



# Exhibit A - Detailed Site Plan Layout


Next Page







	A	B	C	D	E	F	G	H	I	J																														
GENERAL CIVIL NOTES:				SITE ACCESS ROADS (INTERNAL ROADS):				UTILITY LOCATE:																																
1.	CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE SPECIFICATIONS, TOWN OF NORTH STONINGTON ORDINANCES, AND CONNECTICUT STATE BUILDING CODES, CONNECTICUT GENERAL STATUTES, AND THE INTERNATIONAL BUILDING CODE.			29.	SITE ACCESS ROAD CONSTRUCTION SHALL CONSIST OF 12" OF SCARIFIED, MOISTURE CONDITIONED, AND COMPACTED NATIVE SUBBASE MATERIAL (SUBBASE); GEOTEXTILE FABRIC; AND 12" OF COMPACTED AGGREGATE BASE MATERIAL (SURFACE COARSE).			80.	PRIOR TO CONSTRUCTION CONTRACTOR SHALL CONTACT CONNECTICUT ONE CALL FOR UTILITY LOCATION SERVICES TO LOCATE ALL PUBLIC AND PRIVATE UTILITIES.																															
2.	CONNECTICUT STATE BUILDING CODES, CONNECTICUT GENERAL STATUTES AND NORTH STONINGTON TOWN ORDINANCES SHALL HAVE PRECEDENCE OVER SUBMITTED DRAWINGS AND SPECIFICATIONS.			40.	PRIOR TO PLACING SURFACE COARSE OR COMPACTING SUBBASE IN PROPOSED ROADWAY LOCATIONS, ALL UNSUITABLE MATERIAL SHALL BE REMOVED. THIS SHALL INCLUDE THE REMOVAL OF ALL VEGETATION AND TOPSOIL, DEBRIS, LOOSE AND DISTURBED SOIL, CONTAMINATED SOIL AND OTHER DELETERIOUS MATERIALS THAT MAY EXIST WITHIN THE AREA OF THE PROPOSED ROADWAY CONSTRUCTION.			81.	CONNECTICUT ONE CALL CAN BE REACHED BY CALLING 811 OR 1-800-922-4455.																															
3.	ALL EARTHWORK AND TESTING SHALL ADHERE TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEERING REPORT (GEOTECH REPORT), PROVIDED BY TERRACON CONSULTANTS, INC. PROJECT NO J2175142.			41.	SURFACE COARSE SHALL HAVE A MINIMUM COMPACTED THICKNESS OF 12" OF CRUSHED ANGULAR AGGREGATE RANGING IN SIZE FROM 3/4" TO 1 3/4".			82.	HORIZONTAL COORDINATE SYSTEM: NAD 83, CONNECTICUT STATE PLANE SOUTH ZONE, SURVEY FEET.																															
4.	EARTHWORK ON THE SITE SHALL BE OBSERVED AND EVALUATED BY THE GEOTECHNICAL ENGINEER OF RECORD (G-EOR).			42.	SURFACE COARSE THICKNESS SHALL BE MEASURED AFTER FULL COMPACTION.			83.	VERTICAL DATUM: NAD 83, FEET.																															
5.	THE EVALUATION OF EARTHWORK SHALL INCLUDE OBSERVATION AND TESTING OF ON-SITE BACKFILL MATERIAL AND OTHER GEOTECHNICAL CONDITIONS EXPOSED DURING EQUIPMENT PAD EXCAVATIONS AND ROAD IMPROVEMENT CONSTRUCTION AT THE DIRECTION OF THE G-EOR.			43.	A MIRAFI 500X, OR EQUIVALENT GEOTEXTILE FABRIC SHALL BE PLACED ABOVE SCARIFIED AND COMPACTED NATIVE SUBBASE PRIOR TO PLACEMENT OF SURFACE COARSE MATERIAL.			84.	ANY COORDINATES SHOWN ON CIVIL SHEETS ARE GROUND COORDINATES.																															
6.	WHERE DEVIATIONS EXIST BETWEEN THESE SPECIFICATIONS/DESIGN AND THE GEOTECH REPORT, THIS DESIGN SHALL TAKE PRECEDENCE.			44.	SCARIFY (OR TILL), WET AND COMPACT NATIVE SUBBASE MATERIAL TO 12" DEPTH MINIMUM BEFORE ADDING GEOTEXTILE FABRIC OR AGGREGATE SURFACE COARSE.			SPECIAL INSPECTIONS:																																
7.	NOTES AND DETAILS NOTED AS "TYPICAL," SHALL BE USED WHENEVER APPLICABLE. SPECIFIC DETAILS AND NOTES TAKE PRECEDENCE OVER TYPICAL DETAILS AND NOTES.			45.	NATIVE SUBBASE MATERIAL SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY (MDD) PER ASTM D1557, OPTIMUM MOISTURE CONTENT SHALL BE IN ACCORDANCE WITH THE GEOTECH REPORT.			85.	SPECIAL INSPECTION AND TESTING FIRM SHALL SUBMIT THE FOLLOWING TO THE OWNER AND C-EOR:																															
8.	DRAWINGS, SPECIFICATIONS, DETAILS, AND NOTES DEPICTED IN THIS DESIGN REPRESENT THE FINISHED PRODUCT AND DO NOT INDICATE THE MEANS, METHODS, PROCEDURES, OR SEQUENCE OF CONSTRUCTION UNLESS SPECIFICALLY NOTED.			46.	AGGREGATE SURFACE COARSE SHALL BE COMPACTED TO 95% MDD PER ASTM D1557, 0 TO 2% OPTIMUM MOISTURE CONTENT AND CROWNED 2%.			85.1.	SPECIAL INSPECTION AND TESTING REPORTS FOR THE FOLLOWING AT A MINIMUM:																															
9.	CHANGES OR DEVIATIONS FROM THE DRAWINGS, SPECIFICATIONS, DETAILS, AND NOTES DEPICTED IN THIS DESIGN ARE NOT ALLOWED WITHOUT WRITTEN AUTHORIZATION FROM THE CIVIL ENGINEER OF RECORD (C-EOR).			47.	SITE ACCESS ROADWAYS SHALL BE CONSTRUCTED AT OR NEAR EXISTING GRADE, U.N.O. WITH A VERTICAL TOLERANCE OF +/- 2".			85.1.1.	PERIODIC VERIFICATION THAT MATERIALS BELOW SHALLOW FOUNDATIONS AND EQUIPMENT PADS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.																															
10.	CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONSTRUCTION SURVEYING STAKES SET BY THE OWNER. ANY DEVIATIONS FROM EXISTING GRADES AS SHOWN ON THE PLANS SHALL BE IMMEDIATELY REPORTED TO THE OWNER AND C-EOR.			48.	POSITIVE DRAINAGE SHALL BE MAINTAINED ACROSS ROADS.			85.1.2.	PERIODIC VERIFICATION THAT EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND WIDTH AND HAVE REACHED SUITABLE MATERIAL.																															
11.	REQUESTS FOR INFORMATION (RFIs) FOR CLARIFICATION OF THE INTENT OF THE DESIGN SHALL BE SUBMITTED TO THE C-EOR. RFIs SHALL INCLUDE A DETAILED WRITTEN STATEMENT THAT INDICATES THE SPECIFIC DRAWINGS OR SPECIFICATIONS IN NEED OF CLARIFICATION AND THE NATURE OF THE CLARIFICATION REQUIRED. THE C-EOR SHALL RESPOND IN WRITING AND ISSUE CLARIFICATIONS AS NECESSARY. RESPONSES TO RFIs DO NOT CONSTITUTE APPROVED DESIGN CHANGES.			49.	ON-SITE ROADWAY SLOPES SHALL NOT EXCEED 5%.			85.1.3.	PERIODIC CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.																															
EARTHWORK:				CULVERTS:			SUBMITTALS:																																	
12.	COMPACTION STANDARD FOR NATIVE, SCARIFIED, AND RE-COMPACTED SUBGRADES SHALL BE 95% MAXIM,UM DRY DENSITY (MDD) BY MODIFIED PROCTOR DRY DENSITY (ASTM D1557), METHOD C.			50.	BACKFILLING SHALL BE PERFORMED IN ACCORDANCE WITH CT DOT STANDARDS AND SPECIFICATIONS.			86.	CONTRACTOR SHALL SUBMIT CUT SHEETS AND DETAILS FOR THE FOLLOWING TO THE OWNER AND C-EOR FOR REVIEW PRIOR TO PLACEMENT:																															
13.	COMPACTION STANDARD FOR STRUCTURAL FILL BENEATH CONCRETE PADS SHALL BE 95% MDD BY ASTM D1557.			51.	BACKFILLING ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR ADJOINING FILL MATERIAL.			86.1.	PERIMETER FENCE																															
14.	MOISTURE CONTENT OF SOILS SHALL BE IN ACCORDANCE WITH THE GEOTECH REPORT AT THE TIME OF PLACEMENT AND COMPACTION.			52.	PLACE FILL AROUND CMP IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES THICK AND COMPACT TO 95% MDD STANDARD PROCTOR (ASTM D698).			86.2.	FILL AND/OR STRUCTURAL FILL MATERIALS AND EQUIPMENT PAD EXCAVATION FILL MATERIALS																															
15.	PLACE FILL MATERIAL IN MAXIMUM LIFTS OF 12" LOOSE THICKNESS WHEN USING SELF PROPELLED HEAVY COMPACTORS.			53.	FILL MATERIAL SHALL COMPLETELY FILL ALL SPACES UNDER AND ADJACENT TO CMP(S)			ALTERNATIVES:																																
16.	FILL MATERIAL TYPES SHALL BE IN ACCORDANCE WITH STRUCTURAL FILL TYPES LISTED IN THE GEOTECH REPORT.			54.	ALL CMP SHALL BE ALUMINUM COATED STEEL PIPE CONFORMING TO AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES.			87.	THE C-EOR WILL CONSIDER ALTERNATIVES FOR MATERIALS AND PROCEDURES. HOWEVER, IT IS THE CONTRACTOR'S RESPONSIBILITY TO DEMONSTRATE THAT ALL ALTERNATIVES ARE EQUAL IN STRENGTH, PERFORMANCE, AND DURABILITY TO THE MATERIALS OR PROCEDURES SPECIFIED IN THE DESIGN.																															
17.	PLACE FILL MATERIAL IN MAXIMUM LIFTS OF 6" LOOSE THICKNESS WHEN USING HAND GUIDED COMPACTING EQUIPMENT.			55.	COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC., SHALL BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE CMP.			88.	WRITTEN APPROVAL BY THE C-EOR SHALL BE REQUIRED PRIOR TO USING ANY ALTERNATIVE. CONSIDERATION OF ANY ALTERNATIVE SHALL NOT BE DEEMED TO IMPLY ADVANCE ACCEPTANCE BY THE C-EOR. THE C-EOR RESERVES THE RIGHT TO REJECT ANY ALTERNATIVE.																															
18.	PRIOR TO PLACING FILL OR COMPACTING SCARIFIED SOIL IN FOUNDATION AREAS, ALL UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION AREAS. THIS SHALL INCLUDE THE REMOVAL OF ALL VEGETATION AND TOPSOIL, DEBRIS, LOOSE AND DISTURBED SOIL, CONTAMINATED SOIL AND OTHER DELETERIOUS MATERIALS THAT MAY EXIST WITHIN THE AREA OF THE PROPOSED CONSTRUCTION.			56.	PIPE CONNECTIONS SHALL BE WATERTIGHT.			<div><table><tr><th>REV</th><th>DESCRIPTION</th><th>DATE</th></tr><tr><td>0</td><td>ISSUED FOR PERMIT</td><td>05/22/2020</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td></tr></table></div> <div>CONFIDENTIAL: THE INFORMATION DEPICTED ON THIS DOCUMENT IS PROPRIETARY AND THE SOLE PROPERTY OF SIERRA OVERHEAD ANALYTICS, INC (SOA). ANY USE OR DISCLOSURE OF THIS INFORMATION IS EXPRESSLY PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF SOA.</div>			REV	DESCRIPTION	DATE	0	ISSUED FOR PERMIT	05/22/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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19.	IF UNDERGROUND FACILITIES ARE ENCOUNTERED DURING SITE CLEARING, CONTRACTOR SHALL IMMEDIATELY NOTIFY C-EOR SO THAT A SOLUTION CAN BE CREATED TO PROTECT AND/OR RELOCATE (E) UTIL.			57.	DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.																																			
20.	DRY AND LOW-DENSITY SOIL SHALL BE REMOVED OR WETTED AND COMPACTED IN-PLACE PRIOR TO PLACING ADDITIONAL FILL OVER THE MATERIAL.			58.	ALL CONNECTIONS SHALL USE RUBBER OR NEOPRENE GASKETS WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH.																																			
21.	CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND VOLUMES PRIOR TO CONSTRUCTION.			59.	THE CMP SHALL BE FIRMLY AND UNIFORMLY BEDDED THE ENTIRE LENGTH OF THE PIPE.																																			
22.	MATERIAL QUANTITIES SHOWN IN THESE PLANS ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ALL MATERIAL QUANTITIES PRIOR TO CONSTRUCTION.			60.	ROCK, SOFT SOIL, SPONGY MATERIAL, OR OTHER UNSTABLE DELETERIOUS SOIL SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL.																																			
23.	ORGANIC SOILS SHALL BE LEFT IN PLACE IN NON-STRUCTURAL AREAS SUCH AS WITHIN THE ARRAY AREAS.			CONSTRUCTION LAYDOWN AREA:			<div></div>																																	
24.	VEGETATION REMOVAL SHALL ONLY TAKE PLACE IN AREAS TO BE DISTURBED, CONTRACTOR SHALL MINIMIZE DISTURBANCE OF VEGETATION DUE TO CONSTRUCTION ACTIVITIES.			61.	TEMPORARY LAYDOWN AREAS WILL BE CLEARED AND GRUBBED.																																			
25.	IN ROAD AND EQUIPMENT PAD CONSTRUCTION LOCATIONS, NATIVE TOPSOIL WILL BE REMOVED AND SPREAD ON SITE.			62.	SCARIFY (OR TILL) NATIVE MATERIAL TO A DEPTH OF 12" AND RECOMPACT, IF NECESSARY.																																			
26.	IN GRADING AREAS, NATIVE TOPSOIL SHALL BE REMOVED AND STOCKPILED NEAR THE GRADING AREAS. WHEN FINAL GRADES ARE ACHIEVED, NATIVE TOPSOIL SHALL BE SPREAD OVER THE GRADED AREA FOR RE-VEGETATION AND STABILIZATION ACTIVITIES.			63.	PROOF ROLL COMPACTED SUB BASE NATIVE MATERIAL USING A LOADED TRUCK.																																			
				64.	COMPACTION SHALL DEEMED ADEQUATE WHEN PROOF ROLL INDICATES 1" OR LESS DEFLECTION.																																			
				65.	COVER TEMPORARY LAYDOWN AREA WITH 4" MIN. DEPTH OF CRUSHED ROCK.																																			
				66.	TEMPORARY LAYDOWN AREAS SHALL BE REMOVED AND MITIGATED TO PRE-CONSTRUCTION GRADE BY SCARIFYING OR TILLING.																																			
				67.	FINAL STABILIZATION OF TEMPORARY LAYDOWN AREAS SHALL BE IN ACCORDANCE WITH ESC SHEETS.																																			
				CLEARING AND GRUBBING:																																				
				68.	CLEARING SHALL BE DEFINED AS THE REMOVAL OF PLANTS AT OR ABOVE THE GROUND SURFACE.																																			
				69.	GRUBBING SHALL BE DEFINED AS THE REMOVAL OF ROOTS BENEATH THE GROUND SURFACE.																																			
				TEMPORARY SOIL STOCKPIILING:																																				
				70.	EXCAVATED SOILS SHALL ONLY BE STOCKPILED IN TEMPORARY LAYDOWN AREAS, WITH THE EXCEPTION OF TOPSOIL.																																			
				71.	TOPSOIL FROM SITE ACCESS ROAD AND EQUIPMENT PAD CONSTRUCTION SHALL BE SPREAD ONSITE.																																			
				72.	TOPSOIL IN GRADING AREAS SHALL BE STOCKPILED NEAR THE GRADING AREA AND SPREAD OVER THE GRADING AREA ONCE FINAL GRADE HAS BEEN ESTABLISHED.																																			
				73.	EXCAVATED SOILS SHALL BE REUSED ON-SITE PLACE SO THAT SITE HYDROLOGY IS NOT ALTERED.																																			
				74.	EXCAVATED SOIL REUSE LOCATIONS SHALL BE PROVIDED TO THE C-EOR FOR APPROVAL.																																			
				75.	EROSION AND SEDIMENT CONTROLS FOR TEMPORARY STOCKPILES SHALL BE IN ACCORDANCE WITH ESC SHEETS AND THE STROMWATER POLLUTION CONTROL PLAN (SWPCP).																																			
				GRADING:																																				
				76.	MASS GRADING ACROSS THE ENTIRE SITE SHALL NOT BE PERFORMED.																																			
				77.	GRADING IN SELECT AREAS DEPICTED ON G&D SHEETS IS REQUIRED TO MAINTAIN PIER HEIGHT TOLERANCES.																																			
				78.	GRADING SHALL NOT BE PERFORMED IN WETLANDS, WETLAND SETBACKS, CULTURAL RESOURCE AREAS, OR ENDANGERED/THREATENED SPECIES AREAS.																																			
				79.	ADDITIONAL GRADING AREAS THAT WERE NOT ANTICIPATED IN THIS DESIGN BUT WERE DISCOVERED DURING CONSTRUCTION SHALL BE EVALUATED ON A CASE BY CASE BASIS AS NEEDED.																																			



