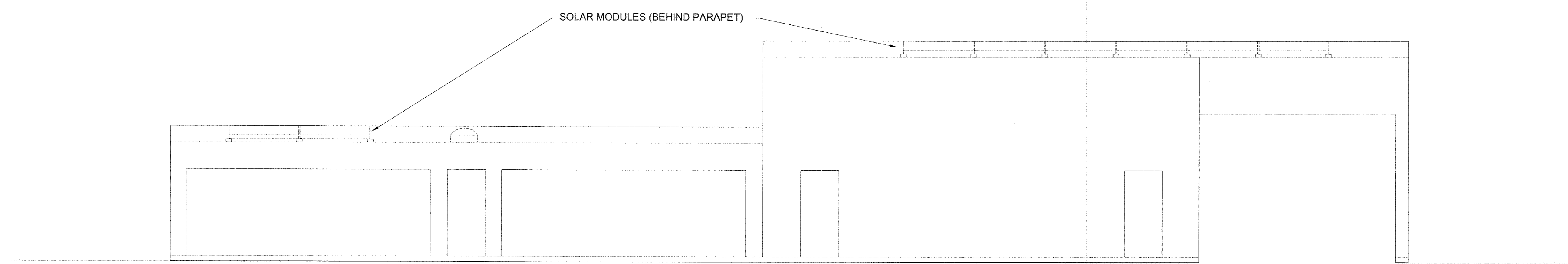
APPROVED BY
CJC

DATE
10.01.2013

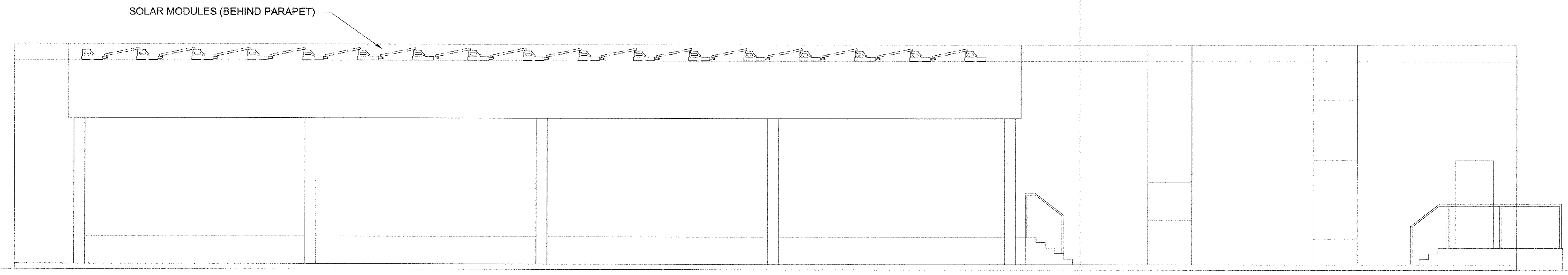
ORIGINAL SHEET SIZE
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 SHOULD MEASURE 1":

SCALE
AS NOTED

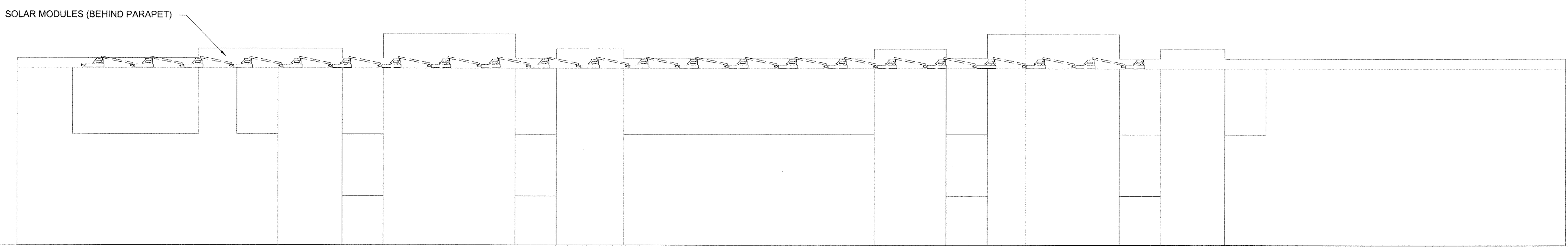
DRAWING
A4



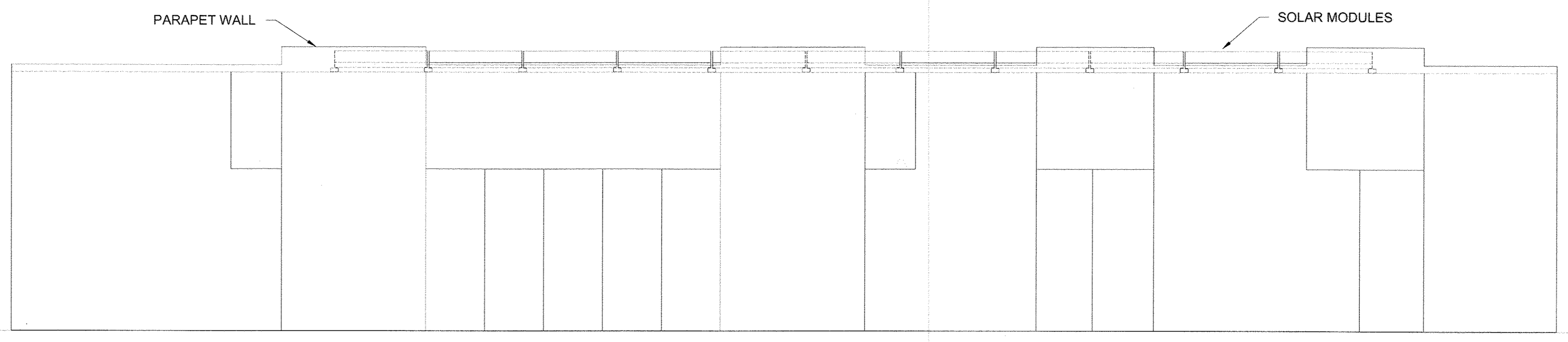
4 DISINFECTION BLDG. SOUTH ELEVATION
 3/16"=1'-0"



5 DISINFECTION BLDG. EAST ELEVATION
 3/16"=1'-0"



6 ADMIN. BLDG. WEST ELEVATION
 3/16"=1'-0"

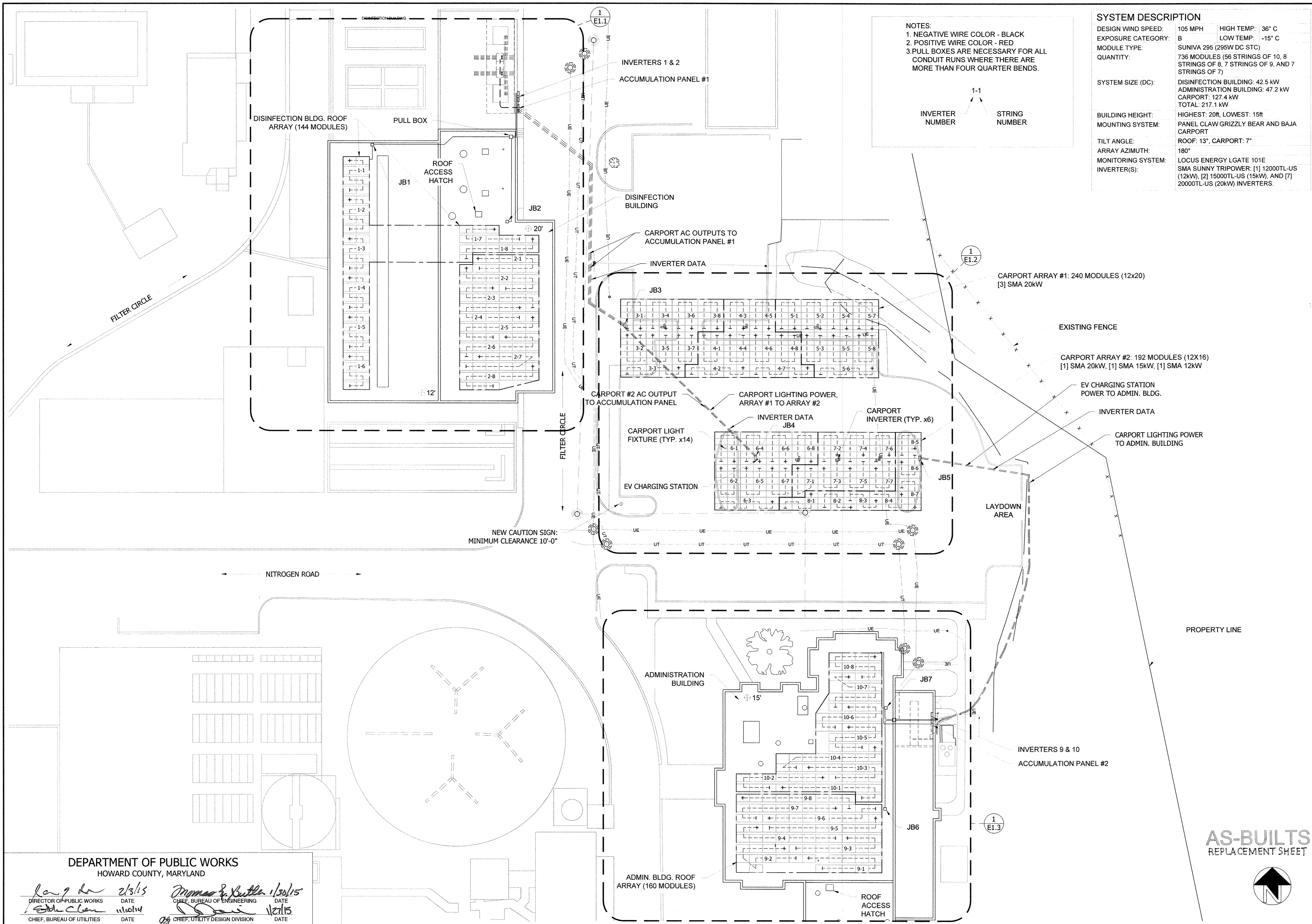


7 ADMIN. BLDG. NORTH ELEVATION
 3/16"=1'-0"

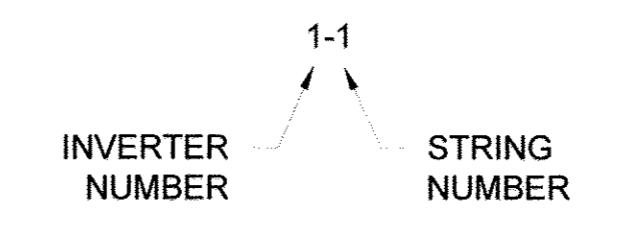
AS-BUILTS

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

	10/25/13		10/25/13
DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE
	10/25/13		10/25/13
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION	DATE



NOTES:
 1. NEGATIVE WIRE COLOR - BLACK
 2. POSITIVE WIRE COLOR - RED
 3. PULL BOXES ARE NECESSARY FOR ALL CONDUIT RUNS WHERE THERE ARE MORE THAN FOUR QUARTER BENDS.



SYSTEM DESCRIPTION

DESIGN WIND SPEED:	105 MPH	HIGH TEMP:	36° C
EXPOSURE CATEGORY:	B	LOW TEMP:	-15° C
MODULE TYPE:	SUNIVA 295 (295W DC STC)		
QUANTITY:	736 MODULES (56 STRINGS OF 10, 8 STRINGS OF 8, 7 STRINGS OF 9, AND 7 STRINGS OF 7)		
SYSTEM SIZE (DC):	DISINFECTION BUILDING: 42.5 kW ADMINISTRATION BUILDING: 47.2 kW CARPORT: 127.4 kW TOTAL: 217.1 kW		
BUILDING HEIGHT:	HIGHEST: 20ft. LOWEST: 15R		
MOUNTING SYSTEM:	PANEL CLAW GRIZZLY BEAR AND BAJA CARPORT		
TILT ANGLE:	ROOF: 13°, CARPORT: 7°		
ARRAY AZIMUTH:	180°		
MONITORING SYSTEM:	LOCUS ENERGY LGATE 101E		
INVERTER(S):	SMA SUNNY TRIPOWER: [1] 12000TL-US (12kW), [2] 15000TL-US (15kW), AND [7] 20000TL-US (20kW) INVERTERS.		

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PROJECT TITLE
 Howard County - Little Patuxent WRP

PROJECT ADDRESS
 8900 Greenwood Pl.
 Savage, MD 20763

SHEET TITLE
 OVERALL ELECTRICAL PLAN

REVISIONS

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PROJECT NUMBER
 13-C005

DRAWN BY
 RCE

APPROVED BY
 CJC

DATE
 7.07.2014

ORIGINAL SHEET SIZE
 36X24
 SHOULD MEASURE 1":

SCALE
 1" = 20'- 0"

DRAWING
 E1

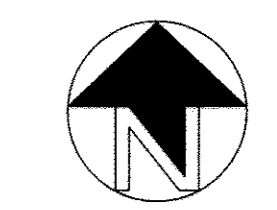
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

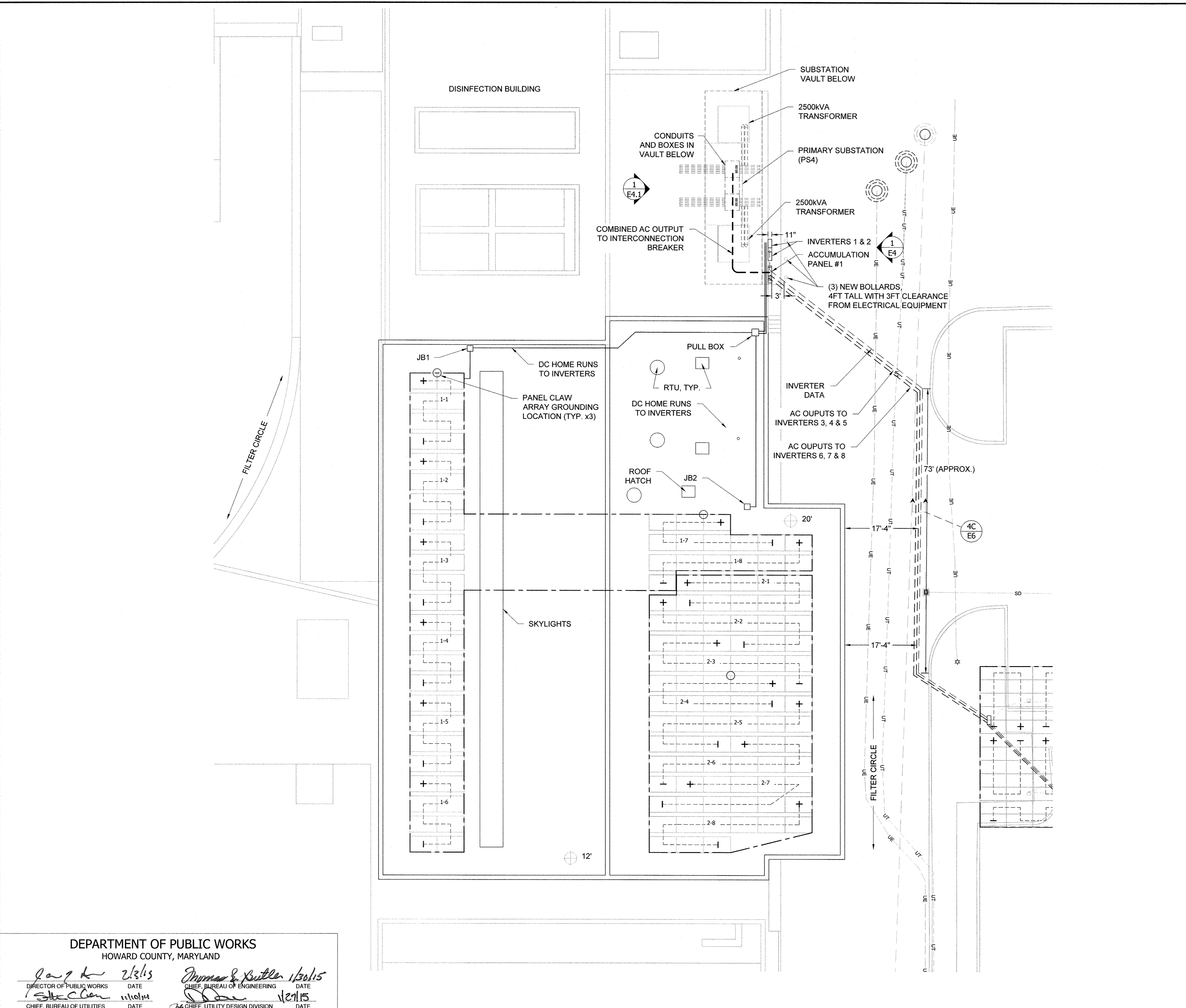
Roger D. ... 2/3/15
 DIRECTOR OF PUBLIC WORKS DATE

Thomas S. Butler 1/30/15
 CHIEF, BUREAU OF ENGINEERING DATE

... 1/2/15
 CHIEF, UTILITY DESIGN DIVISION DATE

AS-BUILTS
 REPLACEMENT SHEET





SYSTEM DESCRIPTION

DESIGN WIND SPEED:	105 MPH	HIGH TEMP:	36° C
EXPOSURE CATEGORY:	B	LOW TEMP:	-15° C
MODULE TYPE:	SUNIVA 295 (295W DC STC)		
QUANTITY:	736 MODULES (56 STRINGS OF 10, 8 STRINGS OF 8, 7 STRINGS OF 9, AND 7 STRINGS OF 7)		
SYSTEM SIZE (DC):	DISINFECTION BUILDING: 42.5 kW ADMINISTRATION BUILDING: 47.2 kW CARPORT: 127.4 kW TOTAL: 217.1 kW		
BUILDING HEIGHT:	HIGHEST: 20ft, LOWEST: 15ft		
MOUNTING SYSTEM:	PANEL CLAW GRIZZLY BEAR AND BAJA CARPORT		
TILT ANGLE:	ROOF: 13°, CARPORT: 7°		
ARRAY AZIMUTH:	180°		
MONITORING SYSTEM:	LOCUS ENERGY LGATE 101E		
INVERTER(S):	SMA SUNNY TRIPOWER: [1] 12000TL-US (12kW), [2] 15000TL-US (15kW), AND [7] 20000TL-US (20kW) INVERTERS.		

NOTES:
 1. NEGATIVE WIRE COLOR - BLACK
 2. POSITIVE WIRE COLOR - RED
 3. PULL BOXES ARE NECESSARY FOR ALL CONDUIT RUNS WHERE THERE ARE MORE THAN FOUR QUARTER BENDS.

INVERTER NUMBER STRING NUMBER

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PROJECT TITLE: **Howard County - Little Patuxent WRP**
 PROJECT ADDRESS: **8900 Greenwood Pl, Savage, MD 20763**
 SHEET TITLE: **DISINFECTION BLDG. ELECTRICAL DETAIL PLAN**

REVISIONS

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PROJECT NUMBER: **13-C005**
 DRAWN BY: **RCE**
 APPROVED BY: **CJC**
 DATE: **7.07.2014**
 ORIGINAL SHEET SIZE: **36X24**
 SHOULD MEASURE 1":

SCALE: **3/32" = 1'-0"**

DRAWING: **E1.1**

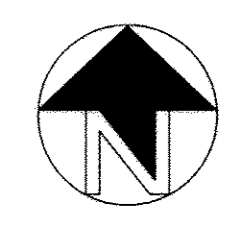
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

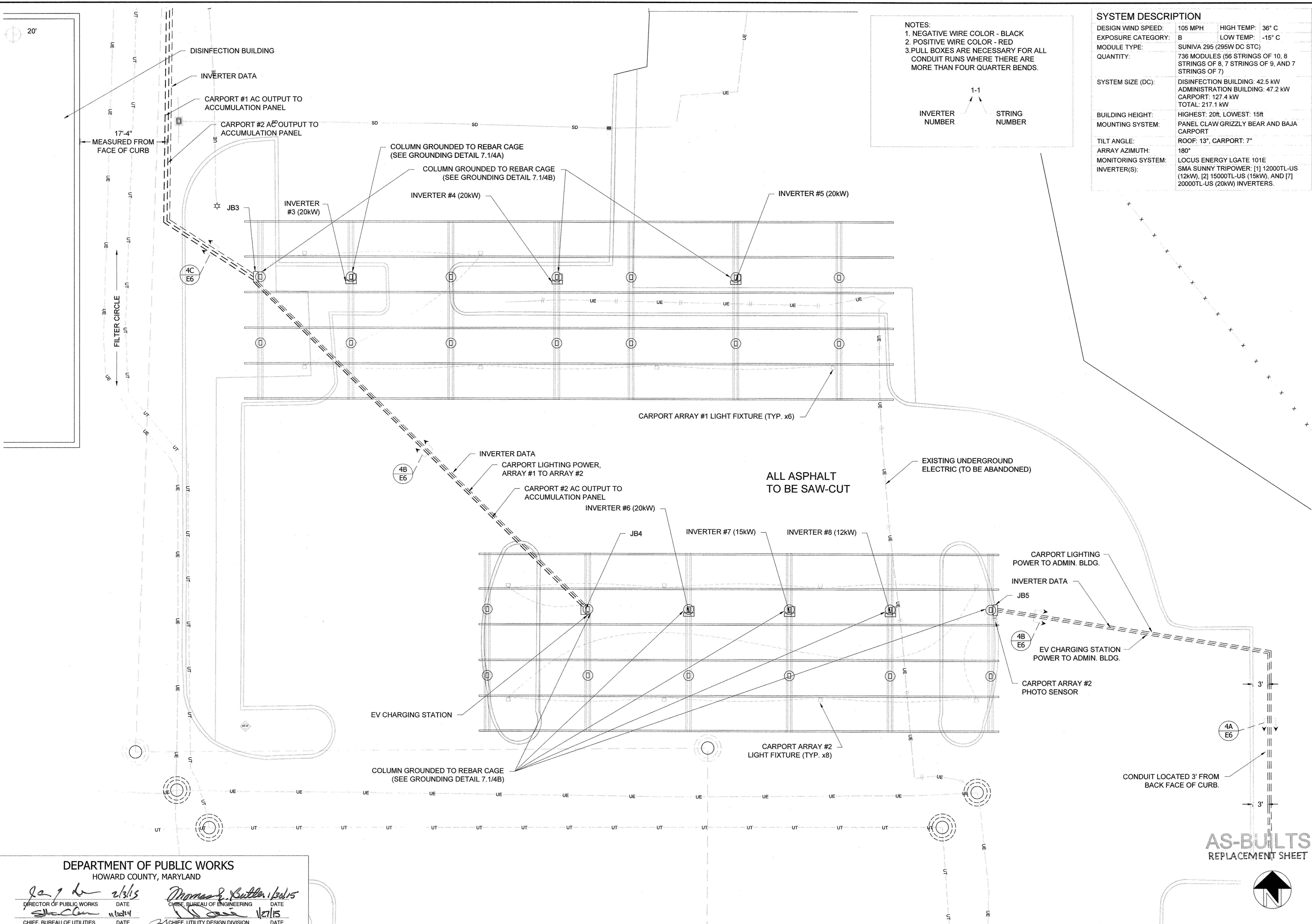
Paul A. ... 2/3/15
 DIRECTOR OF PUBLIC WORKS DATE

Thomas S. ... 1/30/15
 CHIEF, BUREAU OF ENGINEERING DATE

... 1/21/15
 CHIEF, UTILITY DESIGN DIVISION DATE

AS-BUILTS
 REPLACEMENT SHEET





NOTES:
 1. NEGATIVE WIRE COLOR - BLACK
 2. POSITIVE WIRE COLOR - RED
 3. PULL BOXES ARE NECESSARY FOR ALL CONDUIT RUNS WHERE THERE ARE MORE THAN FOUR QUARTER BENDS.

INVERTER NUMBER STRING NUMBER

1-1

SYSTEM DESCRIPTION		
DESIGN WIND SPEED:	105 MPH	HIGH TEMP: 36° C
EXPOSURE CATEGORY:	B	LOW TEMP: -15° C
MODULE TYPE:	SUNIVA 295 (295W DC STC)	
QUANTITY:	736 MODULES (56 STRINGS OF 10, 8 STRINGS OF 8, 7 STRINGS OF 9, AND 7 STRINGS OF 7)	
SYSTEM SIZE (DC):	DISINFECTION BUILDING: 42.5 kW ADMINISTRATION BUILDING: 47.2 kW CARPORT: 127.4 kW TOTAL: 217.1 kW	
BUILDING HEIGHT:	HIGHEST: 20ft, LOWEST: 15ft	
MOUNTING SYSTEM:	PANEL CLAW GRIZZLY BEAR AND BAJA CARPORT	
TILT ANGLE:	ROOF: 13°, CARPORT: 7°	
ARRAY AZIMUTH:	180°	
MONITORING SYSTEM:	LOCUS ENERGY LGATE 101E	
INVERTER(S):	SMA SUNNY TRIPOWER: [1] 12000TL-US (12kW), [2] 15000TL-US (15kW), AND [7] 20000TL-US (20kW) INVERTERS.	

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PROJECT TITLE: Howard County - Little Patuxent WRP
 PROJECT ADDRESS: 8900 Greenwood Pl, Savage, MD 20763
 SHEET TITLE: CARPORT ELECTRICAL DETAIL PLAN

REVISIONS

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PROJECT NUMBER: 13-C005
 DRAWN BY: RCE
 APPROVED BY: CJC
 DATE: 7.07.2014
 ORIGINAL SHEET SIZE: 36x24
 SHOULD MEASURE 1":
 SCALE: 1/8" = 1'-0"
 DRAWING: E1.2

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

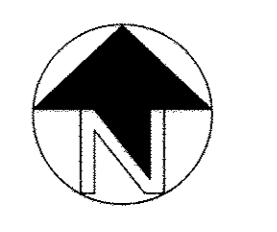
[Signature] 2/3/15
 DIRECTOR OF PUBLIC WORKS DATE

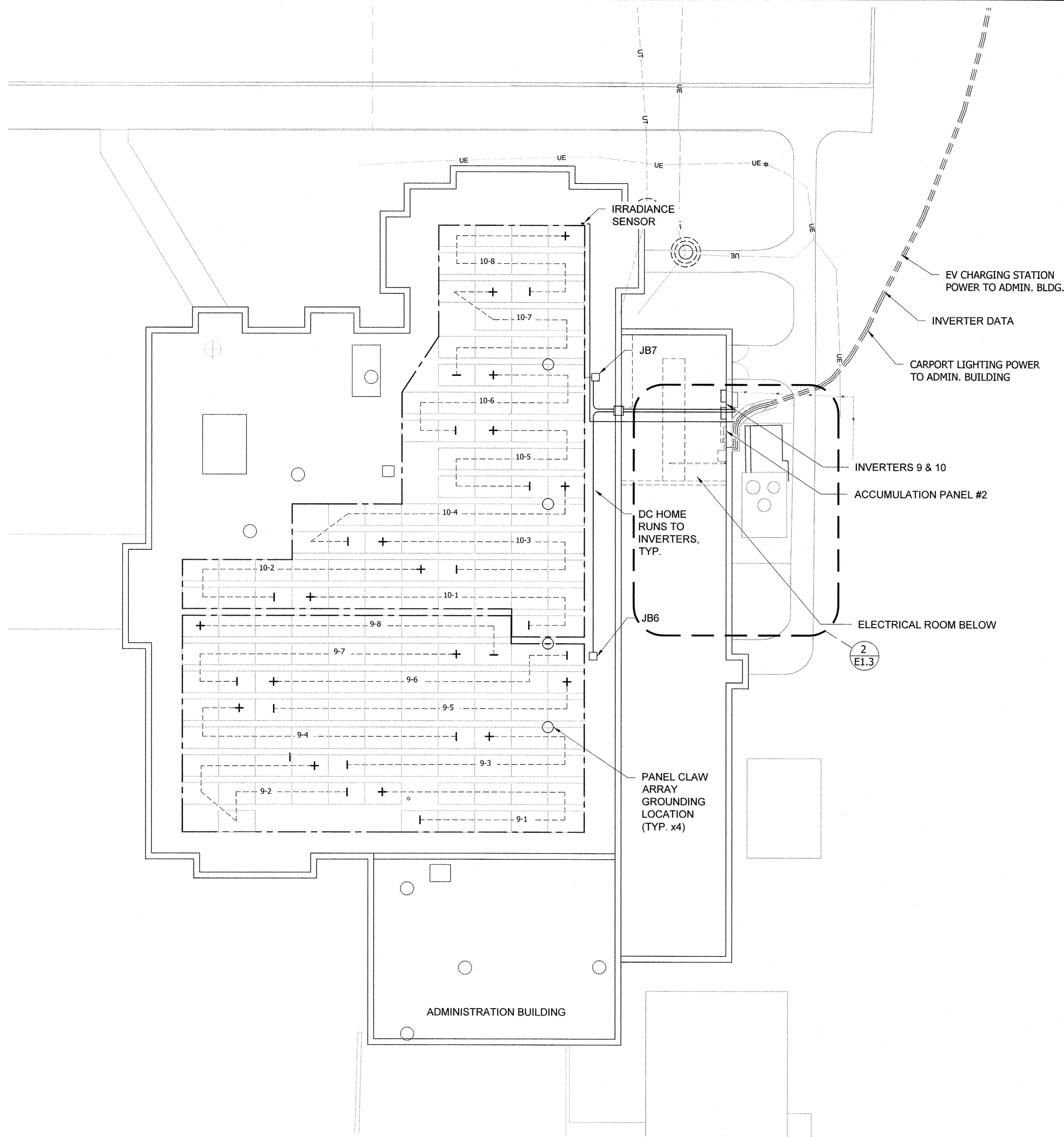
[Signature] 1/21/15
 CHIEF, BUREAU OF UTILITIES DATE

[Signature] 1/21/15
 CHIEF, UTILITY DESIGN DIVISION DATE

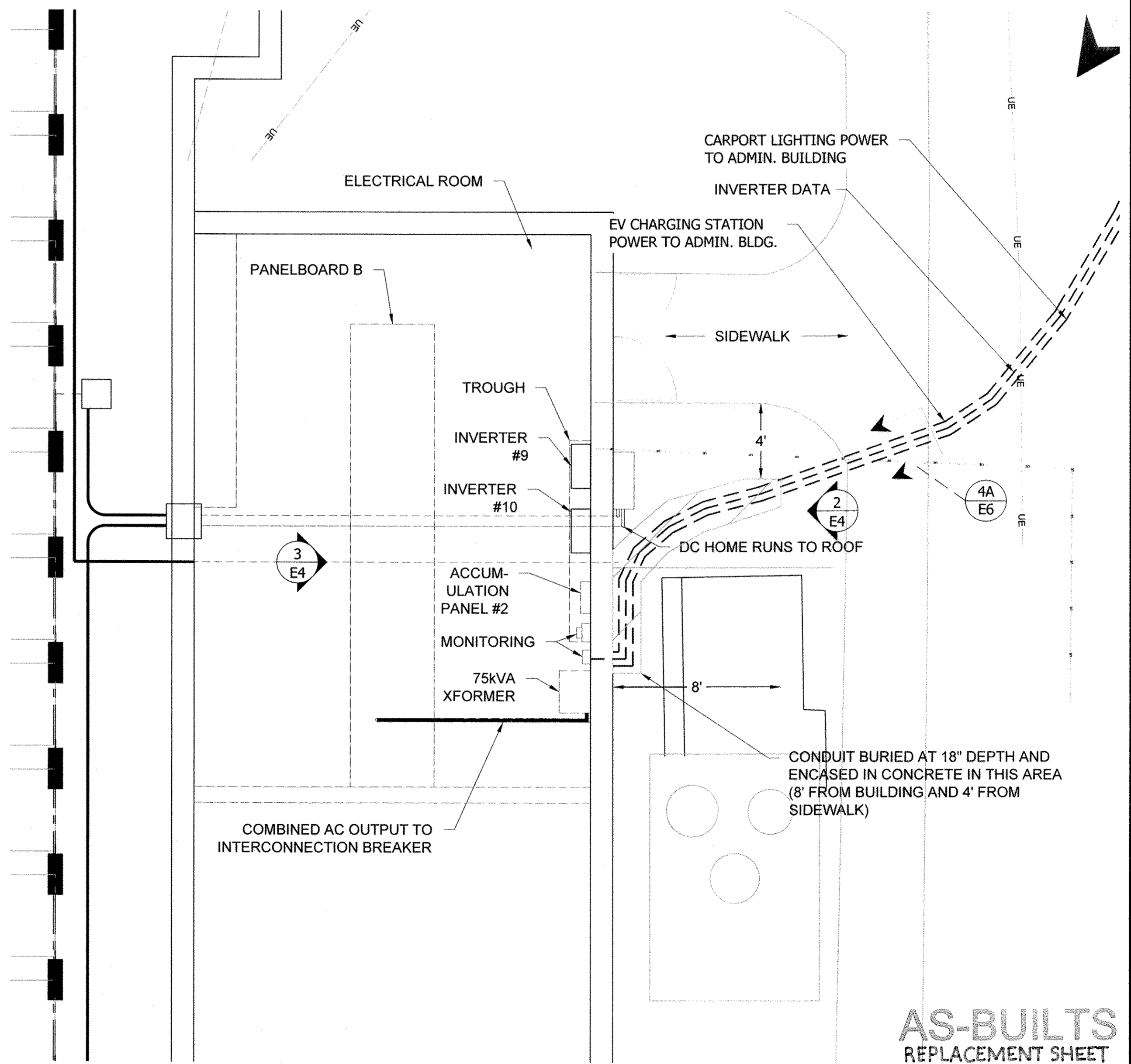
[Signature] 1/21/15
 CHIEF, BUREAU OF ENGINEERING DATE

AS-BUILTS
 REPLACEMENT SHEET





1 PARTIAL ELECTRICAL PLAN
SCALE: 3/32"=1'-0"

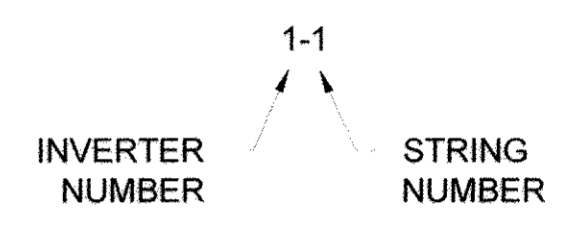


2 ELECTRICAL ROOM PLAN
SCALE: 1/4"=1'-0"

SYSTEM DESCRIPTION

DESIGN WIND SPEED:	105 MPH	HIGH TEMP:	36° C
EXPOSURE CATEGORY:	B	LOW TEMP:	-15° C
MODULE TYPE:	SUNIVA 295 (295W DC STC)		
QUANTITY:	736 MODULES (56 STRINGS OF 10, 8 STRINGS OF 8, 7 STRINGS OF 9, AND 7 STRINGS OF 7)		
SYSTEM SIZE (DC):	DISINFECTION BUILDING: 42.5 kW ADMINISTRATION BUILDING: 47.2 kW CARPORT: 127.4 kW TOTAL: 217.1 kW		
BUILDING HEIGHT:	HIGHEST: 20ft. LOWEST: 15ft		
MOUNTING SYSTEM:	PANEL CLAW GRIZZLY BEAR AND BAJA CARPORT		
TILT ANGLE:	ROOF: 13°, CARPORT: 7°		
ARRAY AZIMUTH:	180°		
MONITORING SYSTEM:	LOCUS ENERGY LGATE 101E		
INVERTER(S):	SMA SUNNY TRIPOWER: [1] 12000TL-US (12kW), [2] 15000TL-US (15kW), AND [7] 20000TL-US (20kW) INVERTERS.		

- NOTES:**
1. NEGATIVE WIRE COLOR - BLACK
 2. POSITIVE WIRE COLOR - RED
 3. PULL BOXES ARE NECESSARY FOR ALL CONDUIT RUNS WHERE THERE ARE MORE THAN FOUR QUARTER BENDS.