Know what's below.  
Call before you dig.

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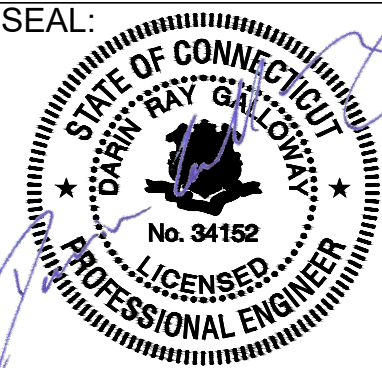
NOT FOR CONSTRUCTION

PROJECT NAME:

STONINGTON SOLAR PROJECT

PROJECT ADDRESS:

ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W

SEAL:  


DATE:  
22-MAY-20  
PROJECT #:  
#  
DRAWN BY:  
MMM  
CHECKED BY:  
DRG

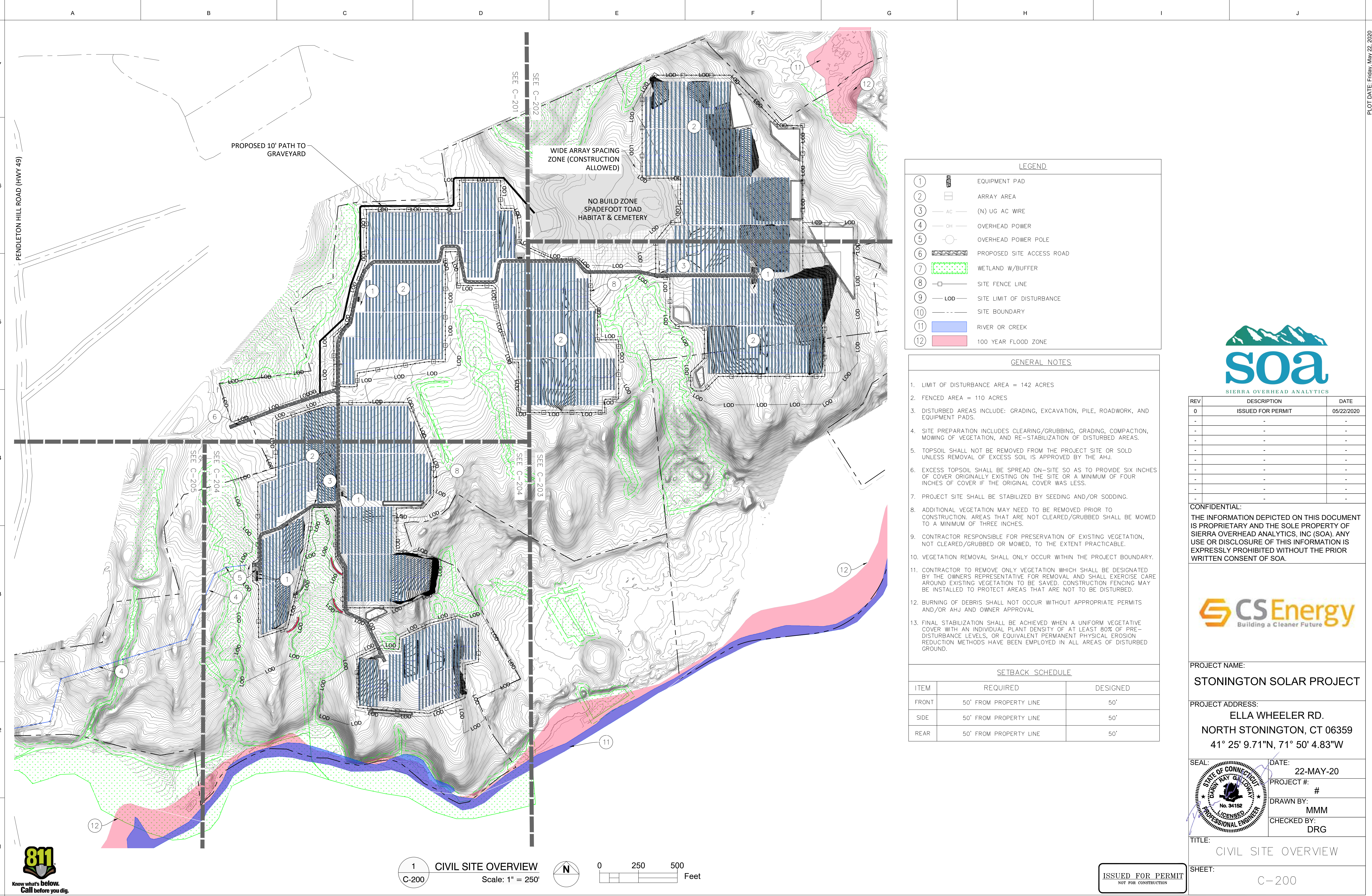
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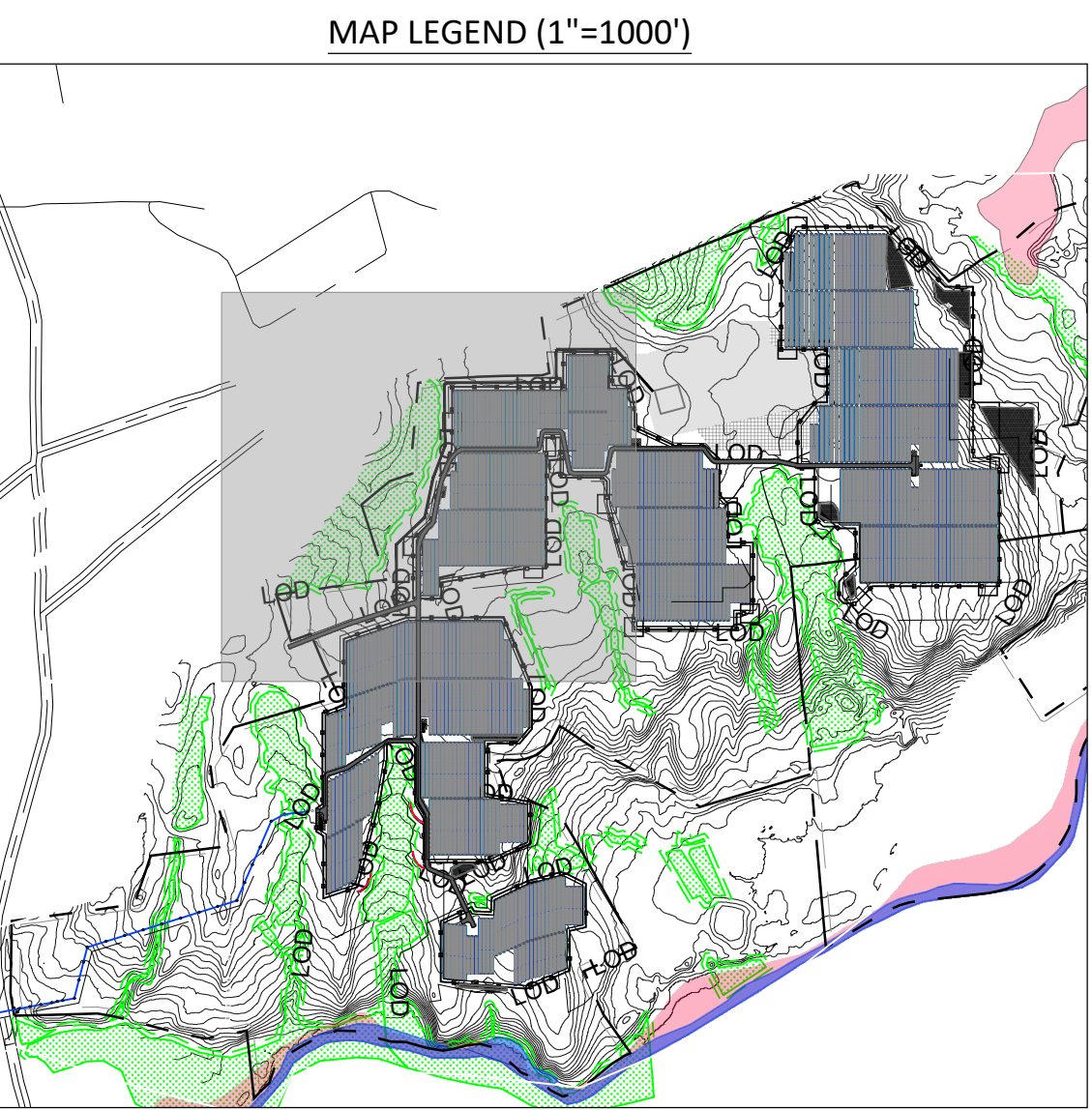
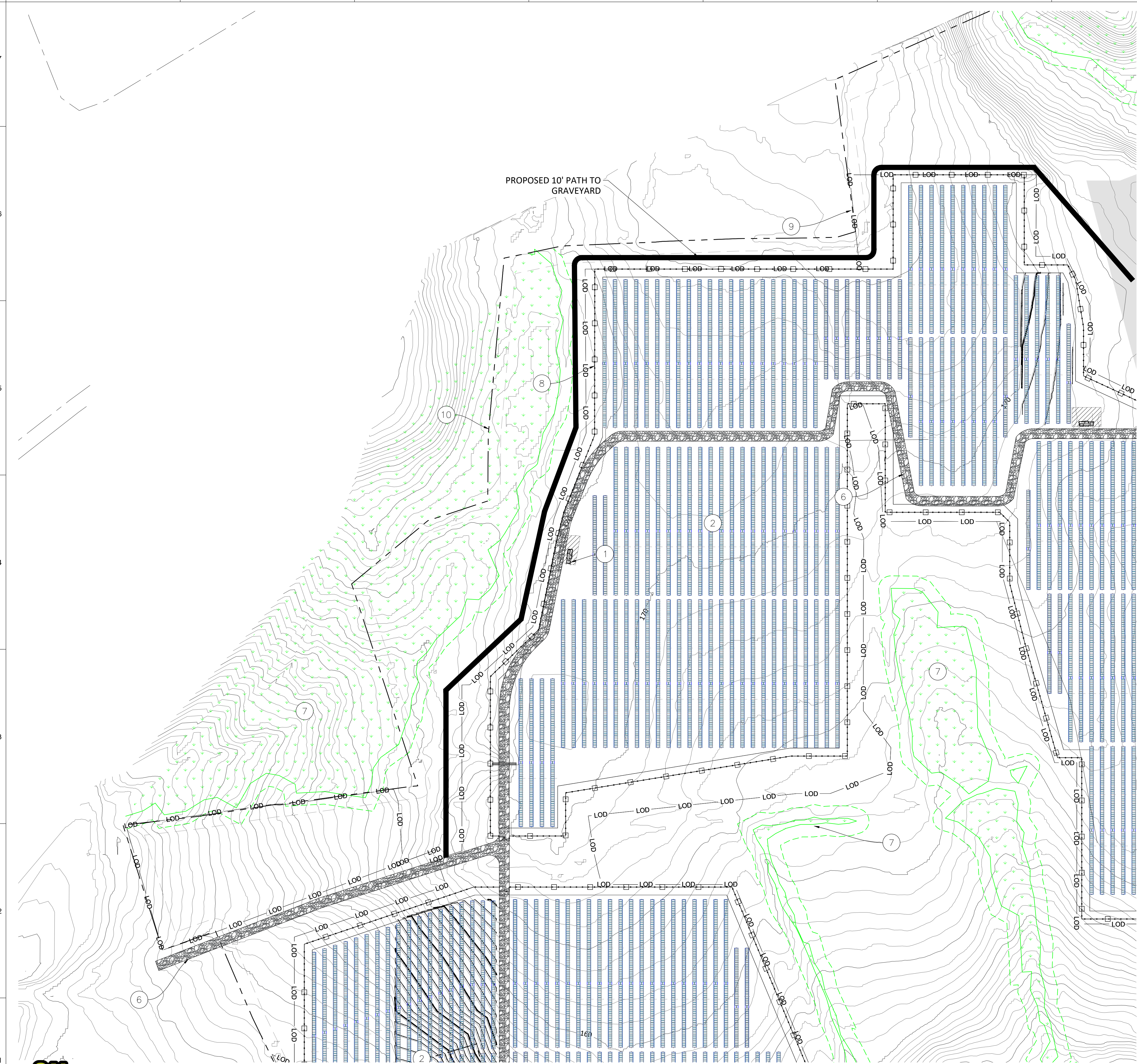
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C-100









LEGEND		
1		EQUIPMENT PAD
2		ARRAY AREA
3		AC (N) UG AC WIRE
4		OVERHEAD POWER
5		OVERHEAD POWER POLE
6		PROPOSED SITE ACCESS ROAD
7		WETLAND W/BUFFER
8		SITE FENCE LINE
9		SITE LIMIT OF DISTURBANCE
10		SITE BOUNDARY



REV	DESCRIPTION	DATE
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SEAL: 	DATE: 22-MAY-20
	PROJECT #: #
	DRAWN BY: MMM
	CHECKED BY: DRG

TITLE:  
CIVIL SITE PLAN

SHEET:  
C-201



1

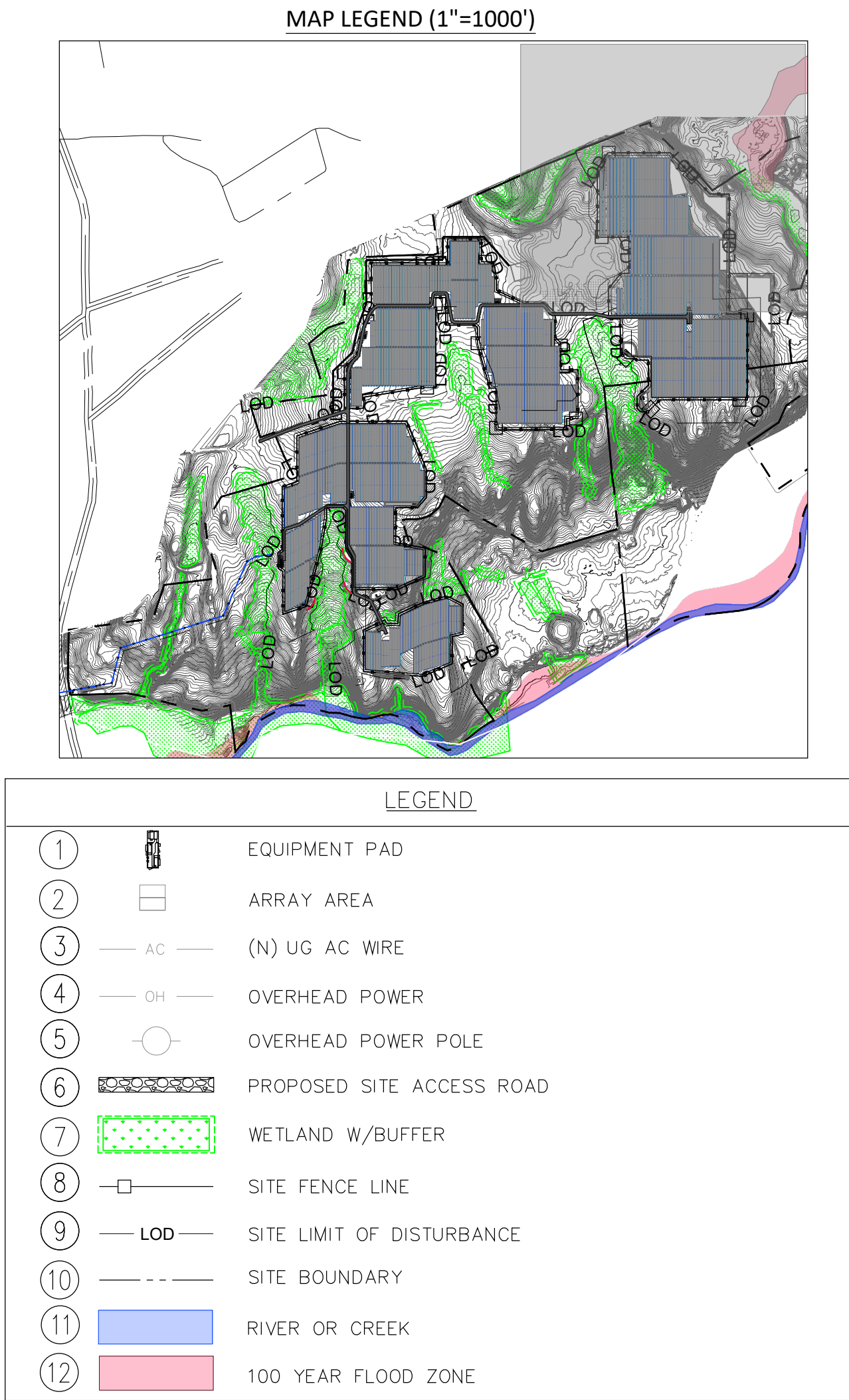
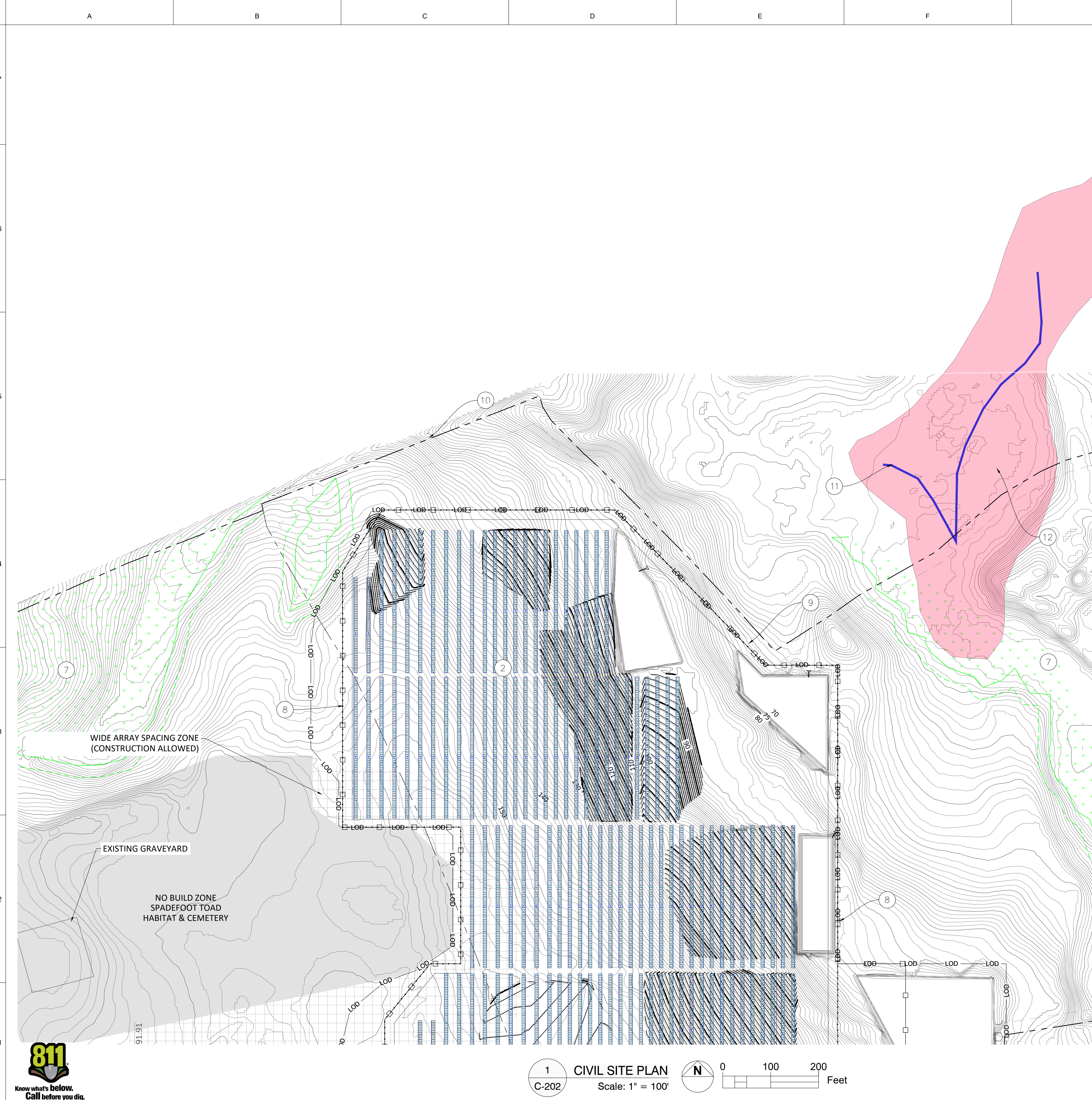
CIVIL SITE PLAN

Scale: 1" = 100'

0 100 200 Feet

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TITLE:  
CIVIL SITE PLAN

SHEET:  
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C-202

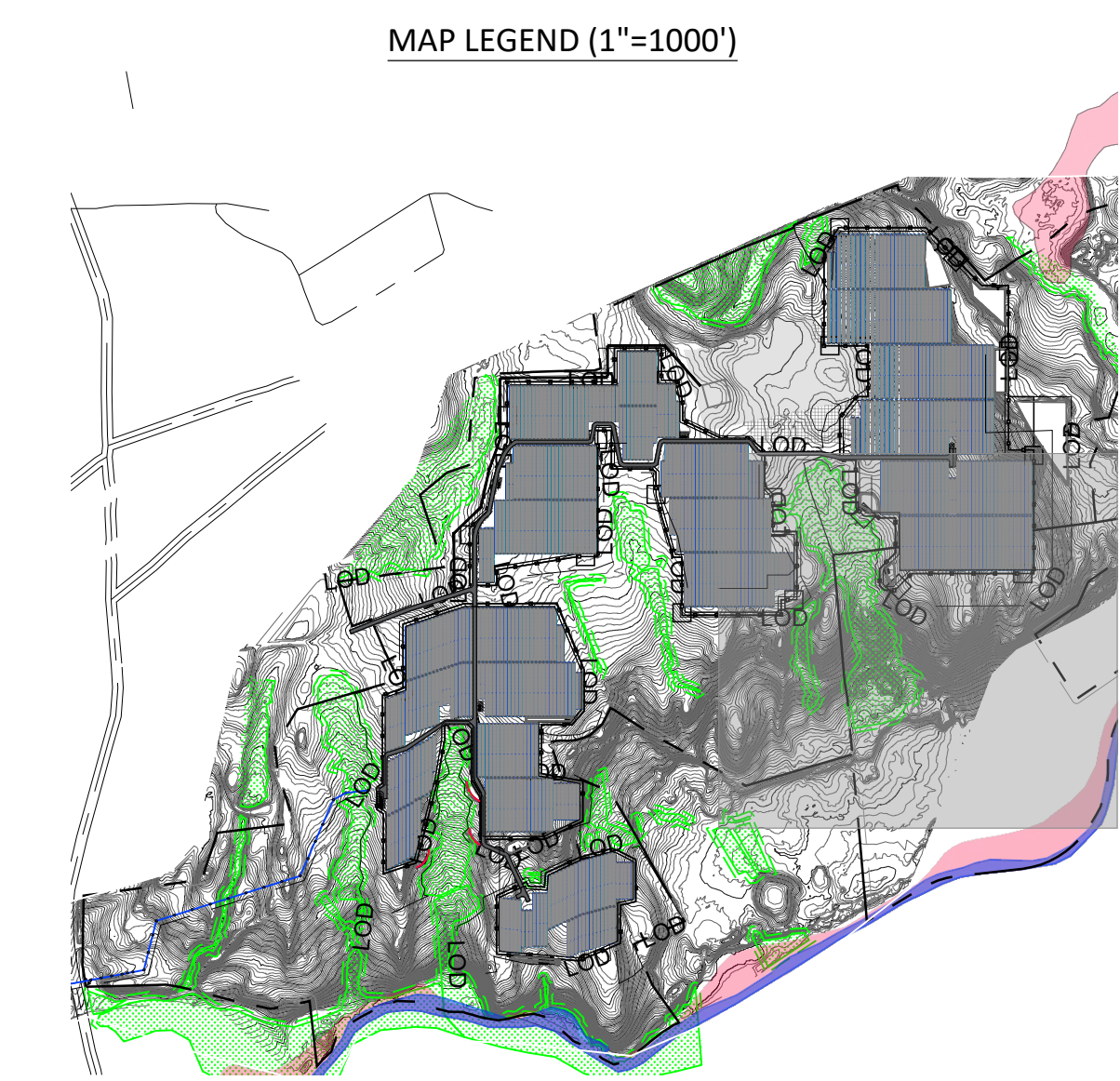
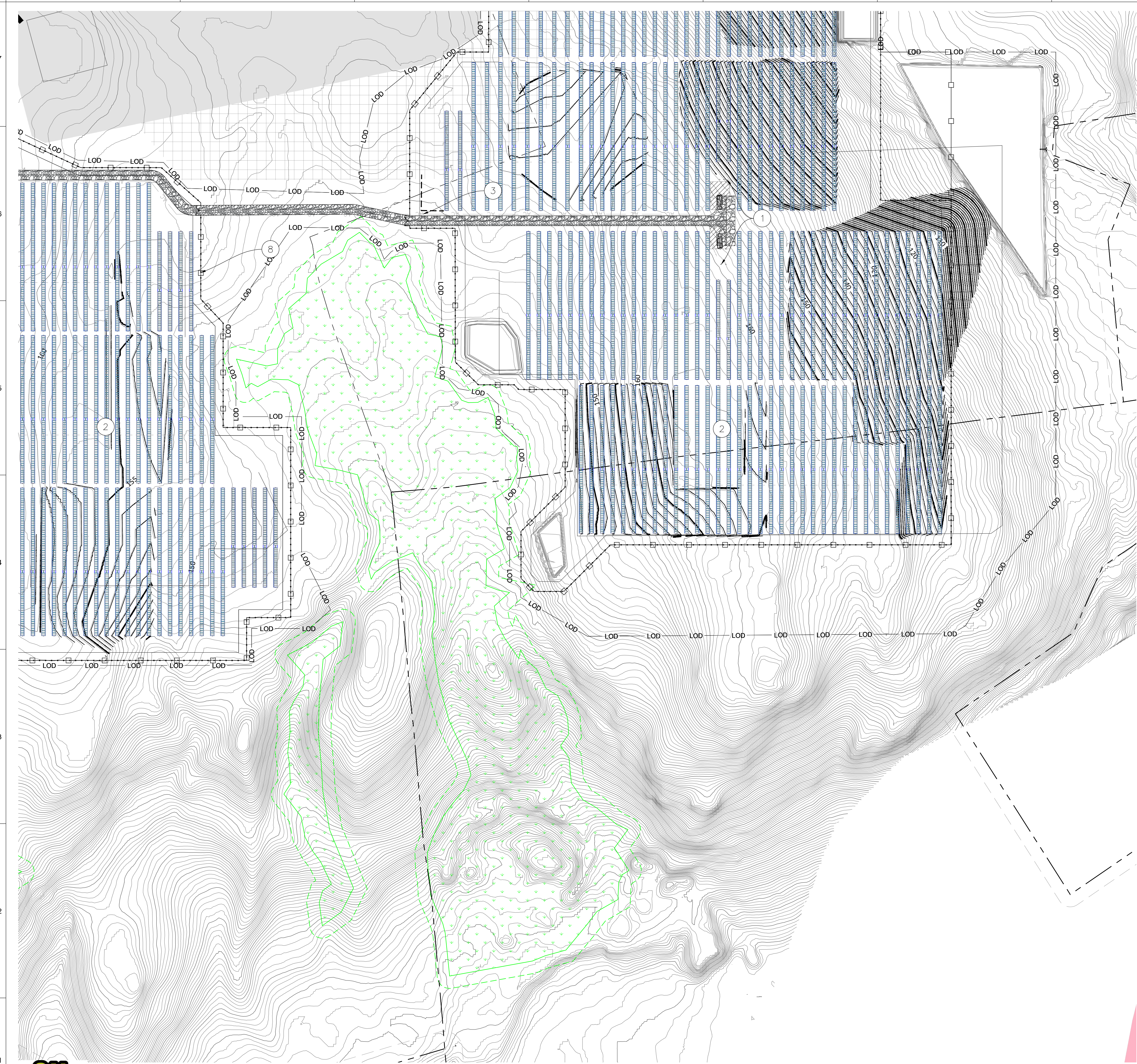
CIVIL SITE PLAN  
Scale: 1" = 100'

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0 100 200  
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LEGEND		
①		EQUIPMENT PAD
②		ARRAY AREA
③		(N) UG AC WIRE
④		OVERHEAD POWER
⑤		OVERHEAD POWER POLE
⑥		PROPOSED SITE ACCESS ROAD
⑦		WETLAND W/BUFFER
⑧		SITE FENCE LINE
⑨		SITE LIMIT OF DISTURBANCE
⑩		SITE BOUNDARY



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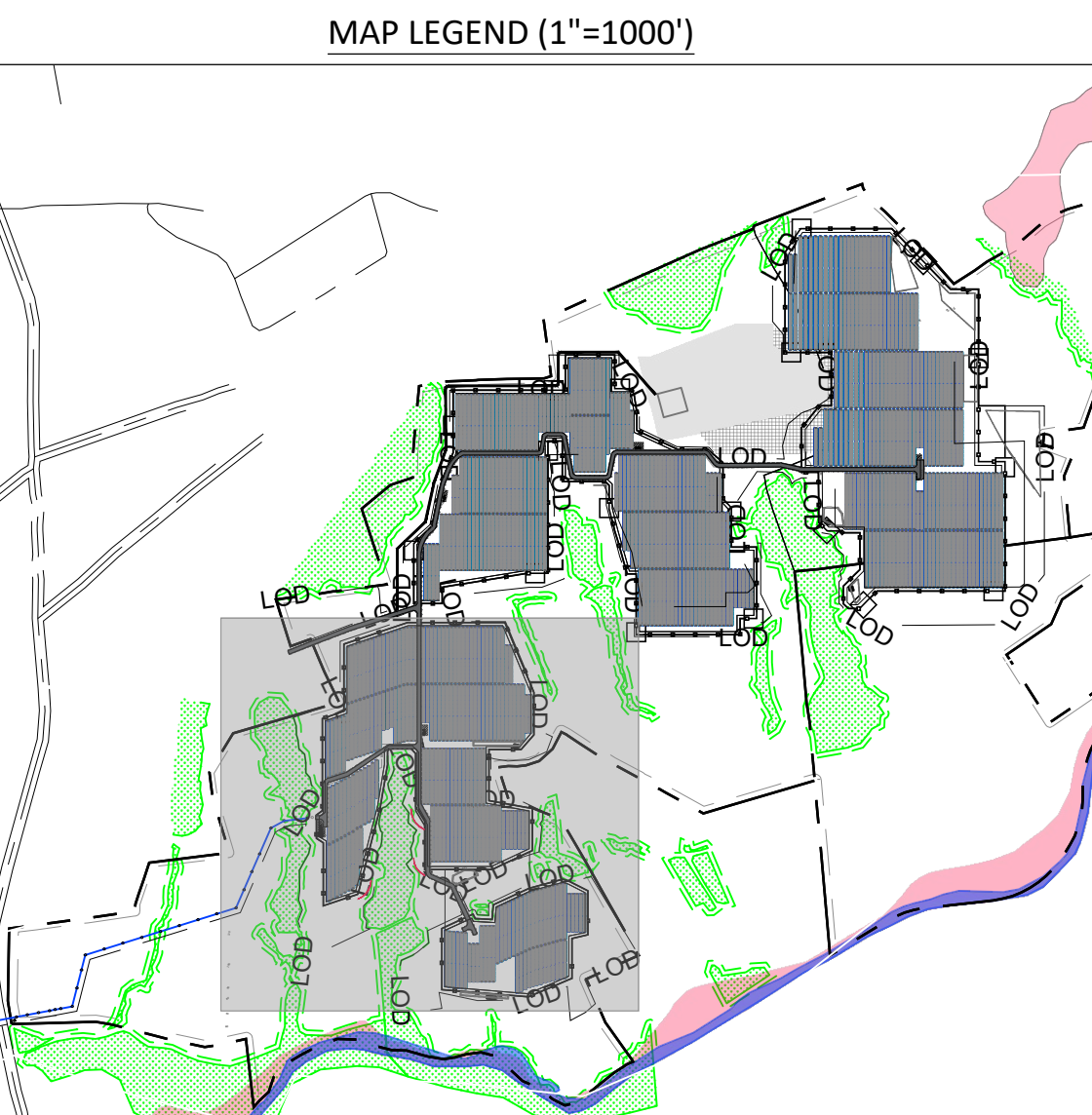
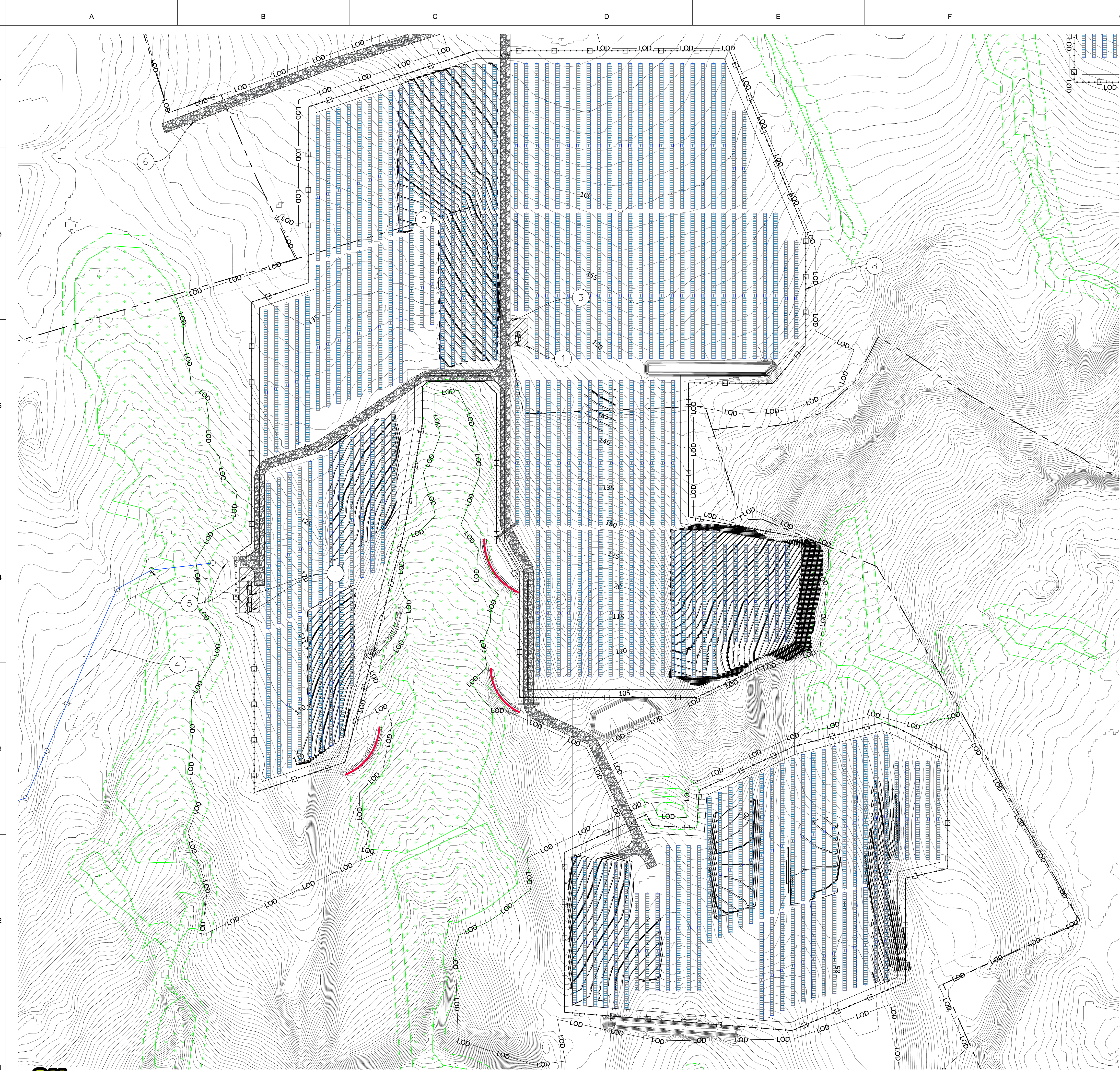
SEAL: 	DATE: 22-MAY-20
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	CHECKED BY: DRG