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PROFESSIONAL ELECTRICAL CERTIFICATION
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PROJECT TITLE: Howard County - Little Patuxent WRP
PROJECT ADDRESS: 8900 Greenwood Pl, Savage, MD 20763
SHEET TITLE: ADMIN. BLDG. ELECTRICAL DETAIL PLAN

REVISIONS

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PROJECT NUMBER: 13-C005
DRAWN BY: RCE
APPROVED BY: CJC
DATE: 7.07.2014
ORIGINAL SHEET SIZE: 36X24
SHOULD MEASURE 1":
SCALE: AS NOTED

DRAWING: E1.3

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

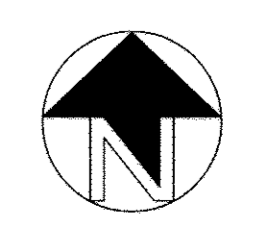
Director of Public Works: [Signature] 2/3/15
Date: [Signature] 1/30/15

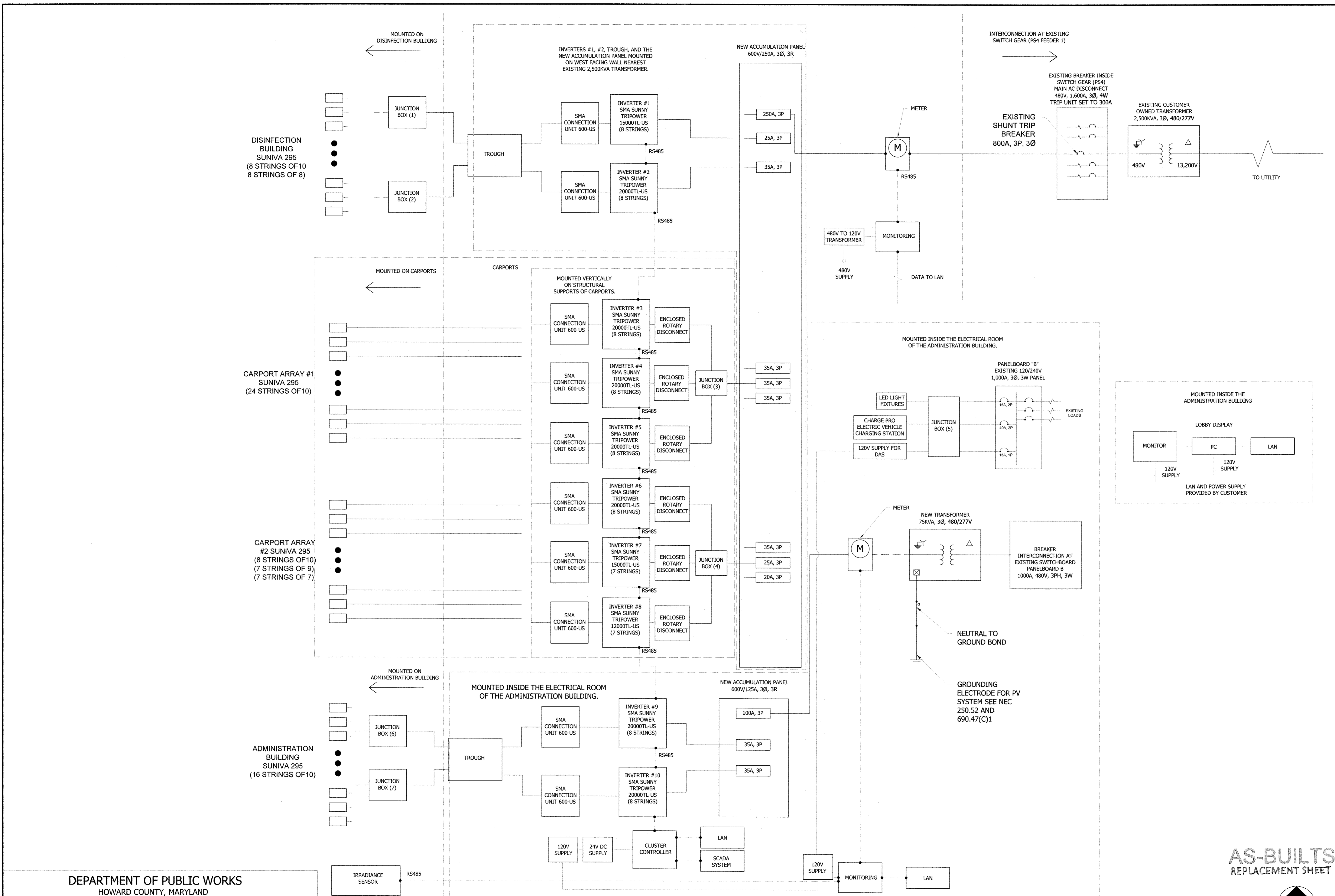
Chief, Bureau of Engineering: [Signature] 1/27/15
Date: [Signature] 1/27/15

Chief, Bureau of Utilities: [Signature] 1/27/15
Date: [Signature] 1/27/15

Chief, Utility Design Division: [Signature] 1/27/15
Date: [Signature] 1/27/15

AS-BUILTS REPLACEMENT SHEET





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PROFESSIONAL ELECTRICAL CERTIFICATION

PROFESSIONAL ELECTRICAL CERTIFICATION
BOARD OF PROFESSIONAL ENGINEERS AND SURVEYORS
STATE OF MARYLAND

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PROJECT TITLE
Howard County - Little Patuxent WRP

PROJECT ADDRESS
8900 Greenwood Pl.
Savage, MD 20763

SHEET TITLE
ELECTRICAL BLOCK DIAGRAM

REVISIONS

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PROJECT NUMBER
13-C005

DRAWN BY
RCE

APPROVED BY
CJC

DATE
7.07.2014

ORIGINAL SHEET SIZE
36X24
SHOULD MEASURE 1"

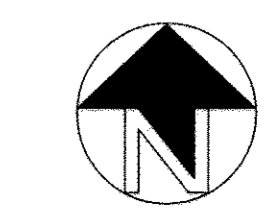
SCALE
NTS

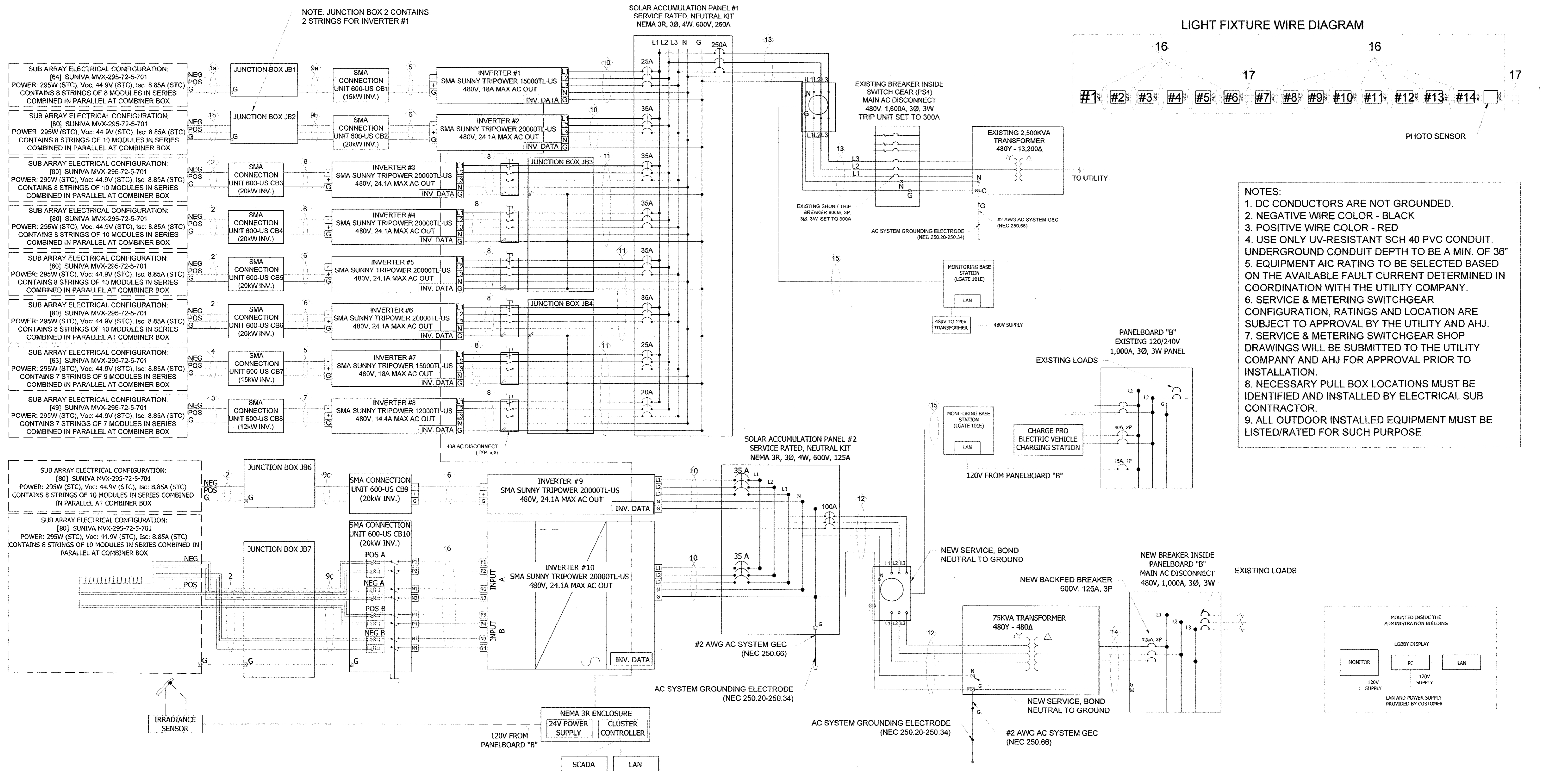
DRAWING
E2

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

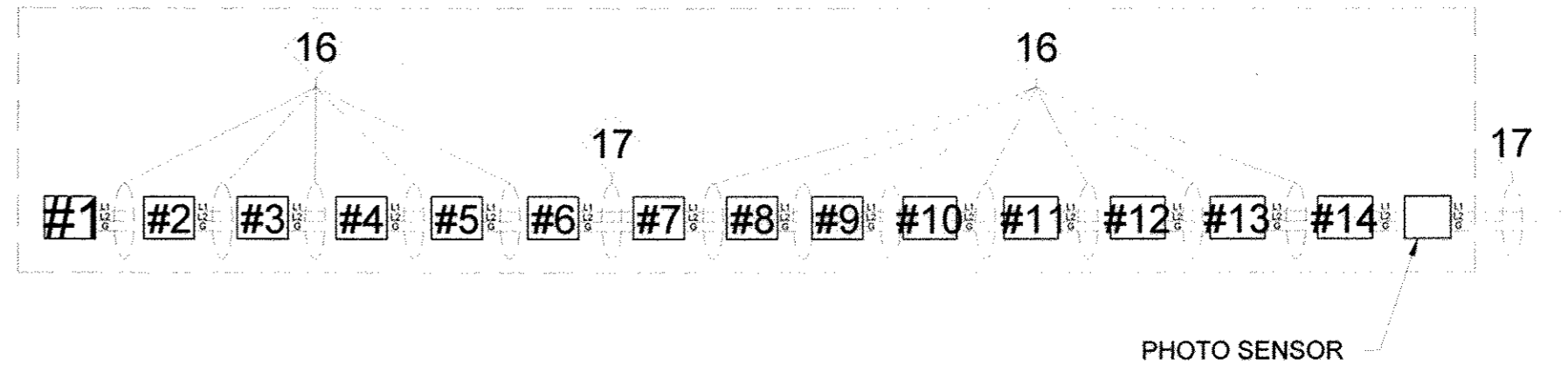
Director of Public Works: *John A. ...* DATE: 2/3/15
 Chief, Bureau of Engineering: *Thomas B. ...* DATE: 1/30/15
 Chief, Bureau of Utilities: *...* DATE: 1/10/14
 Chief, Utility Design Division: *...* DATE: 1/27/15

AS-BUILTS
REPLACEMENT SHEET





LIGHT FIXTURE WIRE DIAGRAM



- NOTES:
- DC CONDUCTORS ARE NOT GROUNDED.
 - NEGATIVE WIRE COLOR - BLACK
 - POSITIVE WIRE COLOR - RED
 - USE ONLY UV-RESISTANT SCH 40 PVC CONDUIT. UNDERGROUND CONDUIT DEPTH TO BE A MIN. OF 36"
 - EQUIPMENT AIC RATING TO BE SELECTED BASED ON THE AVAILABLE FAULT CURRENT DETERMINED IN COORDINATION WITH THE UTILITY COMPANY.
 - SERVICE & METERING SWITCHGEAR CONFIGURATION, RATINGS AND LOCATION ARE SUBJECT TO APPROVAL BY THE UTILITY AND AHJ.
 - SERVICE & METERING SWITCHGEAR SHOP DRAWINGS WILL BE SUBMITTED TO THE UTILITY COMPANY AND AHJ FOR APPROVAL PRIOR TO INSTALLATION.
 - NECESSARY PULL BOX LOCATIONS MUST BE IDENTIFIED AND INSTALLED BY ELECTRICAL SUB CONTRACTOR.
 - ALL OUTDOOR INSTALLED EQUIPMENT MUST BE LISTED/RATED FOR SUCH PURPOSE.

FEEDER SCHEDULE

CKT NO.	FROM	TO	CONDUIT	WIRE
1a	PV ARRAY	JUNCTION BOX JB1	AS NEEDED	[12] #8 PV WIRE ([6]POS & [6]NEG) AND [1] #8 AWG BARE CU GROUND
1b	PV ARRAY	JUNCTION BOX JB2	AS NEEDED	[20] #8 PV WIRE ([10]POS & [10]NEG) AND [1] #8 AWG BARE CU GROUND
2	PV ARRAY	COMBINER (20kW), JB6/7	AS NEEDED	[16] #8 PV WIRE ([8]POS & [8]NEG) AND [1] #8 AWG BARE CU GROUND
3	PV ARRAY	COMBINER (12kW INV.)	AS NEEDED	[14] #8 PV WIRE ([7]POS & [7]NEG) AND [1] #8 AWG BARE CU GROUND
4	PV ARRAY	COMBINER (15kW INV.)	AS NEEDED	[14] #8 PV WIRE ([7]POS & [7]NEG) AND [1] #8 AWG BARE CU GROUND
5	COMBINER (15kW INV.)	15kW INVERTER	1 1/4" RMC	[2] #3 THWN-2 ([1]POS & [1]NEG) AND [1] #6 AWG GROUND
6	COMBINER (20kW INV.)	20kW INVERTER	1 1/4" RMC	[2] #3 THWN-2 ([1]POS & [1]NEG) AND [1] #6 AWG GROUND

FEEDER SCHEDULE

CKT NO.	FROM	TO	CONDUIT	WIRE
7	COMBINER (12kW INV.)	12kW INVERTER	1 1/4" RMC	[2] #4 ([1]POS & [1]NEG) AND [1] #8 AWG GROUND
8	20, 15, 12kW INVERTER	JUNCTION BOX JB 3,4	1" EMT	[4] #8 THWN-2 (L1, L2, L3 & N) AND [1] #8 AWG THWN-2 GROUND
9a	JUNCTION BOX JB1	COMBINER (15kW INV.)	1 1/2" RMC/SCH40 PVC	[12] #8 THWN-2 ([6]POS & [6]NEG) AND [1] #8 AWG THWN-2 GROUND
9b	JUNCTION BOX JB2	COMBINER (20kW INV.)	2" RMC/SCH40 PVC	[20] #8 THWN-2 ([10]POS & [10]NEG) AND [1] #8 AWG THWN-2 GROUND
9c	JUNCTION BOX JB6,7	COMBINER (20kW INV.)	2" RMC/SCH40 PVC	[16] #8 THWN-2 ([8]POS & [8]NEG) AND [1] #8 AWG THWN-2 GROUND
10	20, 15kW INVERTER	ACCUMULATION PANEL	1 1/4" RMC/SCH40 PVC	[4] #8 THWN-2 (L1, L2, L3 & N) AND [1] #8 AWG THWN-2 GROUND
11	JUNCTION BOX JB3/4	ACCUMULATION PANEL	1 1/2" RMC/SCH40 PVC	[12] #8 THWN-2 ([3]L1, [3]L2, [3]L3 & [3]N) AND [1] #8 AWG THWN-2 GROUND

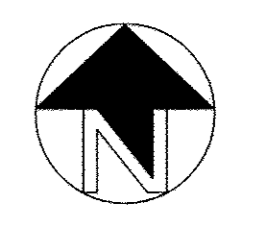
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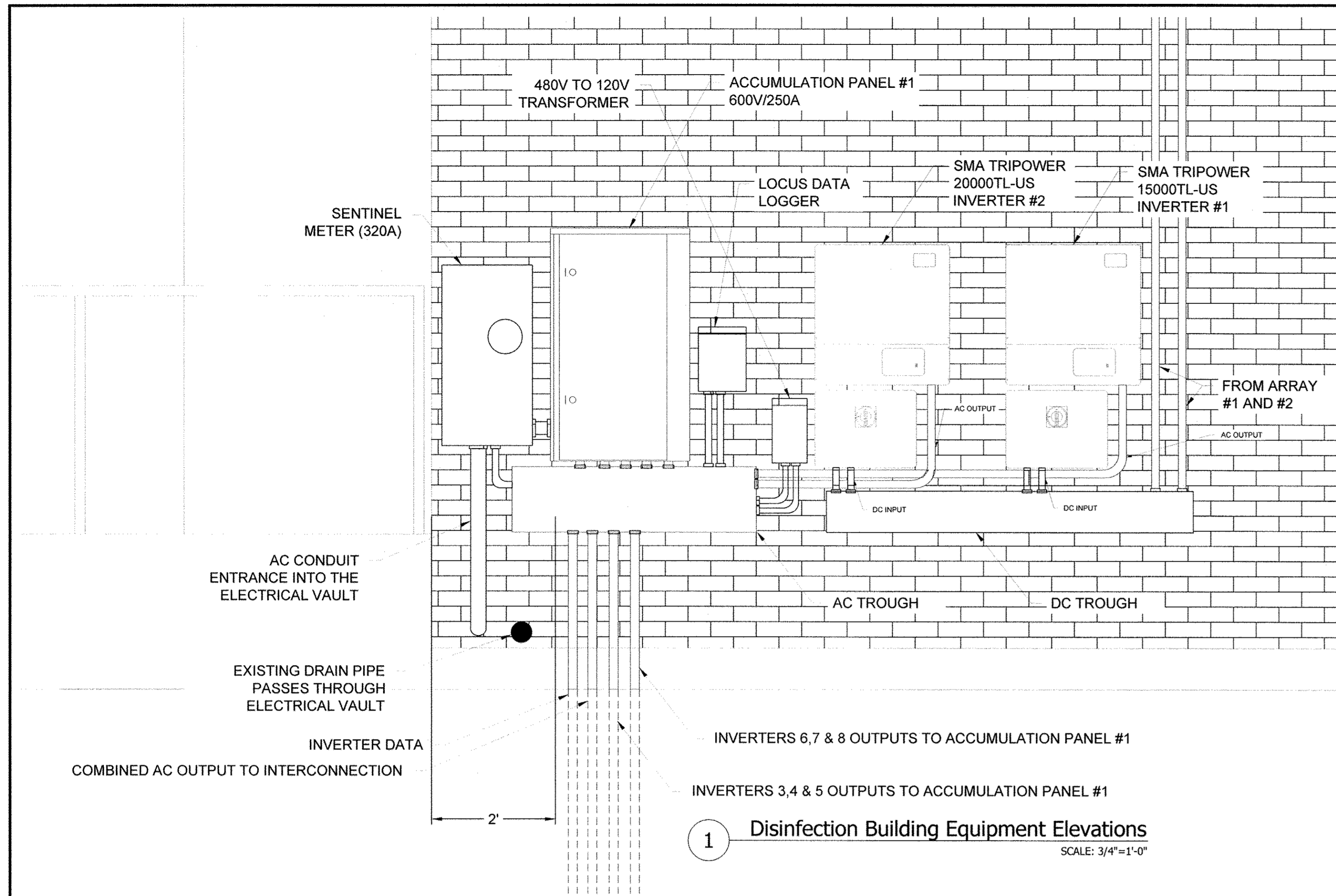
CKT NO.	FROM	TO	CONDUIT	WIRE
12	ACCUMULATION PANEL #2	TRANSFORMER	1 1/2" RMC/SCH40 PVC/FMC	[4] #2 THWN-2 (L1, L2, L3 & N) AND [1] #8 AWG THWN-2 GROUND
13	ACCUMULATION PANEL #1	POI	3" RMC	[4] 350kcmil THWN-2 (L1, L2, L3 & N) AND [1] #2 AWG THWN-2 GROUND
14	TRANSFORMER	125A BACKFED BREAKER	2" RMC/FMC	[3] #1 THWN-2 (L1, L2 & N) AND [1] #6 AWG THWN-2 GROUND
15	SENTINEL METER	LOCUS DATA LOGGER	1" RMC	[1] 600V CAT5 CABLE
16	LED LIGHTING (ABOVE GROUND)	120V SUPPLY	3/4" RMC	[2] #14 AWG THWN-2 (L1, L2) AND #14 AWG THWN-2 GROUND
17	LED LIGHTING (BELOW GROUND)	120V SUPPLY	3/4" RMC/SCH40 PVC	[2] #14 AWG THWN-2 (L1, L2) AND #14 AWG THWN-2 GROUND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

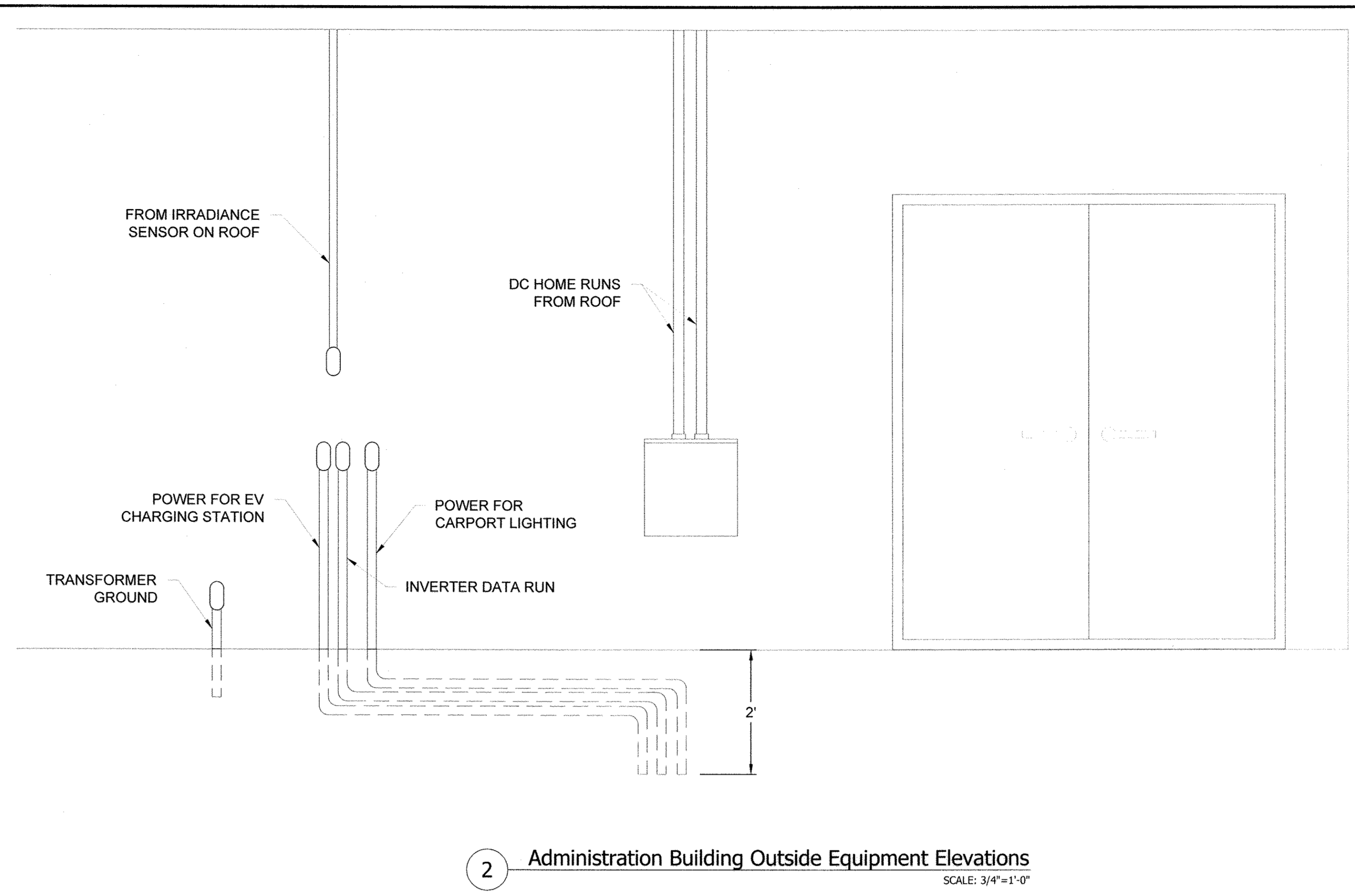
Director of Public Works: *[Signature]* 2/3/15
Chief, Bureau of Engineering: *[Signature]* 1/30/15
Chief, Bureau of Utilities: *[Signature]* 1/10/14
Chief, Utility Design Division: *[Signature]* 1/27/15

AS-BUILTS
REPLACEMENT SHEET

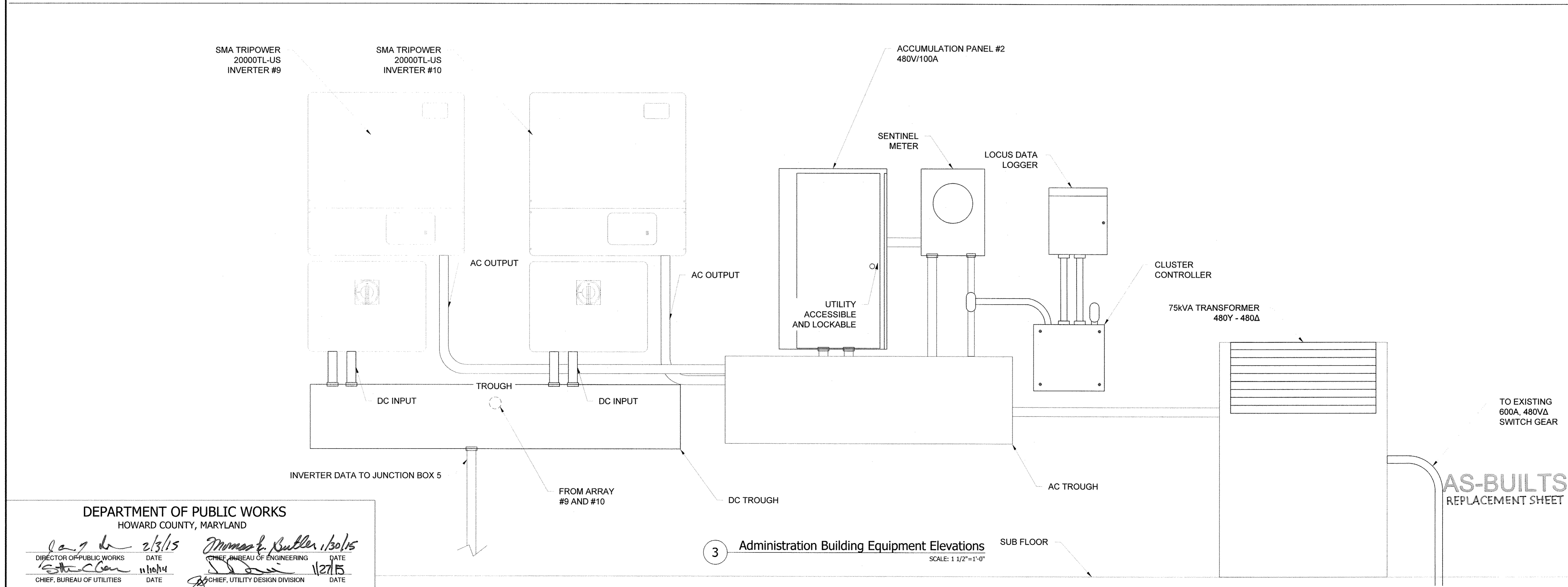




1 Disinfection Building Equipment Elevations
SCALE: 3/4"=1'-0"



2 Administration Building Outside Equipment Elevations
SCALE: 3/4"=1'-0"



3 Administration Building Equipment Elevations
SCALE: 1 1/2"=1'-0"

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PROFESSIONAL ELECTRICAL CERTIFICATION

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PROJECT TITLE: Little Patuxent WRP
PROJECT ADDRESS: 8900 Greenwood Pl, Savage, MD 20763
SHEET TITLE: ELECTRICAL EQUIPMENT ELEVATIONS

REVISIONS

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PROJECT NUMBER: 13-C005
DRAWN BY: RCE
APPROVED BY: C.JC
DATE: 7.07.2014
ORIGINAL SHEET SIZE: 36X24
SHOULD MEASURE 1":
SCALE: AS NOTED

AS-BUILTS REPLACEMENT SHEET

DRAWING: E4

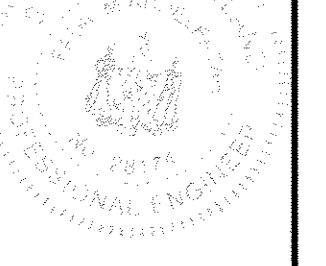
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] 2/3/15
Date: 11/27/15

Chief, Bureau of Engineering: [Signature] 1/30/15
Date: 1/27/15

Chief, Bureau of Utilities: [Signature]
Date:

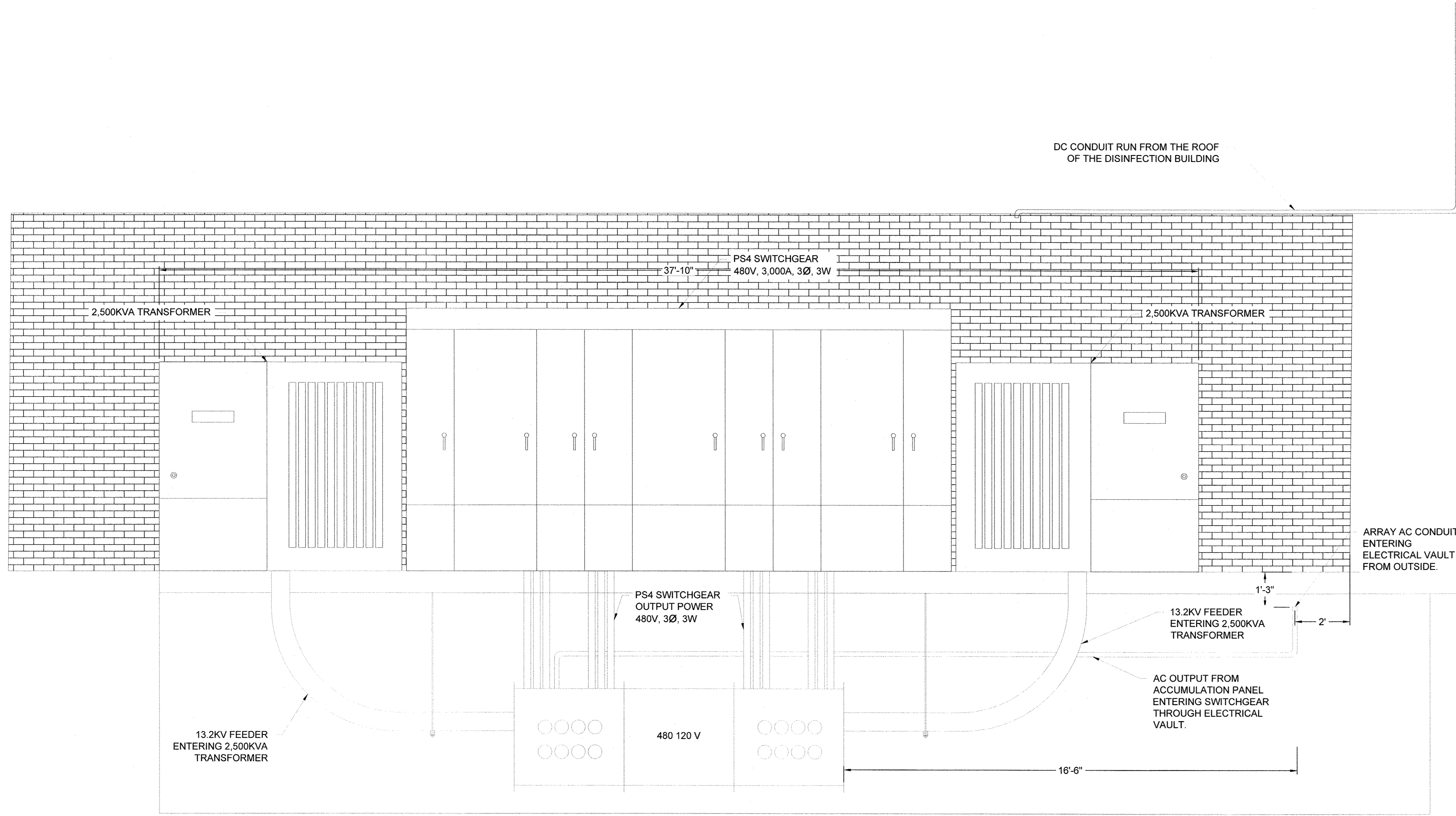
Chief, Utility Design Division: [Signature]
Date:



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1 Disinfection Bld. Electrical Equipment Elevation - Vault
SCALE: 1/2"=1'-0"

PROJECT TITLE: Howard County - Little Patuxent WRP
PROJECT ADDRESS: 8900 Greenwood Pl, Savage, MD 20763
SHEET TITLE: ELECTRICAL EQUIPMENT ELEVATION - VAULT

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APPROVED BY
CJC
DATE
7.07.2014

ORIGINAL SHEET SIZE
36X24
SHOULD MEASURE 1":

SCALE
1/2"=1'-0"

DRAWING
E4.1

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

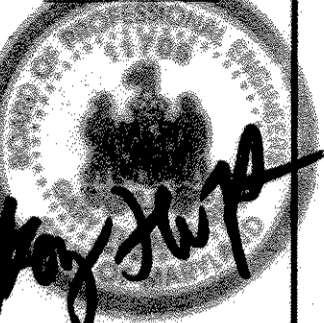
[Signature] 2/3/15
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 1/27/15
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 1/26/15
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 1/27/15
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PROJECT NUMBER

13-C005

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CAS

APPROVED BY

CJC

DATE

10.01.2013

ORIGINAL SHEET SIZE

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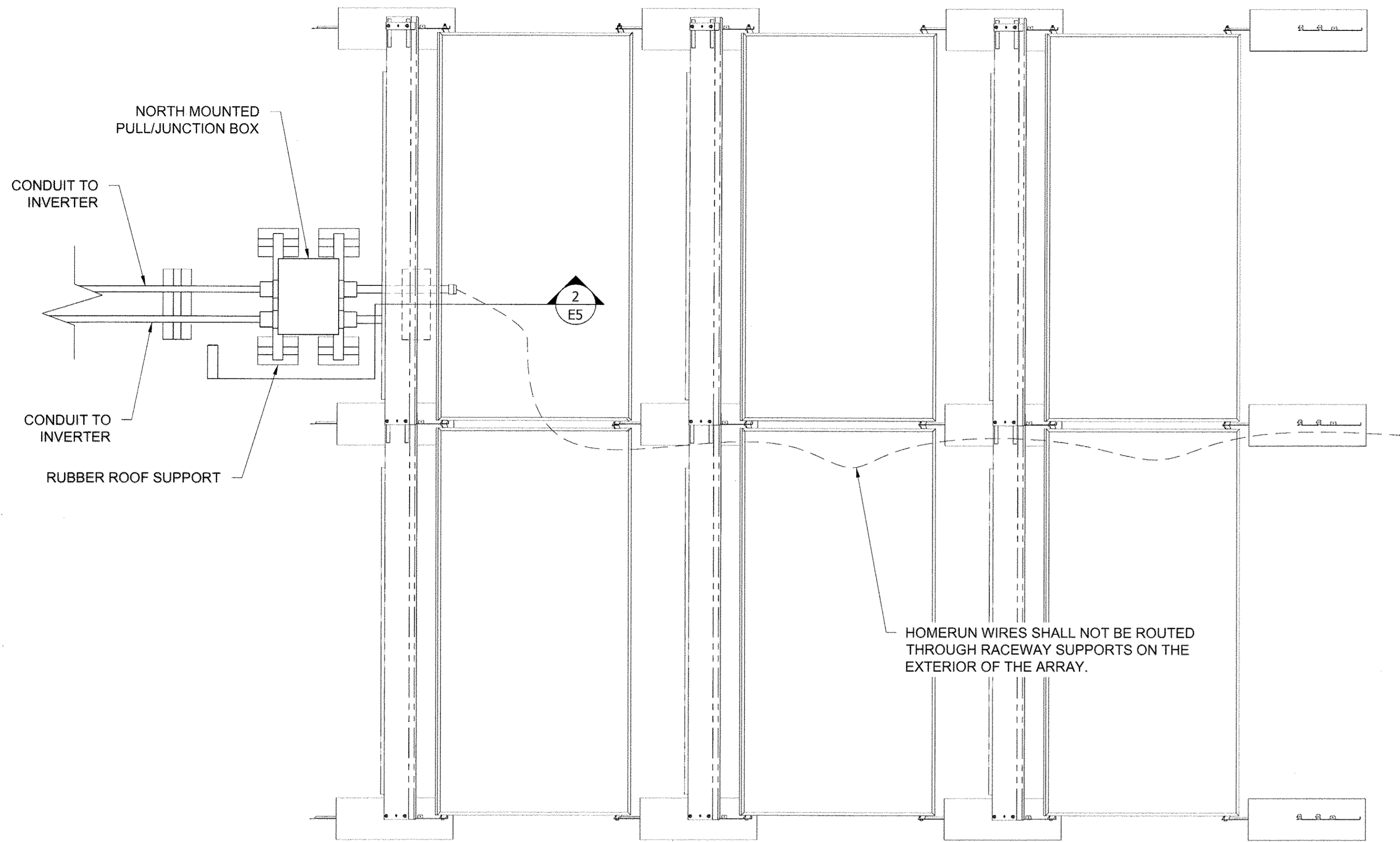
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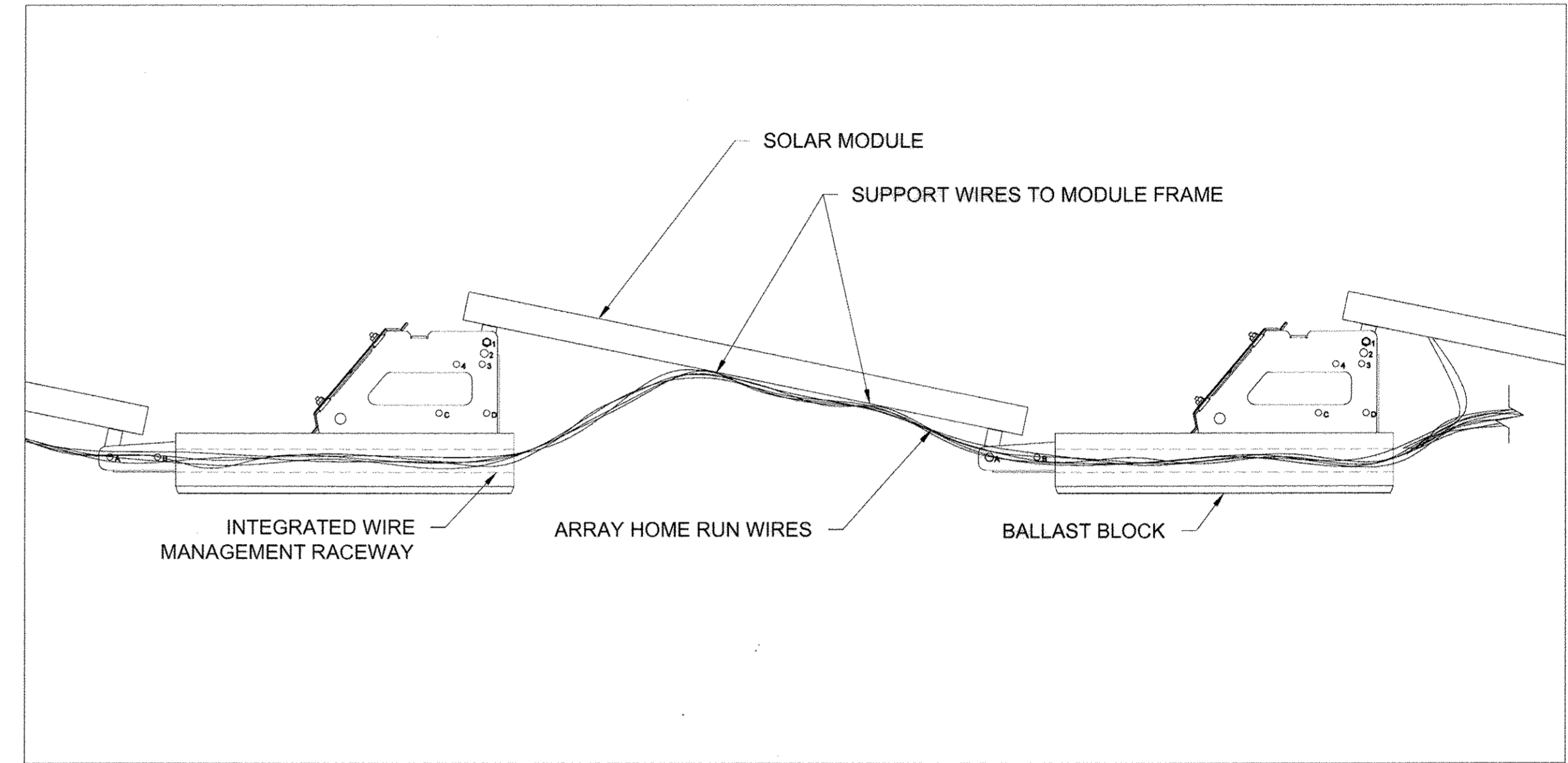
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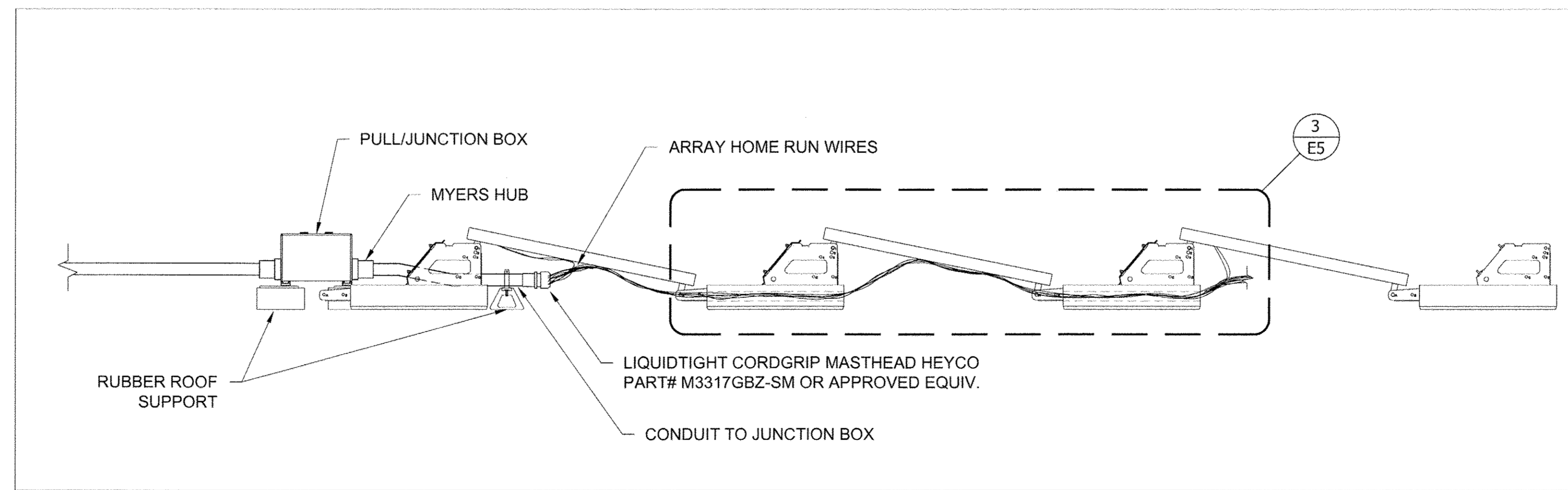
E5



1 Junction Box & Wire Management Plan View
3/4"=1'-0"



3 Wire Management Details
1 1/2"=1'-0"



2 Junction Box & Wire Management Elevation View
3/4"=1'-0"

AS-BUILTS

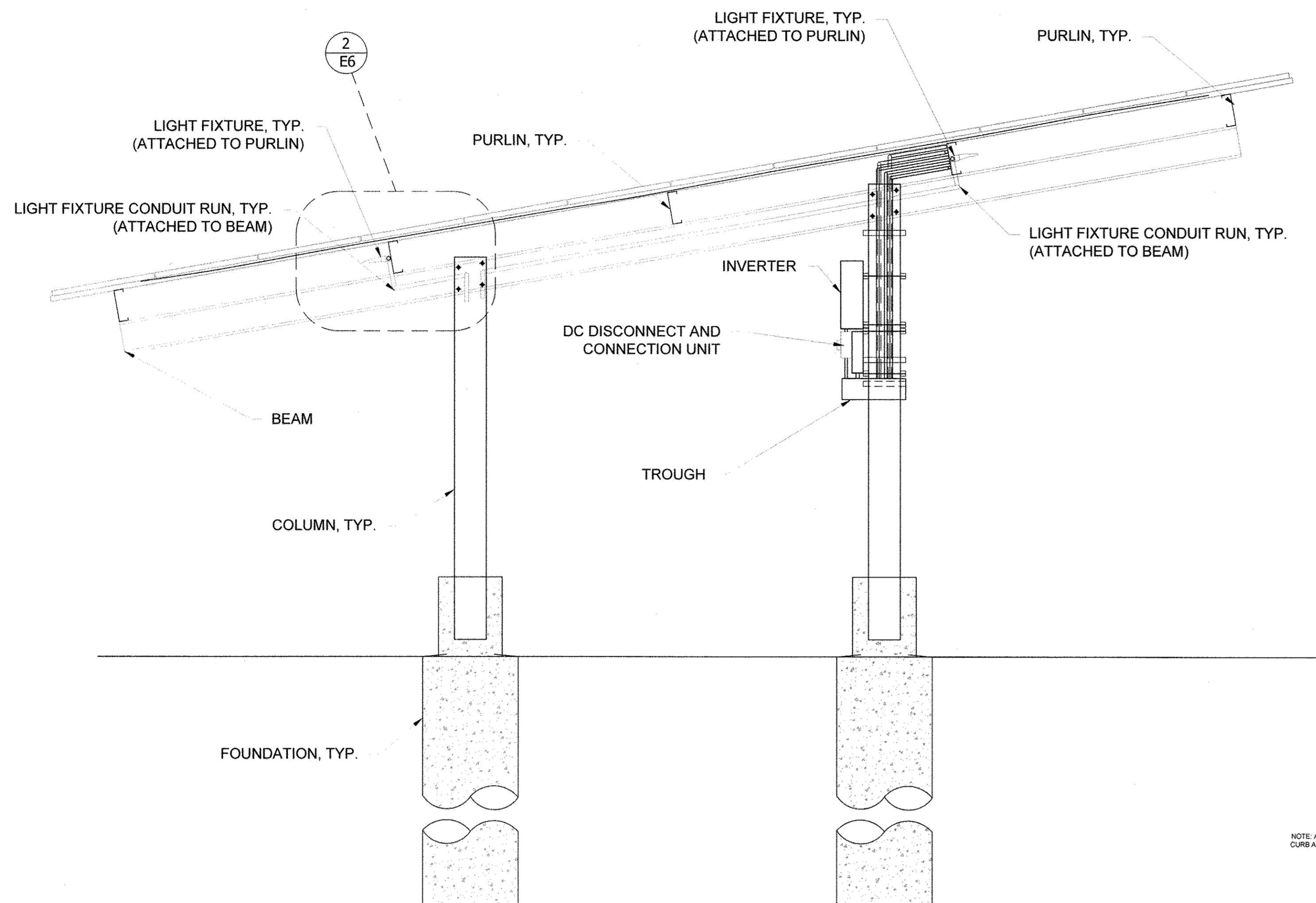
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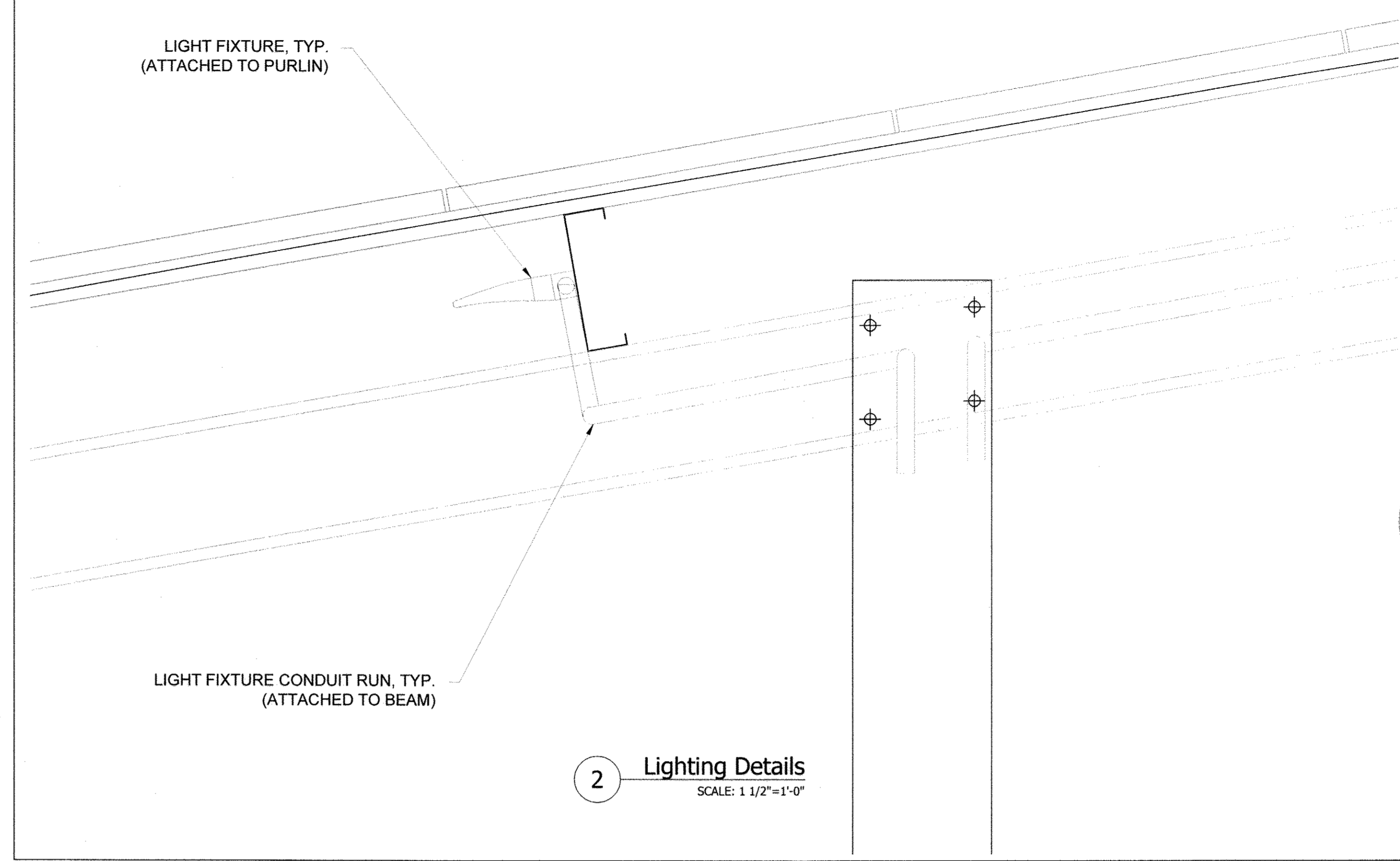
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CHIEF, BUREAU OF UTILITIES DATE

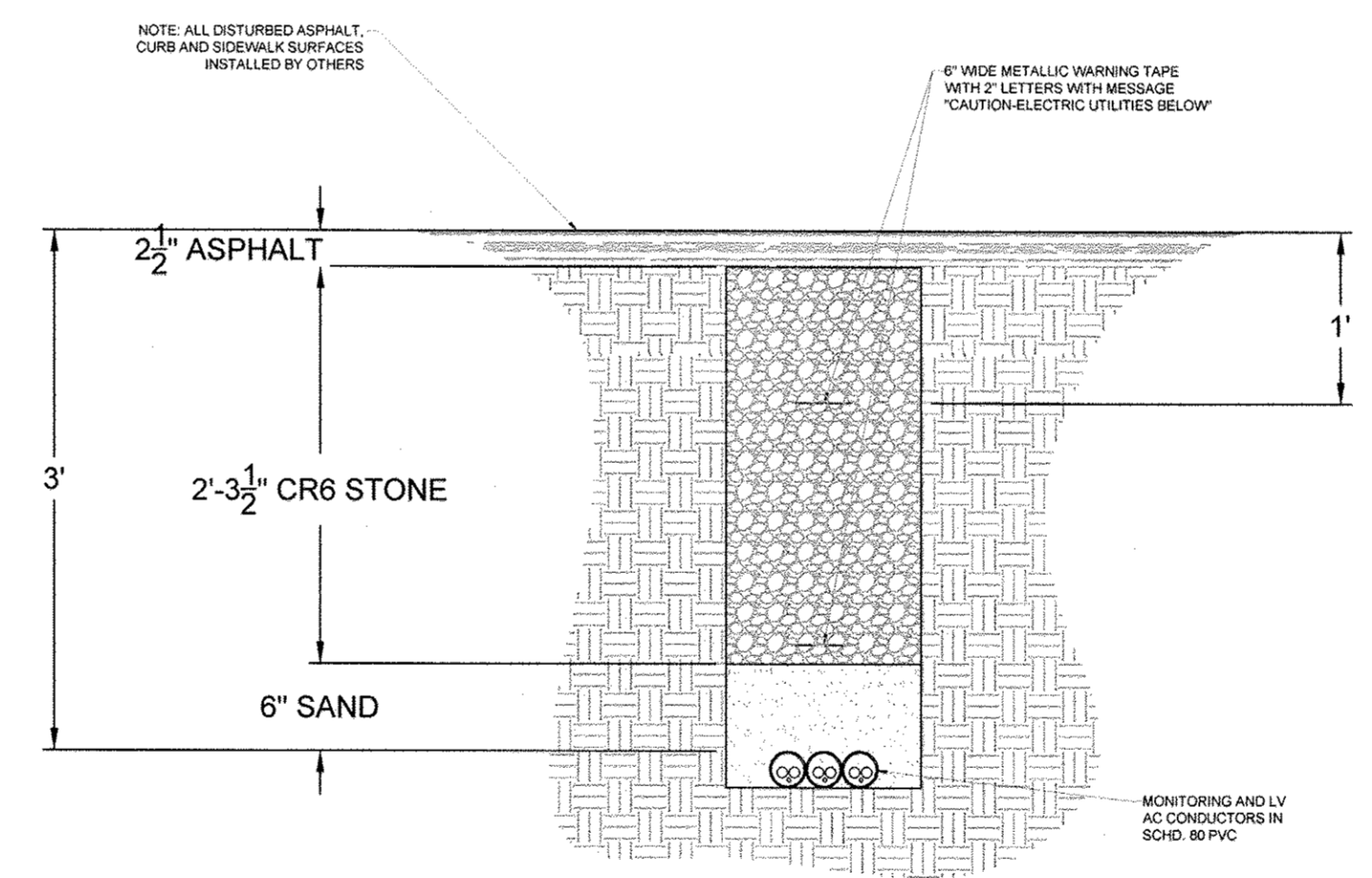
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CHIEF, UTILITY DESIGN DIVISION DATE



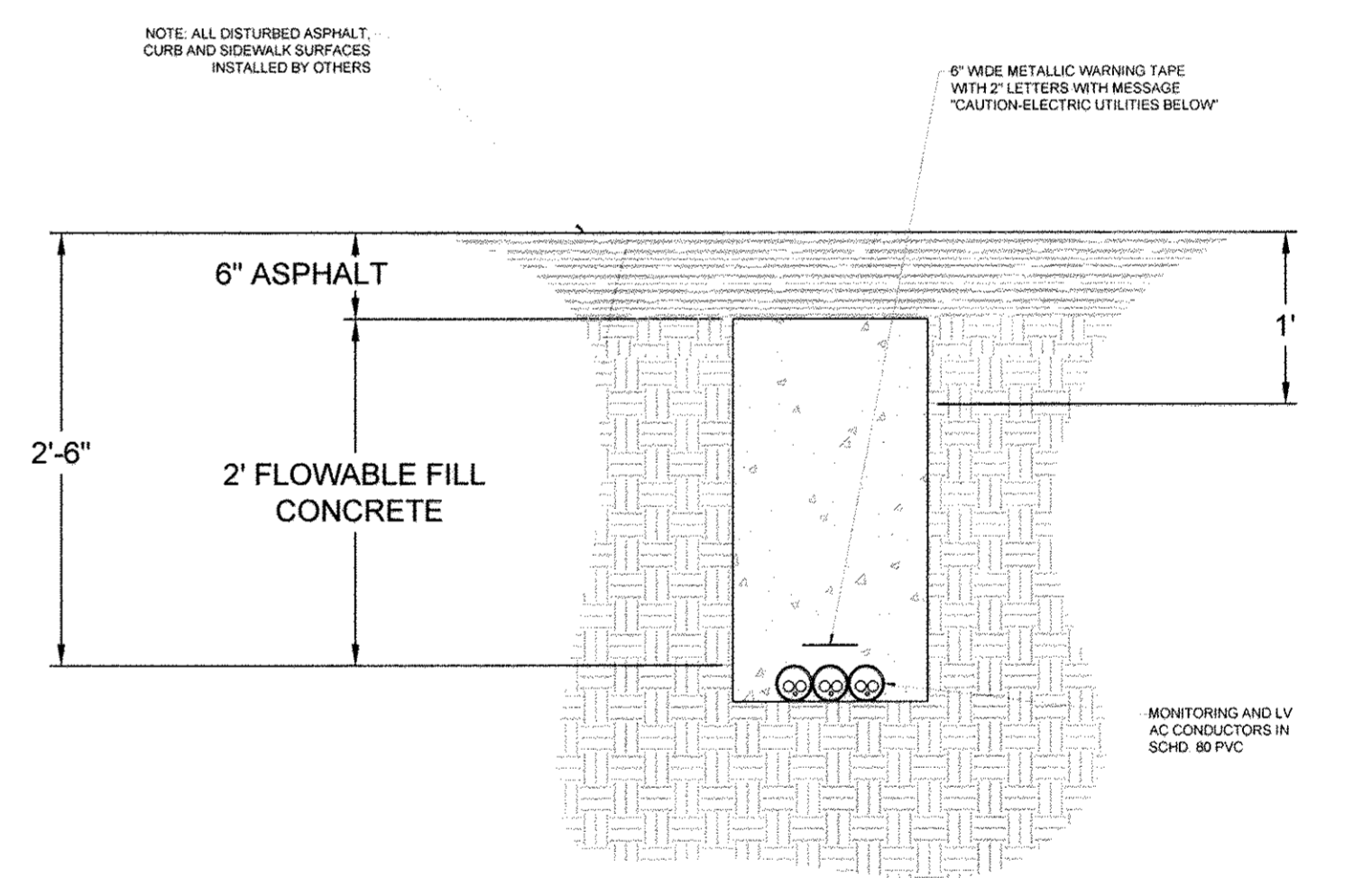
1 Carport Wiring & Lighting Details (Side View)
SCALE: 1/4"=1'-0"



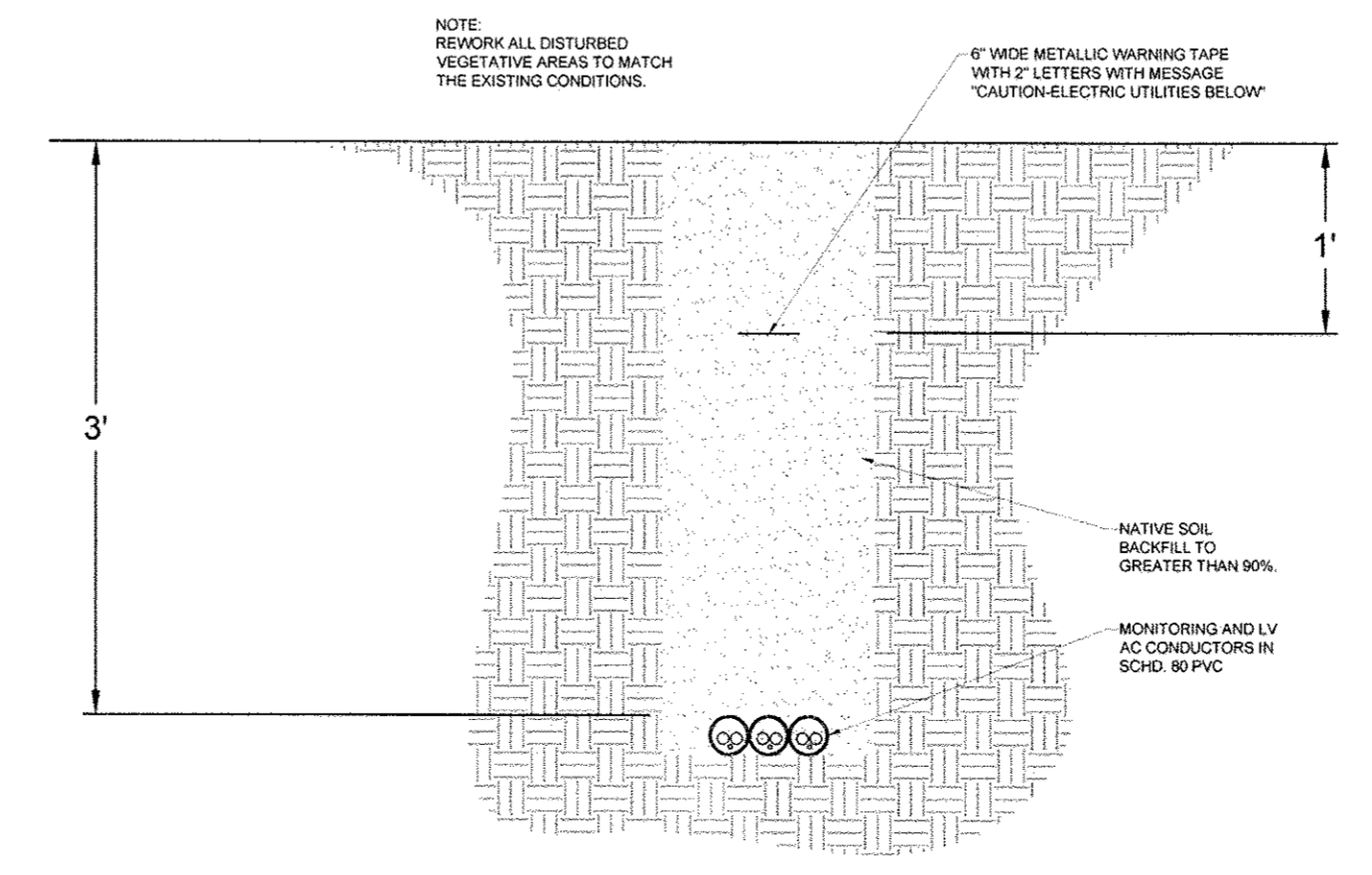
2 Lighting Details
SCALE: 1 1/2"=1'-0"



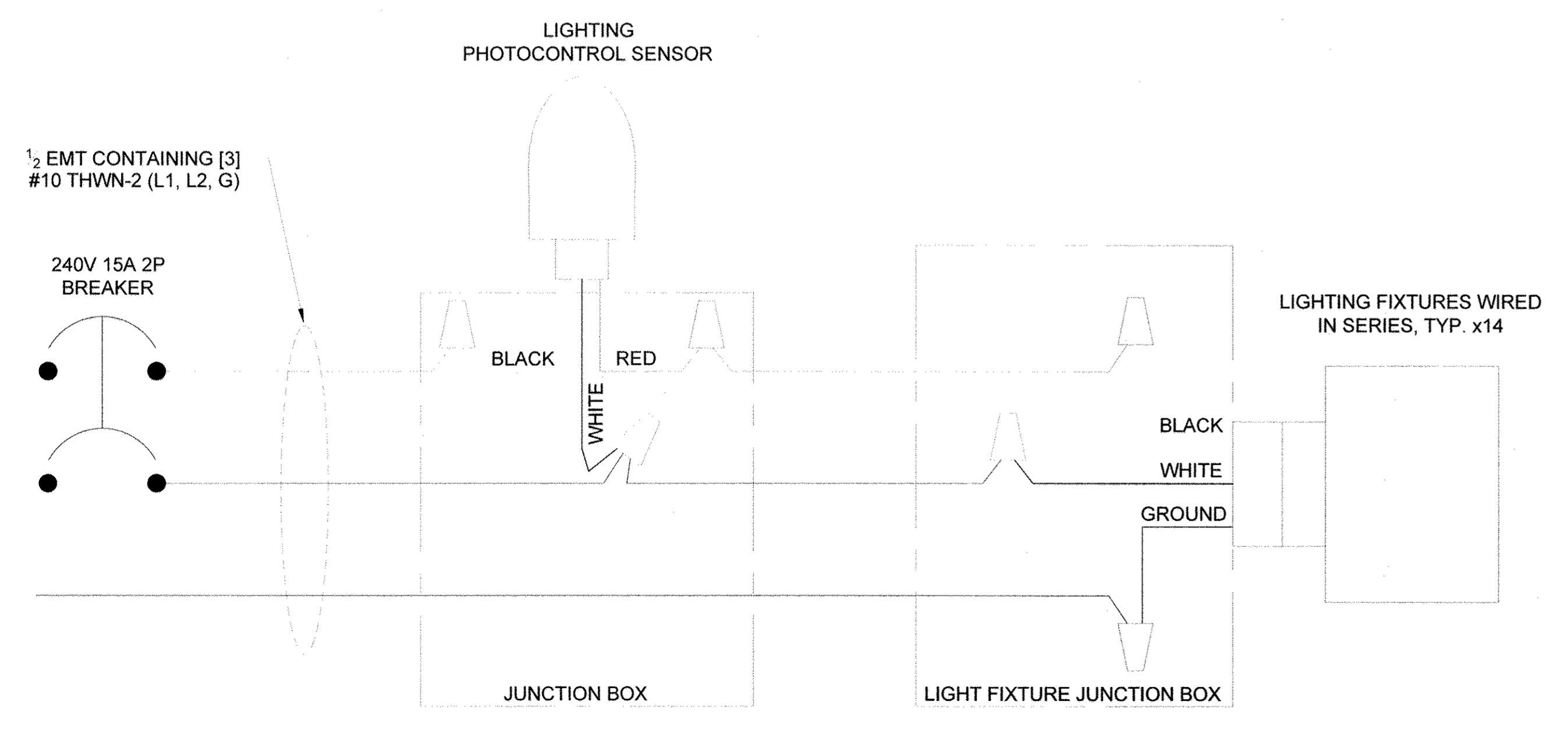
4B Conduit Trenching Details (Sand and Stone Backfill)
SCALE: 1"=1'-0"



4C Conduit Trenching Details (Concrete Backfill)
SCALE: 1"=1'-0"



4A Conduit Trenching Details (Native Soil Backfill)
SCALE: 1"=1'-0"



3 Lighting Wiring Diagram
NTS

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[Signature] 2/3/15
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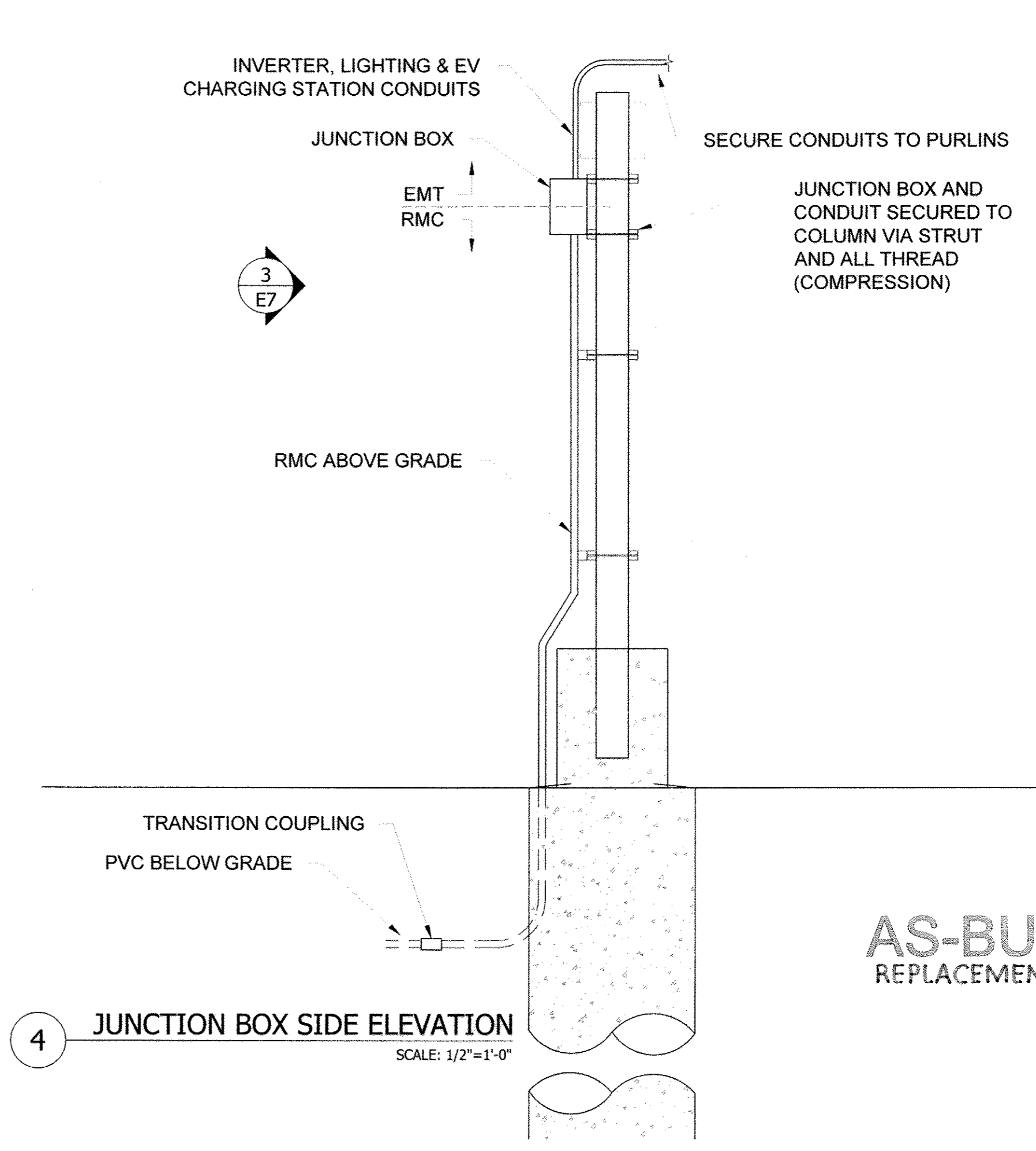
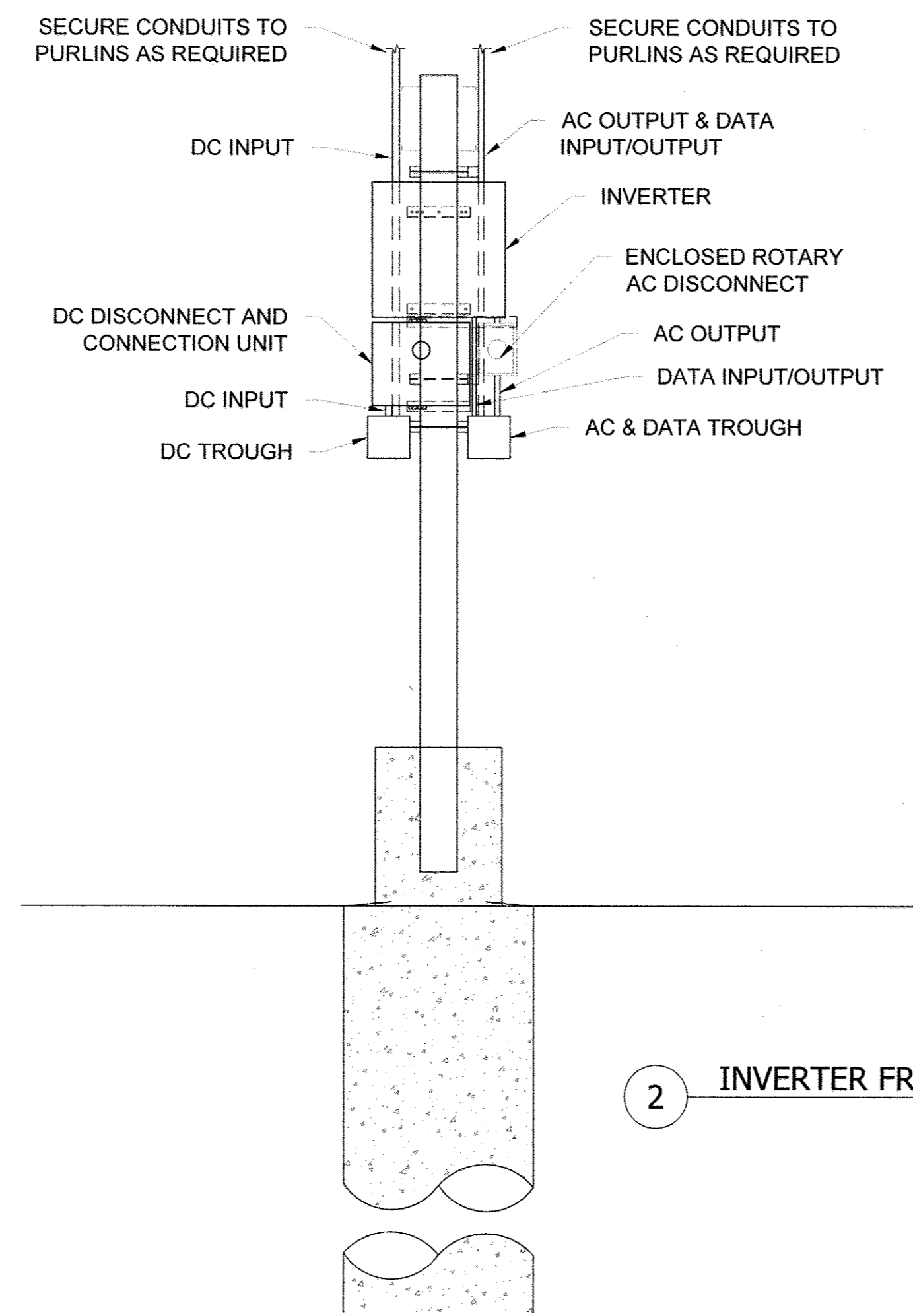
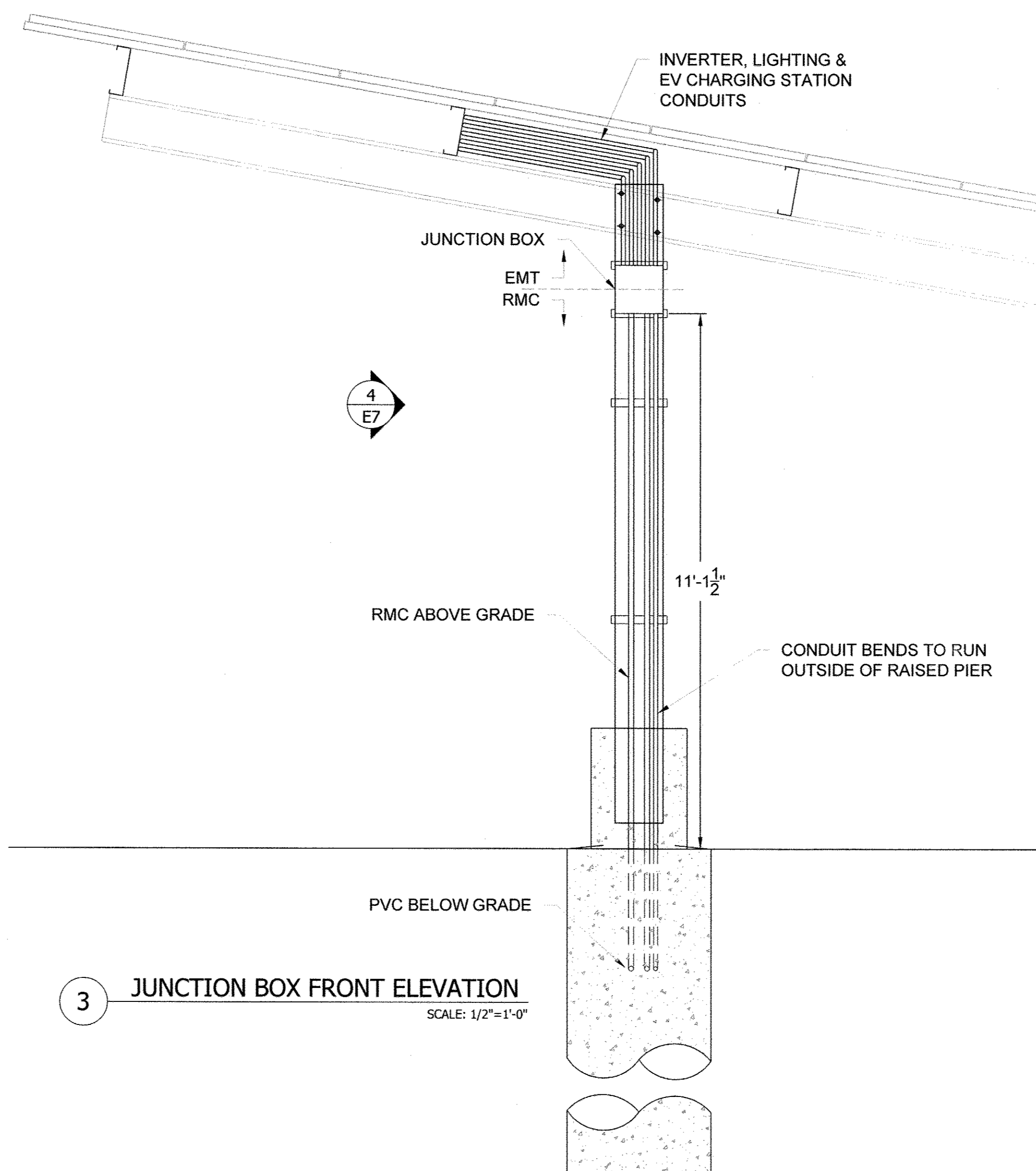
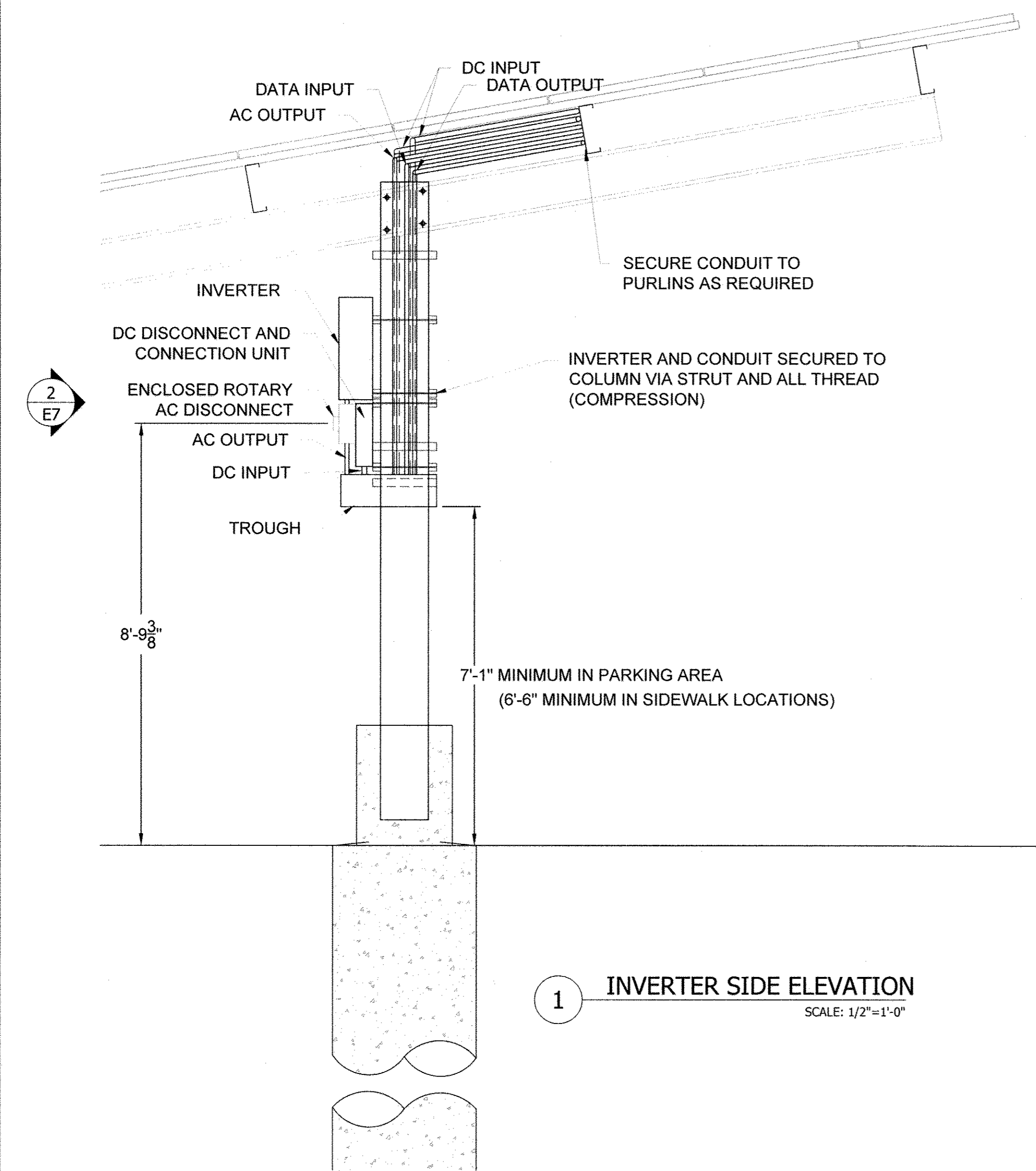
[Signature] 1/27/15
CHIEF, UTILITY DESIGN DIVISION DATE

NOTES:

1. ASSUMED RHO = 120°C-cm/W.
2. ALL TRENCHES SHALL BE COMPACTED TO GREATER THAN 90% RELATIVE COMPACTION.
3. TRENCHES GREATER THAN 18" IN WIDTH SHALL CONTAIN ADDITIONAL ELECTRICAL WARNING TAPE.
4. CABLES IN TRENCHES SHALL NOT BE STACKED WITHOUT ENGINEERING APPROVAL.
5. COMPACT TRENCH BACKFILL TO GREATER THAN 90% FULL DEPTH FOR TRENCHES WITHIN 5 FEET OF PIERS, FOOTINGS OR OTHER STRUCTURES. AT ALL LOCATIONS, COMPACTION SHALL BE SUFFICIENT TO SUPPORT LARGEST CONSTRUCTION OR MAINTENANCE VEHICLE ON SITE.
6. THE CONTRACTOR AND SITE SUPERINTENDENT RESPONSIBLE TO FOLLOW THE INSTALLATION MANUAL FOR EQUIPMENT SPECIFIC INFORMATION.
7. UTILITY TRENCH RESTORATION SHALL COMPLY WITH COUNTY STANDARD ROADWAY REPAVING DETAIL G-4.01

CAUTION TO CONTRACTOR: THE CONTRACTOR SHALL BE RESPONSIBLE TO INVESTIGATE AND VERIFY THE ACTUAL LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND FACILITIES AT LEAST 48 HOURS IN ADVANCE OF THE PERFORMANCE OF ANY WORK.

REPLACEMENT SHEET
AS-BUILTS



SYSTEM DESCRIPTION

DESIGN WIND SPEED:	105 MPH	HIGH TEMP:	36° C
EXPOSURE CATEGORY:	B	LOW TEMP:	-15° C
MODULE TYPE:	SUNIVA 295 (295W DC STC)		
QUANTITY:	736 MODULES (56 STRINGS OF 10, 8 STRINGS OF 8, 7 STRINGS OF 9, AND 7 STRINGS OF 7)		
SYSTEM SIZE (DC):	DISINFECTION BUILDING: 42.5 kW ADMINISTRATION BUILDING: 47.2 kW CARPORT: 127.4 kW TOTAL: 217.1 kW		
BUILDING HEIGHT:	HIGHEST: 20ft, LOWEST: 15ft		
MOUNTING SYSTEM:	PANEL CLAW GRIZZLY BEAR AND BAJA CARPORT		
TILT ANGLE:	ROOF: 13°, CARPORT: 7°		
ARRAY AZIMUTH:	180°		
MONITORING SYSTEM:	LOCUS ENERGY LGATE 101E		
INVERTER(S):	SMA SUNNY TRIPOWER: [1] 12000TL-US (12kW), [2] 15000TL-US (15kW), AND [7] 20000TL-US (20kW) INVERTERS.		