TITLE:  
CIVIL SITE PLAN

SHEET:  
C-203

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**LEGEND**

1		EQUIPMENT PAD
2		ARRAY AREA
3		(N) UG AC WIRE
4		OVERHEAD POWER
5		OVERHEAD POWER POLE
6		PROPOSED SITE ACCESS ROAD
7		WETLAND W/BUFFER
8		SITE FENCE LINE
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10		SITE BOUNDARY

**NOTES:**

1. COORDINATE SYSTEM: NAD83 CONNECTICUT STATE PLANE ZONE, US FOOT



REV	DESCRIPTION	DATE
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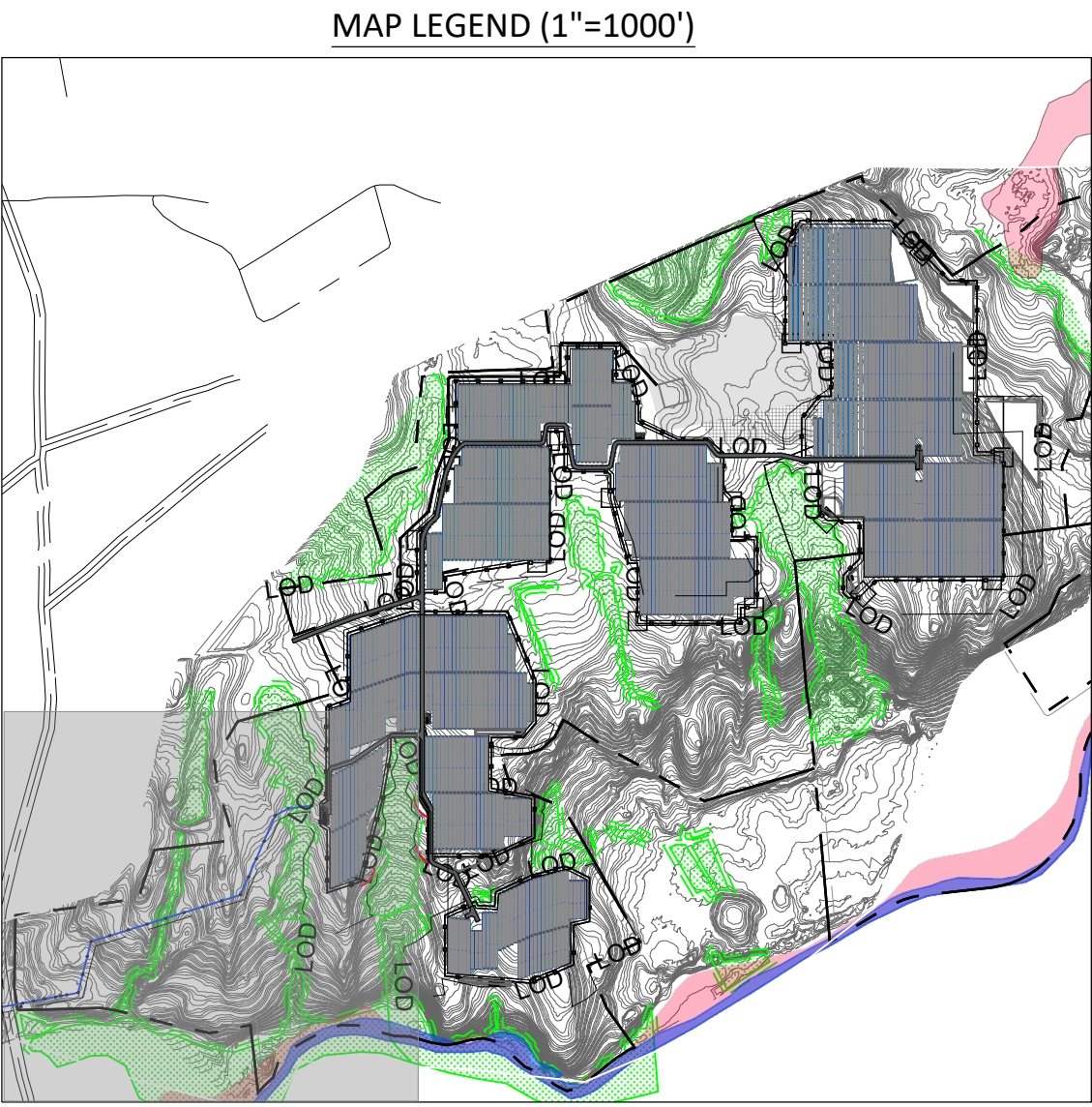
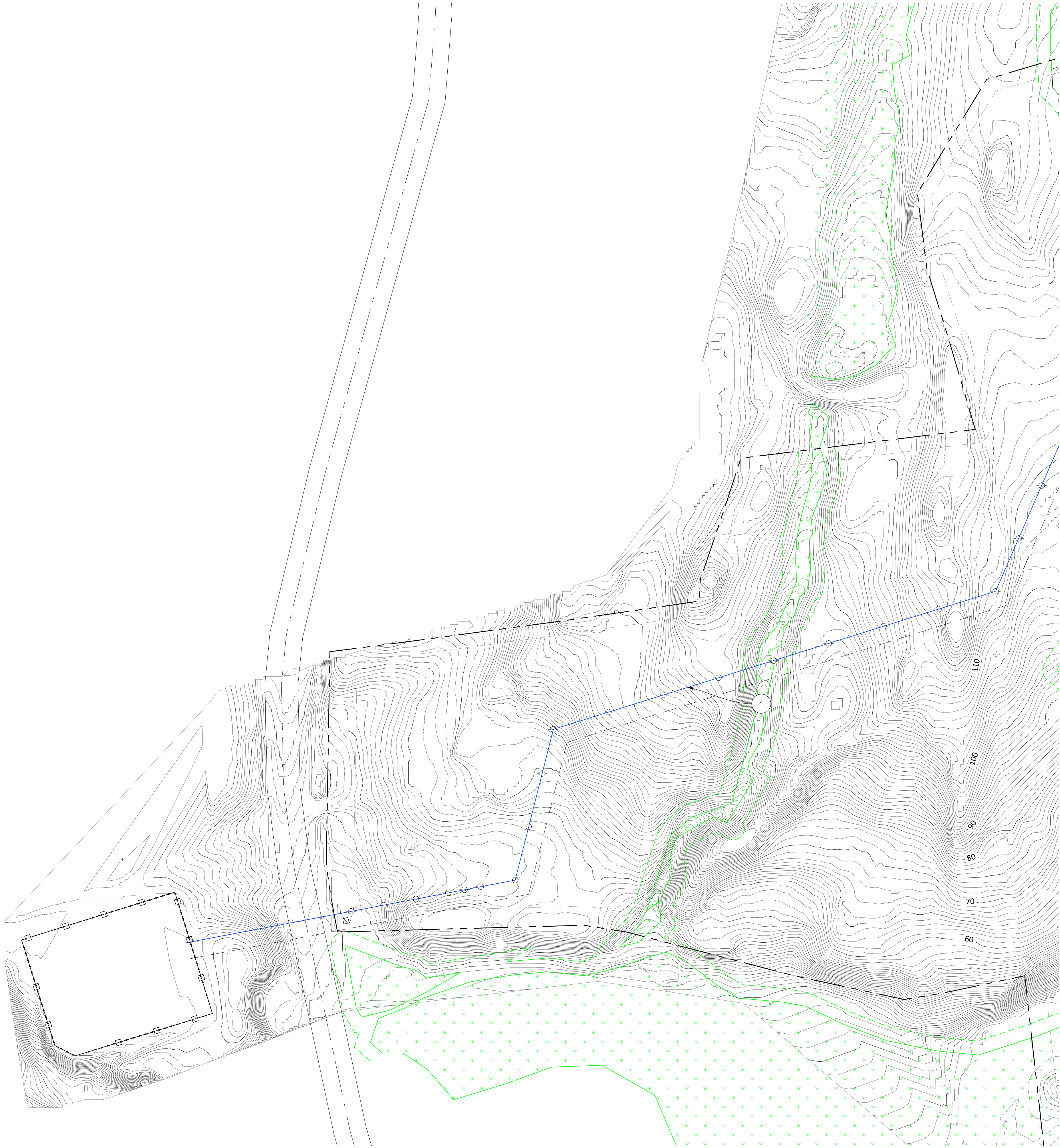
TITLE:  
CIVIL SITE PLAN

SHEET:  
C-204

1 CIVIL SITE PLAN  
C-204

Scale: 1" = 100'





LEGEND		
①		EQUIPMENT PAD
②		ARRAY AREA
③		(N) UG AC WIRE
④		OVERHEAD POWER
⑤		OVERHEAD POWER POLE
⑥		PROPOSED SITE ACCESS ROAD
⑦		WETLAND W/BUFFER
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NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W**

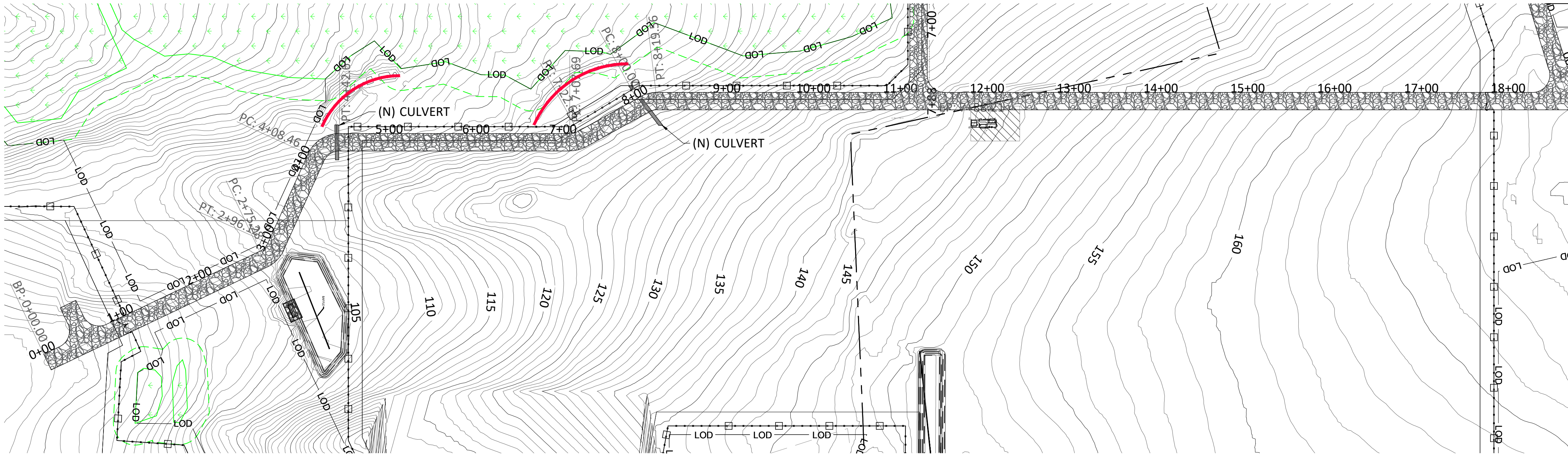
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	PROJECT #: <b>#</b>
	DRAWN BY: <b>MMM</b>
	CHECKED BY: <b>DRG</b>

TITLE:  
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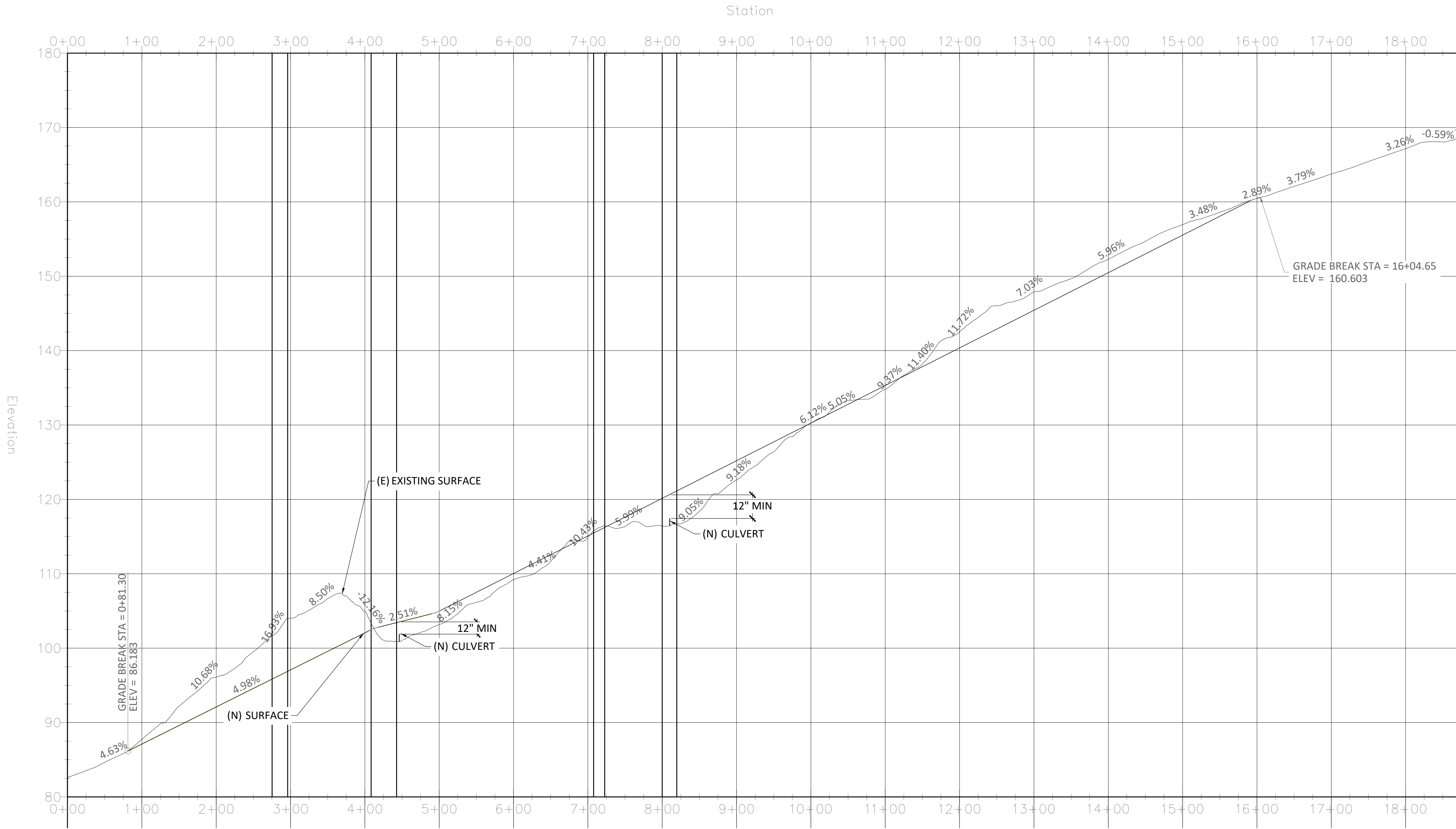
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SHEET:  
**C-205**





1 ROAD SECTION 1 (STA 0+00 TO STA 18+50)  
C-300 Scale: 1" = 80'



2 ROAD SECTION 1 PROFILE (STA 0+00 TO STA 18+50)  
C-300 Scale: H-1" = 80' V-1"=8'



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STONINGTON SOLAR PROJECT

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ELLA WHEELER RD.  
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	CHECKED BY: DRG

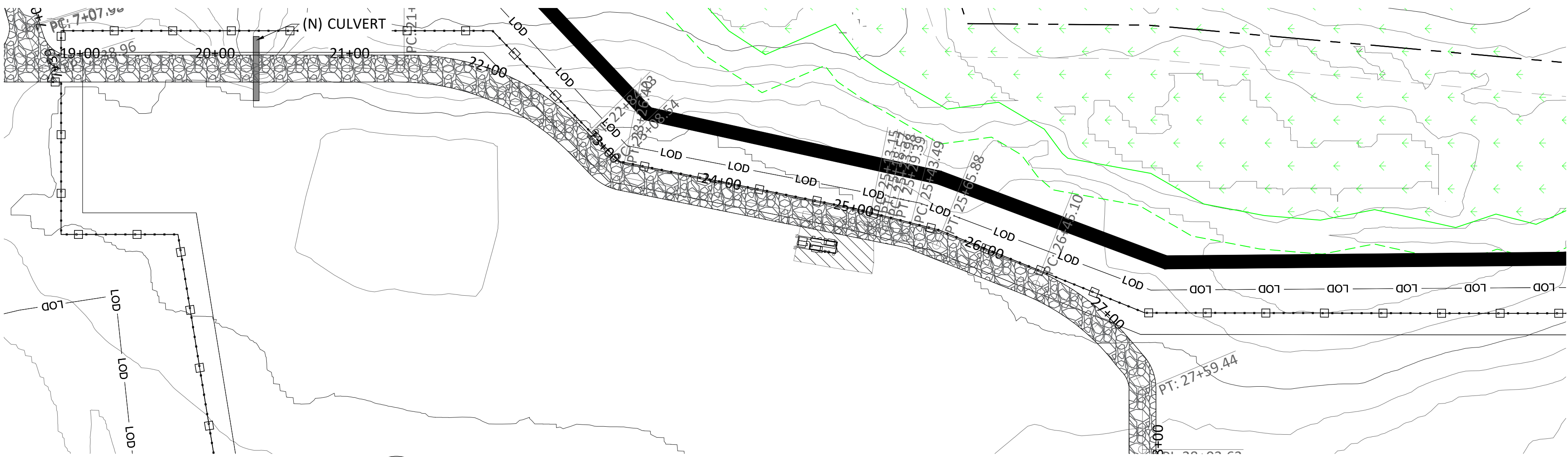
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ROAD SECTIONS

SHEET:  
C-300

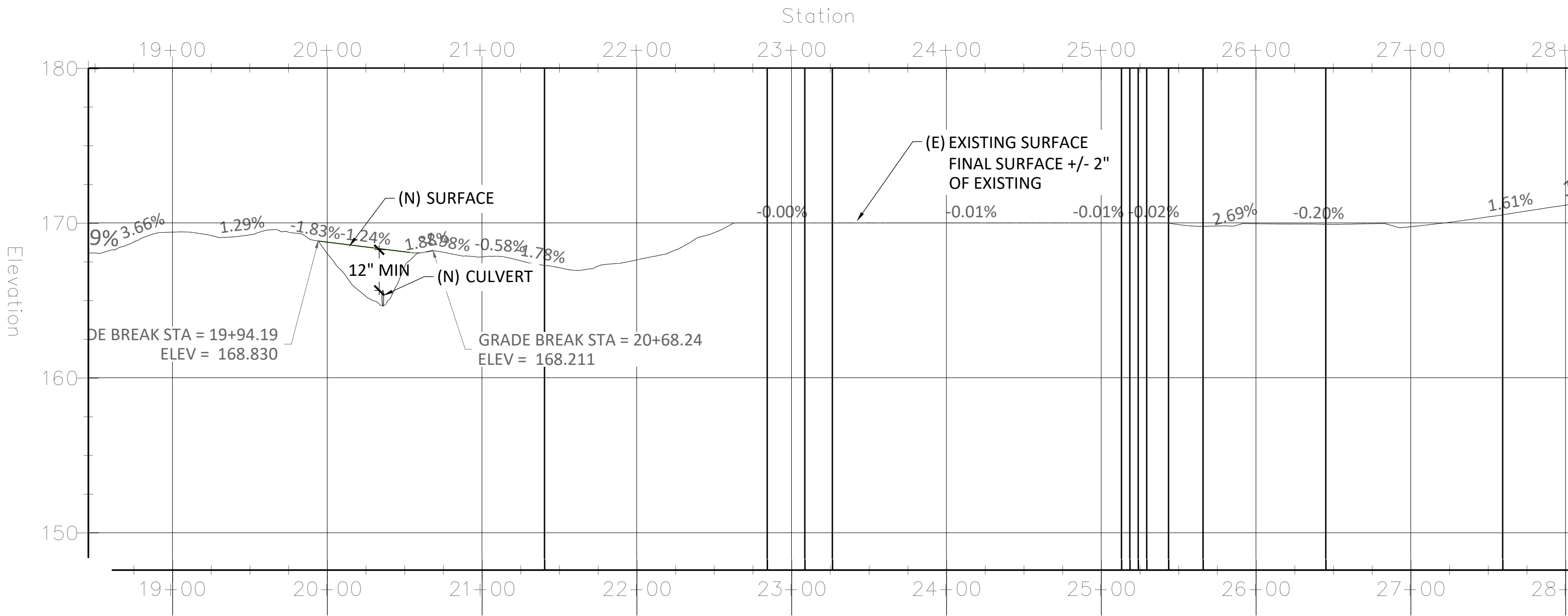
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C-301 Scale: 1" = 60'



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C-301 Scale: H-1" = 60' V-1"=6'



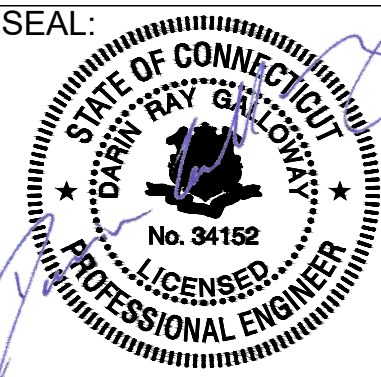
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CHECKED BY: DRG	

TITLE:  
ROAD SECTIONS

SHEET:  
C-301

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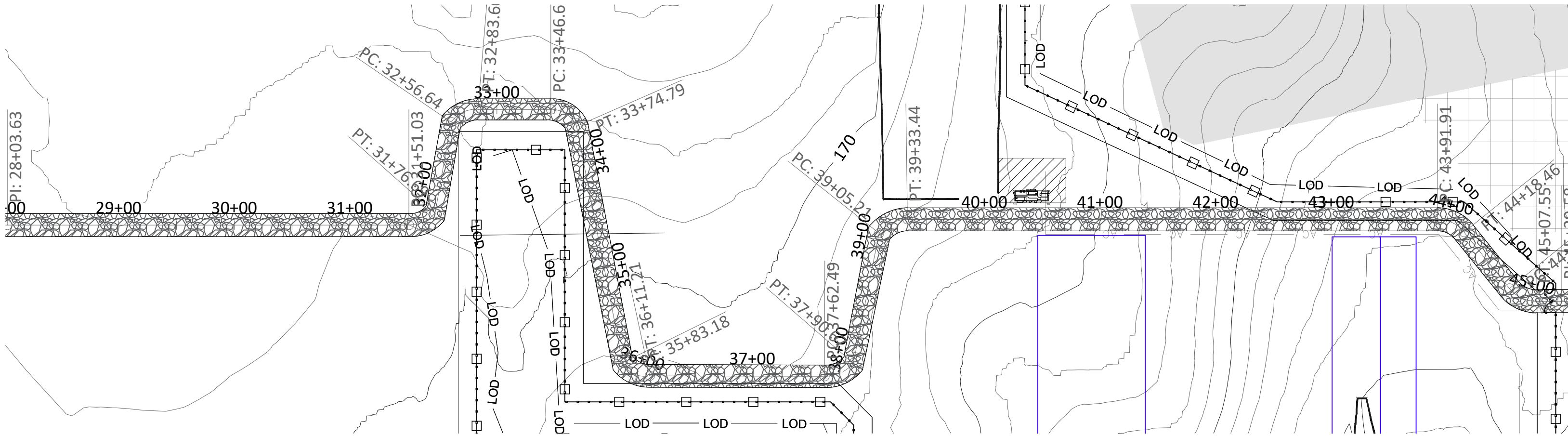
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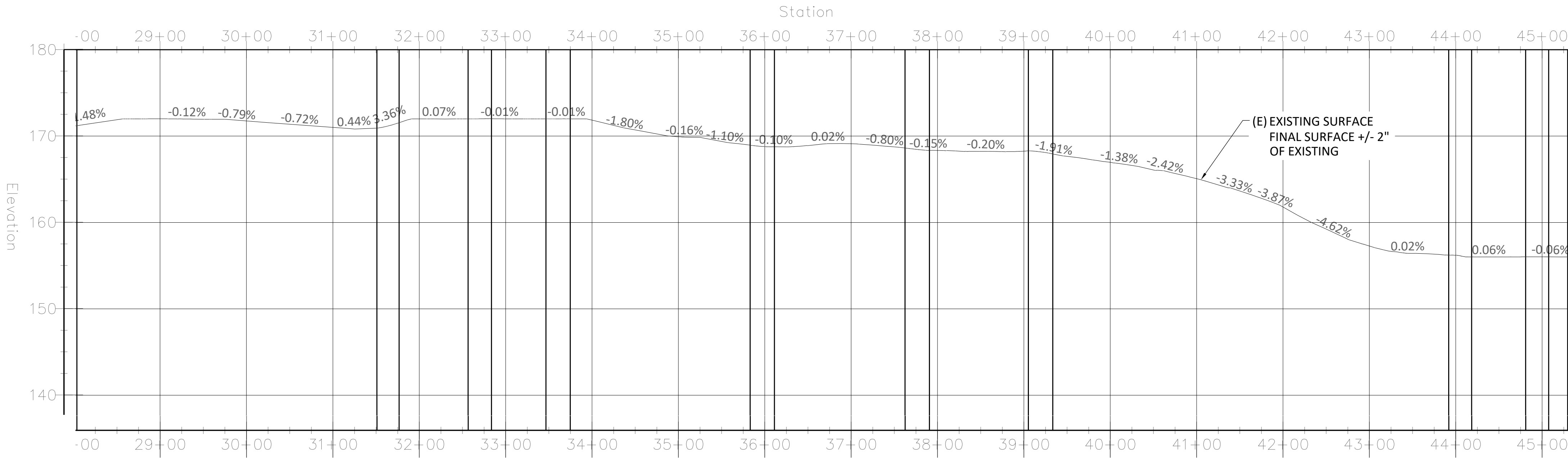
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ROAD SECTION 1 (STA 28+00 TO 45+30)

C-302

Scale: 1" = 80'

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ROAD SECTION 1 PROFILE (STA 28+00 TO 45+30)

C-302

Scale: H-1" = 80' V-1"=8'



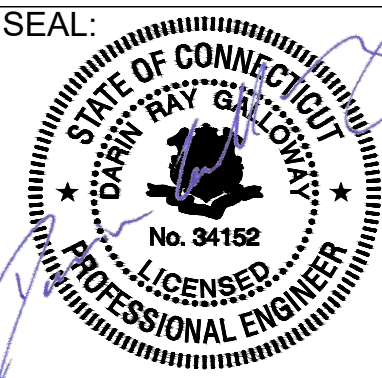
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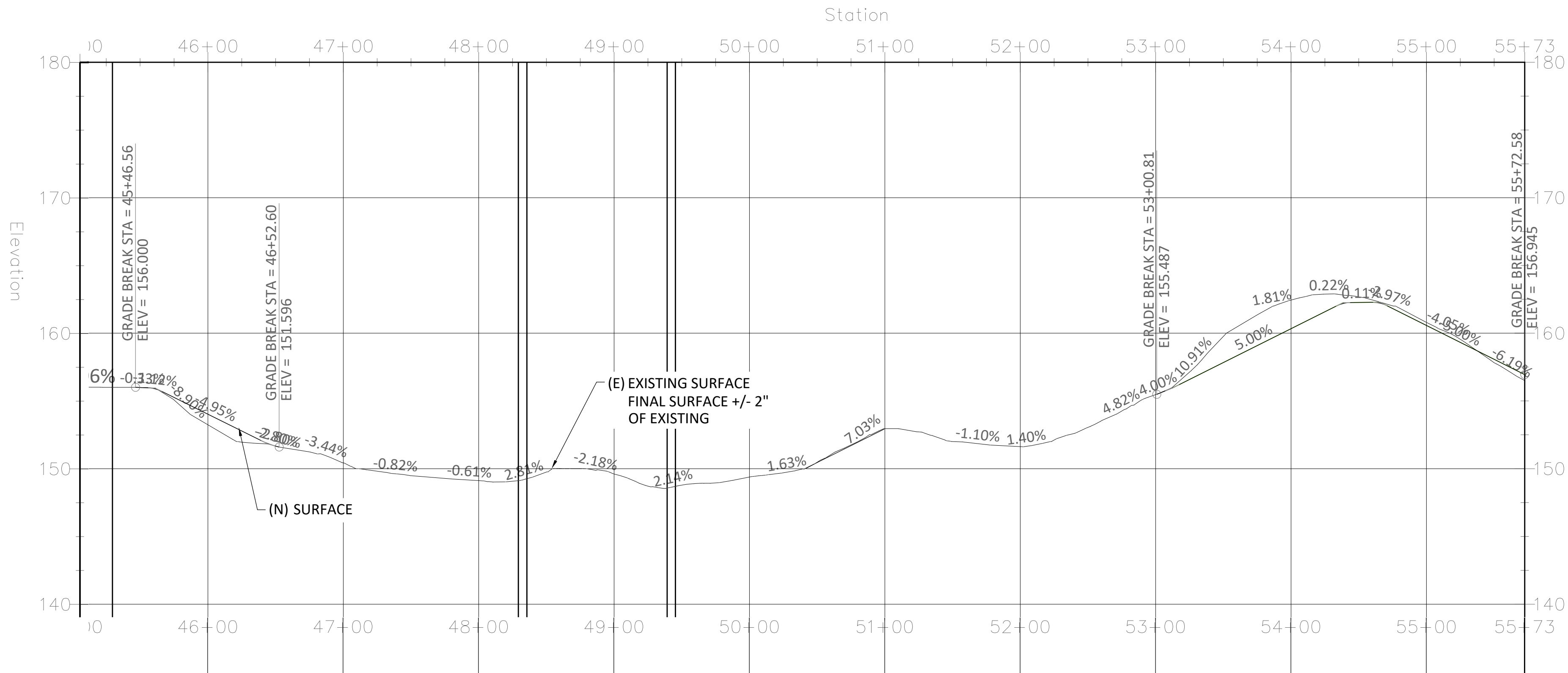
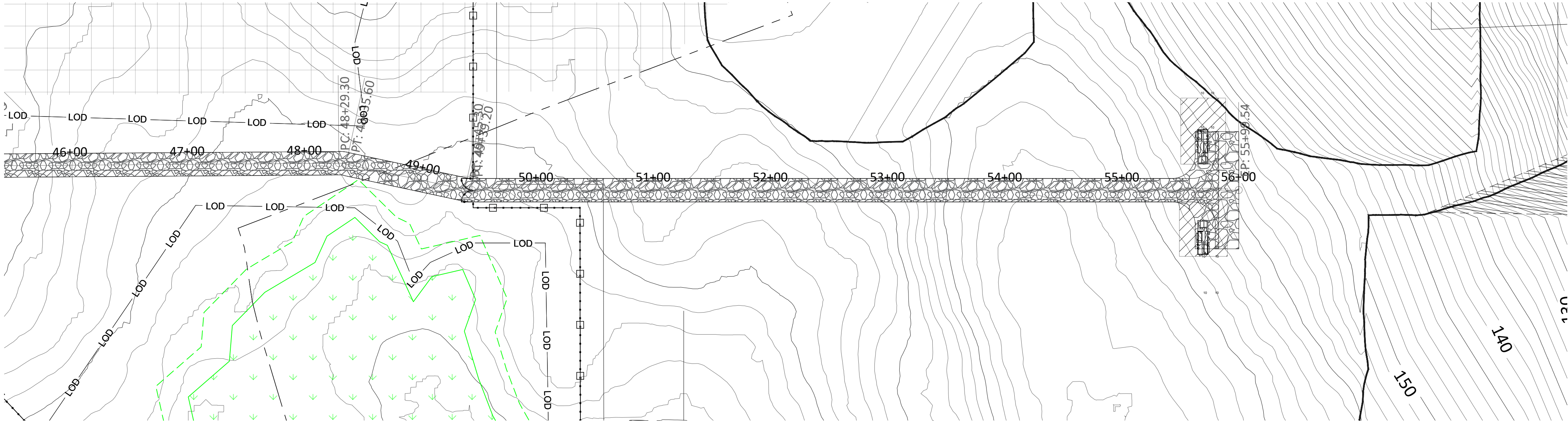
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**ROAD SECTIONS**