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PROJECT TITLE: Howard County - Little Patuxent WRP
PROJECT ADDRESS: 8900 Greenwood Pl, Savage, MD 20763
SHEET TITLE: CARPORT INVERTER & J-BOX ELEVATIONS

REVISIONS

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DRAWN BY: RCE
APPROVED BY: CJC
DATE: 7.07.2014
ORIGINAL SHEET SIZE: 36X24
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SCALE: AS NOTED
DRAWING: E7

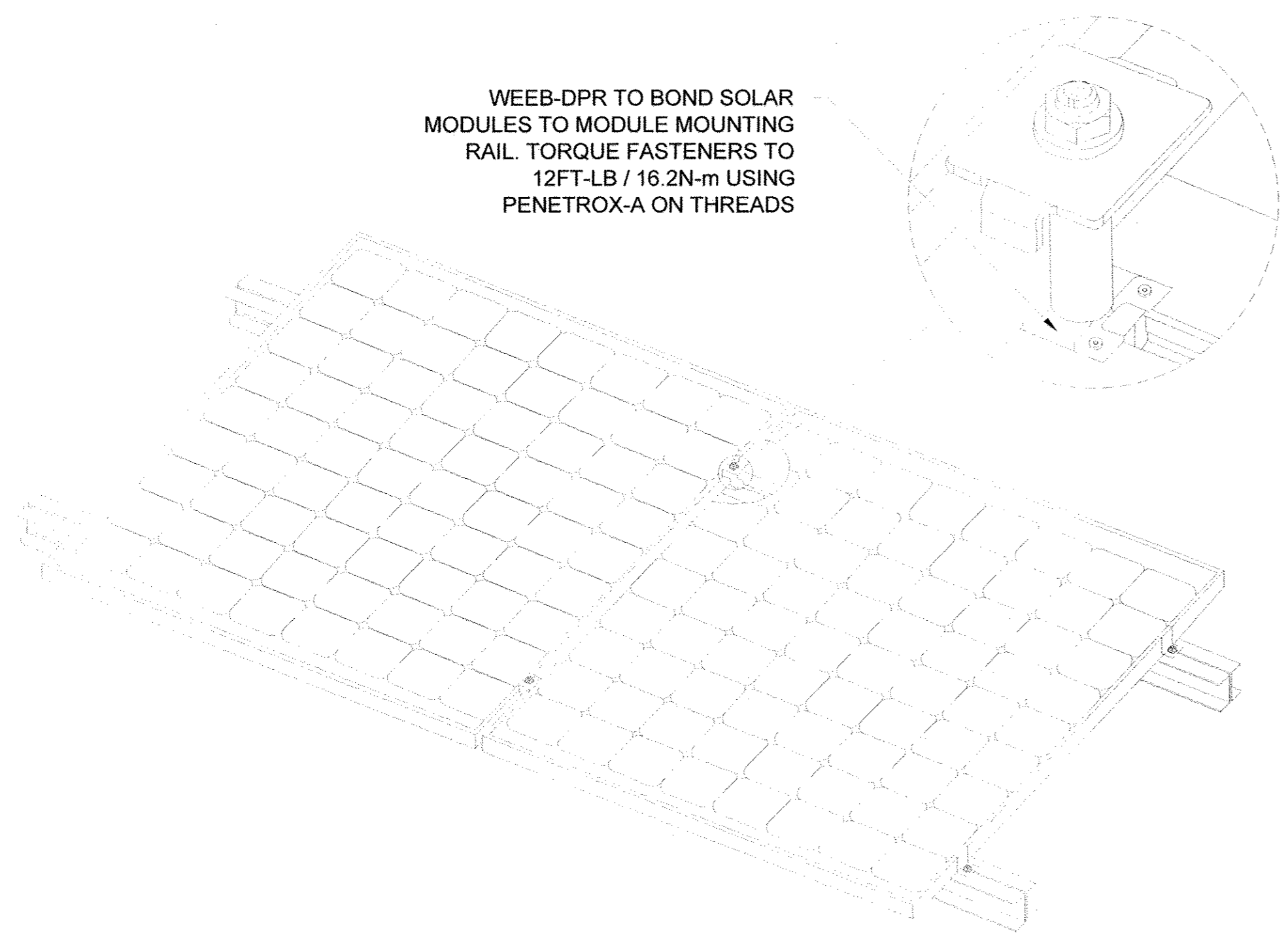
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HOWARD COUNTY, MARYLAND

John G. ... 2/3/15
DIRECTOR OF PUBLIC WORKS DATE

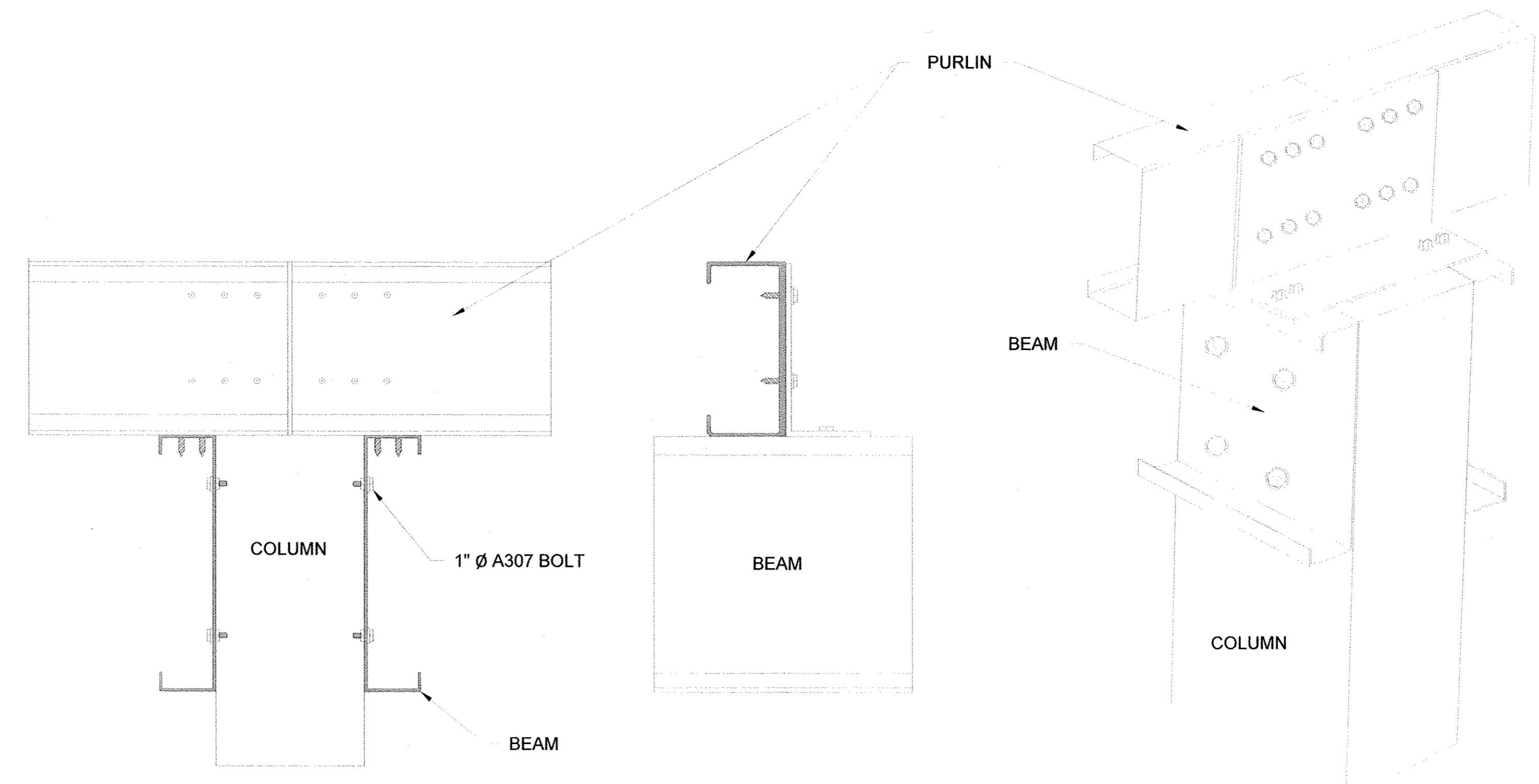
Thomas & ... 1/30/15
CHIEF, BUREAU OF ENGINEERING DATE

... 1/27/15
CHIEF, UTILITY DESIGN DIVISION DATE

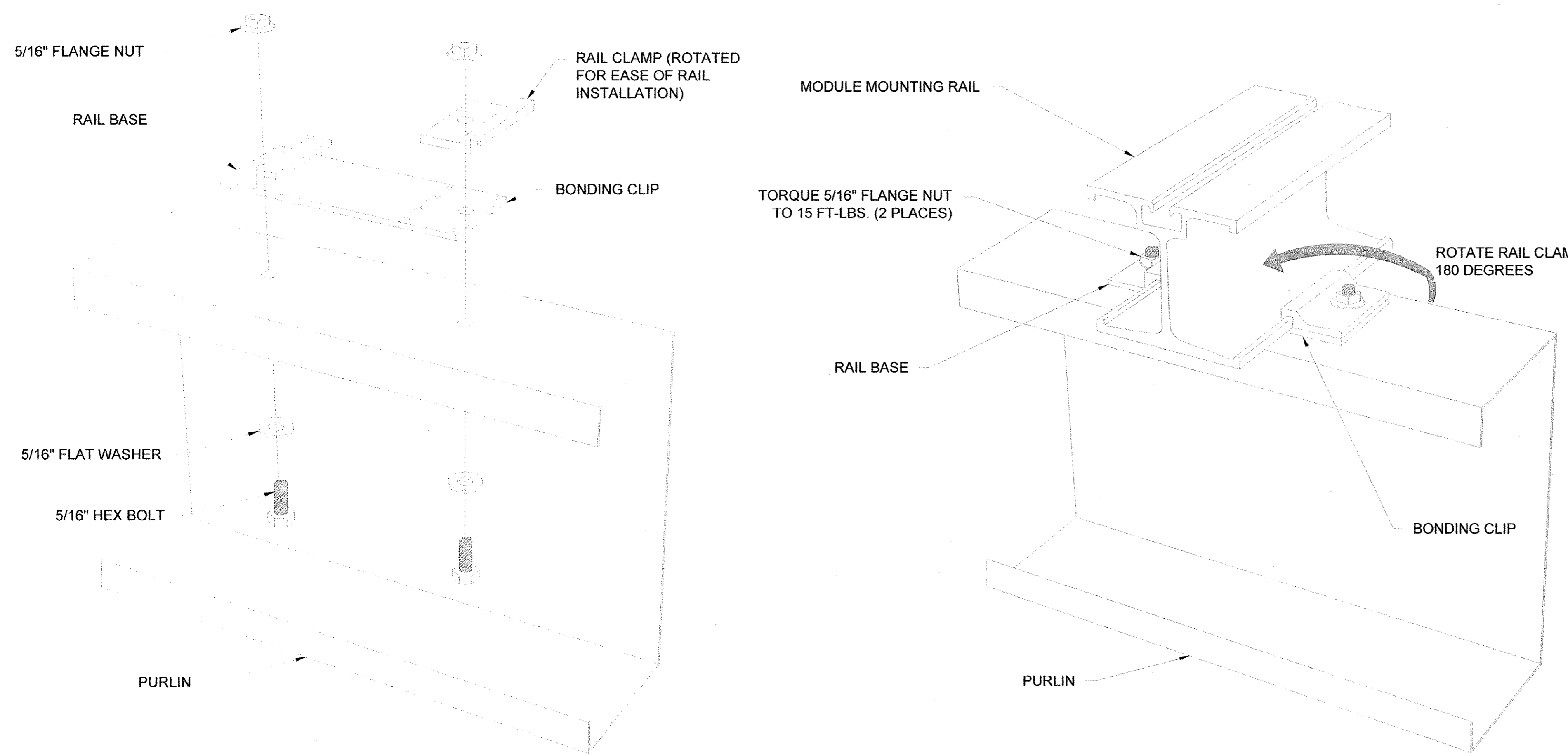
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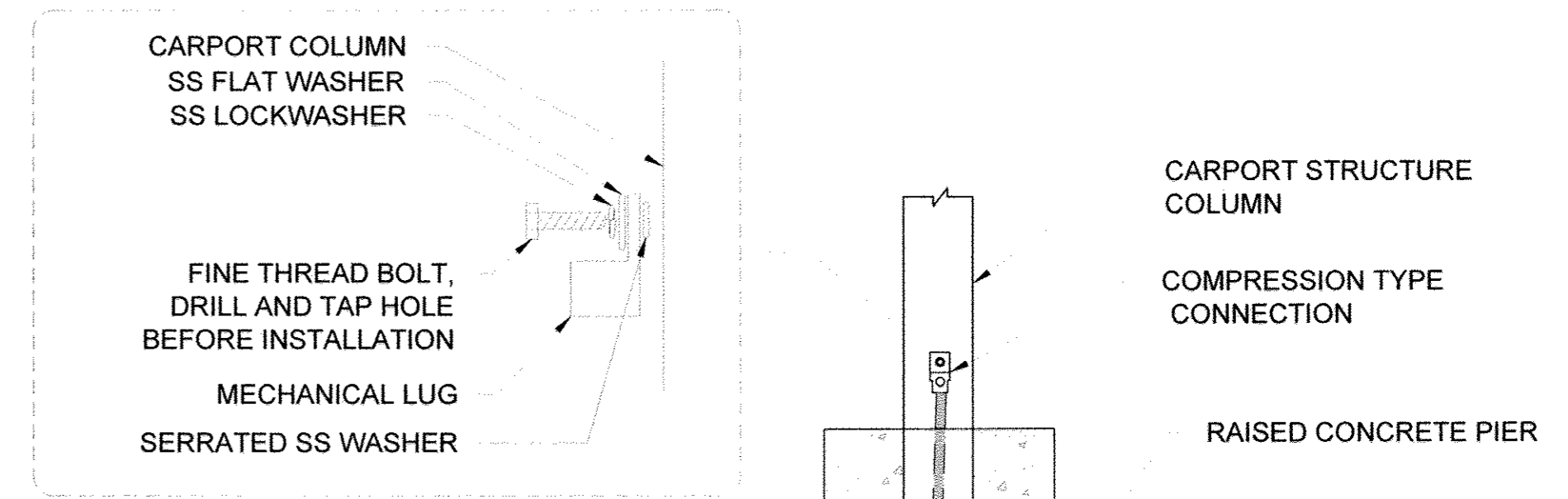
1 MODULE TO RAIL BONDING
SCALE: NTS



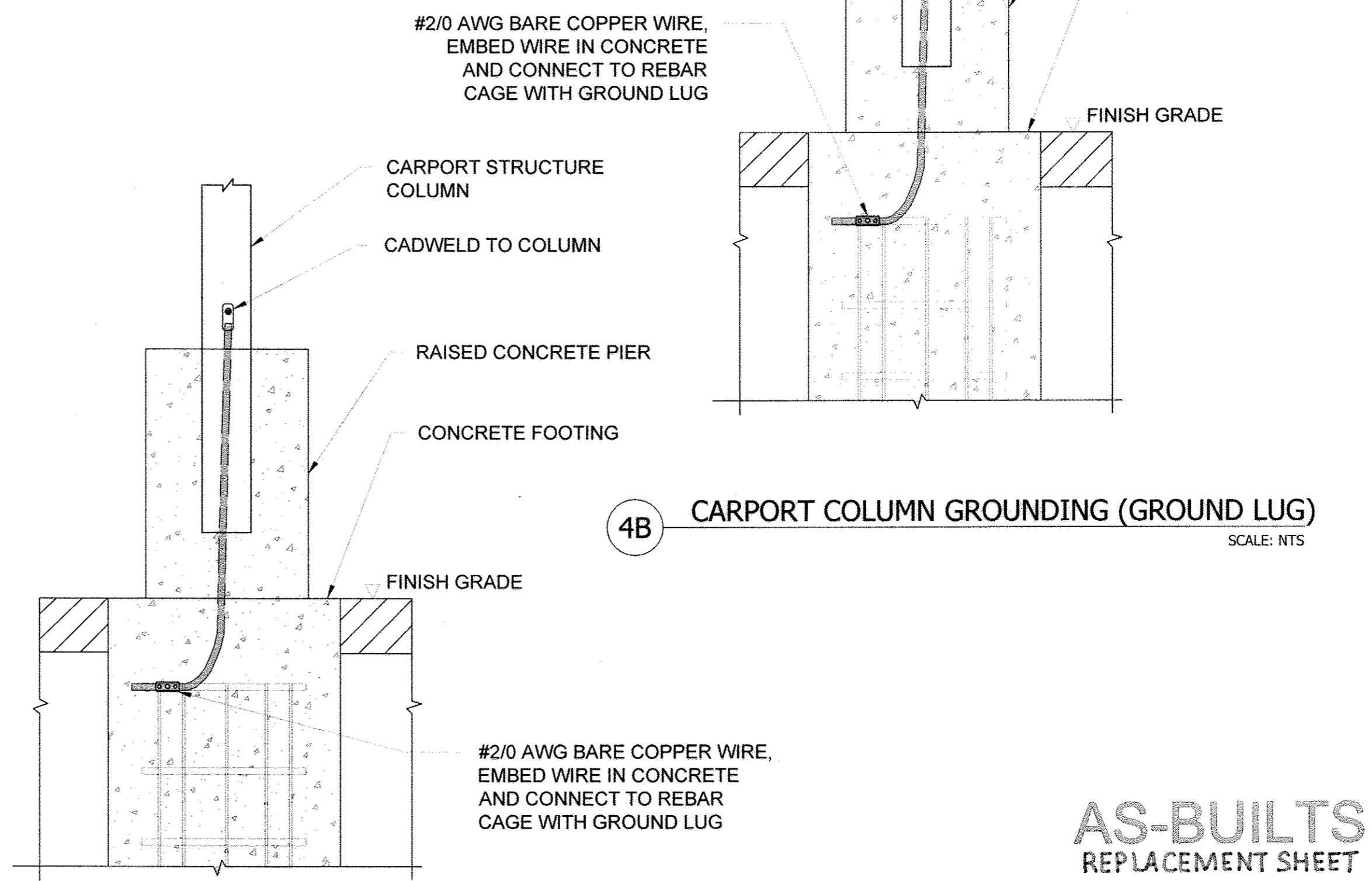
3 COLUMN, BEAM AND PURLIN BONDING
SCALE: NTS



2 RAIL TO PURLIN BONDING
SCALE: NTS



4B CARPORT COLUMN GROUNDING (GROUND LUG)
SCALE: NTS

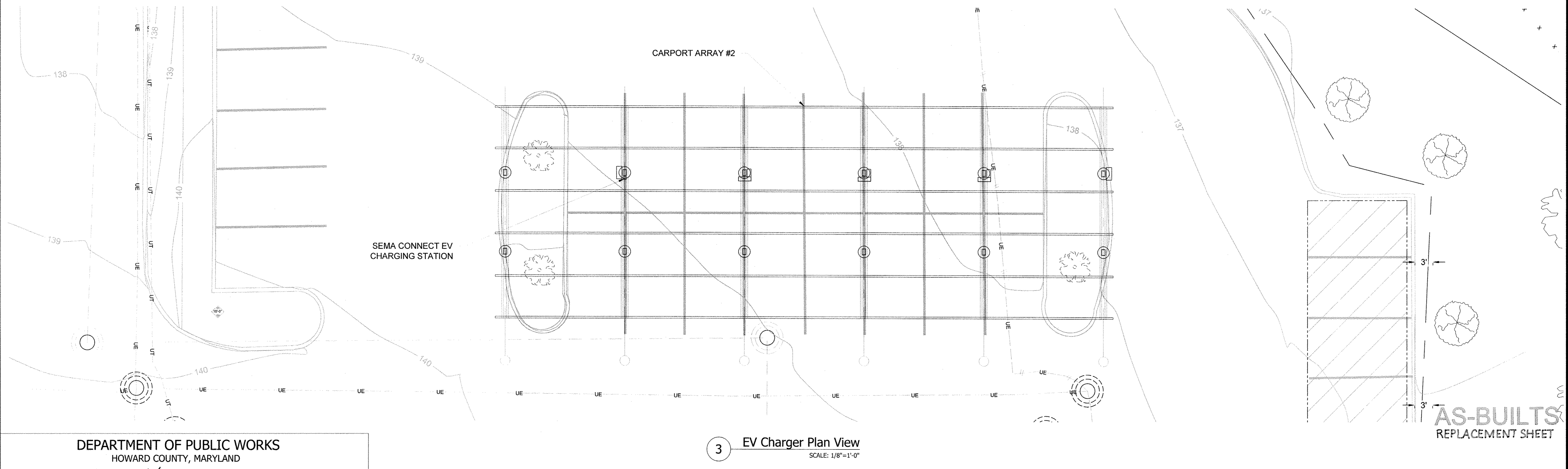
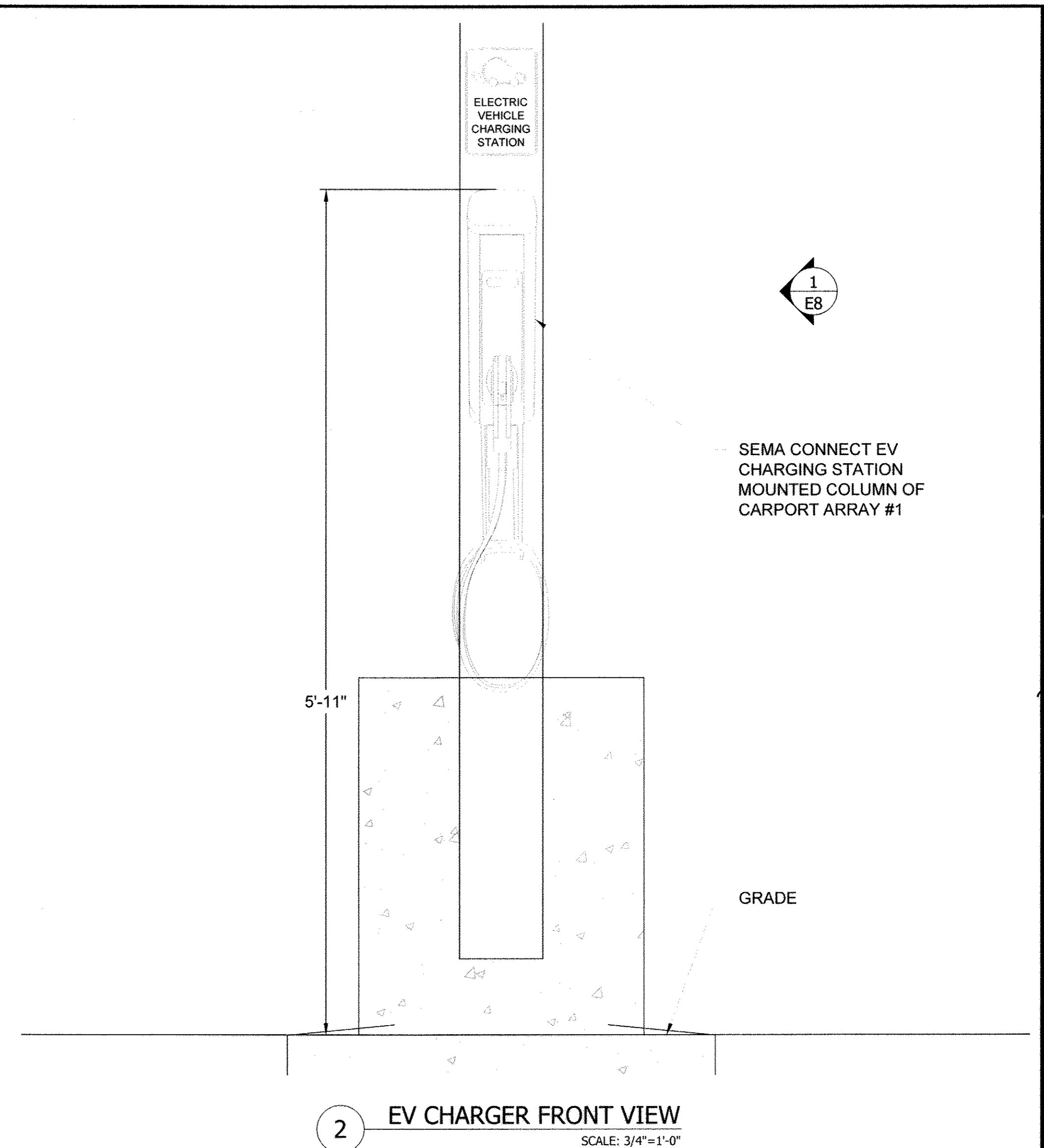
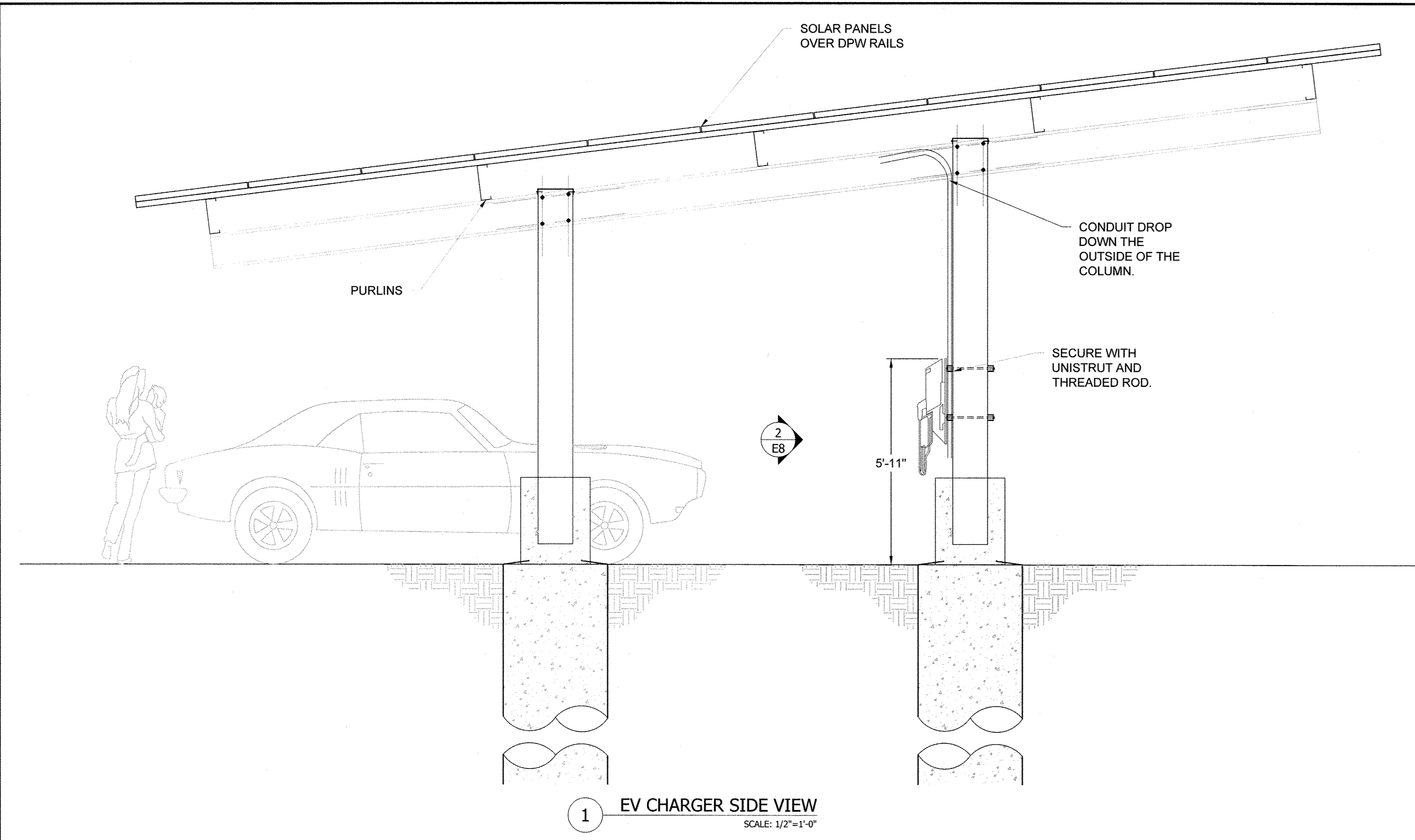


4A CARPORT COLUMN GROUNDING (CADWELD)
SCALE: NTS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] 2/3/15
Chief, Bureau of Utilities: [Signature] 11/12/14
Office of Engineering: [Signature] 12/7/15
Chief, Utility Design Division: [Signature]

AS-BUILTS
REPLACEMENT SHEET



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 HOWARD COUNTY, MARYLAND

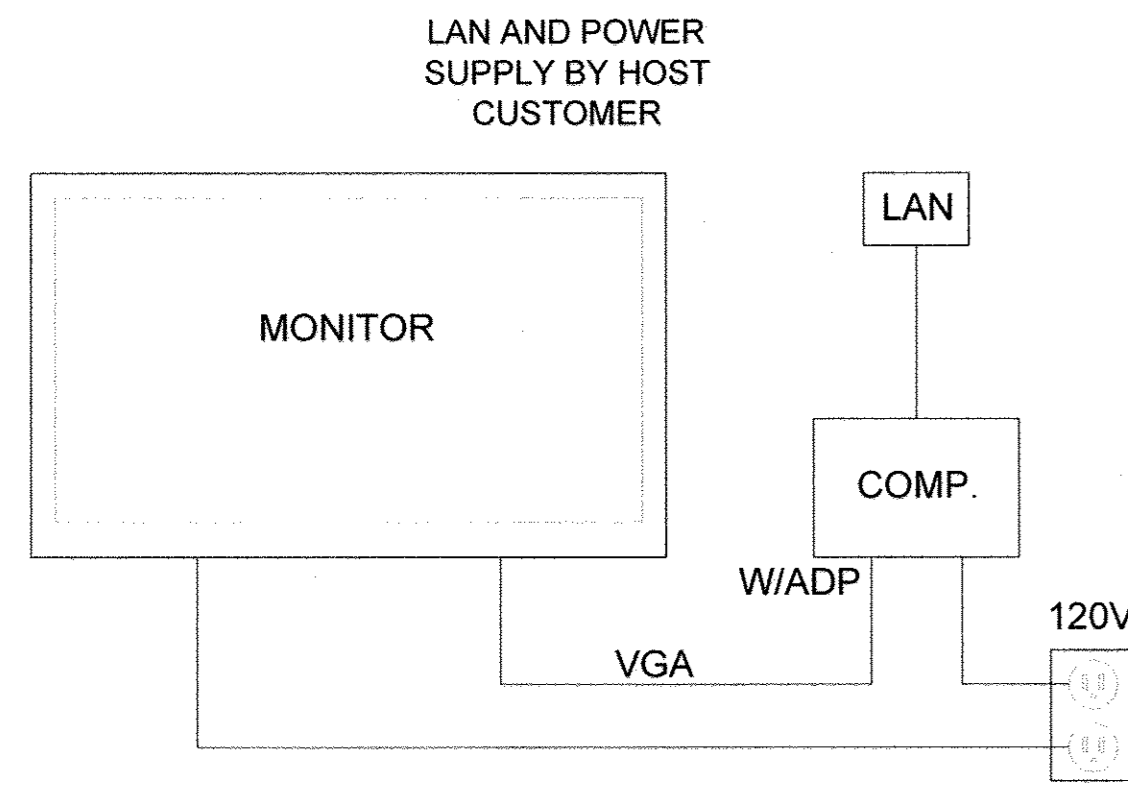
Ray G. ... 2/3/15
 DIRECTOR OF PUBLIC WORKS DATE

Thomas S. ... 1/30/15
 CHIEF, BUREAU OF ENGINEERING DATE

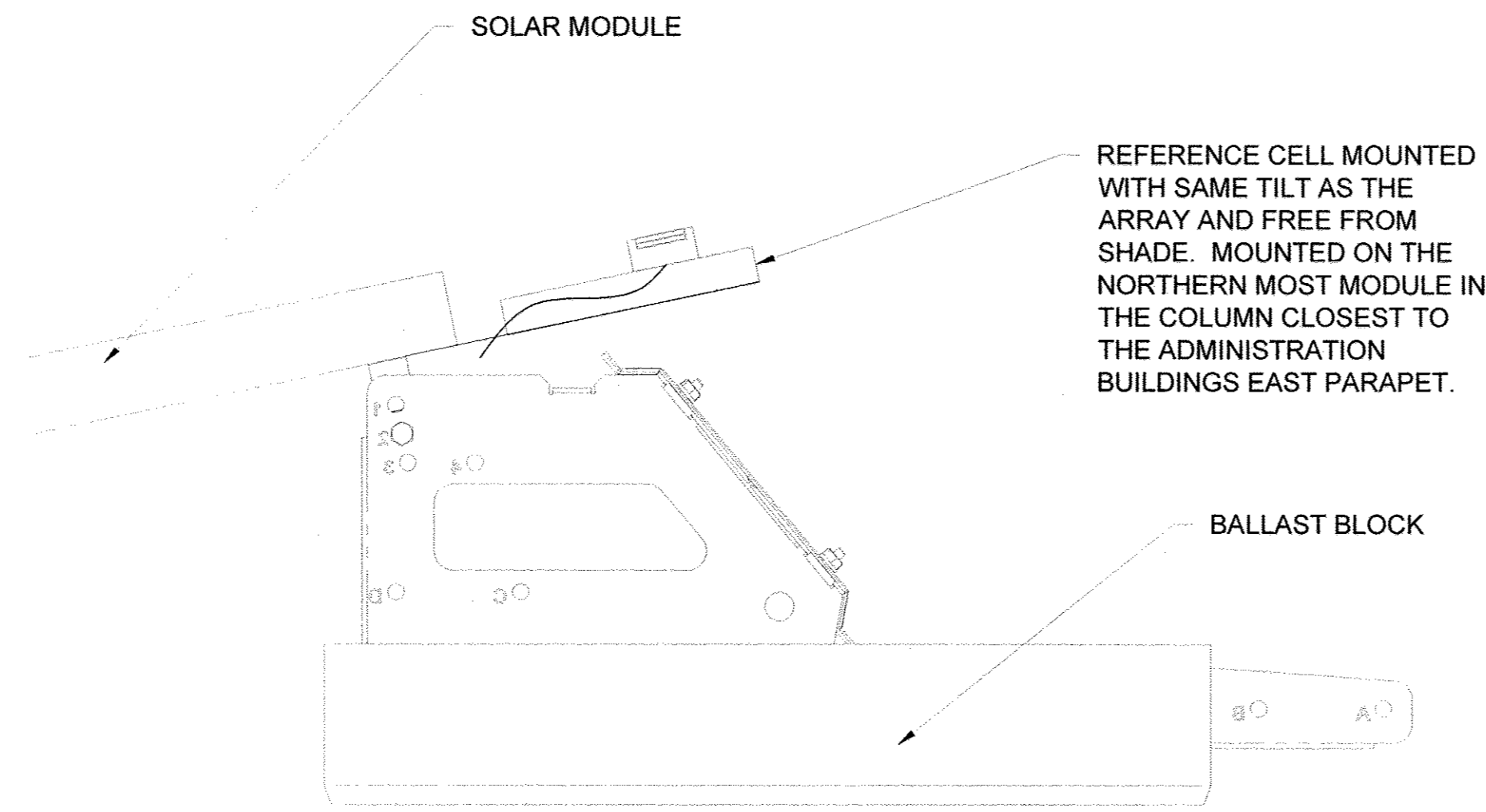
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 CHIEF, UTILITY DESIGN DIVISION DATE

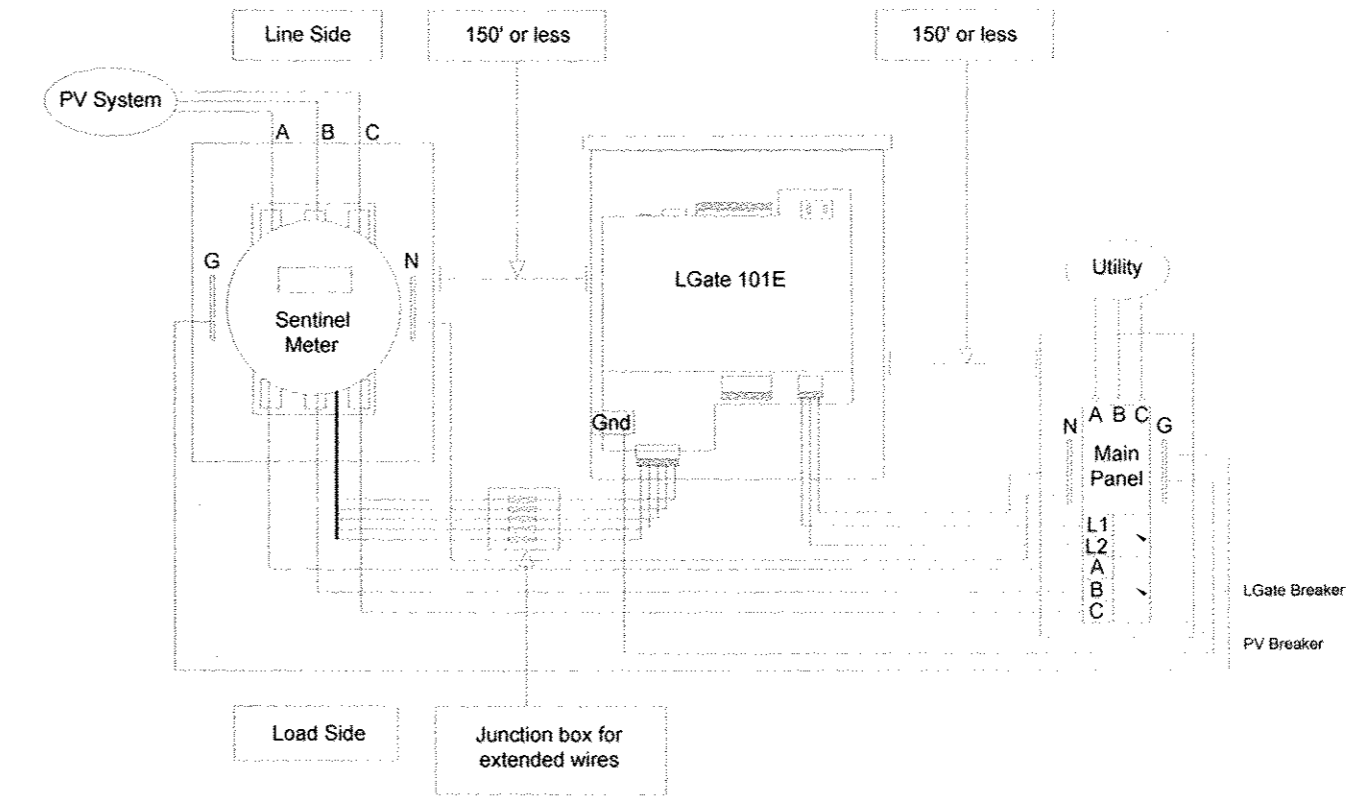
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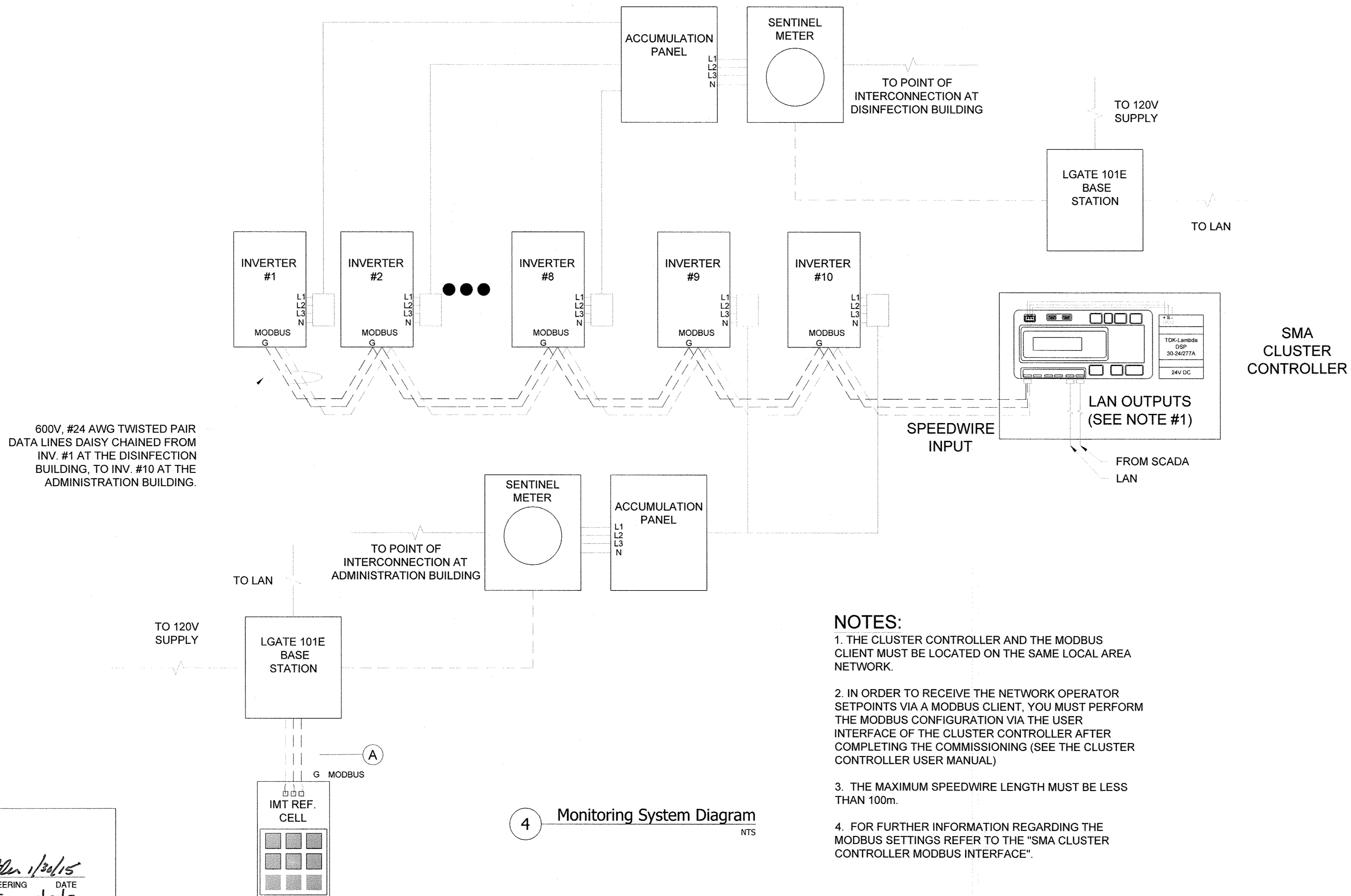
1 Lobby Display Diagram
On North Wall at Administration Bld. Entrance



2 Reference Cell Details
NTS



3 Data Logger
NTS



- NOTES:**
1. THE CLUSTER CONTROLLER AND THE MODBUS CLIENT MUST BE LOCATED ON THE SAME LOCAL AREA NETWORK.
 2. IN ORDER TO RECEIVE THE NETWORK OPERATOR SETPOINTS VIA A MODBUS CLIENT, YOU MUST PERFORM THE MODBUS CONFIGURATION VIA THE USER INTERFACE OF THE CLUSTER CONTROLLER AFTER COMPLETING THE COMMISSIONING (SEE THE CLUSTER CONTROLLER USER MANUAL)
 3. THE MAXIMUM SPEEDWIRE LENGTH MUST BE LESS THAN 100m.
 4. FOR FURTHER INFORMATION REGARDING THE MODBUS SETTINGS REFER TO THE "SMA CLUSTER CONTROLLER MODBUS INTERFACE".