SHEET:  
**C-302**

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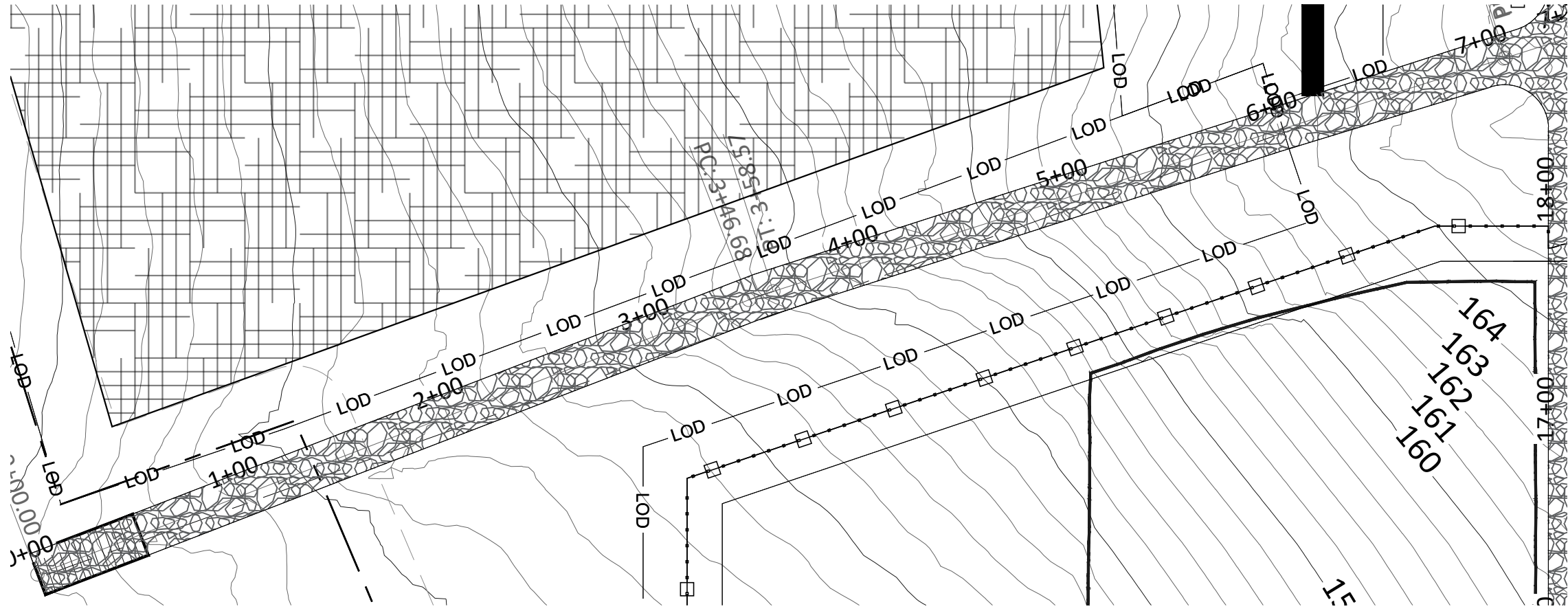
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ROAD SECTIONS

SHEET:  
C-303

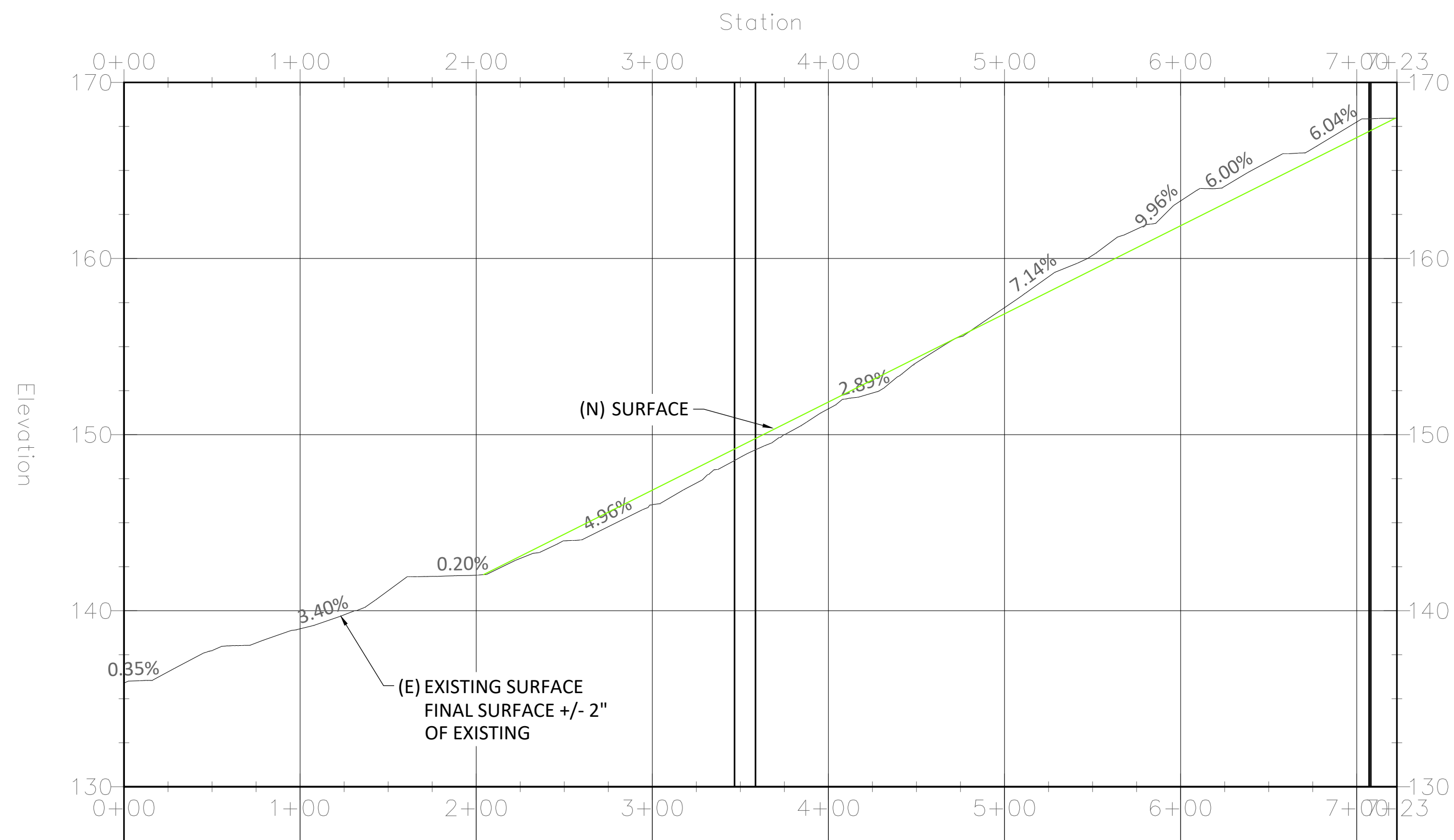
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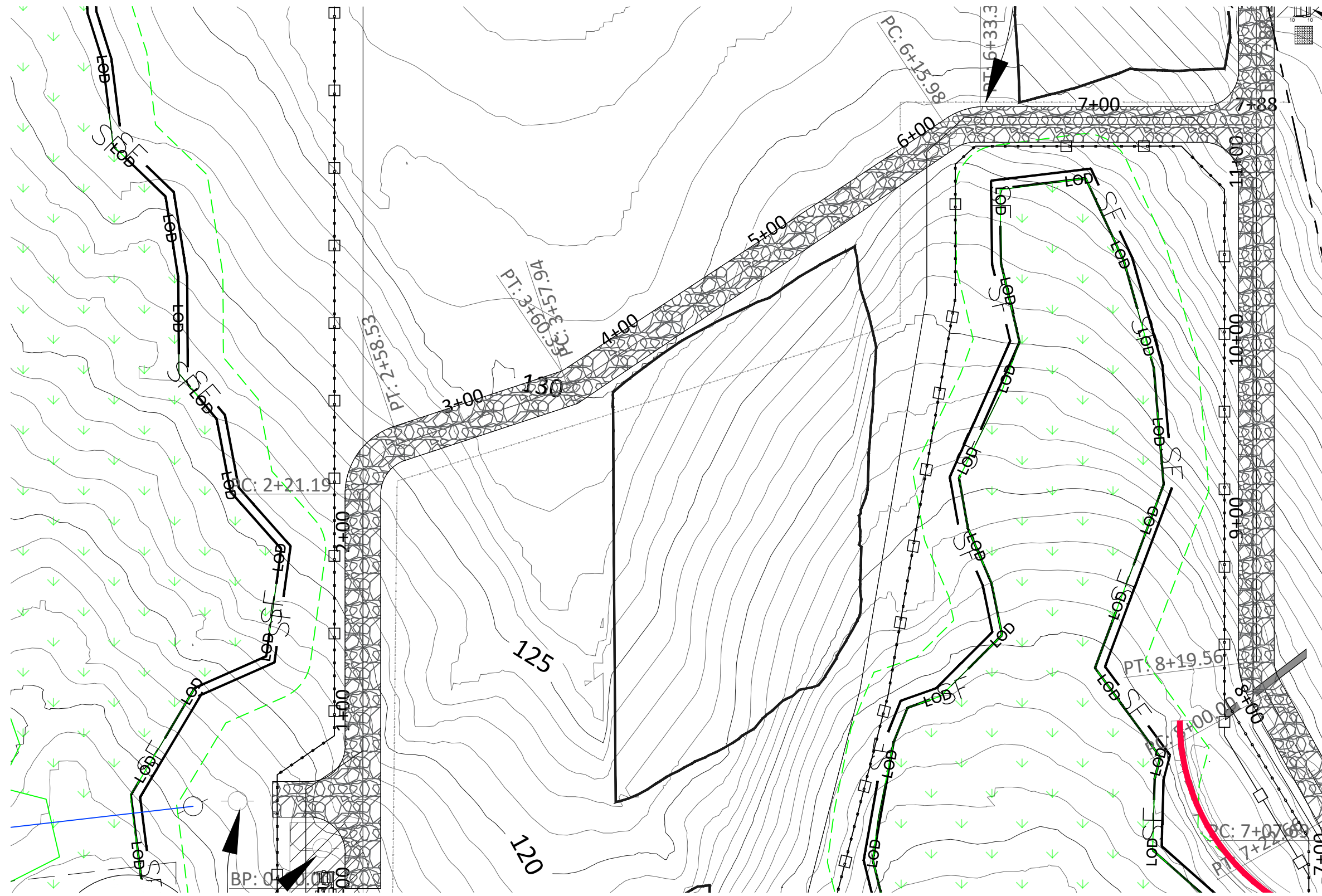




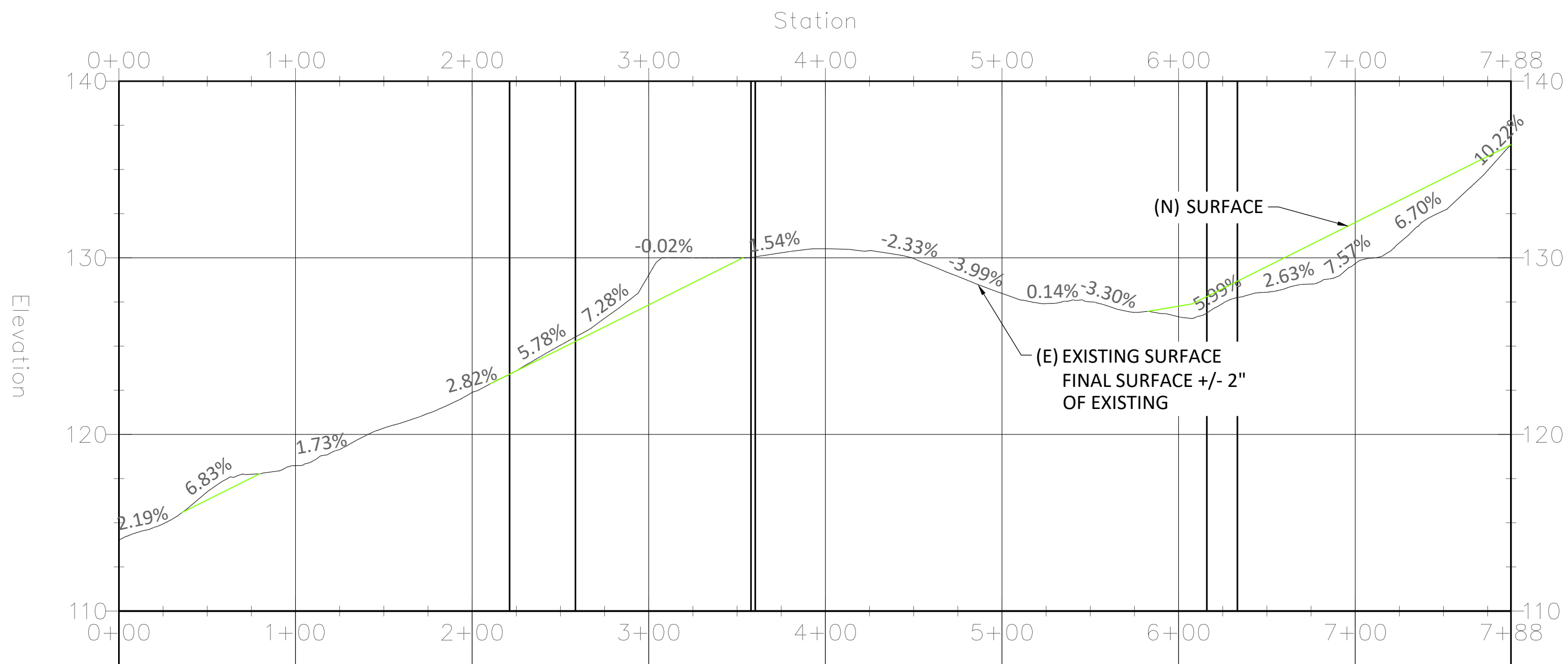
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C-304 Scale: 1" = 60'



2 ROAD SECTION 2 PROFILE  
C-304 Scale: H-1" = 60' V-1"=6'



3 ROAD SECTION 3  
C-304 Scale: 1" = 60'



4 ROAD SECTION 3 PROFILE  
C-304 Scale: H-1" = 60' V-1"=6'



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ROAD SECTIONS

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Know what's below.  
Call before you dig.





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Culverts	8.4-1	8.4-2	Culverts	Culverts	8.4-3
<b>8.4 Design Features</b>		<b>8.4.4 Culvert Skew</b>		<b>Wingwalls</b>	
<b>8.4.1 Culvert Sizes and Shape</b>		The culvert skew shall not exceed 45° as measured from a line perpendicular to the roadway centerline without the approval of the Hydraulics and Drainage Section. Consider structural impacts of skew. Flexible culverts may need balanced fill.		<ul style="list-style-type: none"><li>are used to retain the roadway embankment to avoid a projecting culvert barrel</li><li>are used where the side slopes of the channel are unstable</li><li>are used where the culvert is skewed to the normal channel flow</li><li>provide the best hydraulic efficiency if the flare angle is between 30° and 60°</li></ul>	
The culvert size and shape selected shall be based on engineering and economic criteria related to site conditions.		<b>8.4.5 End Treatment (Inlet or Outlet)</b>		<b>Aprons</b>	
The following minimum sizes shall be used to avoid maintenance problems and clogging: <ul style="list-style-type: none"><li>600 mm (24 in) for Interstate Systems, or equivalent for non-circular shapes</li><li>450 mm (18 in) for other systems, or equivalent for non-circular shapes</li><li>Use arch or oval shapes only if required by hydraulic limitations, site characteristics, structural criteria, or environmental criteria</li><li>Where practical, the minimum height of box culverts should be 1.52 m (5 ft) for inspectability</li></ul>		The culvert inlet type shall be selected from the following list based on the considerations given and the inlet coefficient, K <sub>E</sub> . (A table of recommended values of K <sub>E</sub> is included in Appendix B.) Consideration shall also be given to safety since some end treatments can be hazardous to errant vehicles.		<ul style="list-style-type: none"><li>are used to reduce scour from high headwater depths or from approach velocity in the channel</li><li>shall extend at least two pipe diameters upstream</li><li>shall not protrude above the normal streambed elevation</li></ul>	
<b>8.4.2 Multiple Barrels</b>		<b>Projecting Inlets or Outlets</b>		<b>Mitered Inlets</b>	
Multiple barrel culverts shall fit within the natural dominant channel with minor widening of the channel so as to avoid conveyance loss through sediment deposition in some of the barrels. They are to be avoided where: <ul style="list-style-type: none"><li>the approach flow is high velocity, particularly if supercritical, (These sites require either a single barrel or special inlet treatment to avoid adverse hydraulic jump effects.)</li><li>fish passage is required unless special treatment is provided to insure adequate low flows (commonly one barrel is lowered) See Section 8.5.5.</li><li>a high potential exists for debris problems (clogging of culvert inlet)</li><li>a meander bend is present immediately upstream</li></ul>		<ul style="list-style-type: none"><li>extend beyond the roadway embankment and are susceptible to damage during roadway maintenance and from errant vehicles</li><li>have low construction cost</li><li>have poor hydraulic efficiency for thin materials</li><li>shall include anchoring the inlet to concrete slope paving and toe wall to strengthen the weak leading edge</li><li>are used predominantly with metal pipe</li></ul>		<ul style="list-style-type: none"><li>are hydraulically more efficient than thin edge projecting</li><li>shall be mitered to match the fill slope</li><li>shall include anchoring the inlet to strengthen the weak leading edge for culverts 1200 mm (48 in) in diameter and larger</li></ul>	
<b>8.4.3 Material Selection</b>		<b>Concrete Headwalls with Bevels</b>		<b>Cut-off-Walls</b>	
The material selection shall consider replacement cost and difficulty of construction as well as traffic delay. <ul style="list-style-type: none"><li>The material selected shall be based on a comparison of the total cost of alternate materials over the design life of the structure which is dependent upon the following:<ul style="list-style-type: none"><li>durability (service life)</li><li>structural strength</li><li>hydraulic roughness</li><li>bedding conditions</li><li>abrasion and corrosion resistance</li><li>water tightness requirements</li></ul></li><li>The selection shall not be made using first cost as the only criteria.</li><li>See Chapter 4, Culvert Repair, Materials, and Structural Design, for discussion of various pipe types and service life.</li></ul>		<ul style="list-style-type: none"><li>increase the efficiency of metal pipe</li><li>provide embankment stability and embankment erosion protection</li><li>provide protection from buoyancy</li><li>shorten the required structure length</li></ul>		<ul style="list-style-type: none"><li>are generally used as primary protection against piping at culvert inlets and as secondary protection against erosion at culvert outlets (primary outlet protection is designed by the hydraulic engineer)</li><li>shall be used at endwalls and slope paved inlets and outlets as detailed on the Standard Drawings</li><li>shall have embedment depths which comply with the following:<ol style="list-style-type: none"><li>for culverts included on Standard Drawings, use dimension shown</li><li>for culverts not included on Standard Drawings, embed cutoff walls a minimum of 1.2m (4 ft) below the streambed and 0.6m (2 ft) below the bottom of the culvert</li><li>where riprap is required, the embedment depth should not be less than the thickness of riprap/bedding material</li></ol></li></ul>	
October 2000	ConnDOT Drainage Manual	ConnDOT Drainage Manual	October 2000	May 2002	ConnDOT Drainage Manual



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SEAL: 	DATE: 22-MAY-20
	PROJECT #: #
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	CHECKED BY: DRG

TITLE:  
CULVERT DETAILS

SHEET:  
C-401

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Culvert Repair, Materials, and Structural Design

4.4-3

4.4.3 Corrugated Steel

Corrugated steel culverts are made with factory-produced corrugated sheet steel. Corrugated pipe culverts are made with factory-produced corrugated pipe sections. Large corrugated culverts are normally field-assembled using structural plate products. Structural plate steel products are available as structural plate pipes, box culverts, or long span structures. Standard shapes for corrugated steel culverts are shown on Table 4-2.

- Material – Corrugated steel pipe is fabricated from sheets coated with zinc or aluminum. It is reasonably lightweight for shipping and comes in a large range of thicknesses and corrugations to provide the appropriate strength. However, it requires controlled backfill for proper soil support. Other options include various coatings and/or pavings for added protection.
- Shapes – Corrugated steel may be used for a wide variety of shapes, sizes, and lengths of culverts. The culverts may be made from prefabricated sections that are factory produced or assembled in the field from specially fabricated plates. The shapes may be made from various thicknesses of plate stock.

Pipe – Corrugated steel pipe is factory made in two basic shapes: round and pipe arch. Both round and arch shapes are available in a wide range of standard sizes. Round pipe is available in standard sizes up to 3600 mm (144 inches) in diameter. Standard sizes for pipe arch are available in sizes up to the equivalent of 3000 mm (120 inch) diameter round pipe. Both shapes are produced in several wall thicknesses, several corrugation sizes, as shown in Figure 4-10 and with annular (circumferential) or helical (spiral) corrugations. Pipes with annular corrugations have riveted, spot welded, or bolted seams. Pipes with helical corrugations have continuously welded seams or lock seams. Corrugated steel pipe and pipe arch are usually coated with zinc (galvanized) or aluminum. Additional protective coatings are used with the metallic coating when there are potential corrosion or abrasion problems.

Structural plate – Structural plate steel pipes are field assembled from standard corrugated galvanized steel plates. Standard plates have corrugations with a 150mm (6-inch) pitch and a depth of 50 mm (2 inches). Plates are manufactured in a variety of thicknesses and are pre-curved for the size and shape of the structure to be erected. Standard plates have a nominal length of either 3 m or 3.7m (10 or 12 feet) and are produced in standard widths of 3N, 5N, 6N, 7N, and 8N, where N equals 3 pi or 244 mm (9.6 inches). Widths are measured along the circumference of the structure. Since the circumference of a circle equals pi times the diameter, the use of dimensions expressed in N or pi permits easy conversion from pipe circumference of 60 pi or 20N and would normally be assembled from four 5N plates. Structural plate pipes are available in six basic shapes: round, pipe arch, arch, vertical ellipse, horizontal ellipse, and underpass. The standard sizes available range in span from 1.5 m to 7.9m (5 feet to 26 feet).

Box – Steel box sections use standard 150 by 50 mm (6 by 2 inch) corrugated galvanized steel plates with special reinforcing elements applied to the areas of maximum moment or 375 by 140 mm (15 by 5 1/2 inches) corrugated plate without ribs. Steel box culverts are available with spans that range from 3m (9 feet 8 inches) to 6.3m (20 feet 9 inches).

4.4-4

Culvert Repair, Materials, and Structural Design

Long span – Long span steel structures are assembled using conventional 150 by 50 mm (6 by 2 inch) corrugated galvanized steel plates with longitudinal or circumferential stiffening members or 375 by 140 mm (15 by 5 ½ inch) corrugated plate without ribs. There are five standard shapes for long span structures: horizontal elliptical, pipe arch, low profile arch, high profile arch, and pear shape. The long span pipe arch is not commonly used. The span lengths of typical sections range from 5.9m (19 feet 4 inches) to 12.2 m (40 feet). Longer spans are available for some shapes as special designs.

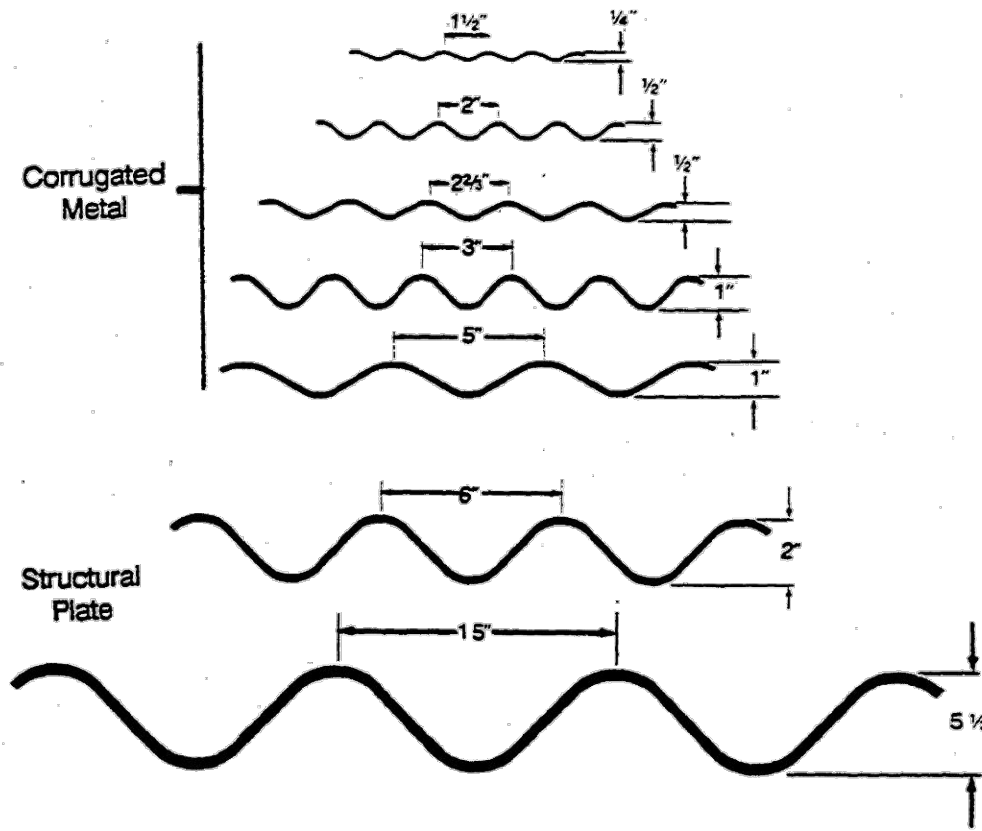


Figure 4-10 Common corrugated patterns (not to scale) (English only)

ConnDOT Drainage Manual

October 2000

Culvert Repair, Materials, and Structural Design

4.4-5

Table 4-2 Standard corrugated steel culvert shapes (English only)

Shape	Range of Sizes	Common Uses
Round	6 in. – 26 ft.	Culverts, subdrains, sewers, service tunnels, etc. All plates same radius. For medium and high fills (or trenches).
Vertically-elongated (ellipse) 5% is common	4–21 ft. nominal before elongating	Culverts, sewers, service tunnels, recovery tunnels. Plates of varying radii also fabricated. For appearance and where backfill compaction is only moderate.
Pipe-arch	Span x Rise 17 ft. x 13 in. to 20 ft. 7 in. x 13 ft. 2 in.	Where headroom is limited. Has hydraulic advantages at low flows. Corner plate radius: 18 inches or 31 inches for structural plate.
Underpass*	Span x Rise 6 ft. 6 in. x 6 ft. 6 in. to 20 ft. 4 in. x 17 ft. 9 in.	For pedestrians, livestock or vehicles (structural plate).
Arch	Span x Rise 6 ft. x 1 ft. 9 1/2 in. to 25 ft. x 12 ft. 6 in.	For low clearance large roadway opening, and aesthetics (structural plate).
Horizontal Ellipse	Span 7–40 ft.	Culverts, grade separations, storm sewers, tunnels.
Pear	Span 25–50 ft.	Grade separations, culverts, storm sewers, tunnels.
High Profile Arch	Span 20–45 ft.	Grade separations, culverts, storm sewers, tunnels, ammo ammunition magazines, earth covered storage.
Low Profile Arch	Span 20–50 ft.	Low-Wide waterway enclosures, culverts, storm sewers.
Box Culverts	Span 10–26 ft.	Low-Wide waterway enclosures, culverts, storm sewers.
Specials	Various	For lining old structures or other special purposes. Special fabrication.

\*For equal area or clearance, the round shape is generally more economical and simpler to assemble.

October 2000

ConnDOT Drainage Manual

4.4-6

Culvert Repair, Materials, and Structural Design

4.4.4 Corrugated Aluminum

Corrugated aluminum culverts are constructed from factory assembled corrugated aluminum pipe or field assembled from structural plates. Structural plate aluminum culverts are available as conventional structural plate structures, box culverts, or long span structures.

- Material – Corrugated aluminum pipe is fabricated from aluminum-alloy sheets. It is very lightweight for shipping and handling. It has good resistance to corrosion, especially in brackish waters but is subject to abrasion in fast-flowing streams with a significant load of sand or rock. It is generally more flexible than steel, requires greater care in installation, and is less tolerant of less-than-normal cover.
- Shapes – Corrugated aluminum may be used for a wide variety of shapes, sizes, and lengths of culverts. The culverts may be made from prefabricated sections that are factory produced or assembled in the field from specially fabricated plates. The shapes may be made from various thickness of plate stock.

Pipe - Factory assembled aluminum pipe is available in two basic shapes: round and pipe arch. Both shapes are produced with several different wall thicknesses, several corrugation patterns, and with annular (circumferential) or helical (spiral) corrugations. Round aluminum pipe is available in standard sizes up to 3000 mm (120 inches) in nominal diameter. Aluminum arch pipe is available in sizes up to the equivalent of a 2400 mm (96-inch) diameter round pipe.

Structural plate - Structural plate aluminum pipes are field assembled with 228 mm (9-inch)-pitch by 64 mm (2.5-inch)-depth corrugations. Plates are manufactured in a variety of plate thicknesses and are pre-curved for the specific size and shape of the structure to be erected. Plates are manufactured in lengths of SN through 18N, where N equals 3 pi or 244 mm (9.625 inches). Plate length is measured along the circumference of the structure. Standard plates have a net width of 1.4 m (4.5 ft.). Structural plate aluminum pipes are produced in five basic shapes: round, pipe arch, arch, pedestrian/animal underpass, and vehicle underpass. A wide range of standard sizes is available for each shape. Spans as large as 7.9 m (26 feet) can be obtained for the arch shape.

Box - The aluminum box culvert utilizes standard aluminum structural plates with aluminum rib reinforcing added in the areas of maximum moments. Ribs are bolted to the exterior of the aluminum shell during installation. Aluminum box culverts are suitable for shallow depths of fill and are available with spans ranging from 2.7 m (8 feet 9 inches) to 7.7m (25 feet 5 inches).

Long Span - Long span aluminum structures are assembled using conventional 225 by 64 mm (9- by 2.5-inch) corrugated aluminum plates and aluminum rib stiffeners. Long span aluminum structures are available in the same five basic shapes as steel long spans: including horizontal ellipse, pipe arch, low profile arch, high profile arch, and pear shape. The typical sizes for aluminum spans are essentially the same as the typical sizes available for steel long span structures. Spans range from 5.9 m (19 feet 4 inches) to 12.2 m (40 feet).

ConnDOT Drainage Manual

October 2000



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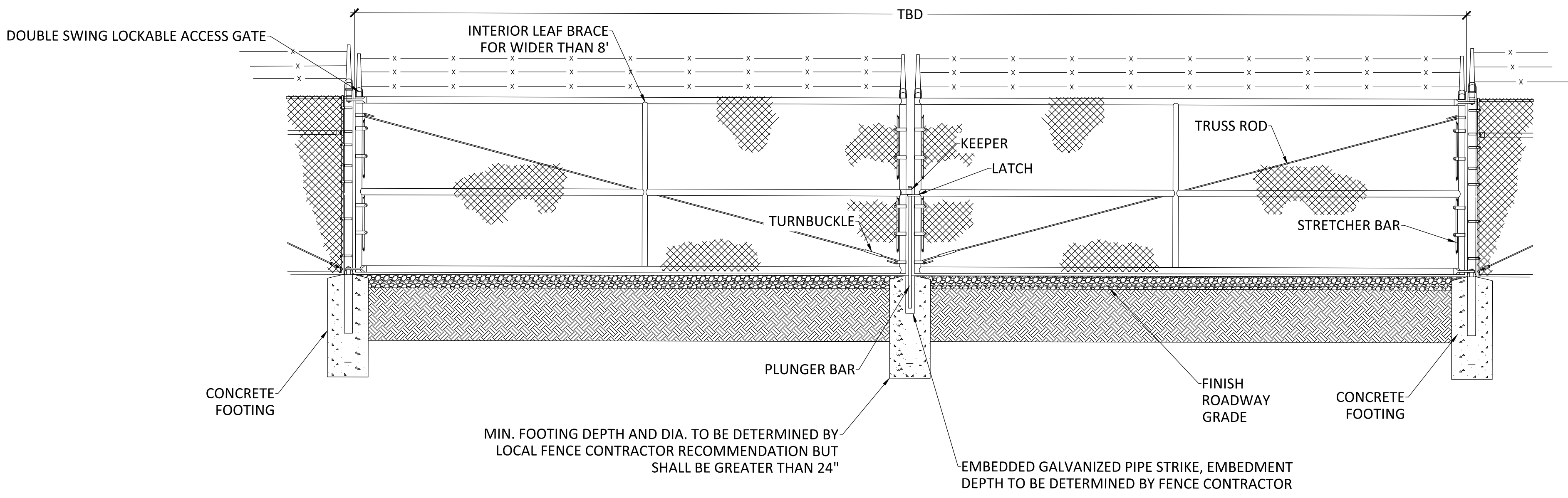
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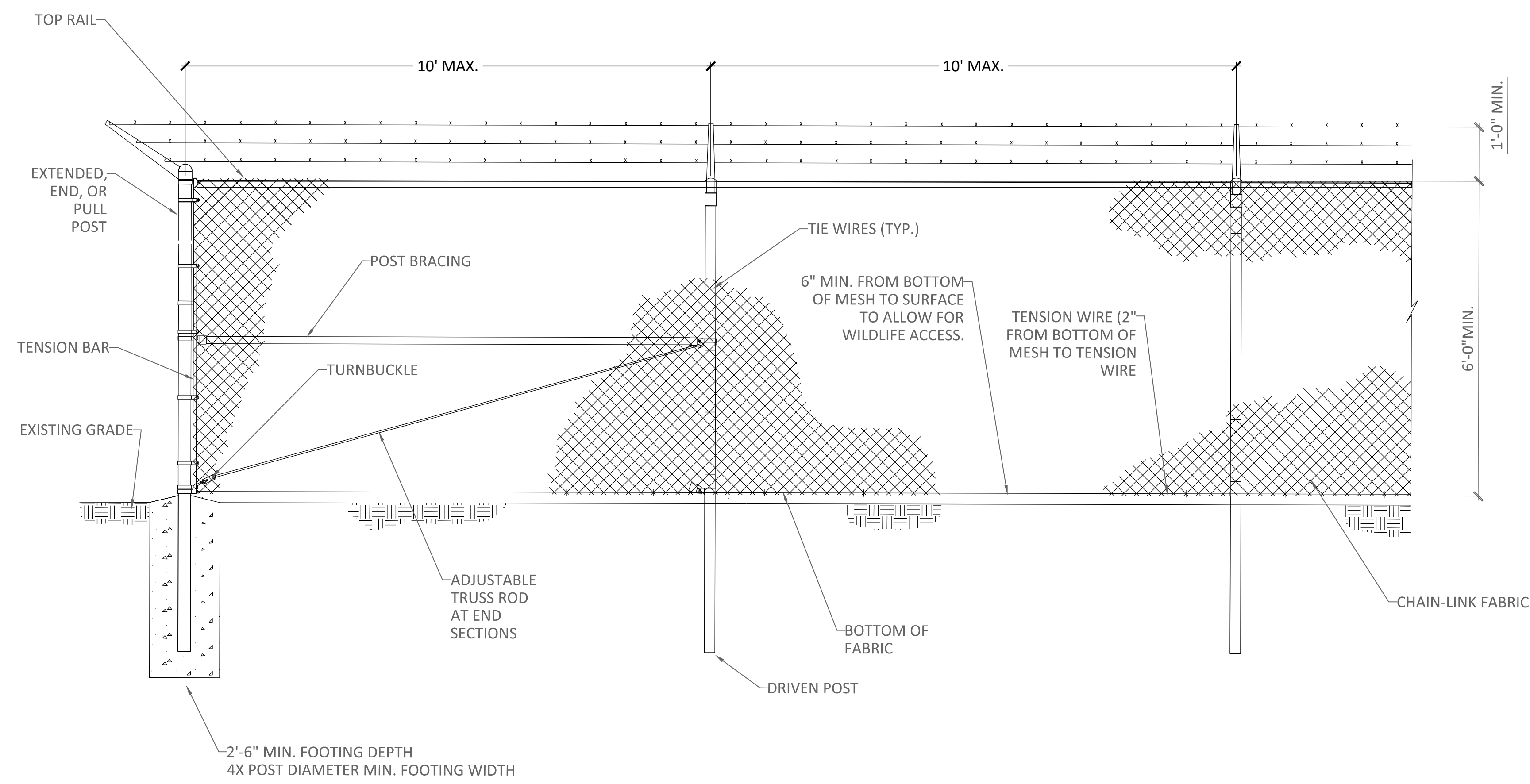
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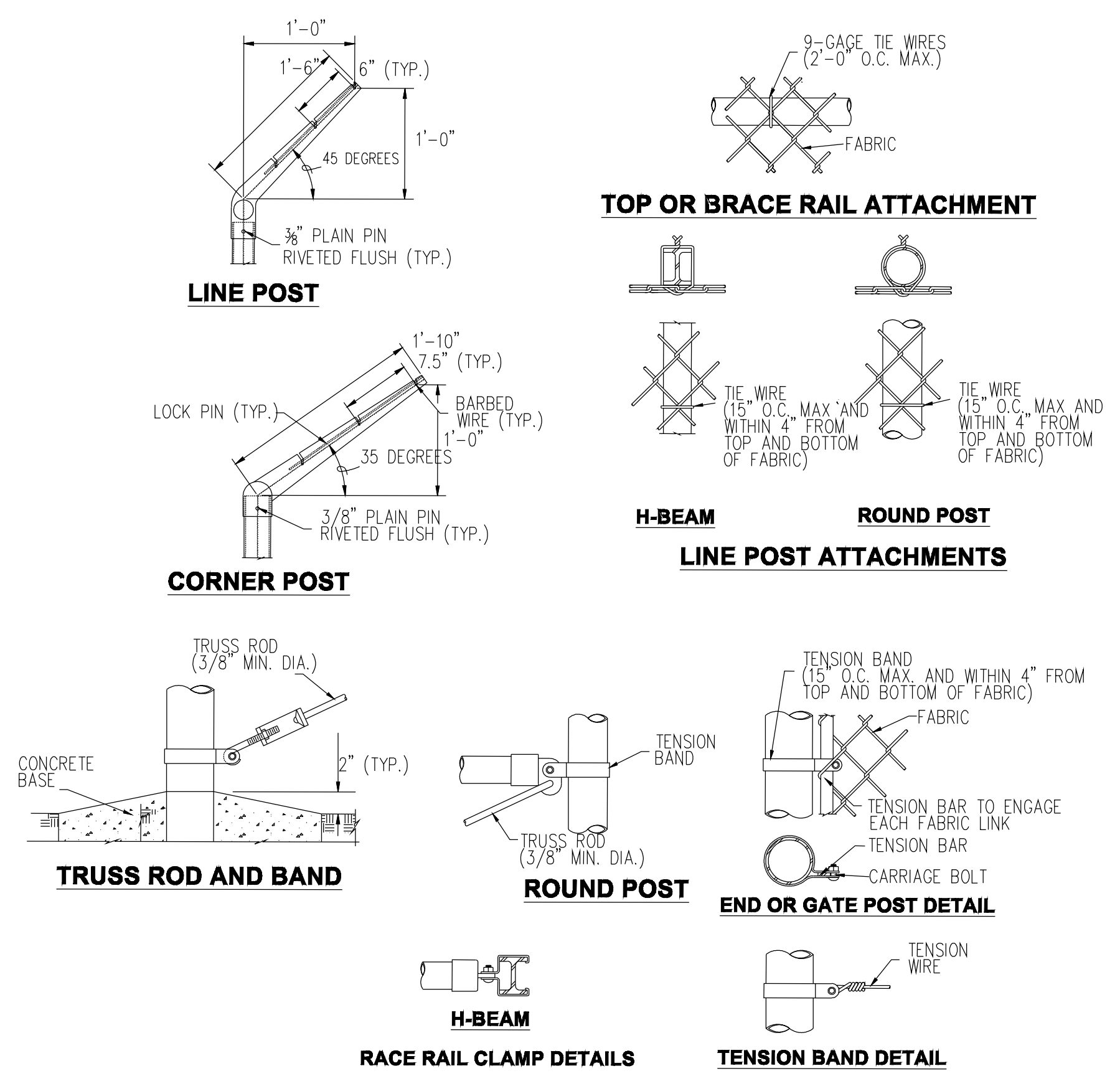