4 Monitoring System Diagram
NTS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 2/6/15
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 1/24/15
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 1/21/15
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 1/21/15
CHIEF, UTILITY DESIGN DIVISION DATE

STANDARD SOLAR
Clean Energy. Smart Business.
1355 Piccard Drive, Suite 300
Rockville, MD 20850
301-944-1200
www.StandardSolar.com

ESG
PROFESSIONAL ELECTRICAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE APPLICABLE CODES IN THE STATE OF MARYLAND, INCLUDING THE 2012 EDITION, WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

[Signature]
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PROJECT TITLE
Howard County - Little Patuxent WRP
PROJECT ADDRESS
8900 Greenwood Pl.
Savage, MD 20763
SHEET TITLE
MONITORING SYSTEM DIAGRAM & DETAILS

REVISIONS

DISCLAIMER
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PROJECT NUMBER
13-C005

DRAWN BY
RCE

APPROVED BY
CJC

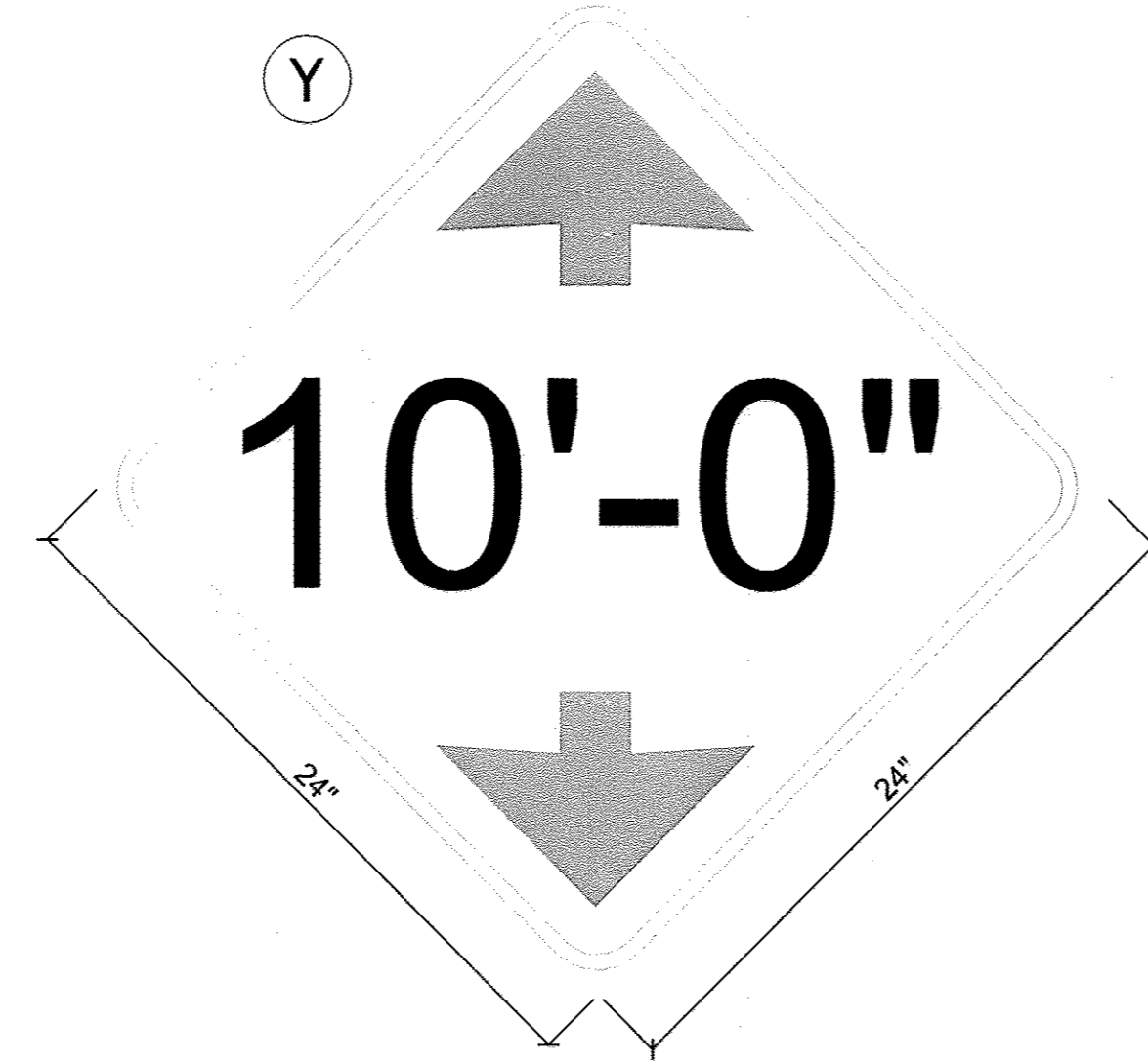
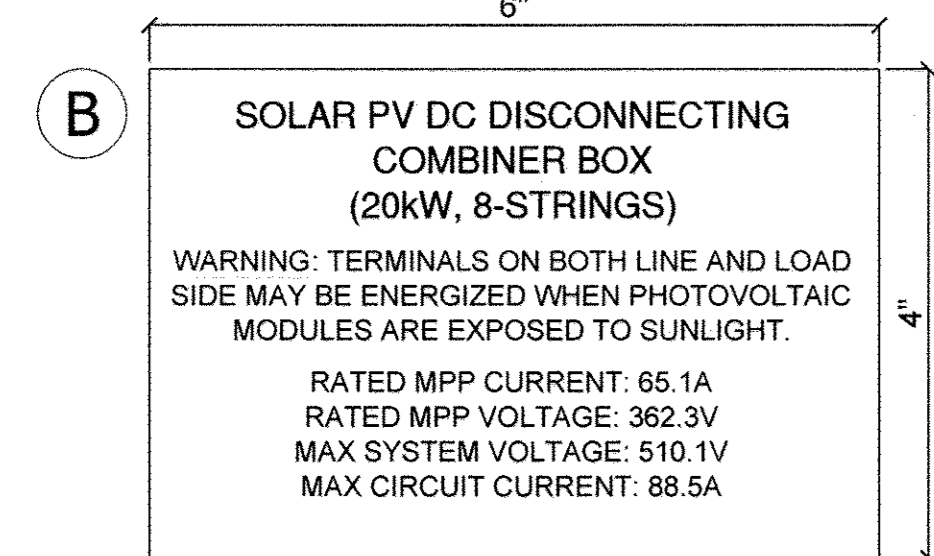
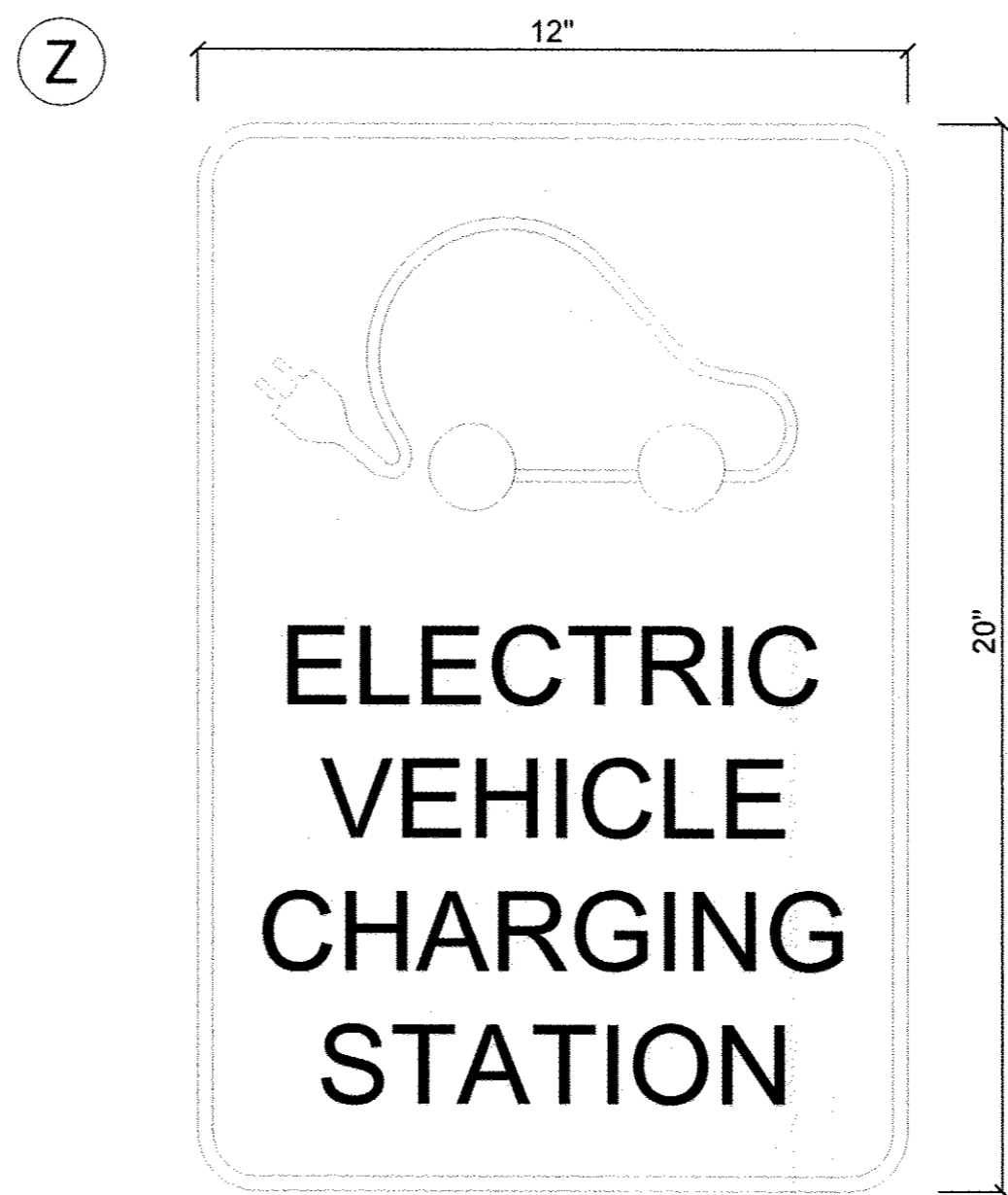
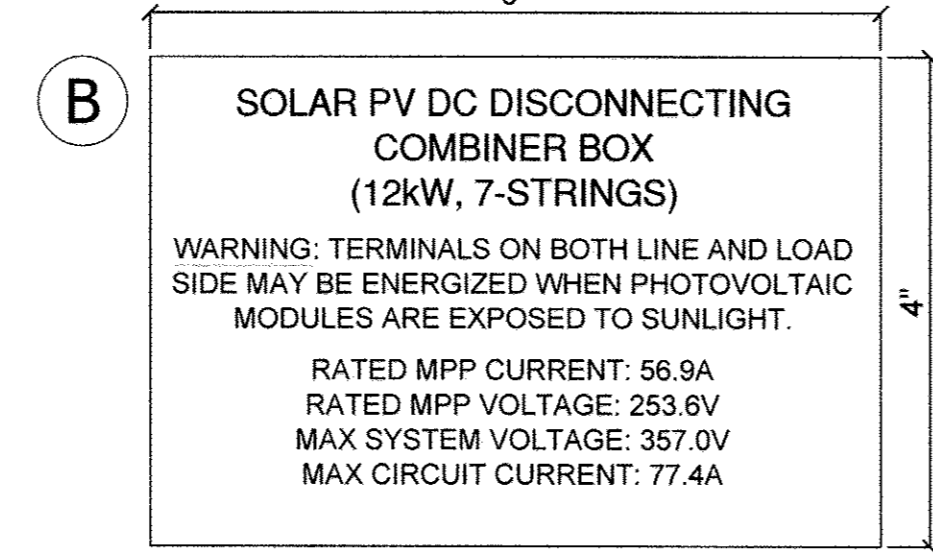
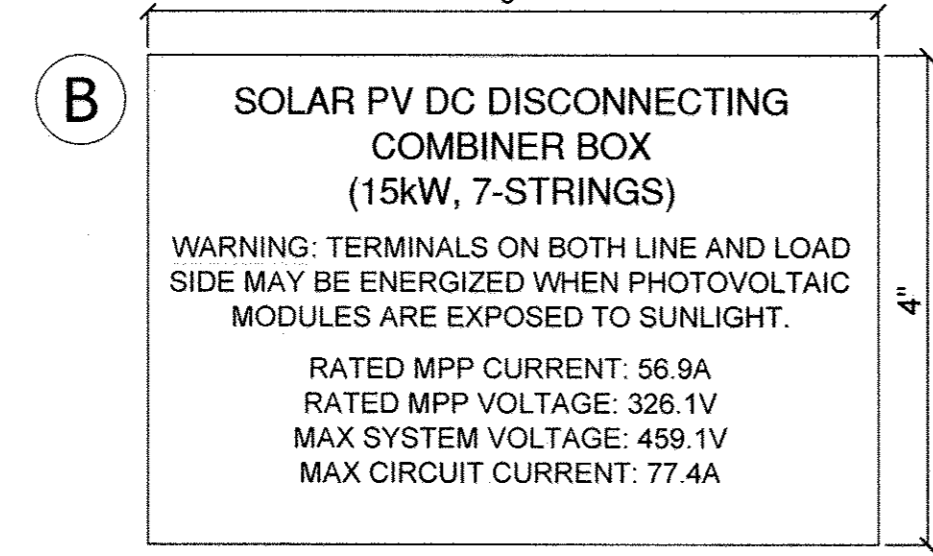
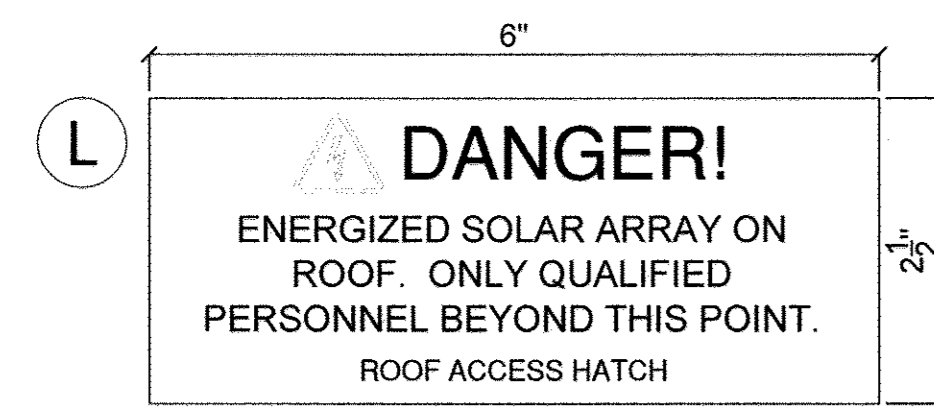
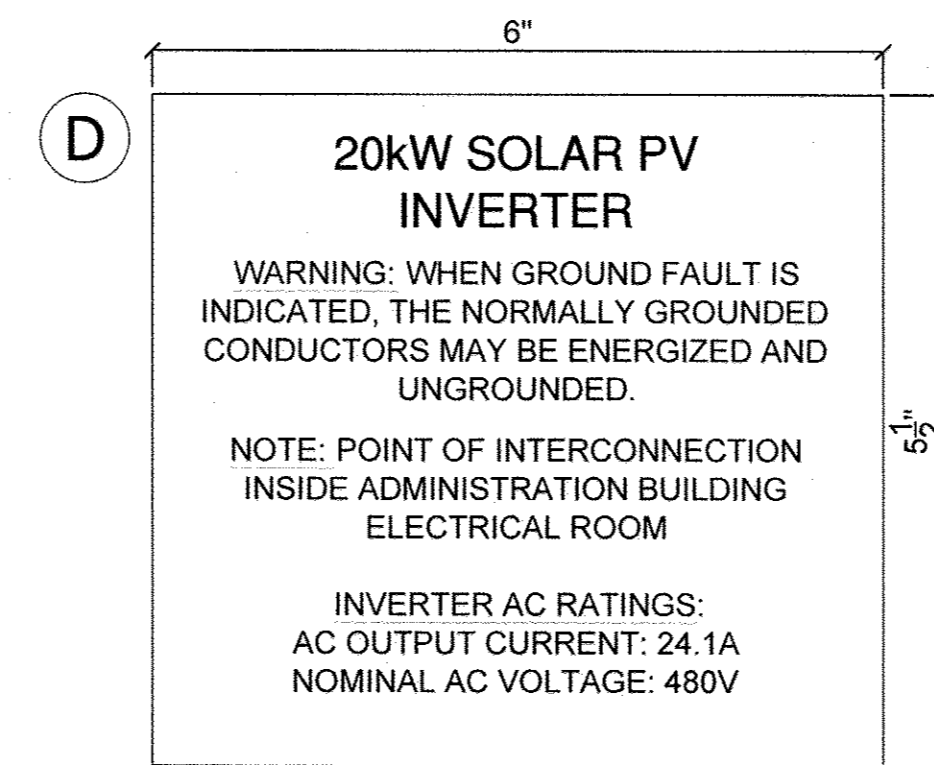
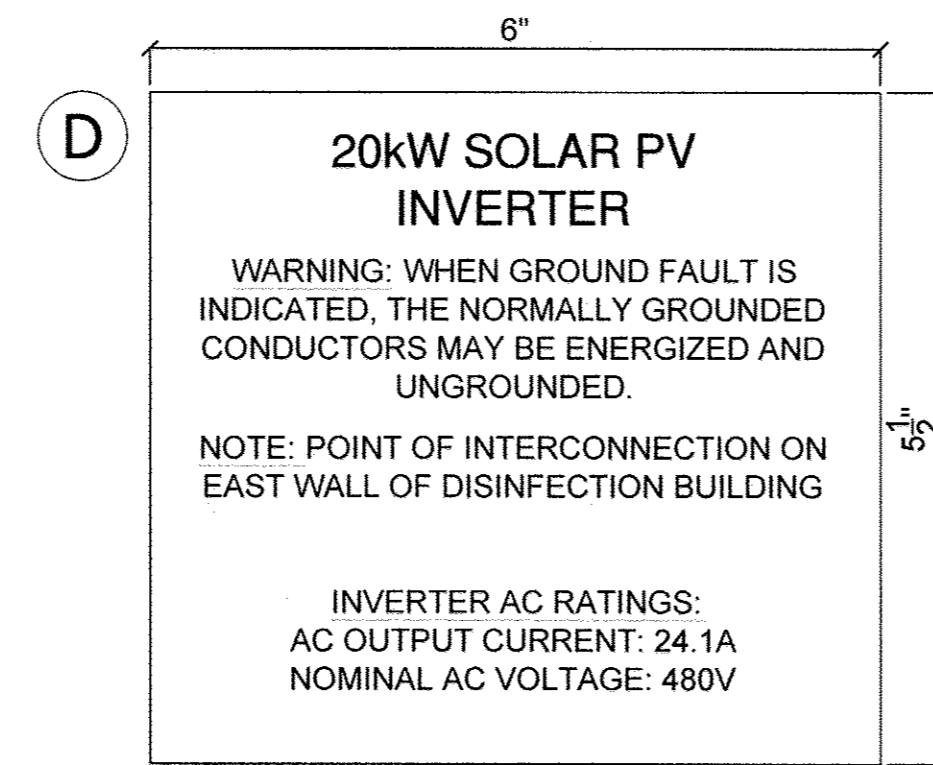
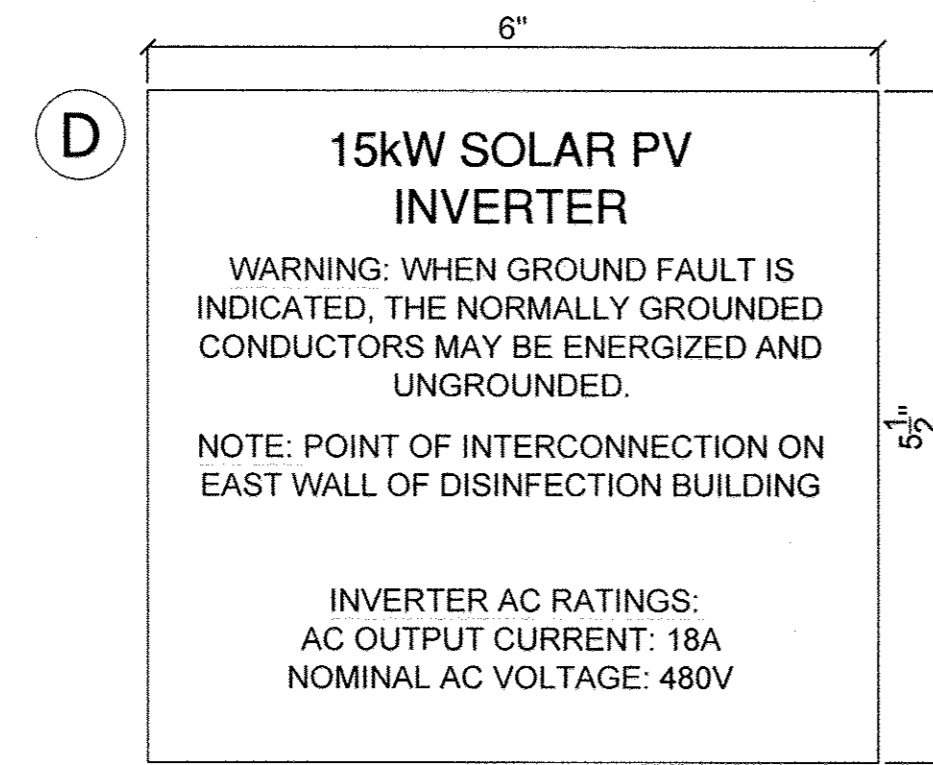
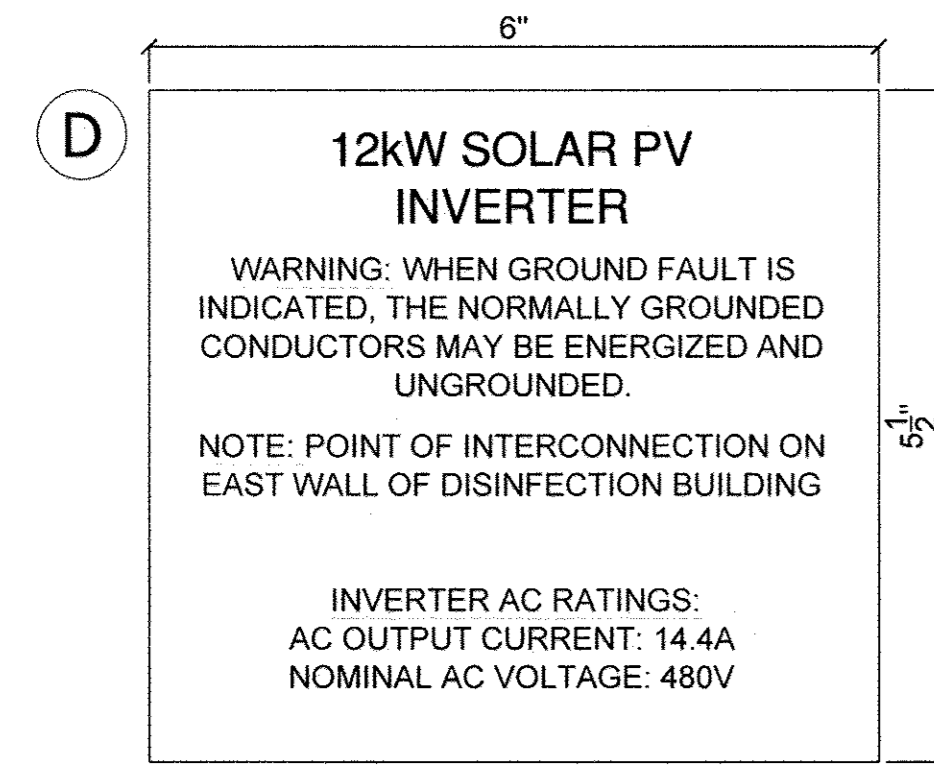
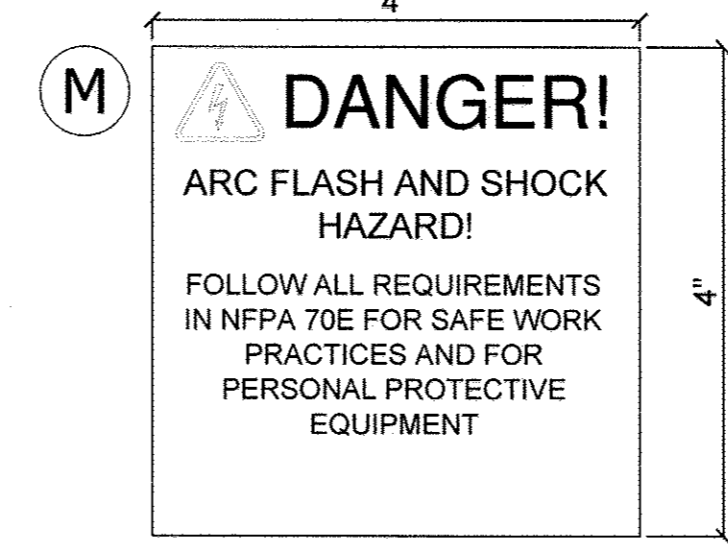
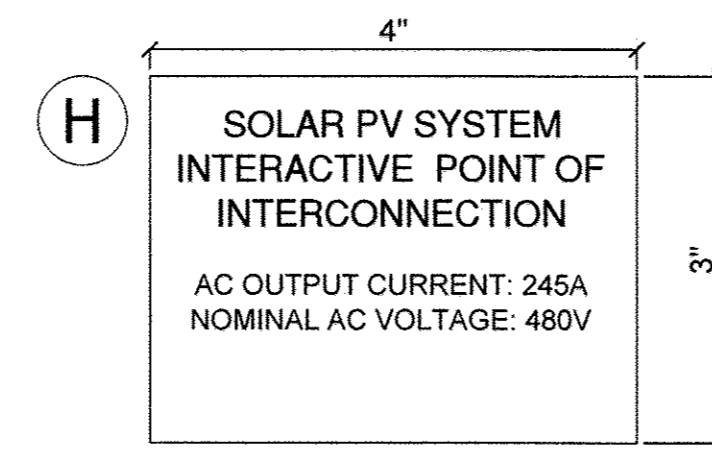
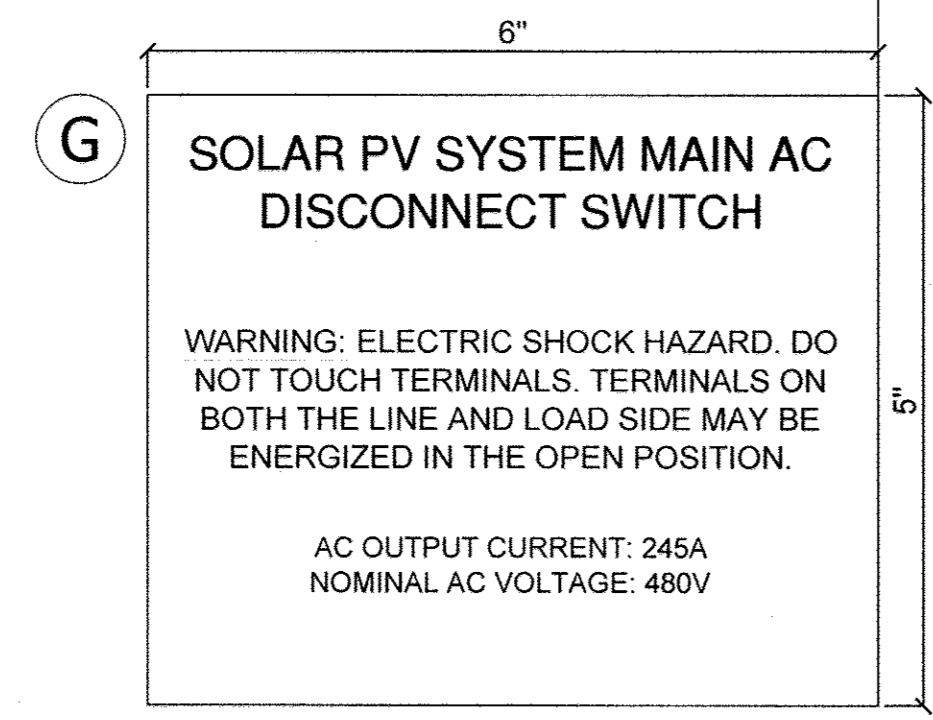
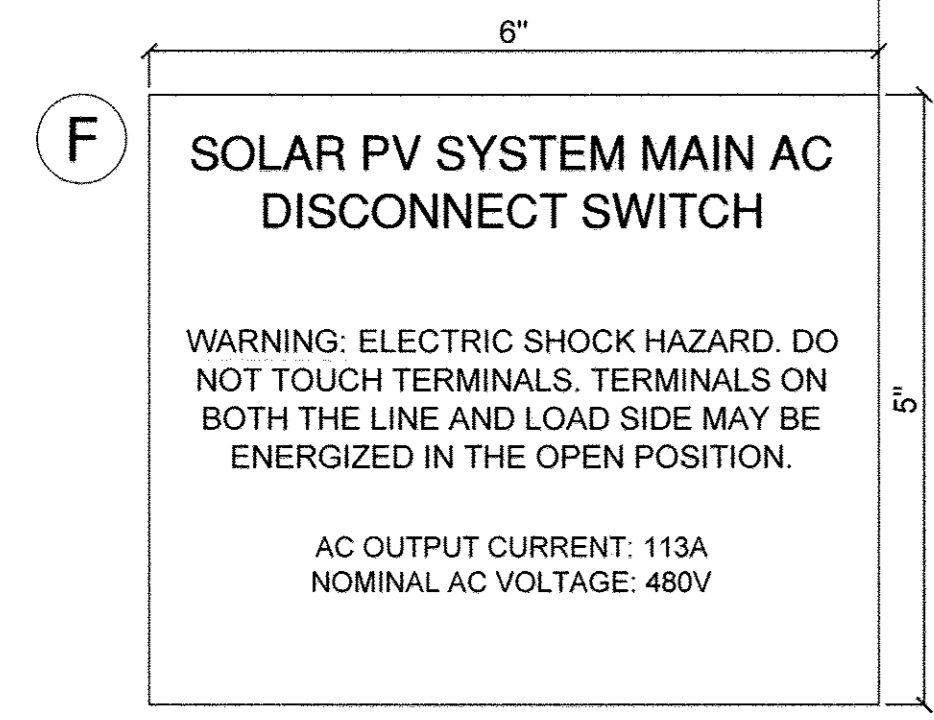
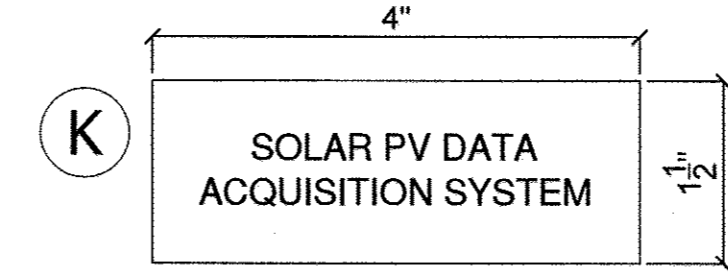
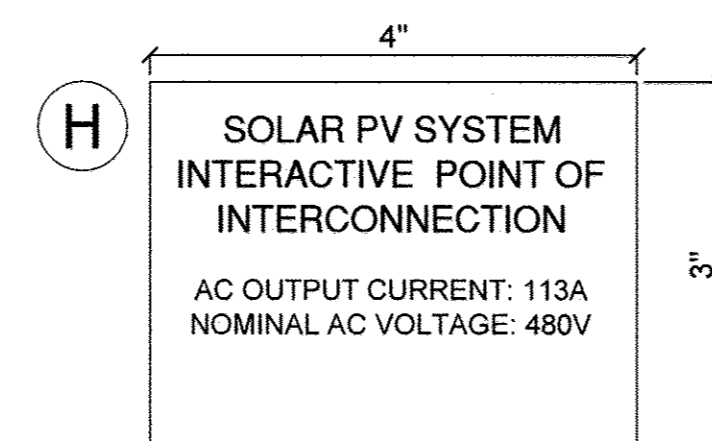
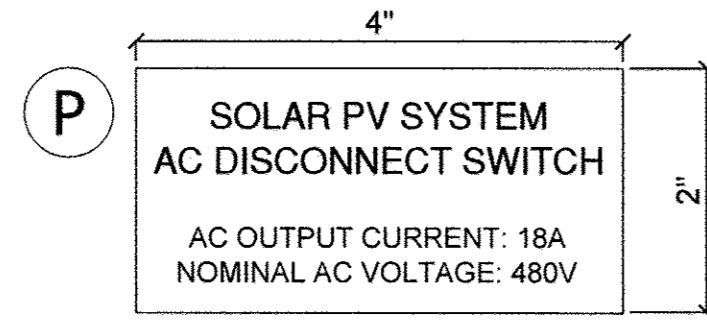
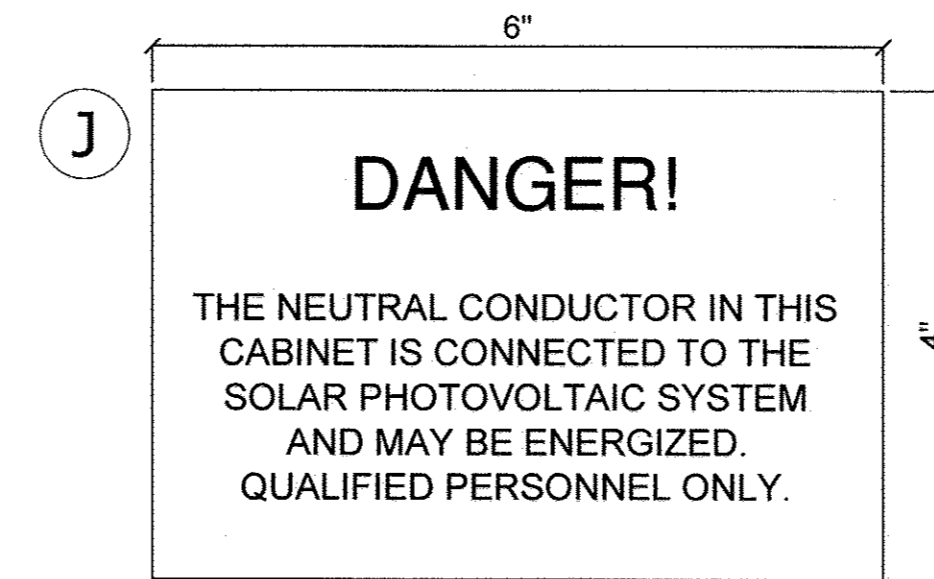
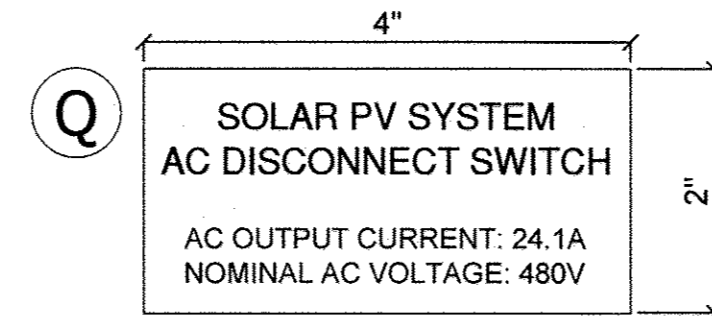
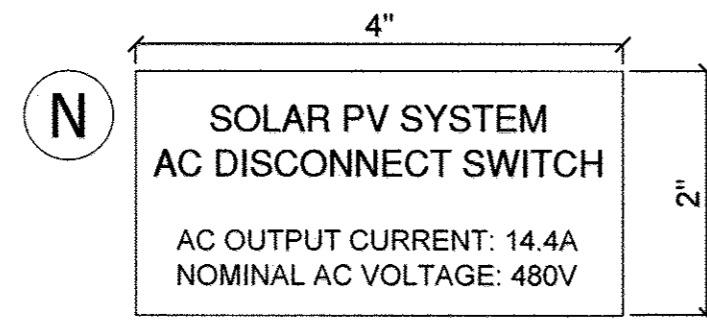
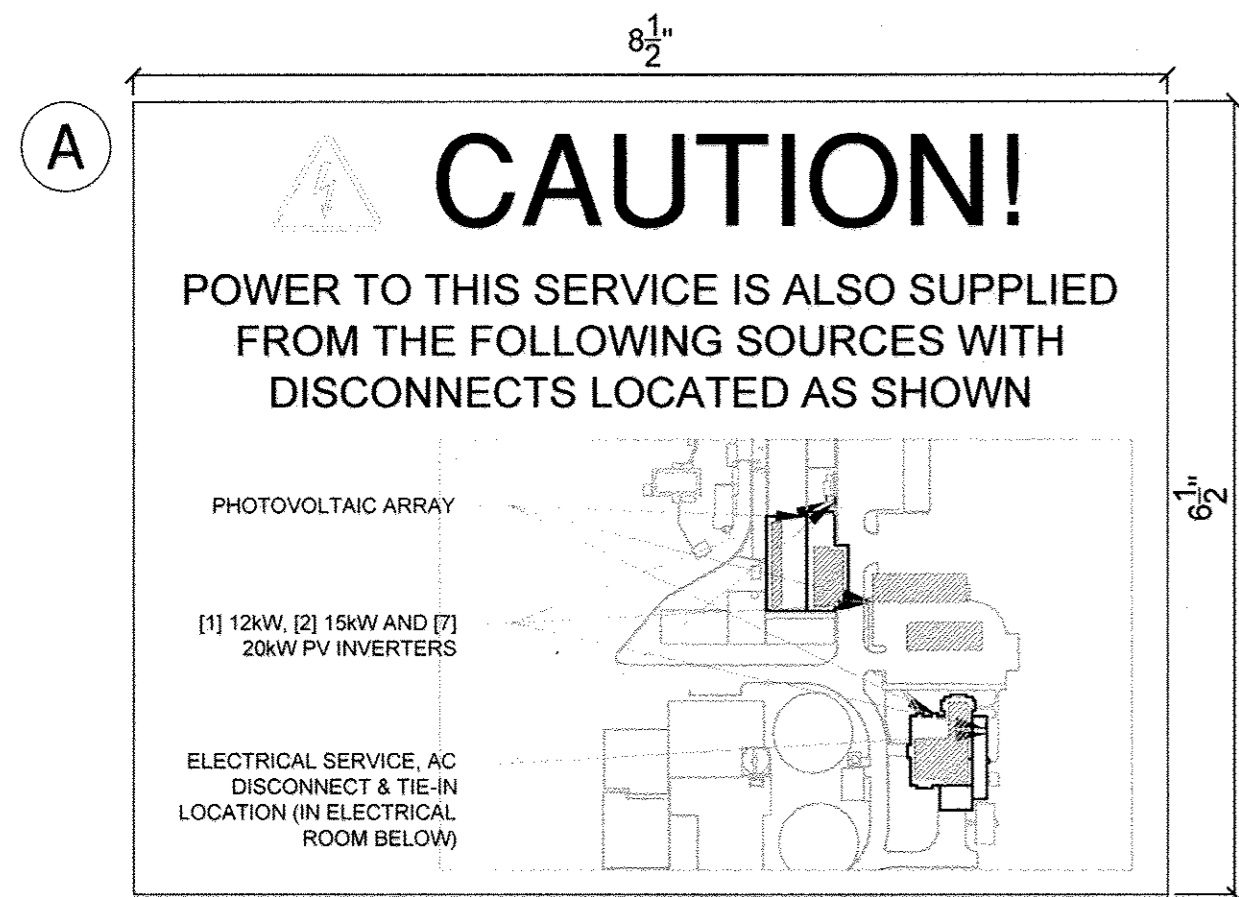
DATE
7.07.2014

ORIGINAL SHEET SIZE
36X24
SHOULD MEASURE 1":

SCALE
NTS

DRAWING
E9

AS-BUILTS
REPLACEMENT SHEET



GENERAL NOTES FOR LABELS AND MARKINGS:

1. LABELS AND MARKINGS SHALL BE APPLIED TO THE APPROPRIATE COMPONENTS IN ACCORDANCE WITH THE NEC.
2. SOLAR MODULES AND INVERTER(S) ARE SUPPLIED FROM THE MANUFACTURER WITH MARKINGS PRE-APPLIED TO MEET THE REQUIREMENTS OF THE NEC.
3. TEXT LABELS WILL BE ETCHED WITH BLACK GRAPHICS ONTO 1/16" YELLOW PLASTIC PLACARDS. THE LABEL WILL BE ATTACHED TO THE APPROPRIATE COMPONENT ENCLOSURES IN CONSPICUOUS PLACES USING A HIGH STRENGTH ADHESIVE. THE PLACARD CORNERS SHOULD BE CHAMFERED 1/4" RADIAL.
4. LABEL "A" WILL BE ETCHED WITH BLACK GRAPHICS ONTO 1/16" YELLOW PLASTIC PLACARD. THE LABEL WILL BE EFFECTIVELY BONDED TO THE EXISTING FACILITY SWITCHBOARD AND THE NEW PHOTOVOLTAIC SYSTEM DISCONNECT.

LABELS AND MARKINGS LEGEND:

- A. PROVIDES THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC DISCONNECTING MEANS. THIS PLAQUE SHALL BE APPLIED TO THE MAIN SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC DISCONNECTING MEANS; ONE PER POCC.
- B. PHOTOVOLTAIC COMBINER BOX GENERIC WARNING LABEL APPLIED TO ALL PHOTOVOLTAIC COMBINER BOXES; ONE PER COMBINER BOX.
- D. PHOTOVOLTAIC INVERTER OPERATING SPECIFICATIONS LABEL APPLIED TO ALL INVERTERS.
- F. LABEL TO BE PLACED ON MAIN AC DISCONNECT AT ADMINISTRATION BUILDING.
- G. LABEL TO BE PLACED ON MAIN AC DISCONNECT AT DISINFECTION BUILDING.
- H. LABEL REQUIRED BY UTILITY TO FIT ON OR NEAR THE INTERCONNECTION POINT.
- J. LABEL TO BE PLACED ON TRANSFORMER CABINET AT DISINFECTION BUILDING.
- K. SOLAR PV DATA ACQUISITION SYSTEM BOX GENERIC LABEL; ONE PER BOX.
- L. ROOF ACCESS LABEL TO BE PLACED ON THE INSIDE OF EACH ROOF ACCESS DOOR OR LATCH.
- M. TO BE PLACED ON INVERTER, DISCONNECTS & COMBINER BOXES.
- N. LABEL TO BE PLACED ON AC DISCONNECT FOR 12kW CARPORT INVERTER.
- P. LABEL TO BE PLACED ON AC DISCONNECT FOR 15kW CARPORT INVERTER.
- Q. LABEL TO BE PLACED ON (4) AC DISCONNECTS FOR 20kW CARPORT INVERTERS.
- Y. MINIMUM CLEARANCE SIGN
- Z. ELECTRIC VEHICLE SERVICE EQUIPMENT SIGN

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Rockville, MD 20850
301-944-1200
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ESG
PROFESSIONAL ELECTRICAL STRUCTURAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE APPLICABLE CODES IN THE STATE OF MARYLAND, INCLUDING THE 2012 EDITION, WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

PROFESSIONAL ELECTRICAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE APPLICABLE CODES IN THE STATE OF MARYLAND, INCLUDING NEC 2011 EDITION, WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

PROJECT TITLE: Howard County - Little Patuxent WRP
PROJECT ADDRESS: 8900 Greenwood Pl., Savage, MD 20763
SHEET TITLE: LABELS AND MARKINGS

REVISIONS

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PROJECT NUMBER: 13-C005
DRAWN BY: RCE
APPROVED BY: CJC
DATE: 7.07.2014
ORIGINAL SHEET SIZE: 36X24
SHOULD MEASURE 1":
SCALE: NTS
DRAWING: E10

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Janet Lee 2/3/15
DIRECTOR OF PUBLIC WORKS DATE

Thomas A. Bullock 1/30/15
CHIEF, BUREAU OF ENGINEERING DATE

John C. Green 11/21/14
CHIEF, BUREAU OF UTILITIES DATE

John C. Green 1/27/15
CHIEF, UTILITY DESIGN DIVISION DATE

GENERAL STRUCTURAL NOTES:

- CODE**
2012 INTERNATIONAL BUILDING CODE
2007 AISI-NAS COLD-FORMED STEEL DESIGN MANUAL
WITH 2010 SUPPLEMENT
- LOADS**
BUILDING OCCUPANCY CATEGORY II
ROOF LIVE LOAD: 30 PSF (SNOW)

BASIC WIND SPEED (3-SECOND GUST): 115 MPH, EXP. "C"
WIND IMPORTANCE FACTOR = 1.0

SEISMIC DESIGN CATEGORY "D"
SEISMIC IMPORTANCE FACTOR = 2.5
SITE CLASS "D"
SEISMIC FORCE RESISTING SYSTEM: CANTILEVERED COLUMN
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
- FOUNDATION**
FOUNDATION DESIGN BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF
PER IBC TABLE 1804.2, SOIL CLASS 4.
- CONCRETE**
ALL CONCRETE REQUIRED HERE-IN SHALL BE DONE IN ACCORDANCE W/ ACI STANDARD
318-08, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, WHICH IS
HEREBY MADE A PART IF THESE DOCUMENTS, WITH THE FOLLOWING MODIFICATIONS:
PARA 2.1.2: CEMENT SHALL COMPLY W/ ASTM C150, TYPE II.
PARA 3.2: F_c SHALL BE 2500 PSI AT 28 DAYS FOR ALL CONCRETE.
PARA 4.1.3: THE USE OF EARTH CUTS FOR FORMS IS PERMITTED.
PARA 5.2: REINFORCING SHALL BE NEW BILLET STEEL COMPLYING W/ ASTM A615,
GRADE 40.
- SOLAR PANELS**
SUNIVA MAX SERIES: 72 CELL MODULES. SEE MANUFACTURE SPECIFICATIONS FOR
ADDITIONAL INFORMATION.
- LIGHT GAUGE STRUCTURAL STEEL FRAMING**
ALL LIGHT GAGE STEEL FRAMING MEMBERS TO BE SUPPLIED BY ASC PROFILES (AEP
SPAN), CITY OF LOS ANGELES APPROVED FABRICATOR ID #1892 OR OTHER
MANUFACTURERS W/ EQUIVALENT QUALIFICATIONS.

ALL STRUCTURAL STEEL FRAMING MATERIALS AND ERECTION SHALL BE IN ACCORDANCE
WITH THE 2007 EDITION OF THE AMERICAN IRON AND STEEL INSTITUTE NORTH AMERICAN
STANDARDS "COLD-FORMED STEEL DESIGN MANUAL". ASTM A653 OR ASTM A570 WITH
A MINIMUM YIELD STRENGTH F_y=55 KSI AND MINIMUM TENSILE STRENGTH F_u=65 KSI

ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE
AWS D1.1 "STRUCTURAL WELDING CODE - STEEL" AND AWS D1.3 "STRUCTURAL WELDING
CODE - SHEET STEEL". REINFORCING BARS WELDED TO STEEL SHALL CONFORM TO
ASTM A706 AND AWS D1.4 "STRUCTURAL WELDING CODE - REINFORCING STEEL". USE
E70xx LOW HYDROGEN ELECTRODES. ALL WELDING TO BE PERFORMED BY WELDERS
HOLDING A VALID CERTIFICATE AND HAVING CURRENT EXPERIENCE IN LIGHT GAGE STEEL.
CERTIFICATES SHALL BE ISSUED BY AN ACCEPTED TESTING AGENCY. DO NOT DRILL OR
NOTCH MEMBERS WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.

STRUCTURAL STEEL MEMBERS SHALL BE FURNISHED TO THE SPECIFIED MINIMUM YIELD
POINT OR GREATER. THE ASTM, GRADE, AND OTHER SPECIFICATIONS SHALL BE
INDICATED BY SUITABLE MEANS ON EACH LIFT OR BUNDLE OF FABRICATED MATERIAL.
- FASTENERS**
STEEL SCREW FASTENERS SHALL BE HILTI "KWIK-PRO S-MD" SELF-TAPPING SCREWS
(ESR-2196) OR EQUAL, COMPLYING WITH THE REQUIREMENTS OF THE 2007 IBC.
- CONTRACTORS**
THE CONTRACTOR MUST SUBMIT IN WRITING ANY REQUEST FOR MODIFICATIONS TO THE
PLANS AND SPECIFICATIONS. NO STRUCTURAL CHANGES FROM THE APPROVED PLANS
SHALL BE MADE IN THE FIELD UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM
THE ENGINEER. SHOP DRAWINGS SUBMITTED TO THE ENGINEER FOR HIS REVIEW DO
NOT CONSTITUTE "IN WRITING" UNLESS IT IS NOTED THAT SPECIFIC CHANGES ARE BEING
REQUESTED. IF CHANGES ARE MADE WITHOUT WRITTEN APPROVAL, SUCH CHANGES
SHALL BE THE LEGAL AND FINANCIAL RESPONSIBILITY OF THE CONTRACTORS OR
SUBCONTRACTORS INVOLVED AND IT SHALL BE THEIR RESPONSIBILITY TO REPLACE OR
REPAIR THE CONDITION AS DIRECTED BY THE ENGINEER.

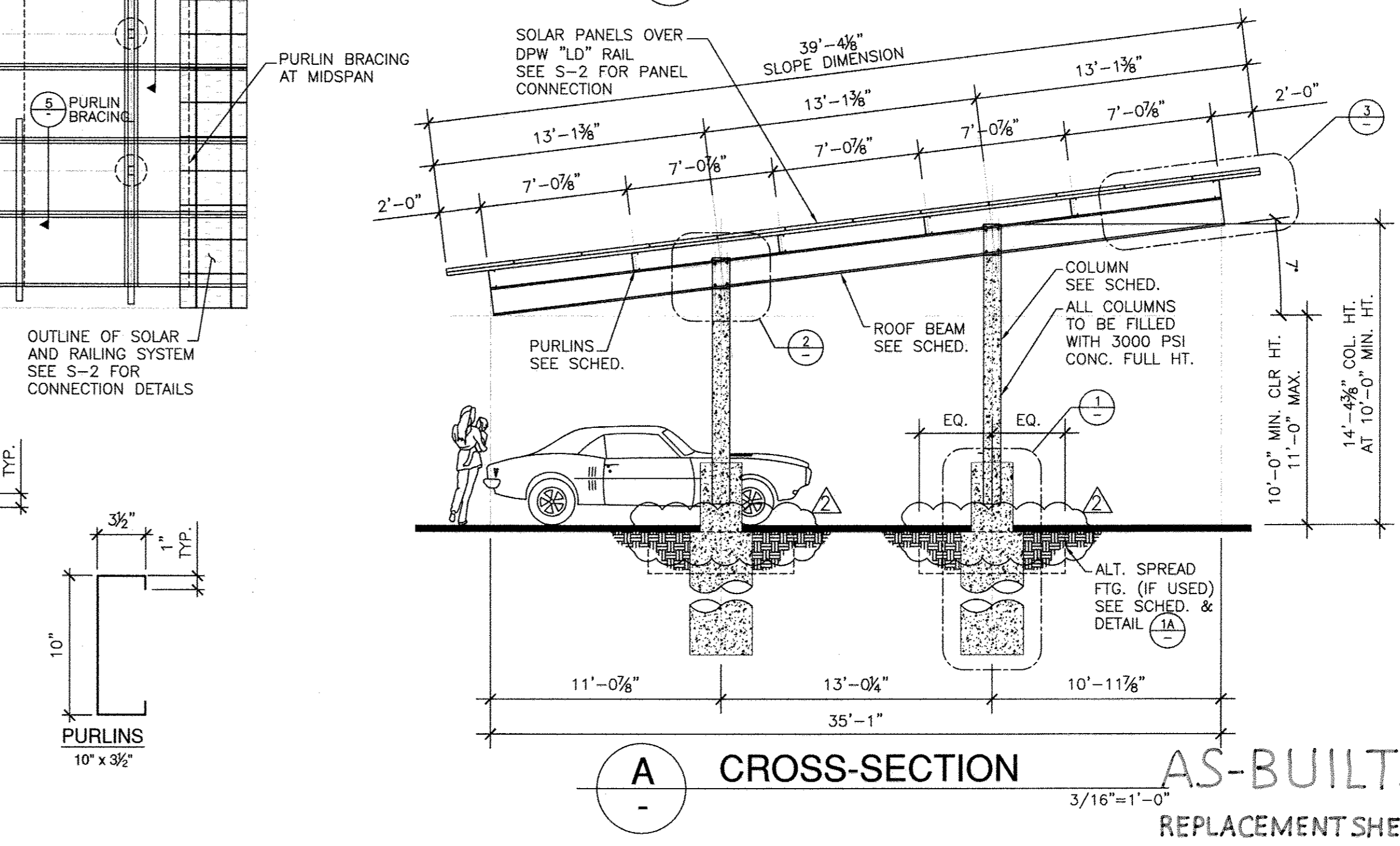
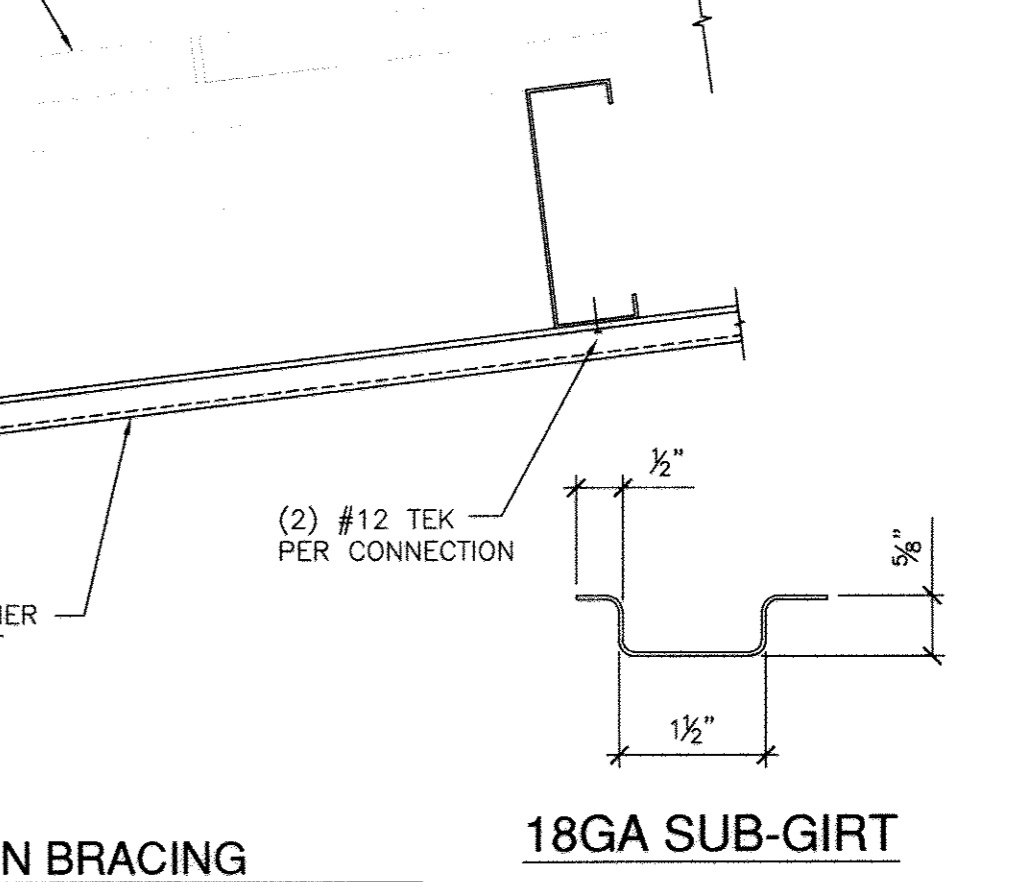
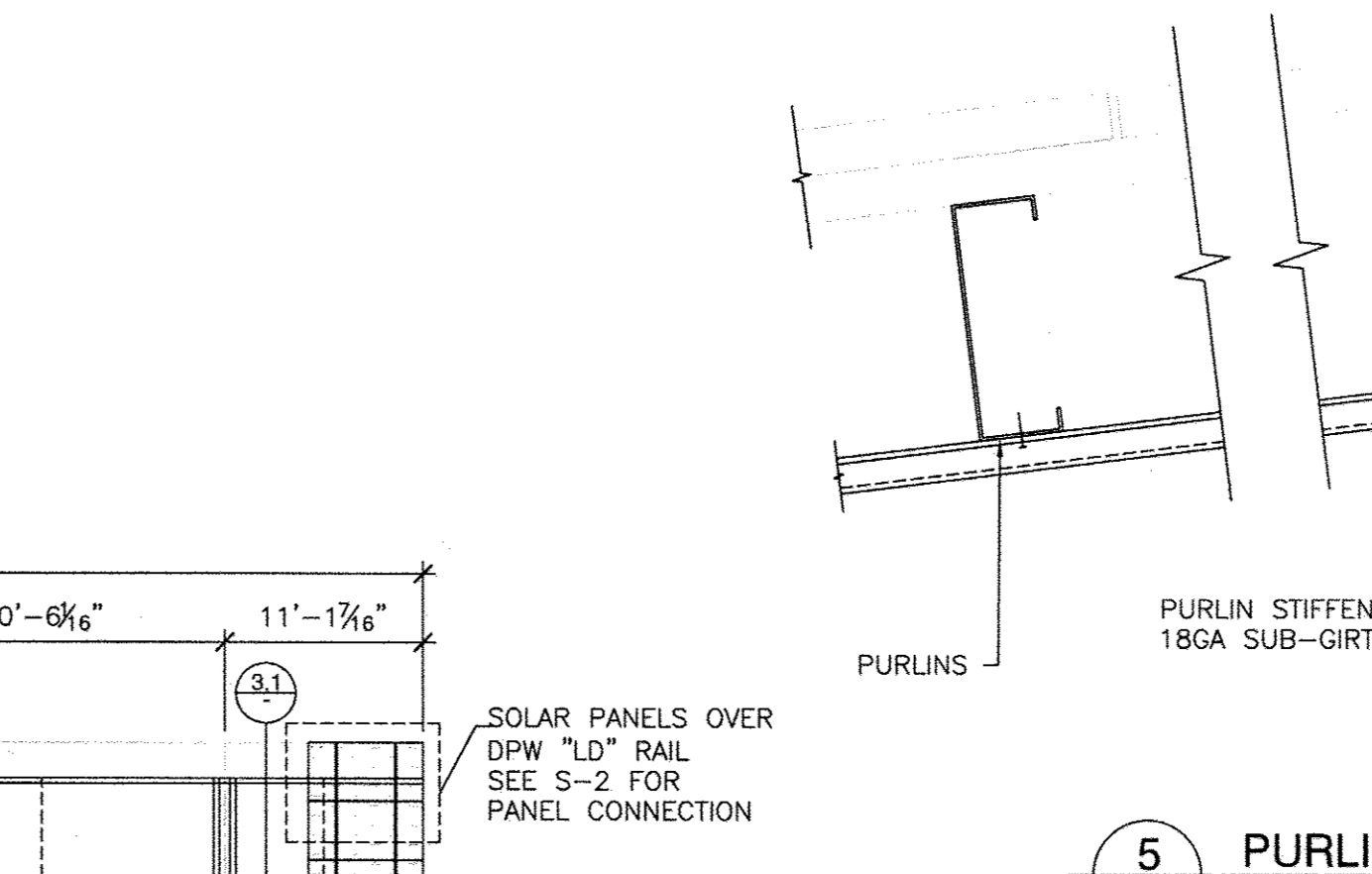
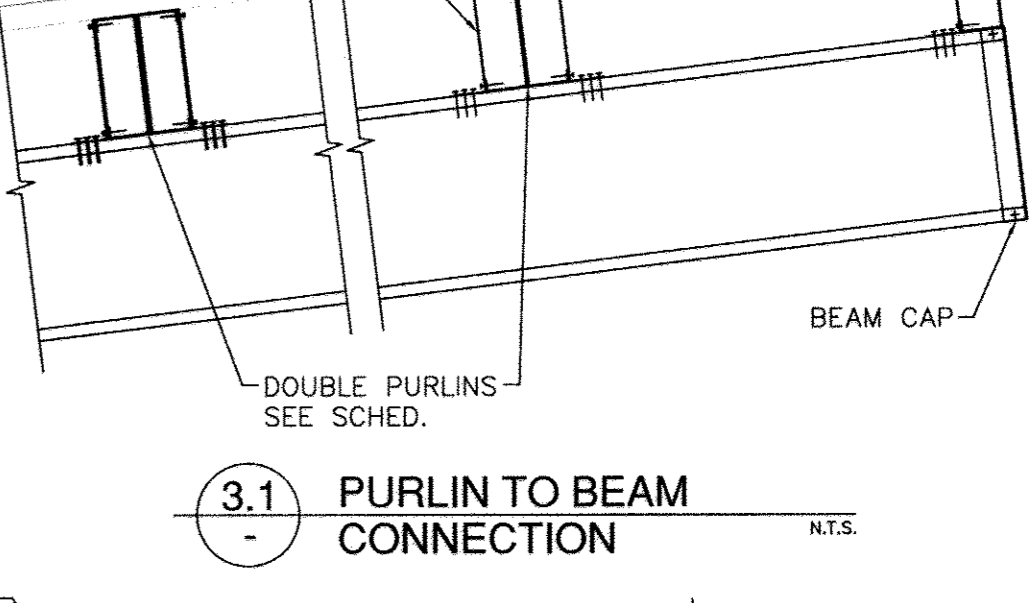
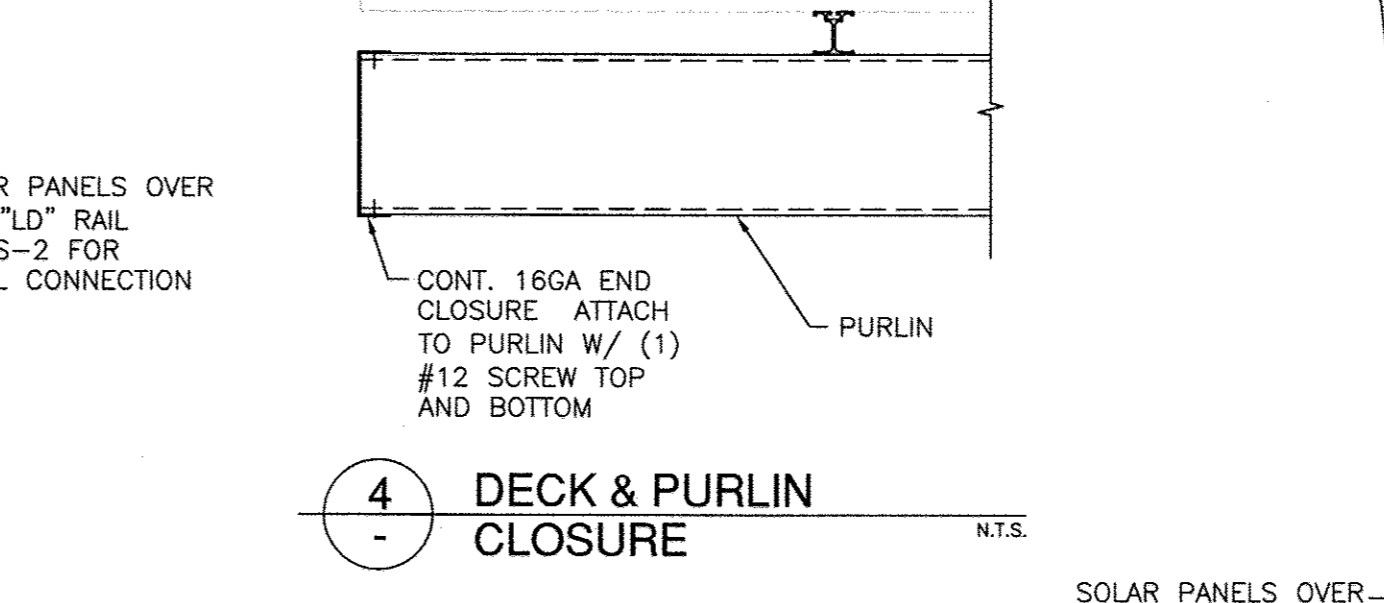
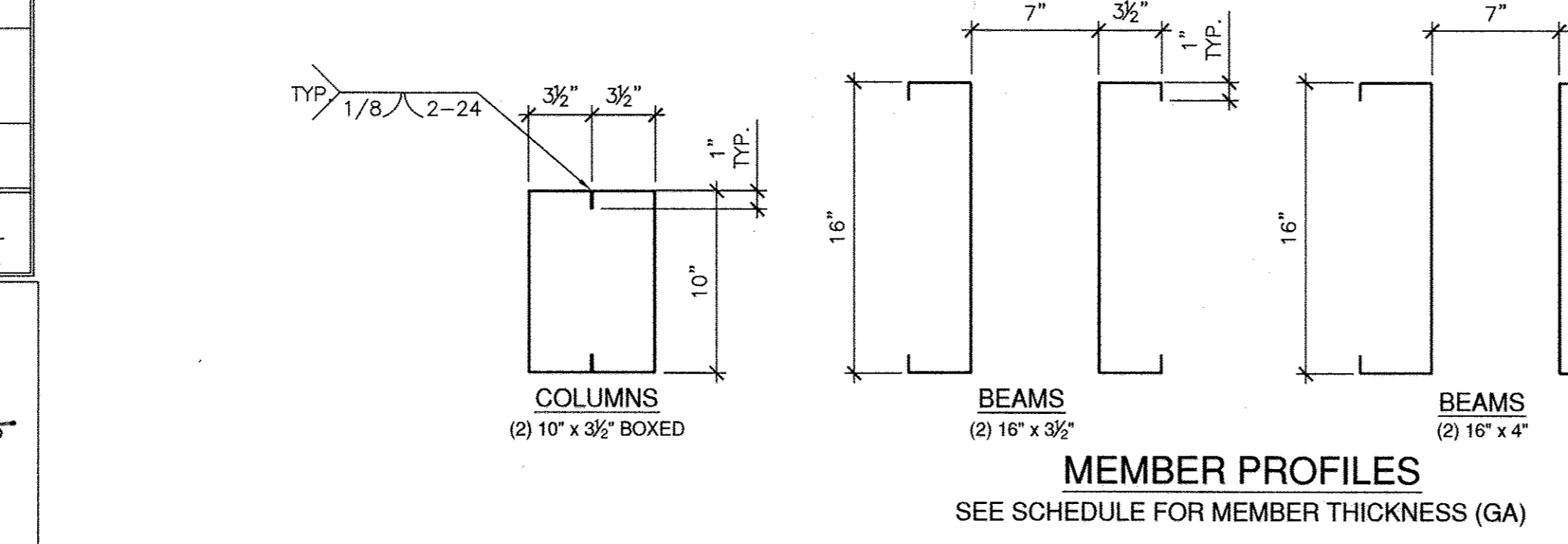
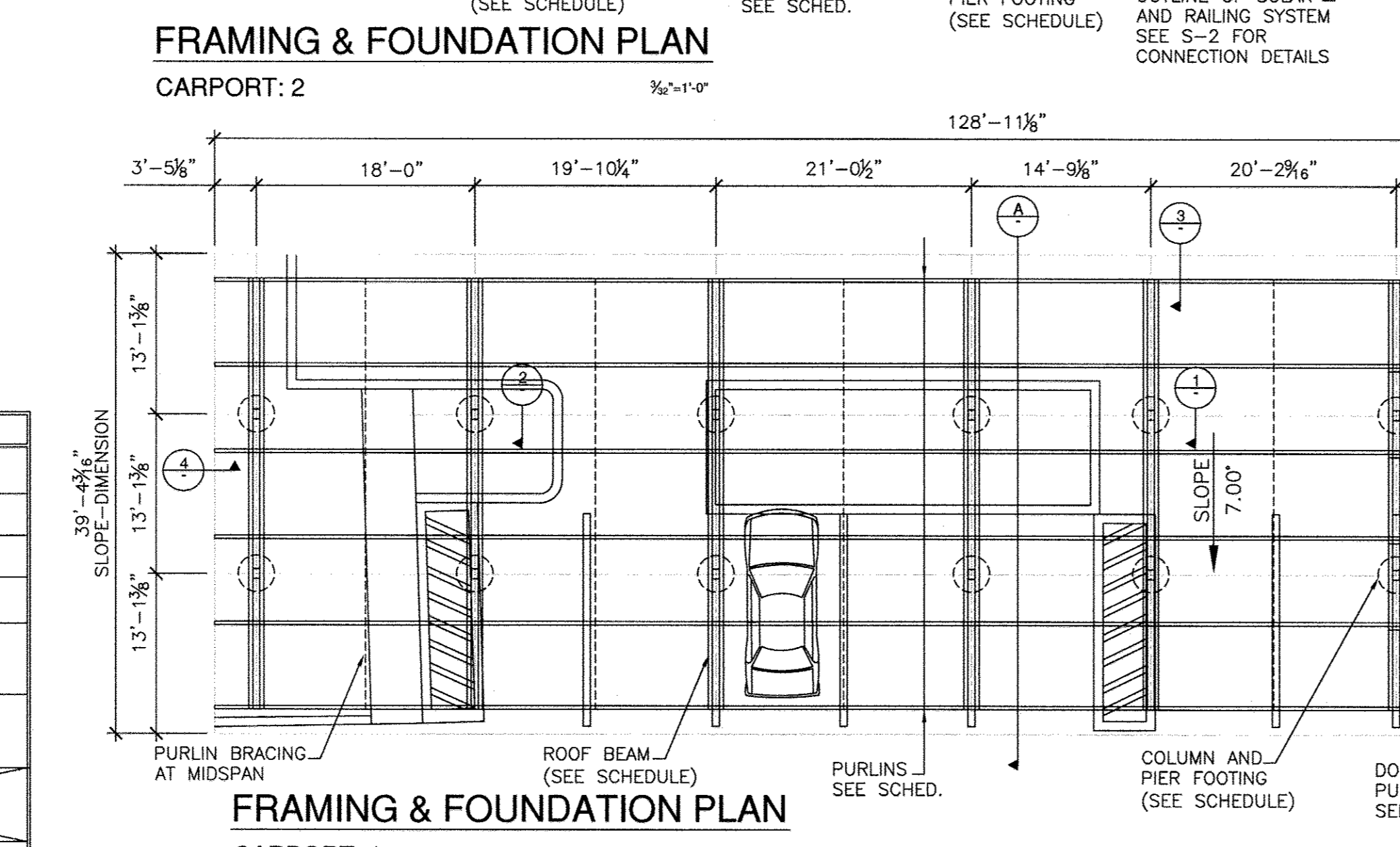
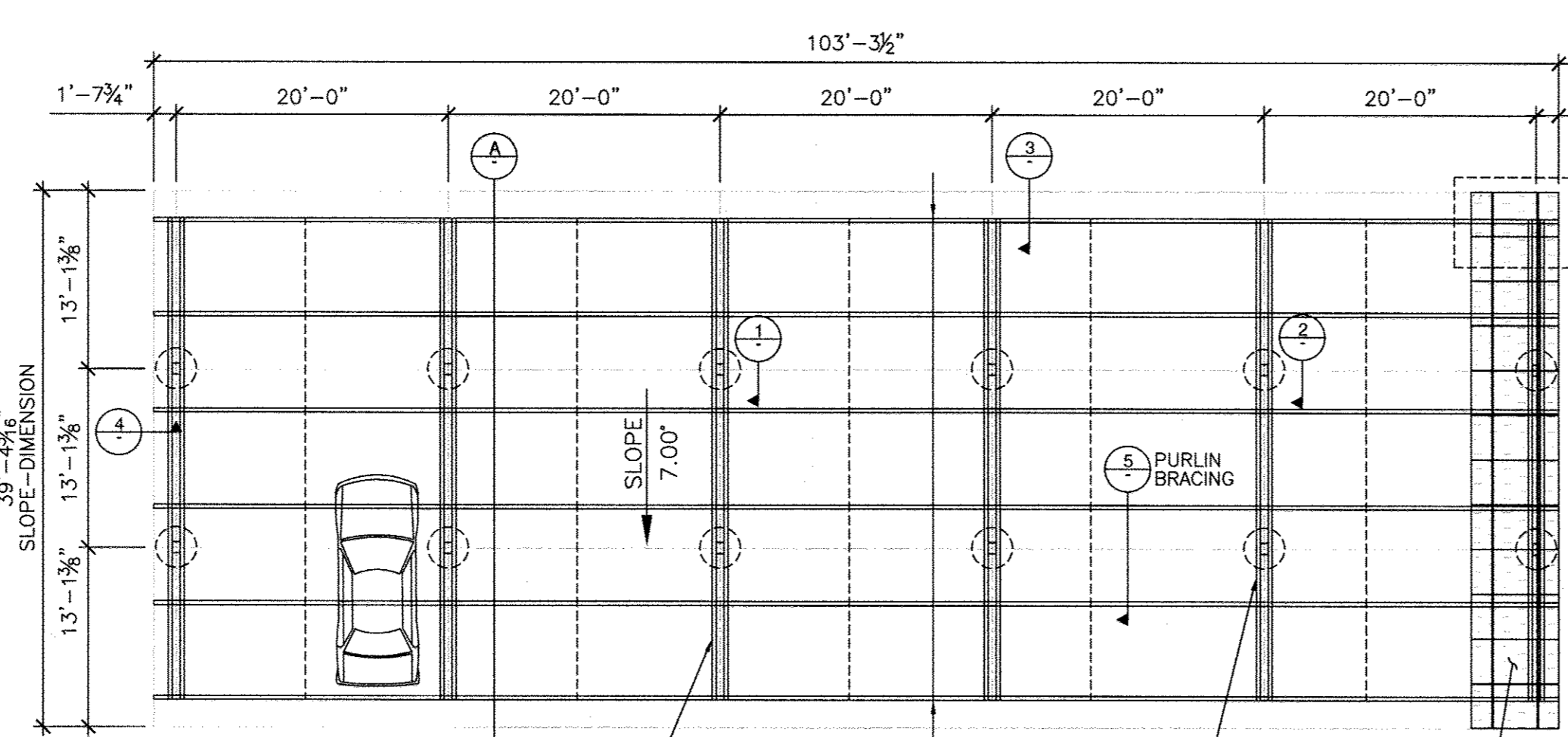
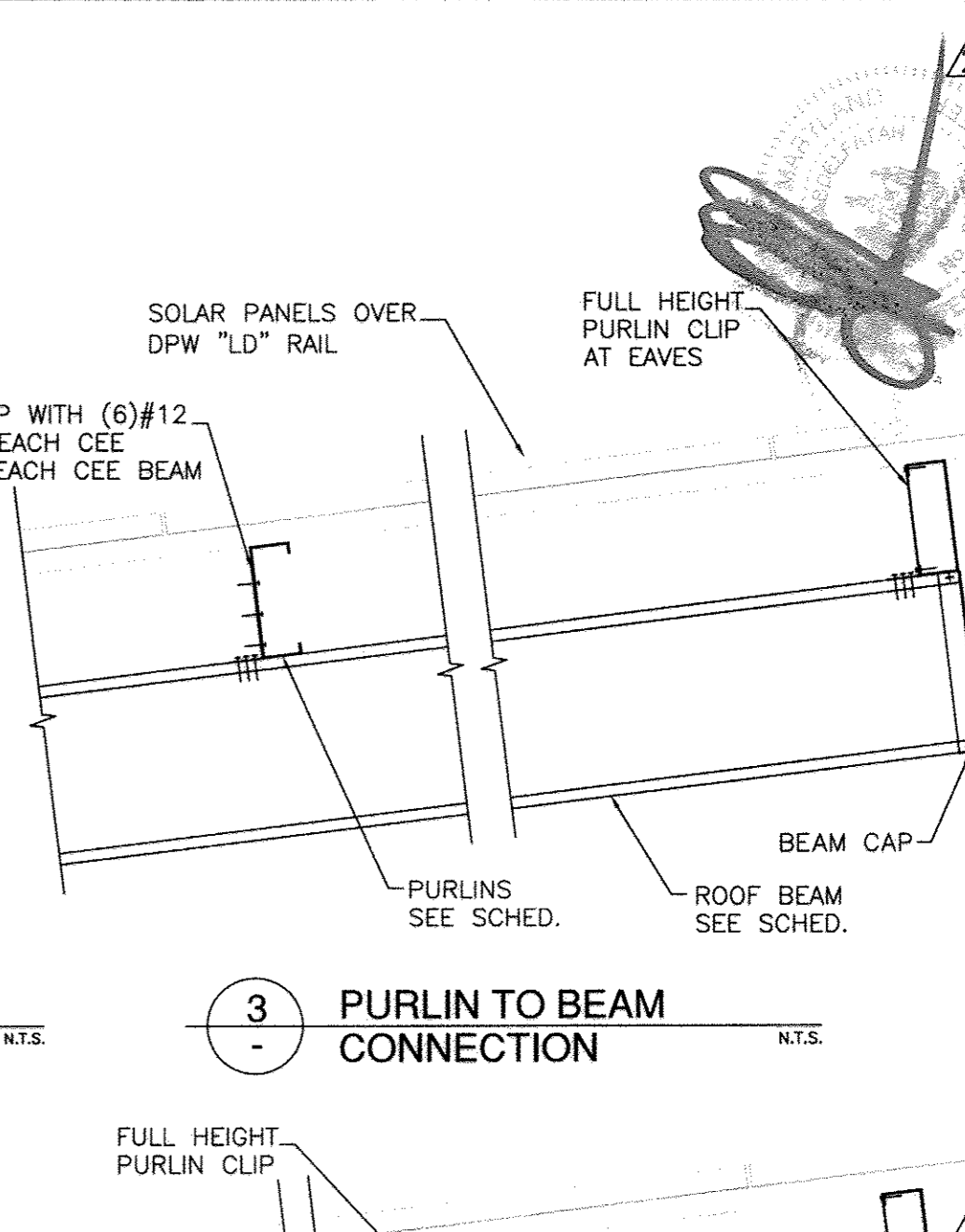
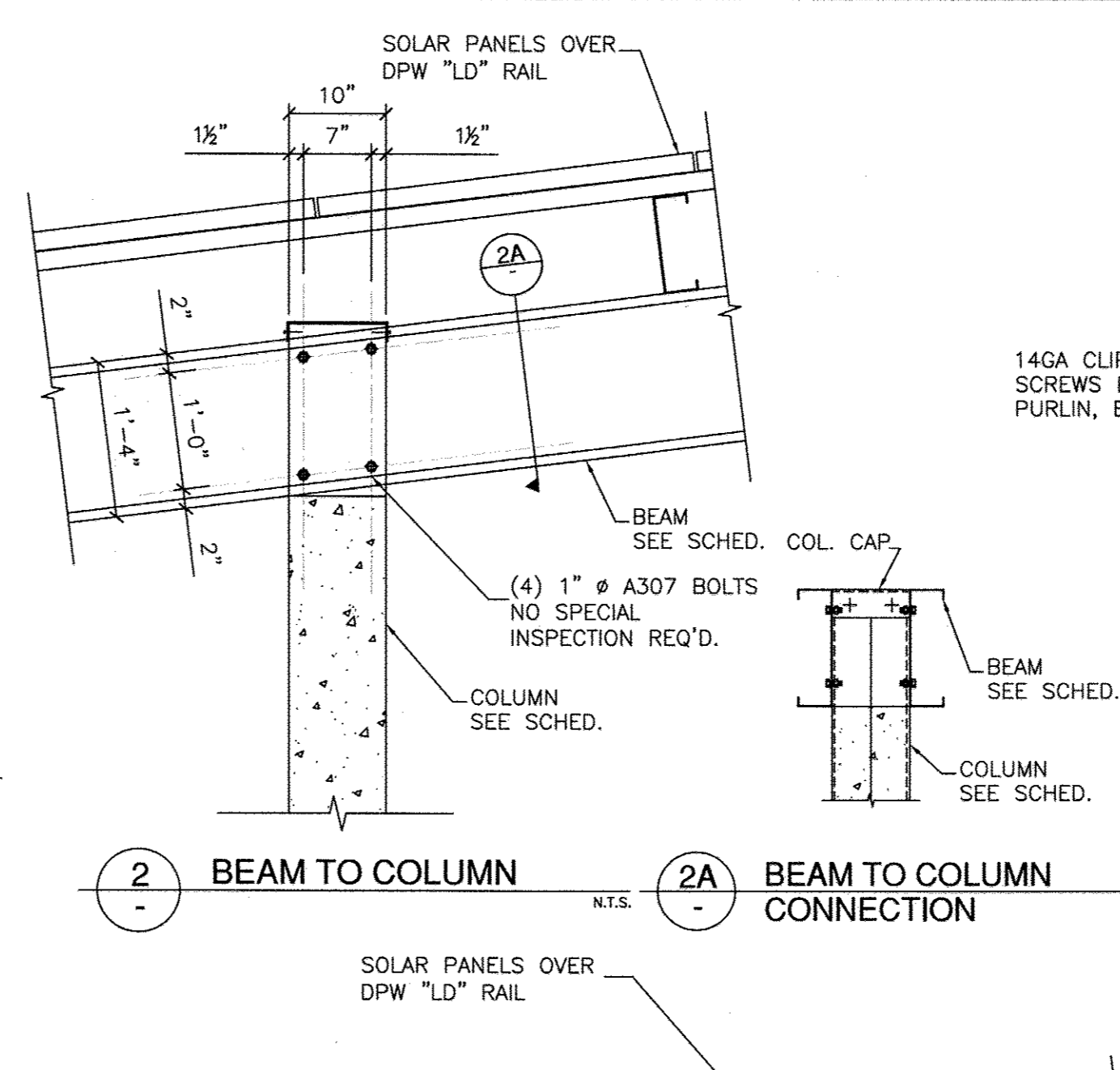
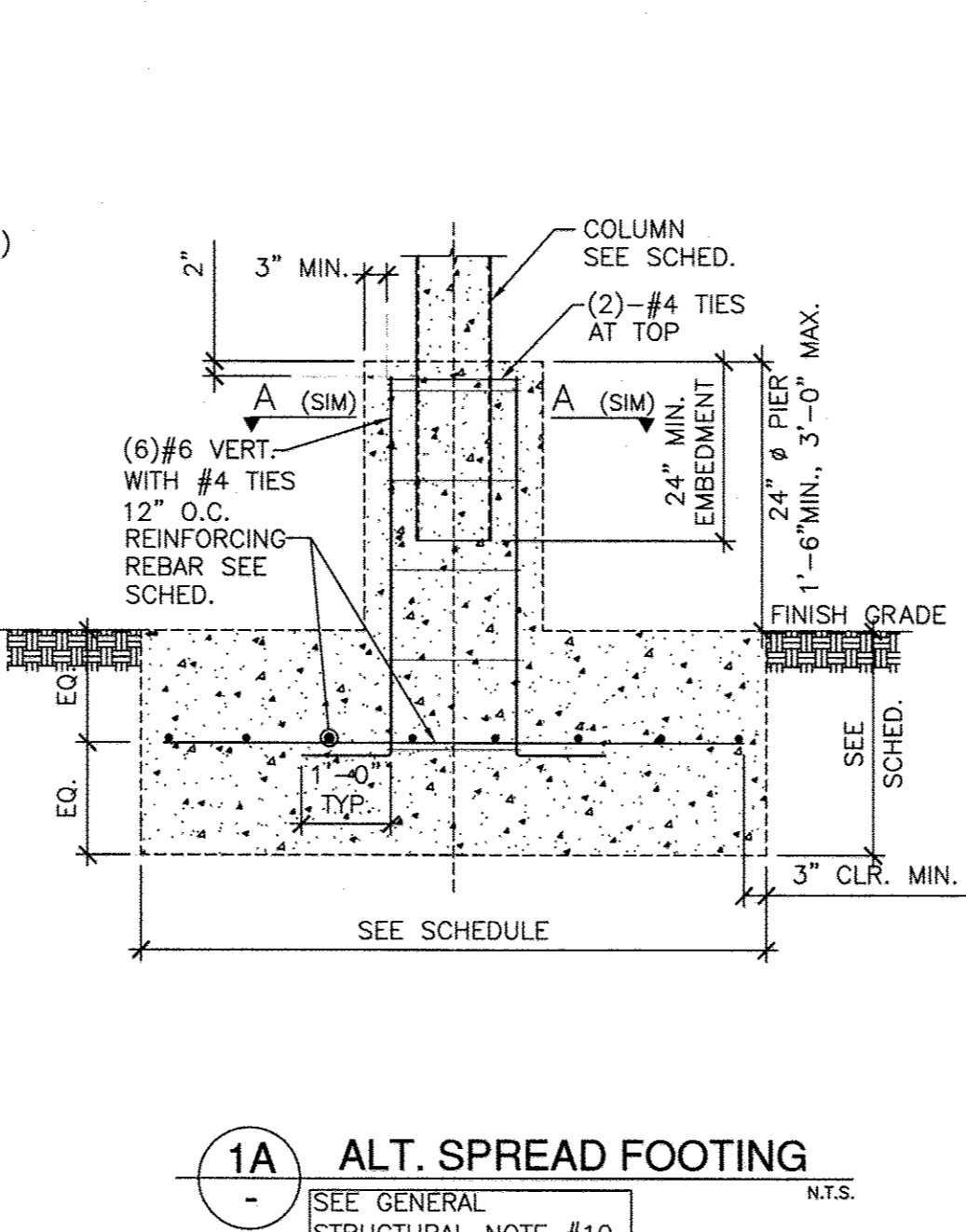
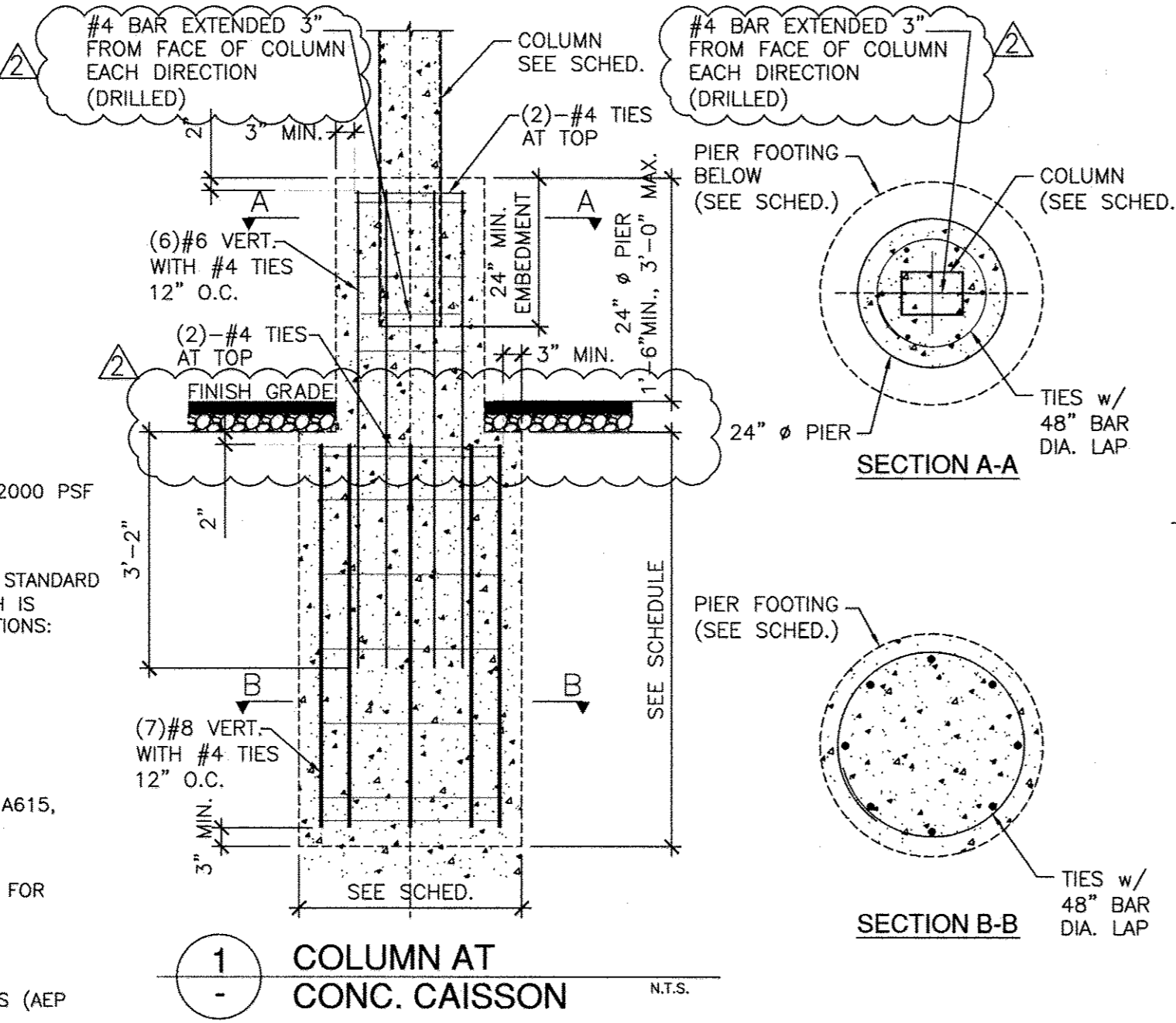
CONTRACTOR SHALL PROVIDE ALL TEMPORARY BRACING, SHORING, GUYING, OR OTHER
MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE
DURING ERECTION. THESE PROVISIONS SHALL REMAIN IN POSITION UNTIL SUFFICIENT
PERMANENT MEMBERS ARE ERECTED TO INSURE THE SAFETY OF THE PARTIALLY ERECTED
STRUCTURE. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT
THE FINISHED STRUCTURE. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL
ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- ENGINEER OF RECORD**
BAJA CONSTRUCTION CO., INC. AND/OR THEIR ENGINEERING CONSULTANTS IS ONLY
RESPONSIBLE FOR THE CONTENTS OF THESE DRAWINGS AND STRUCTURAL CALCULATIONS
AS PROVIDED FOR THIS PROJECT. BAJA CONSTRUCTION CO., INC. AND THEIR
ENGINEERING CONSULTANTS ARE NOT CONSIDERED THE ENGINEER OF RECORD FOR
ANYTHING OTHER THAN THE PREFABRICATED STEEL SYSTEM CANOPY/CARPORT/RV &
BOAT STORAGE/OR MINI-STORAGE SYSTEMS THAT IS SHOWN ON THESE PLANS.

THESE PLANS ARE APPLICABLE ONLY TO THE SPECIFIC PROJECT NOTED ON THE PLANS.
IN ADDITION, THESE PLANS ARE ONLY APPLICABLE TO THIS PROJECTS PROVIDED BAJA
CONSTRUCTION PROVIDES AND INSTALLS ALL MATERIAL SPECIFIED HEREIN.
- ALTERNATE FOOTING**
IF THE ALTERNATE FOOTING SHOWN IN THIS DRAWING IS REQUIRED, THERE WILL BE AN
ADDITIONAL CHARGE FROM BAJA CONSTRUCTION.

SCHEDULE	
MODEL	BRACED SINGLE POST (BACK TO BACK)
	CARPORT 1 CARPORT 2
BUILDING DEPTH	39'-4 3/8" (SLOPE DIMENSION)
BAY WIDTH	VARIES 20'-0"
SOLAR PANELS	DESIGNED, SUPPLIED, AND INSTALLED BY OTHERS (NOT BY BAJA)
ROOF PURLINS	CEE 10" x 3 3/8" x 12GA [0.135] F _y =55 KSI (AT 11'-1 1/8" MIDDLE OVERHANG)
ROOF BEAMS	(2) CEE 16"x4"x10GA [0.135] F _y =55 KSI (2) CEE 16"x3 1/2"x10GA [0.135] F _y =55 KSI
COLUMNS	(2) CEE 10" x 3 3/8" x 12GA [0.105] BOXED CEES F _y =55 KSI
PIER FOOTING	36"ø x 11'-0" 36"ø x 10'-0"
ALT. SPREAD FOOTING	4'-0" x 7'-6" x 30" DEEP WITH (5)-#5 BARS LONGITUDINAL AND (8)-#6 BARS TRANSVERSAL 4'-0" x 7'-0" x 30" DEEP WITH (5)-#5 BARS LONGITUDINAL AND (8)-#6 BARS TRANSVERSAL

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

2/3/15 *1/30/15*
DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING DATE
1/15/14 *1/27/15*
CHIEF, BUREAU OF UTILITIES DATE CHIEF, UTILITY DESIGN DIVISION DATE



PROFESSIONAL
STRUCTURAL
CERTIFICATION

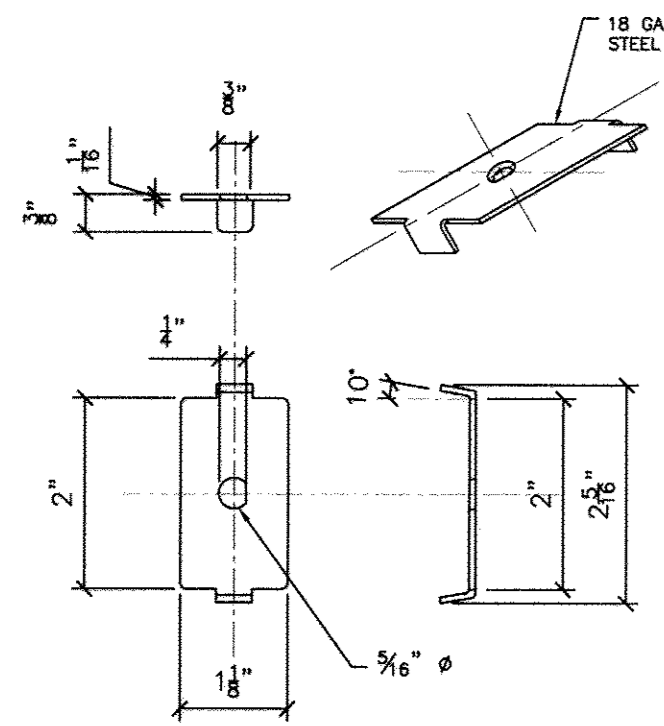
S.E. CONSULTANTS, INC.
5800 EAST THOMAS ROAD, SUITE 104
SCOTTSDALE, AZ 85251
PH: (480) 946-2010 FAX: (480) 946-1909

CARPORT FRAMING AND FOUNDATION PLAN
Little Patuxent WRP
8900 Greenwood Place, Savage, MD 20763
For: Standard Solar Inc.

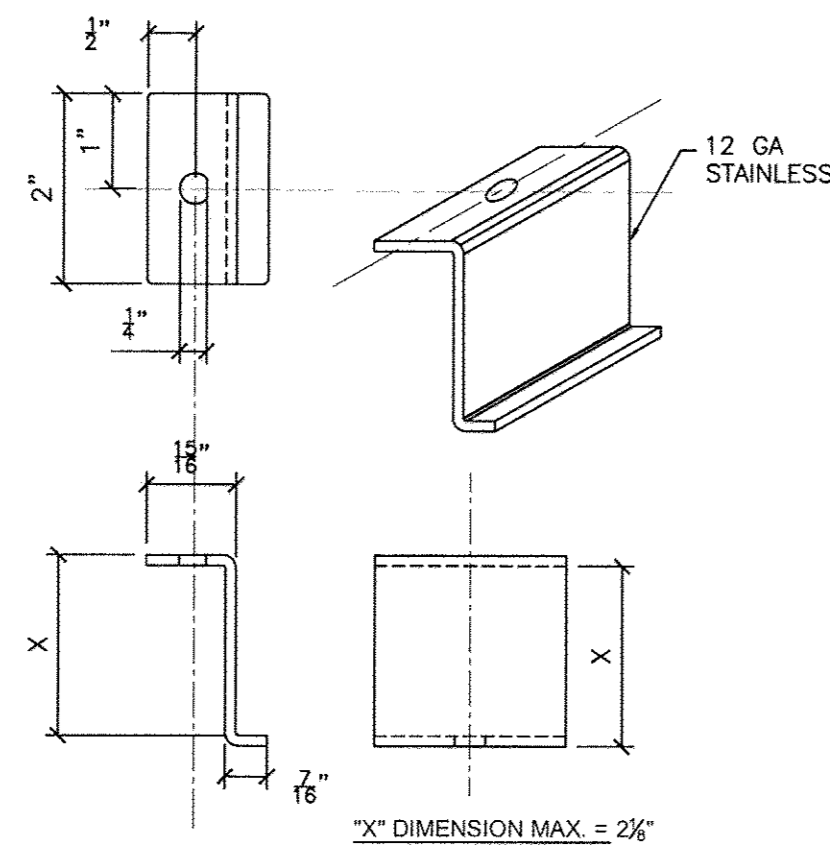
BAJA CONSTRUCTION CO., INC.
223 FOSTER ST., MARTINEZ CA 94553
1-800-366-9600 FAX: (925) 229-0161

REV.	NO.	DATE	DESCRIPTION
7/2/14	BG	REVISED FOR AS BUILT	
1/29/14	BG	REVISED, SECTION AND SCHEDULE	
1/29/14	BG	REVISED AS SHOWN	

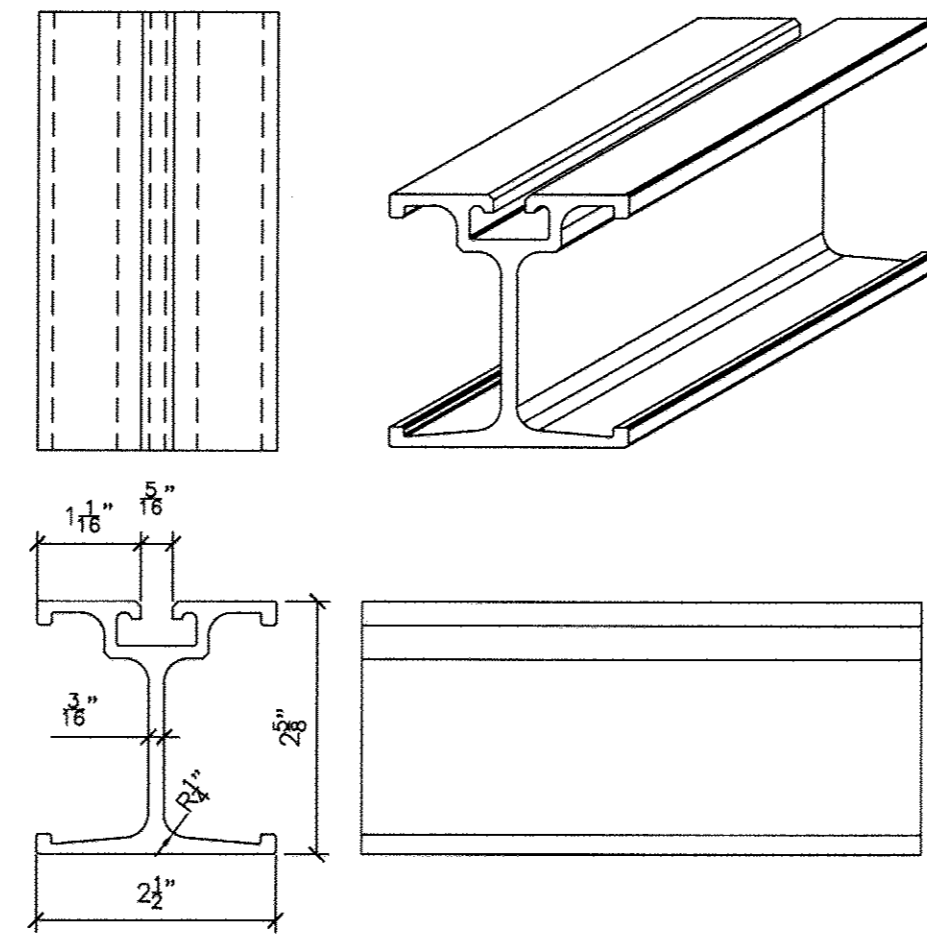
PROJ. NO.: 1300-A DATE: 07.01.13
DRAWN: B.G. CHECKED: G.S.
SHEET: S-1 1 OF 2
COMPUTER FILE: 1300.dwg



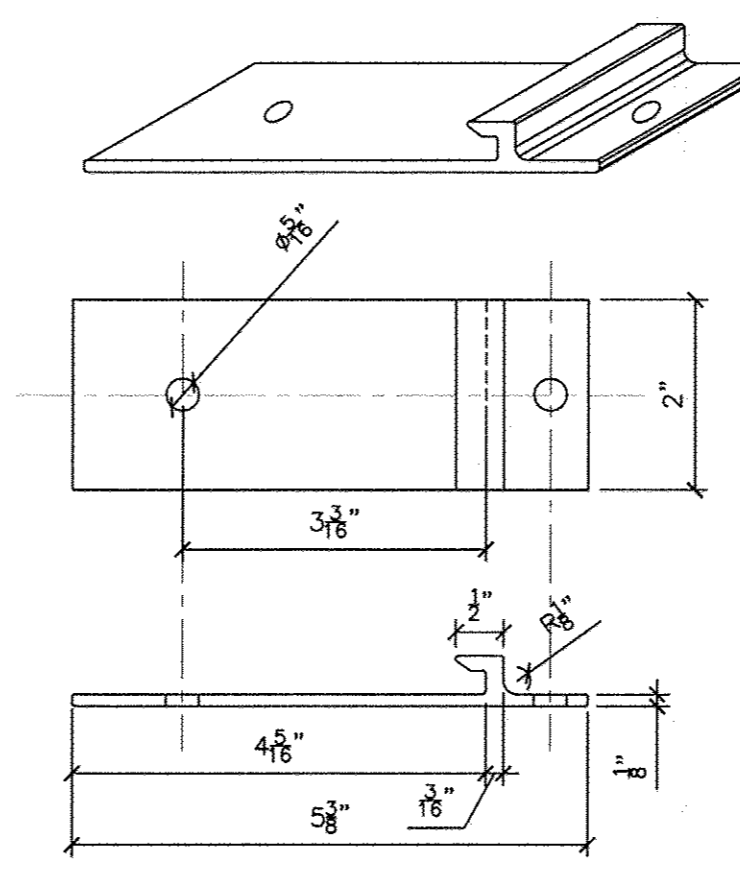
A DPW MID-CLAMP
DETAIL N.T.S.



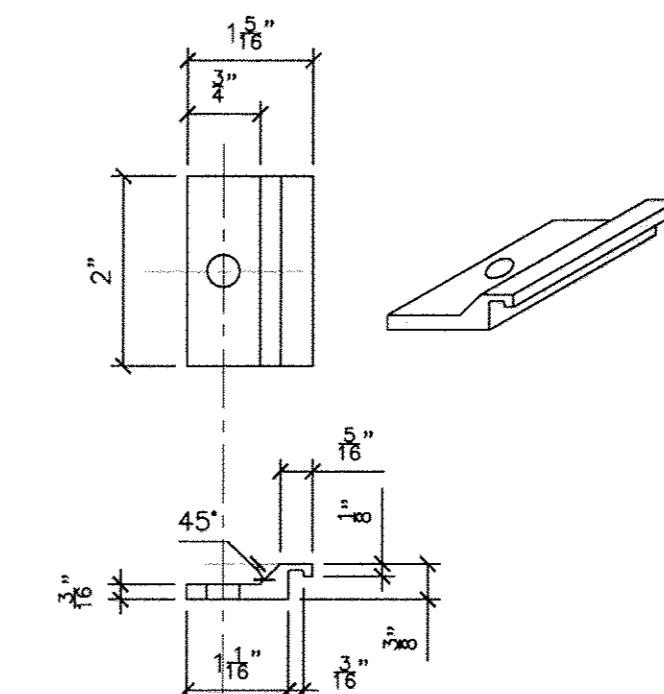
B DPW END-CLAMP
DETAIL N.T.S.



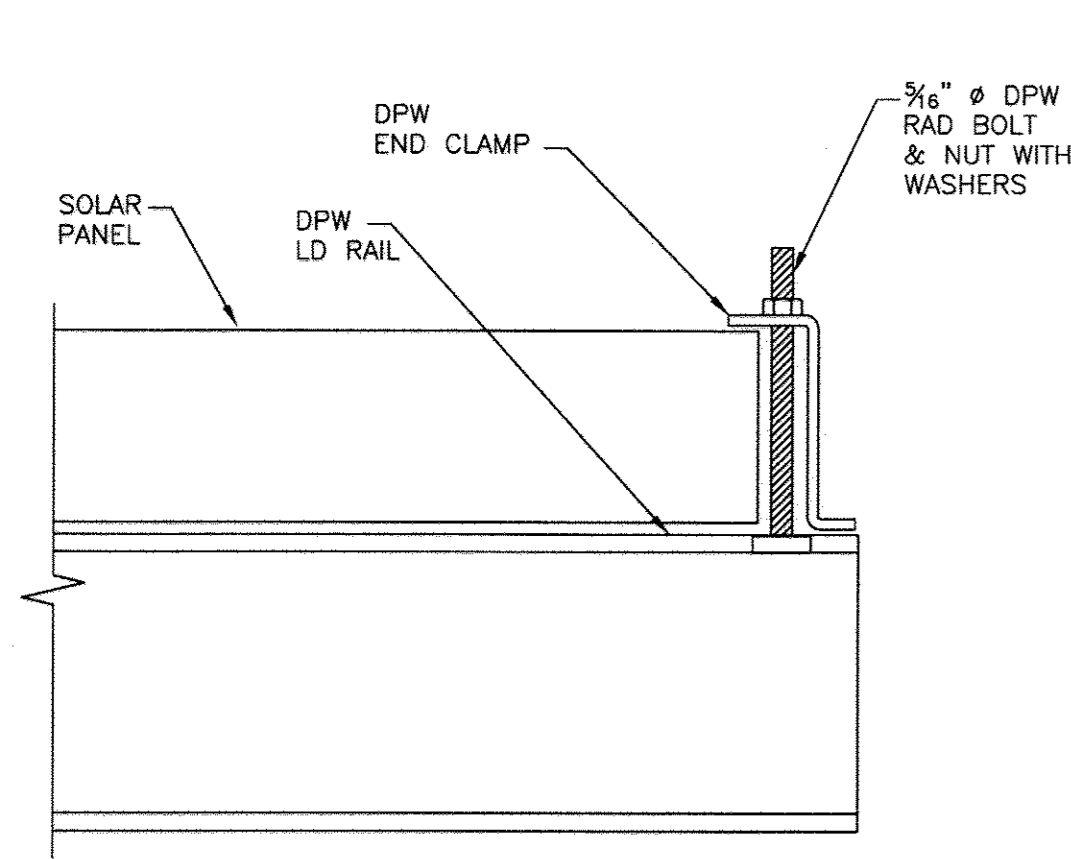
C DPW LD RAIL
DETAIL N.T.S.



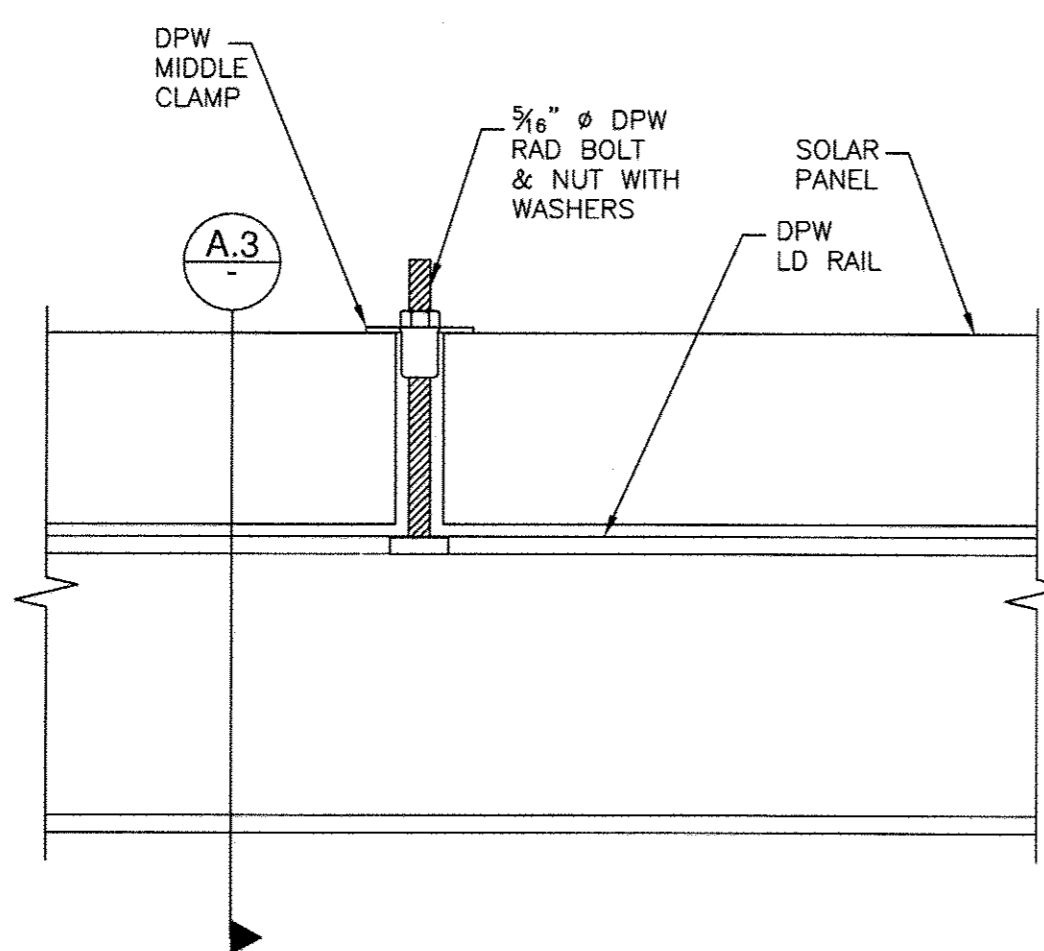
D DPW RAIL BASE
DETAIL N.T.S.



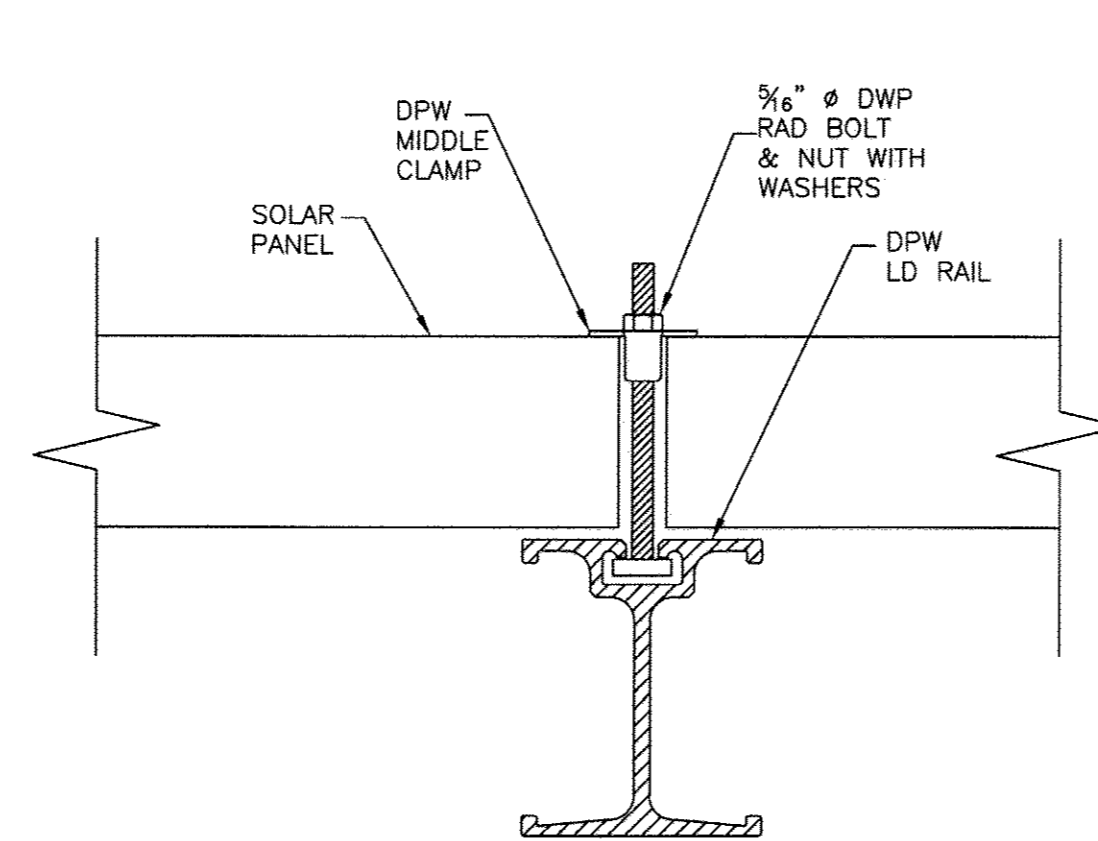
E DPW RAIL CLAMP
DETAIL N.T.S.



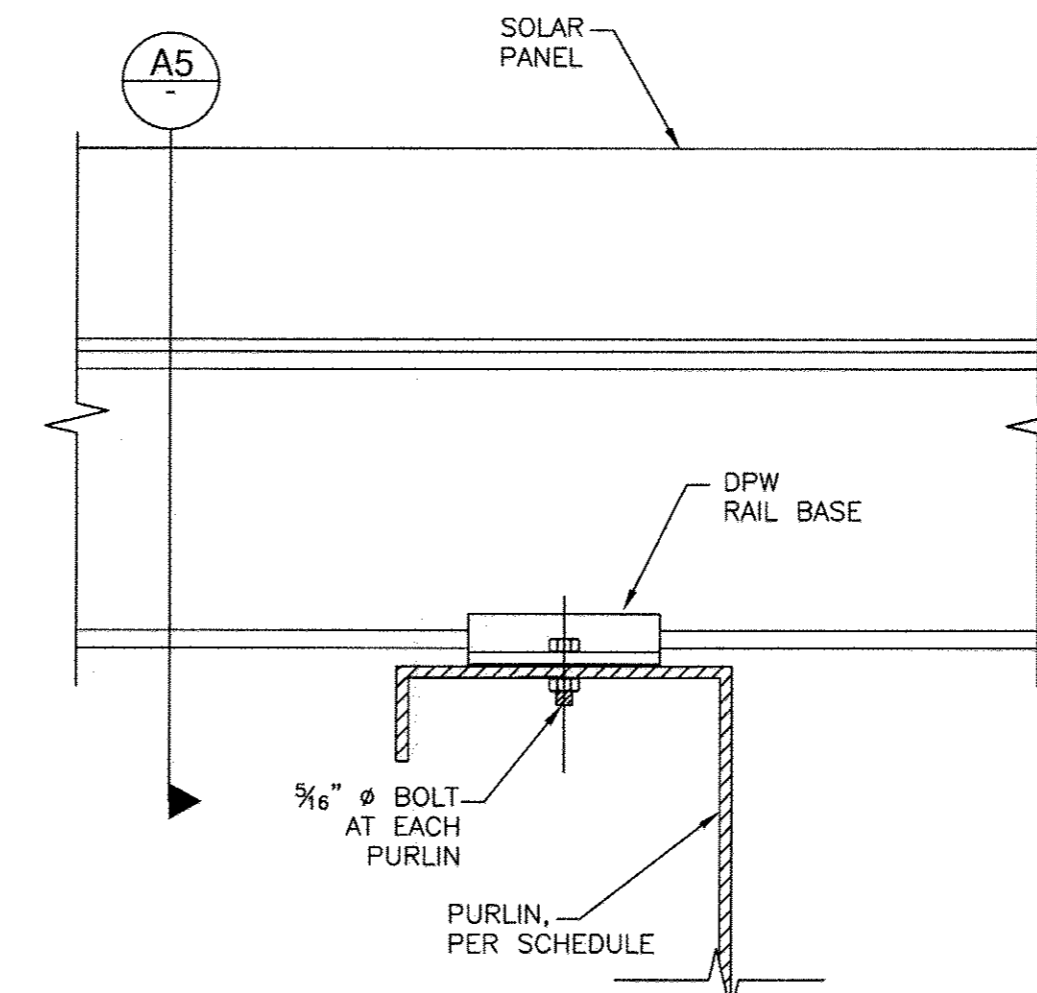
A.1 SOLAR TO LD RAIL
END CONNECTION N.T.S.



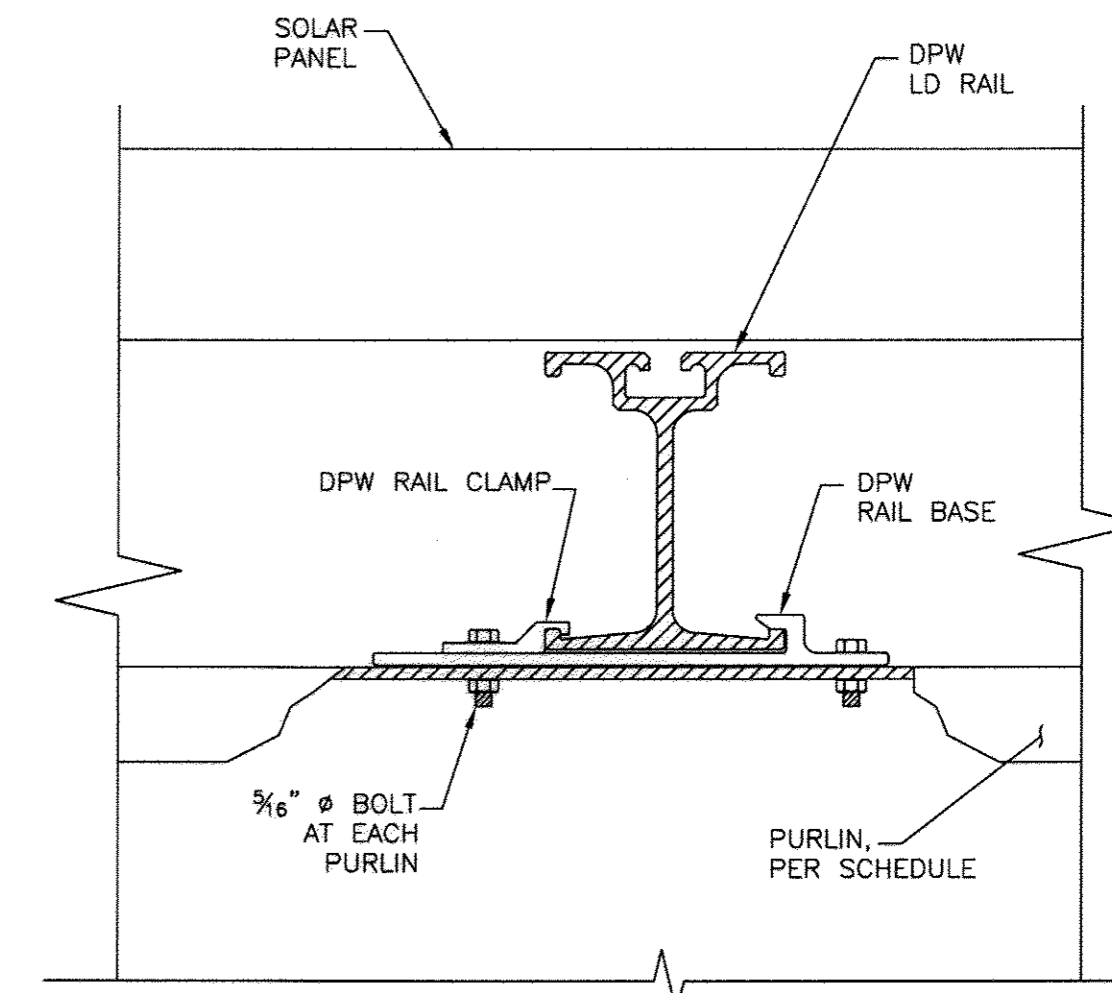
A.2 SOLAR TO LD RAIL
MIDDLE CONNECTION N.T.S.



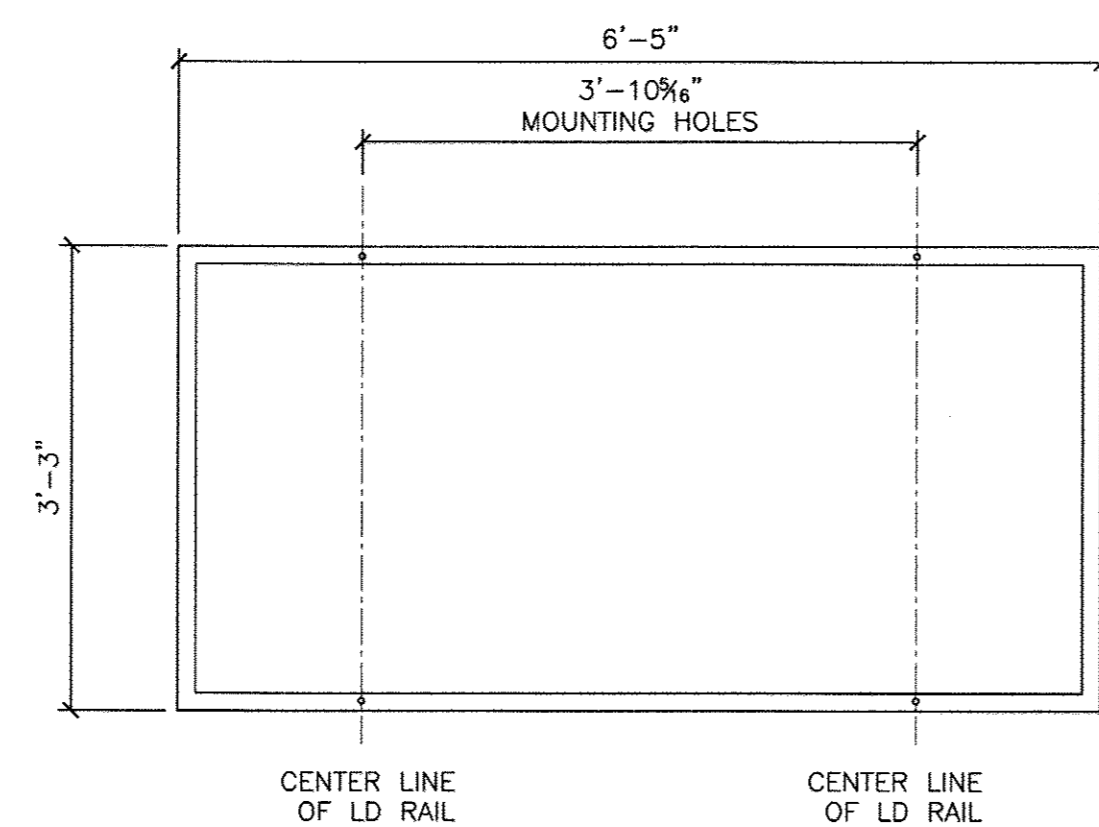
A.3 SOLAR PANEL TO LD RAIL
CONNECTION N.T.S.



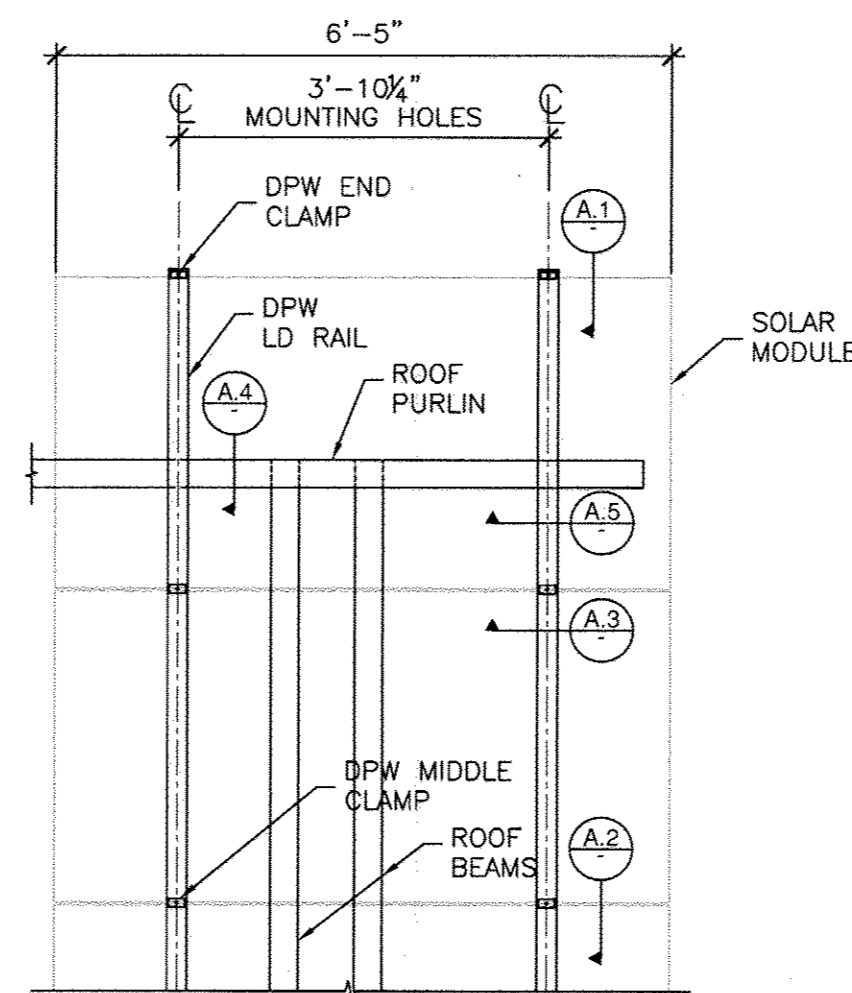
A.4 LD RAIL TO PURLIN
CONNECTION N.T.S.



A.5 LD RAIL TO PURLIN
CONNECTION N.T.S.



1 SOLAR PANEL IN LANDSCAPE
DIMENSIONS N.T.S.



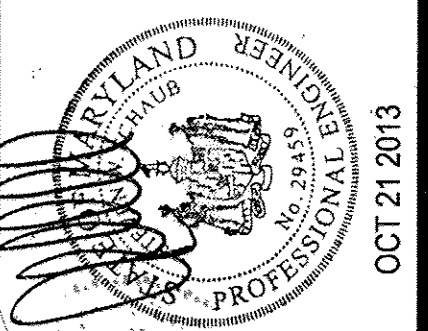
1 SOLAR PANEL TO RAIL
PARTIAL PLAN VIEW N.T.S.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 10/25/13
DIRECTOR OF PUBLIC WORKS DATE
[Signature] 10/25/13
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 10/25/13
CHIEF, BUREAU OF ENGINEERING DATE
[Signature] 10/25/13
CHIEF, UTILITY DESIGN DIVISION DATE

AS-BUILTS



CONSULTANT:
S.E. CONSULTANTS, INC.
5800 EAST THOMAS ROAD, SUITE 104
SCOTTSDALE, AZ 85251
PH: (480) 946-2010 FAX: (480) 946-1909

BSP (BACK TO BACK) SSS
Little Patuxent WWTF
8900 Greenwood Place, Savage, MD 20763
For: Standard Solar Inc.

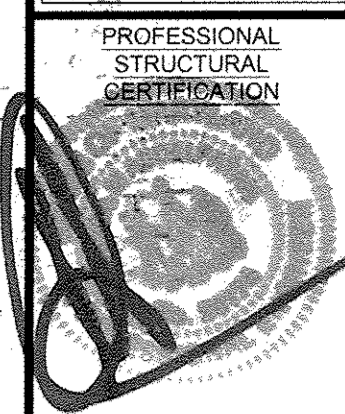
BAJA
CONSTRUCTION CO., INC.
223 FOSTER ST., MARTINEZ CA 94553
1-800-366-9600 FAX: (925) 229-0161

REV.	NO.	DATE	DESCRIPTION

PROJ. NO.: 1300 DATE: 07.01.13
DRAWN: B.G. CHECKED: G.S.

SHEET: **S-2**
2 OF 2

COMPUTER FILE: 1300.dwg.



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE APPLICABLE CODES IN THE STATE OF MARYLAND, INCLUDING IRC 2012 EDITION, WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

PROFESSIONAL ELECTRICAL CERTIFICATION

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PROJECT TITLE: Howard County - Little Patuxent WRP
 PROJECT ADDRESS: 8900 Greenwood Pl, Savage, MD 20763
 SHEET TITLE: DISINFECTION BLDG. STRUCTURAL PLAN

REVISIONS

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PROJECT NUMBER
 13-C005

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 CAS

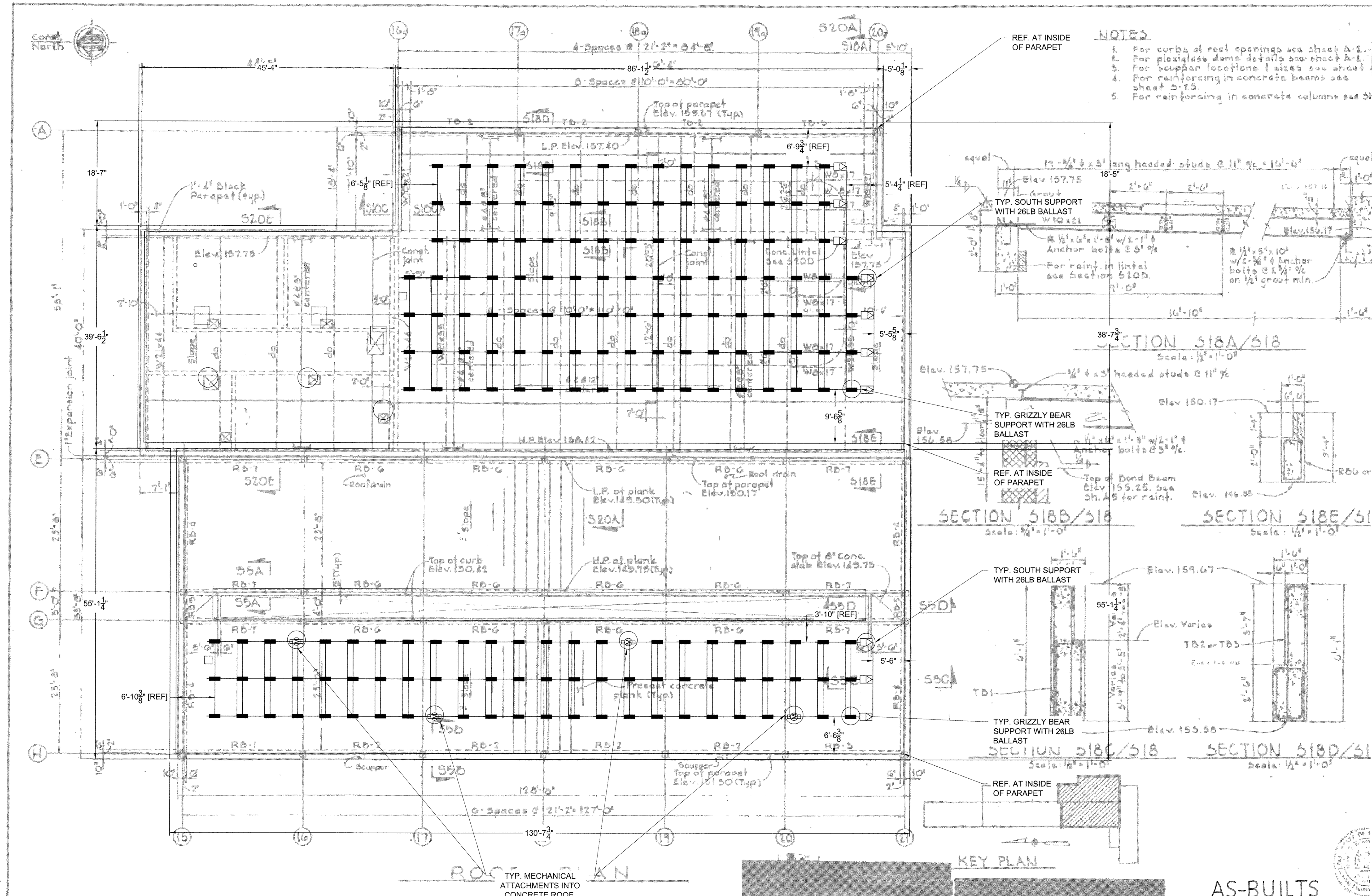
APPROVED BY
 CJC

DATE
 10.01.2013

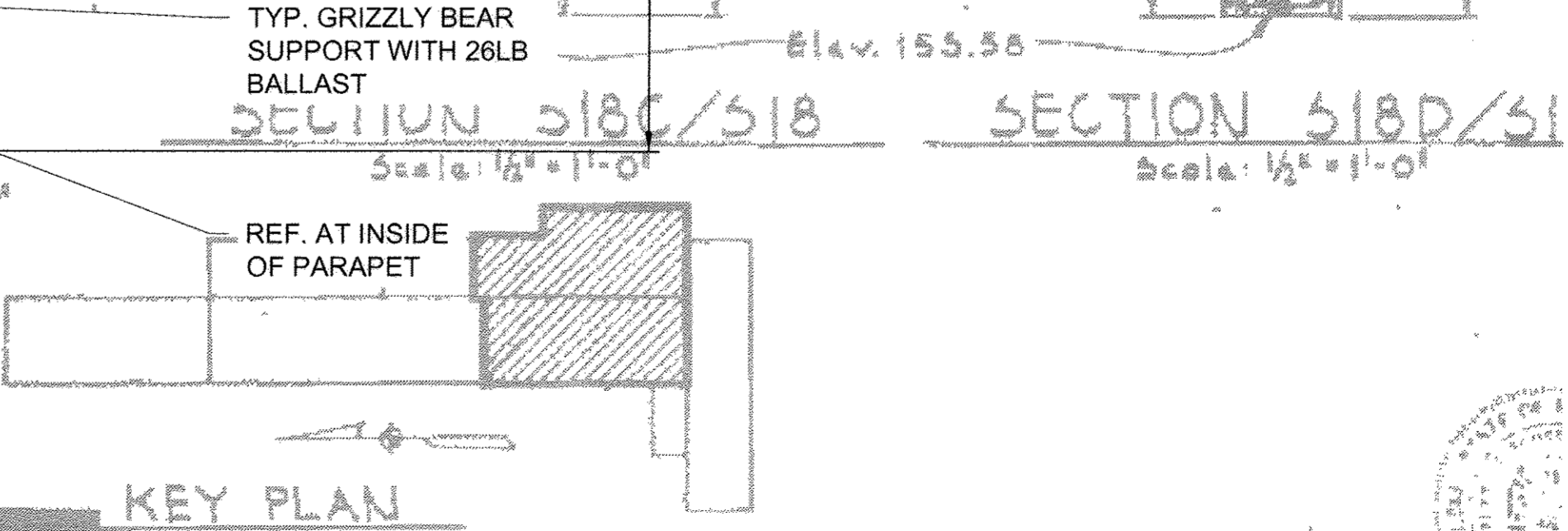
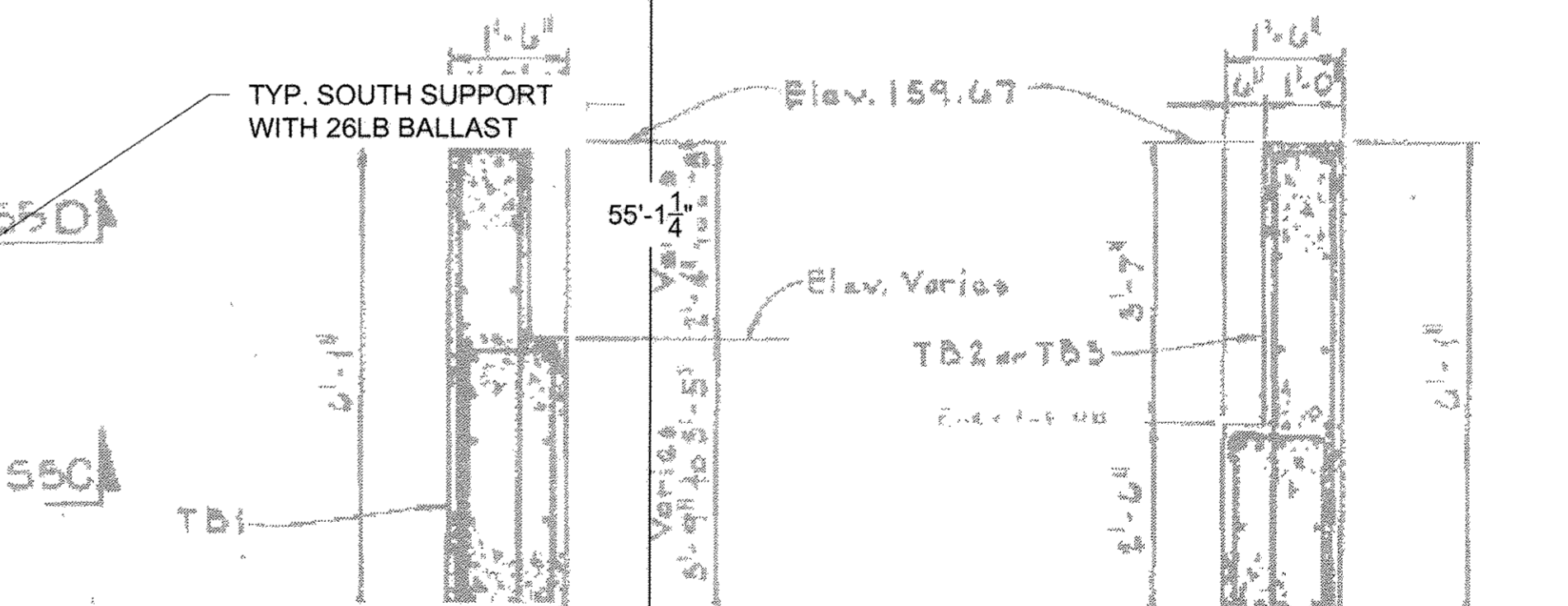
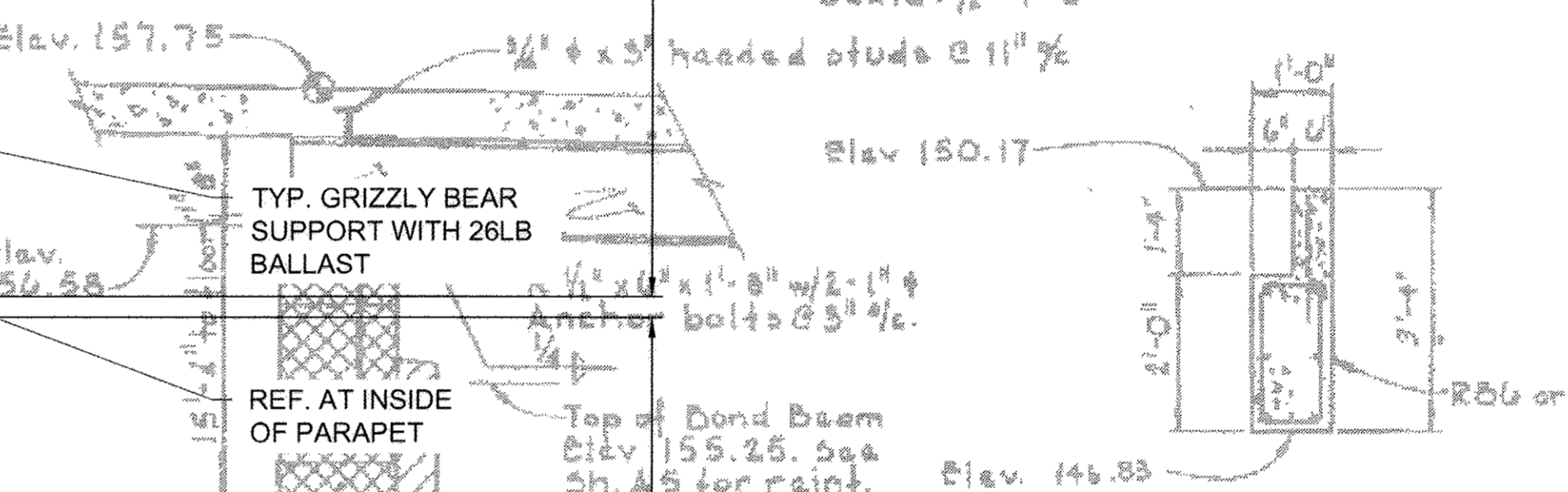
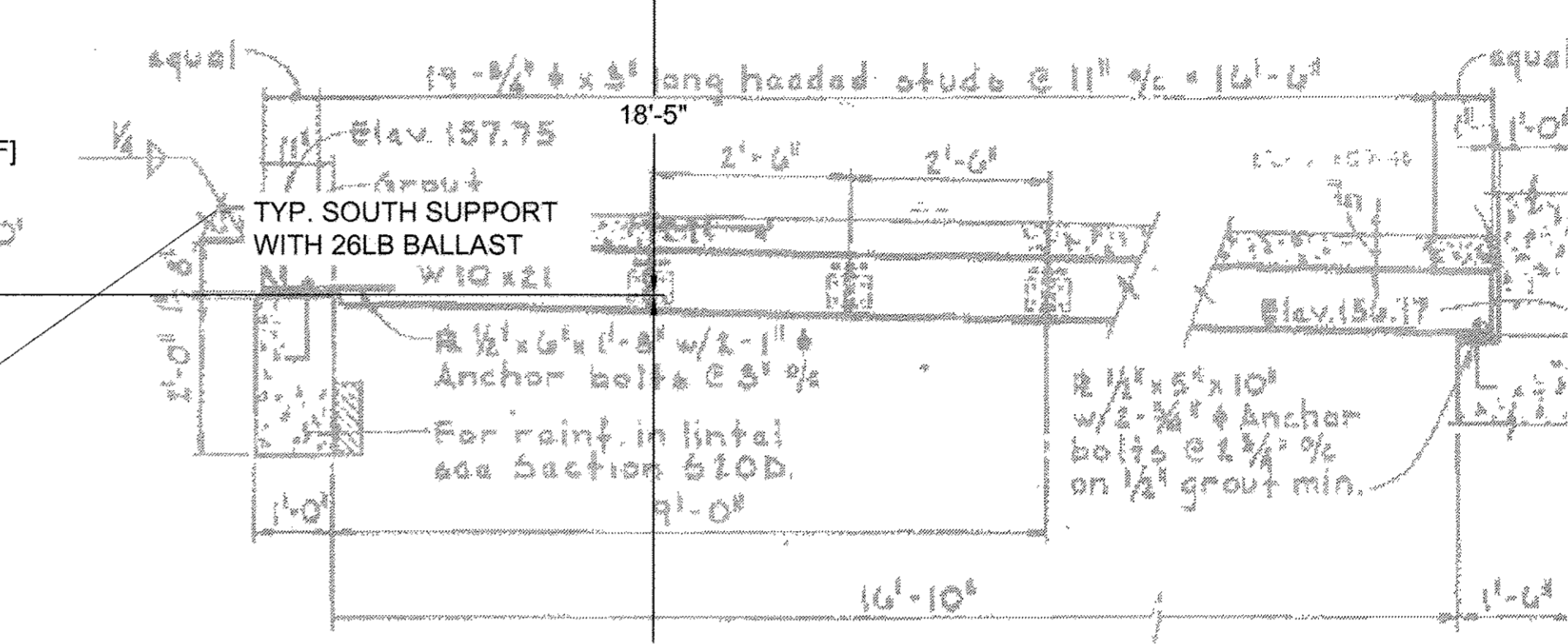
ORIGINAL SHEET SIZE
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 SHOULD MEASURE 1"

SCALE
 1/8" = 1'-0"

DRAWING
 S3



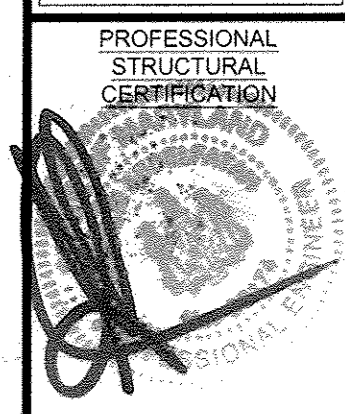
- NOTES**
1. For curbs at roof openings see sheet A-2.
 2. For plexiglass dome details see sheet A-2.
 3. For scupper locations & sizes see sheet A-2.
 4. For reinforcing in concrete beams see sheet B-25.
 5. For reinforcing in concrete columns see sheet B-25.



KEY PLAN

AS-BUILTS

ROOF PLAN
 TYP. MECHANICAL ATTACHMENTS INTO CONCRETE ROOF.



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PROJECT TITLE
 Howard County - Little Patuxent WRP
 PROJECT ADDRESS
 8900 Greenwood Pl.
 Savage, MD 20763
 SHEET TITLE
CARPORT STRUCTURAL PLAN

REVISIONS

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PROJECT NUMBER
13-C005

DRAWN BY
CAS

APPROVED BY
CJC

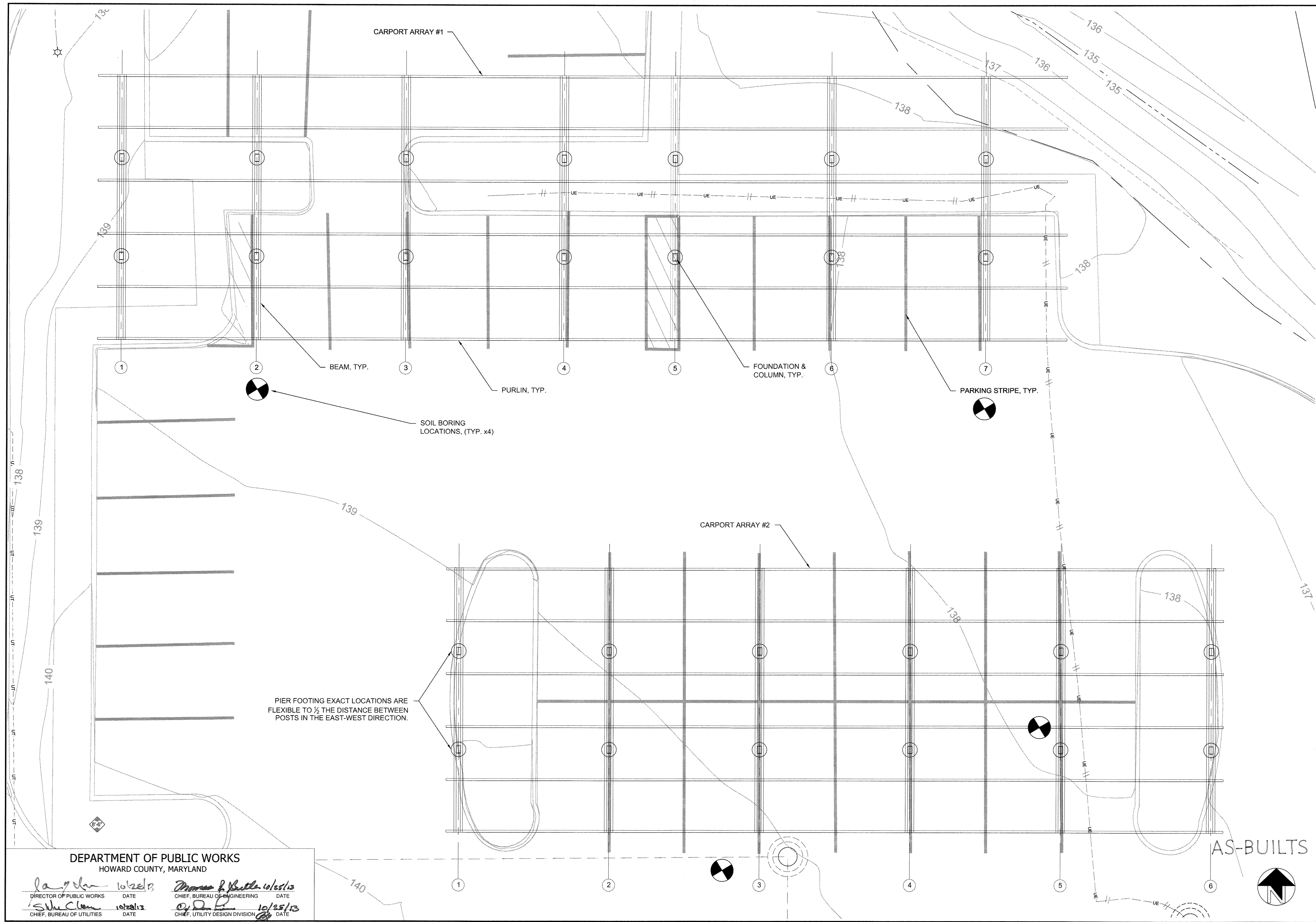
DATE
10.01.2013

ORIGINAL SHEET SIZE
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 SHOULD MEASURE 1":

SCALE
3/16" = 1'-0"

DRAWING

S4



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

<i>[Signature]</i> DIRECTOR OF PUBLIC WORKS DATE	<i>[Signature]</i> CHIEF, BUREAU OF ENGINEERING DATE
<i>[Signature]</i> CHIEF, BUREAU OF UTILITIES DATE	<i>[Signature]</i> CHIEF, UTILITY DESIGN DIVISION DATE

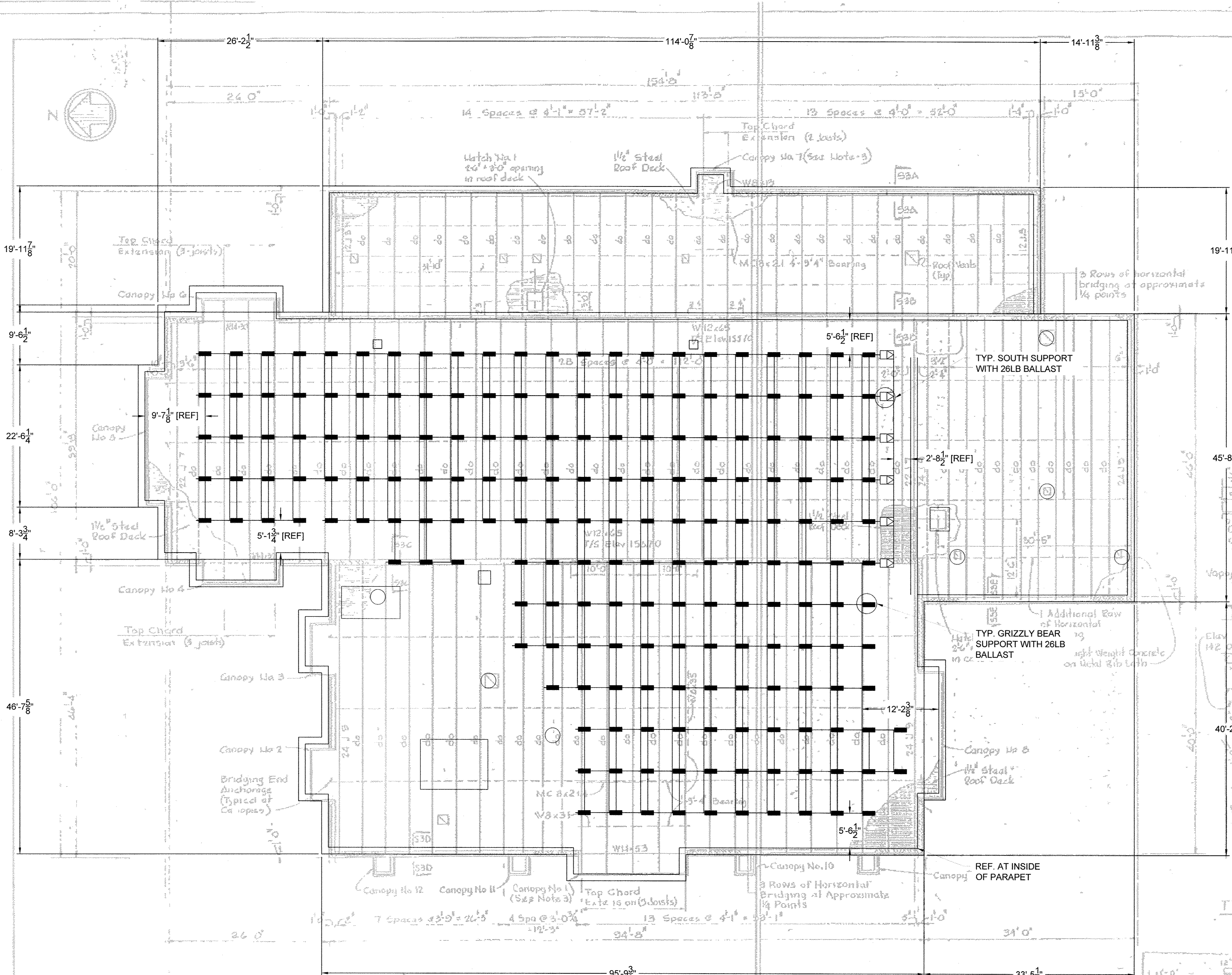
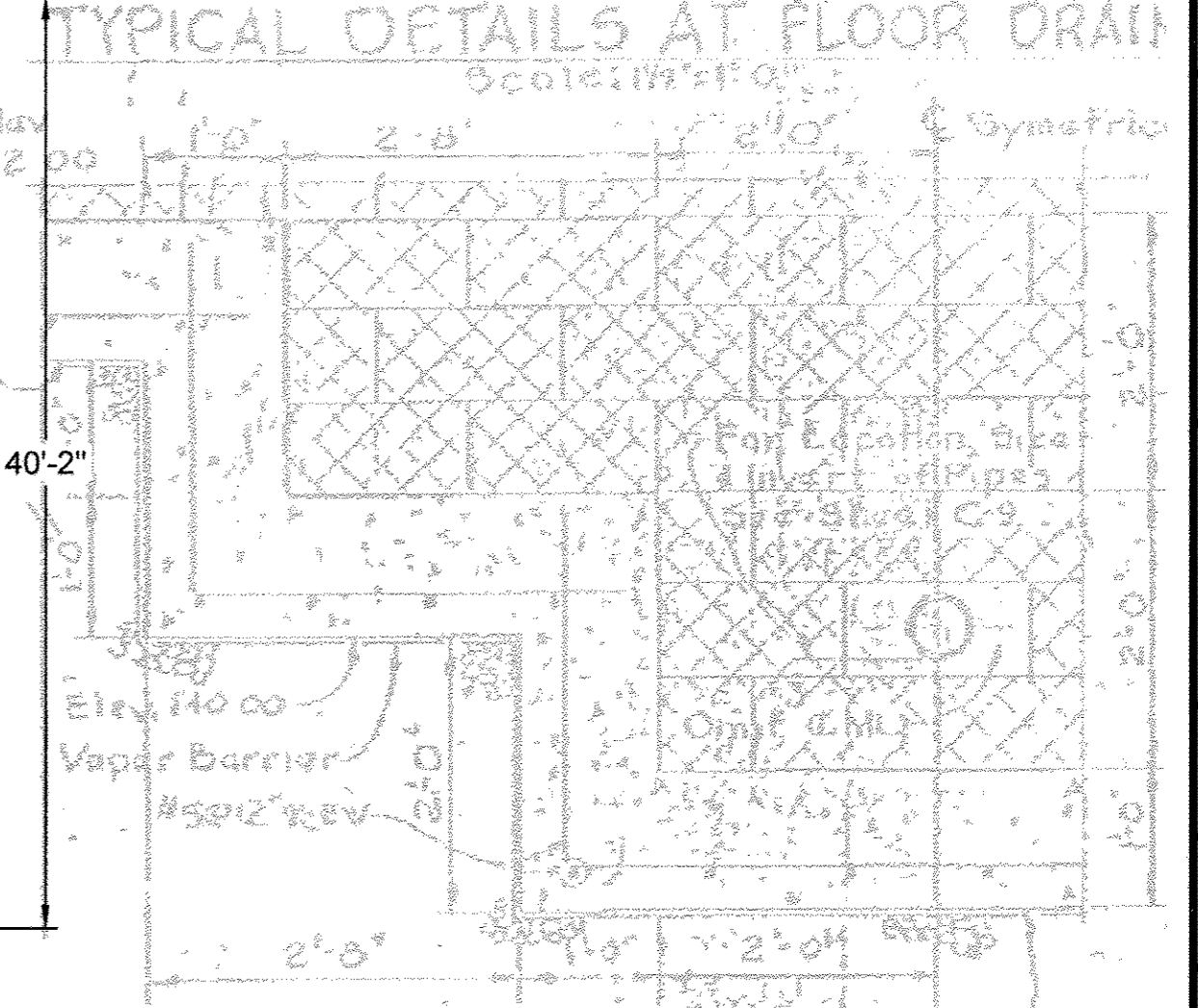
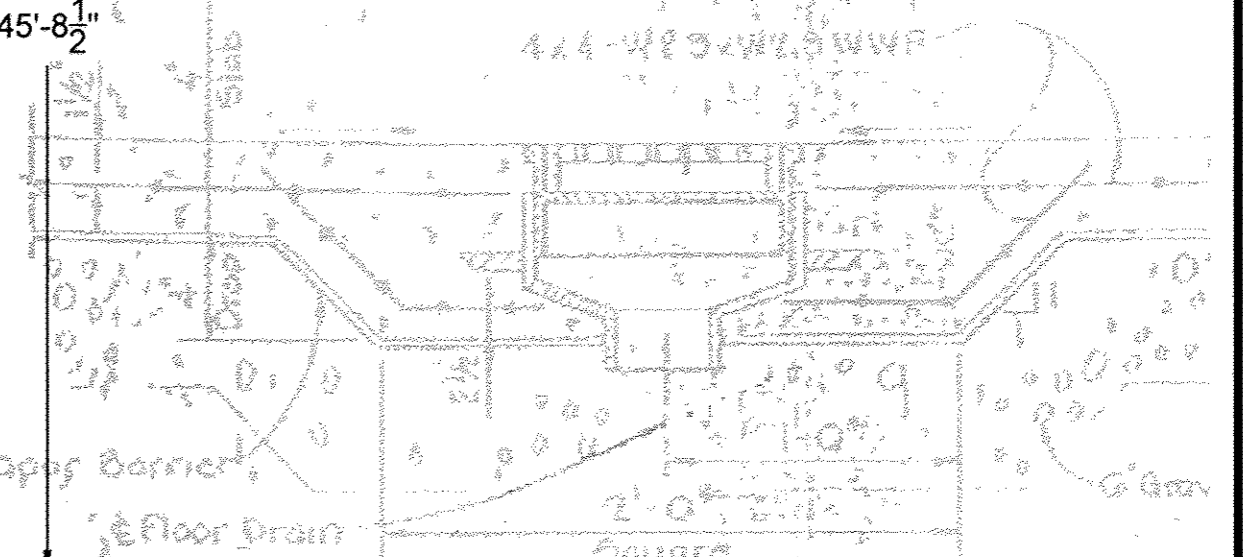
AS-BUILTS

ROOF SYSTEM

- Open Web Steel Joists
 - Bridging shall consist of continuous horizontal members not less than 3/4" x 3/4", one at top chord and one at bottom chord attached by welding to the diagonal members. Bridging to be welded to every joist. All bridging shall be cut at ends as shown on drawings. Welds to be capable of resisting 700 lbs each.
- Steel Roof Decking shall be as follows:
 - Nominal Depth = 1 1/2"
 - Gage = 24" Minimum
 - Section Modulus = 0.20 in³ per foot min
 - Deflection shall not exceed 1/400 of the span long center to center of supports under a live load of 30 pounds per square foot.
 - Maximum fiber stress shall not exceed 0.4 times yield strength of the steel (F_y and F_t) under a total load of 45 pounds per square foot.
- Canopy Framing

For sections and details see Sheet 5-A.
- Roof Drains and Vents

For drain and vent openings in distal deck and canopy slab see sheet A-6.



TYP. PIPE PENETRATION DETAIL
 Scale: 1/4" = 1'-0"

ROOF FRAMING PLAN
 Scale: 1/8" = 1'-0"

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: [Signature] 2/3/15
 Chief, Bureau of Engineering: [Signature] 1/30/15
 Chief, Bureau of Utilities: [Signature] 1/27/15
 Chief, Utility Design Division: [Signature]

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 [Signature] 3/20/15
 Chief, Bureau of Engineering: [Signature]

CONTRACT NO. 503-S

STRUCTURAL
 ADMINISTRATION BUILDING
 ROOF FRAMING PLAN

SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO 4

DRAWING
 NO. 32
 OF 64