1 GATE DETAIL, TYP.  
C-402 Scale: NTS



2 SECURIY FENCE DETAIL, TYP.  
C-402 Scale: NTS

- FENCE INSTALLATION NOTES:
- FENCE TO BE INSTALLED IN GENERAL ACCORDANCE WITH ASTM F567. LOCAL FENCE CONTRACTOR TO ALTER ASTM F567 REQUIREMENTS TO MEET SITE SPECIFIC CONDITIONS.
  - FENCE FABRIC SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A392, CLASS 2.
  - STRENGTH AND PROTECTIVE COATINGS OF ALL FENCE FRAMEWORK SHALL CONFORM TO ASTM F1083.
  - CORNER, END, OR PULL POST FOOTING MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 2,500 PSI MIN.
  - CORNER, END, OR PULL POST FOOTING DEPTH SHALL BE A MINIMUM OF 24" PLUS AN ADDITIONAL 3" DEPTH FOR EACH 1' POST HEIGHT INCREASE ABOVE 4' POST HEIGHT ABOVE GROUND.
  - SWING GATE POST FOOTING DEPTHS AND DIAMETERS SHALL BE DETERMINED BASED ON ASTM F567, TABLE 2 AND ALTERED AS NEEDED BY FENCE CONTRACTOR.
  - IN AREAS WHERE EXISTING FENCES CONFLICT WITH SITE SECURITY FENCE, CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING FENCE.
  - POSTS SHALL BE STEEL PIPE, ASTM F1083 STANDARD WEIGHT SCHEDULE 40
    - LINE POSTS – 2" SCHEDULE 40
    - TERMINAL POSTS (EXTENDED, END, AND PULL) 2½" SCHEDULE 40.
  - ALL STEEL OR MALLEABLE IRON PARTS AND ACCESSORIES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 AFTER FABRICATION.
  - ALL FENCE GAGE TO BE A MINIMUM OF 9.



3 FENCE ATTACHEMENT DETAILS, TYP.  
C-402 Scale: NTS



REV	DESCRIPTION	DATE
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PROJECT NAME:  
STONINGTON SOLAR PROJECT

PROJECT ADDRESS:  
ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W

SEAL: [Professional Engineer Seal for Darin Galloway, No. 94152, State of Connecticut]  
DATE: 22-MAY-20  
PROJECT #: #  
DRAWN BY: MMM  
CHECKED BY: DRG

TITLE:  
FENCE DETAILS

SHEET:  
C-402





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EROSION AND SEDIMENT CONTROL NOTES:

ALL EROSION AND SEDIMENT CONTROL WORK AND BMPs SHALL ADHERE TO THE FOLLOWING DOCUMENTS:

1. CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION (CT-DEEP) GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS FROM CONSTRUCTION ACTIVITIES (CGP) DEEP-WPED-GP-015.

2. NORTH STONINGTON ORDINANCE.

3. CONNECTICUT STATE BUILDING CODE.

4. 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION.

5. ALL WORK SHALL COMPLY WITH THE CONDITIONS OF THE PERMITS OBTAINED FOR THE PROJECT AND ALL FEDERAL, STATE, AND LOCAL REGULATIONS.

STANDARD STABILIZATION NOTES:

6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED IN ACCORDANCE WITH THE SWPCP.

7. ALL STABILIZED AREAS SHALL BE INSPECTED BY A CERTIFIED SWPCP INSPECTOR.

TYPICAL CONSTRUCTION SEQUENCE:

8. INSTALL SITE ENTRANCE.

9. INSTALL STABILIZED CONSTRUCTION ENTRANCE.

10. CLEAR (GRUB IF NECESSARY) SITE FOR PERIMETER EROSION AND SEDIMENT CONTROLS (BMP'S) ONLY.

11. INSTALL TEMPORARY PERIMETER BMPs.

12. INSTALL TEMPORARY SEDIMENT TRAPS AND TEMPORARY SEDIMENT BASINS.

13. ROUGH GRADE ROAD(S) AND LAYDOWN/MATERIAL STORAGE AREA IMPORTING MATERIAL AS NECESSARY FROM ON-SITE OR OFF-SITE SOURCE PER PROPOSED GRADES PROVIDED TO CREATE OR MAINTAIN POSITIVE DRAINAGE.

14. CONSTRUCT THE SOLAR PLANT.

15. FINAL GRADE THE ENTRANCE.

16. PERFORM TEMPORARY STABILIZATION SEEDING OF DISTURBED AREAS IF REQUIRED.

17. CONSTRUCT PERMANENT STORMWATER CONTROLS.

18. STABILIZE ALL REMAINING DISTURBED AREAS WITH PERMANENT VEGETATION OR SITE SPECIFIC VEGETATION AS NOTED INCLUDING TOP SOILING, FERTILIZING, AND MULCHING, IF REQUIRED.

19. STABILIZATION OF ALL AREAS DISTURBED BY REMOVAL OF BMP'S WILL BE PERFORMED PRIOR TO FINAL INSPECTION.

20. ALL MAINTENANCE OF THE FINAL SITE AND PERMANENT BMP'S SHALL BE CONTROLLED BY SITE OWNER.

21. IF THE SEQUENCE OF CONSTRUCTION AND BMP INSTALLATION IS MODIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THESE CORRECTIONS TO UPDATE THE EROSION AND SEDIMENT CONTROL PLAN. THE CERTIFIED SWPCP DESIGNER SHALL UPDATE THE SWPCP. THESE CHANGES SHALL BE APPROVED BY THE AHJ PRIOR TO IMPLEMENTATION.

INSPECTIONS AND MAINTENANCE OF BMP'S:

22. THE CERTIFIED SWPCP INSPECTOR SHALL INSPECT ALL DISCHARGE POINTS, DISTURBED AREAS, MATERIAL STORAGE AREAS, STRUCTURAL CONTROLS AND CONSTRUCTION ENTRANCES/EXITS IN ACCORDANCE WITH THE APPROVED SWPCP. ALL OBSERVATIONS AND INCIDENTS OF NON-COMPLIANCE, CORRECTIVE ACTIONS, AND MAINTENANCE SHALL BE RECORDED IN THE SWPCP INSPECTION REPORT.

23. INSPECTIONS OF BMP'S SHALL BE DOCUMENTED AND SIGNED BY THE CERTIFIED SWPCP INSPECTOR AND PROVIDED TO PROJECT MANAGEMENT AND CONTRACTOR.

24. IF BMP INSPECTION REPORTS DO NOT IDENTIFY INCIDENCES OF NON-COMPLIANCE, THE BMP INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE SWPCP AND THE CGP.

25. IF REQUIRED, MAINTENANCE OF BMP'S SHALL BE CONDUCTED BY A CERTIFIED SWPCP INSTALLER AND SHALL OCCUR WITHIN 24 HOURS OF THE INSPECTION.

26. BMP'S DETAILED IN THE EROSION AND SEDIMENT CONTROL PLAN ARE ONLY AN ESTIMATE OF WHAT NEEDS TO BE IMPLEMENTED PRIOR TO AND DURING CONSTRUCTION. IF BMP INSPECTIONS IDENTIFY AREAS OF THE PROJECT SITE WHERE PROPERLY INSTALLED BMP'S ARE NOT CONTROLLING FLOW OF SEDIMENT OFF-SITE, IT IS THE CONTRACTORS OBLIGATION TO IMPLEMENT COST EFFECTIVE/PRACTICAL BMP'S WHILE GRADING AND CONSTRUCTION ACTIVITIES ARE OCCURRING.

27. EROSION AND SEDIMENT CONTROL DRAWINGS ARE SUBJECT TO ADDITIONAL, NEW AND ALTERNATIVE BMP'S WHEN REQUESTED OR APPROVED BY THE ENGINEER, CERTIFIED SWPCP INSPECTOR, CERTIFIED SWPCP DESIGNER, OR AHJ.

28. IT IS THE RESPONSIBILITY OF THE CERTIFIED SWPCP INSPECTOR TO IDENTIFY ALL INCIDENTS OF NON-COMPLIANCE, CORRECTIVE ACTIONS, AND MAINTENANCE AND ENSURE THAT PROJECT MANAGEMENT IS ALERTED TO ALL ISSUES.

29. SEDIMENT SHALL BE REMOVED WITHIN 24 HOURS OF SEDIMENT REACHING 1/3 HEIGHT OF PERIMETER BMPs.

30. SEDIMENT TRACKED OFF-SITE FROM CONSTRUCTION TRAFFIC SHALL BE REMOVED FROM PAVED SURFACES WITHIN 24 HOURS OF DISCOVERY.

PERIMETER CONTROL BMPs:

31. PERIMETER CONTROL BMPs SHALL BE CONSTRUCTED BEFORE UP-SLOPE GROUND COVER IS REMOVED.

32. CLEARING, GRUBBING, AND STUMPING CAN OCCUR BEFORE SILT FENCE INSTALLATION IF GROUND COVER IS REMOVED.

33. ALL PERIMETER CONTROL BMPs SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS AND SO THAT SMALL SWALES OR DEPRESSIONS THAT MAY CARRY SMALL CONCENTRATED FLOWS TO THE PERIMETER CONTROL BMP ARE DISSIPATED ALONG ITS LENGTH.

34. ENDS OF PERIMETER CONTROL BMPs SHALL BE BROUGHT UP-SLOPE SLIGHTLY SO THAT WATER PONDING WILL BE PREVENTED FROM FLOWING AROUND THE BMPs.

35. IF USED BENEATH A SLOPE, SILT FENCE SHOULD BE A MINIMUM OF 10 FEET FROM THE TOE OF THE SLOPE.

36. SILT FENCE SHALL BE TRENCHED IN. THE TRENCH SHALL BE MADE WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE, OR OTHER SUITABLE DEVICE THAT WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.

37. WHERE 2 SECTIONS OF PREFABRICATED SILT FENCE ARE COMBINED INTO ONE RUN, THE END POSTS SHALL BE CONNECTED TOGETHER, NOT SIMPLY OVERLAPPED.

38. SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IN RUNOFF FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE:

32.1. AN ADDITIONAL RUN OF SILT FENCE SHALL BE PLACED UPSTREAM

32.2. THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED

32.3. ACCUMULATED SEDIMENT SHALL BE REMOVED

32.4. OTHER PRACTICES SHALL BE IMPLEMENTED.

39. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN THE DEPOSIT REACHES APPROXIMATELY ONE HALF OF THE HEIGHT OF THE SILT FENCE.

40. ALL STOCKPILES SHALL BE ENCIRCLED WITH AN APPROPRIATE BMP SUCH AS SILT FENCE, FIBER ROLL, OR SEDIMENT LOGS.

41. SILT FENCE FABRIC SHALL MEET THE FOLLOWING SPECIFICATIONS:

35.1. MINIMUM TENSILE STENGTH = 120 LBS (ASTM D4632)

35.2. MAXIMUM ELONGATION AT 60 LBS. = 15% (ASTM D 4632)

35.3. MINIMUM PUNCTURE STRENGTH = 50 LBS. (ASTM D 4833)

35.4. MINIMUM TEAR STRENGTH = 40 LBS. (ASTM D4533)

35.5. APPARENT OPENING SIZE <= 0.84MM (ASTM D 4751)

35.6. MINIMUM PERMITTIVITY = 1X10-2SEC.-1 (ASTM D 4491)

35.7. WATER FLOW RATE = 15 GAL./MIN/SQ. FT.

35.8. UV EXPOSURE STRENGTH RETENTION = 70% (ASTM G4355)

TOPSOIL:

41. IN GRADING AREAS, TOPSOIL SHALL BE STOCKPILED NEAR THE GRADING. FOLLOWING FINAL GRADE, TOPSOIL SHALL BE SPREAD EVENLY ONVER GRADED AREA AND IMMEDIATELY SEEDED WITH A TEMPORARY SEED MIX.

42. IN AREAS THAT ARE TO REMAIN IMPERVIOUS POST-CONSTRUCITON (ROADS, EQUIPMENT PADS) TOPSOIL FROM EXCAVATIONS SHALL BE SPREAD EVENLY THROUGHOUT ARRAY AREA.

SEED MIX:

43. SEEDING WILL BE DONE POST CONSTRUCTION AND ENCOMPASS ALL DISTURBED AREAS (SWALES, RETENTION/DETENTION STRUCTURES, GRADING AREAS), WITH THE EXCEPTION OF ROADS AND EQUIPMENT PADS.

44. SEEDING AREA MIX WILL BE ACCORDANCE WITH THE FOLLOWING:

Figure PS-2 Selecting Seed Mix to Match Need

Area To Be Seeded	Mixture Number <sup>1</sup>	
	Mowing Desired	Mowing Not Required
BORROW AREAS, ROADSIDES, DIKES, LEVEES, POND BANKS AND OTHER SLOPES AND BANKS A) Well or excessively drained soils <sup>2</sup> B) Somewhat poorly drained soils <sup>2</sup> C) Variable drainage soils <sup>2</sup>	1,2,3,4,5 or 8 2 2	5, 6, 7, 8, 9, 10, 11, 12, 16, <b>22</b> 5, 6 5, 6, 11
DRAINAGE DITCH AND CHANNEL BANKS A) Well or excessively drained soils <sup>2</sup> B) Somewhat poorly drained soils <sup>2</sup> C) Variable drainage soils <sup>2</sup>	1, 2, 3, or 4 2 2	9, 10, 11, 12
DIVERSIONS A) Well or excessively drained soils <sup>2</sup> B) Somewhat poorly drained soils <sup>2</sup> C) Variable drainage soils <sup>2</sup>	2, 3 or 4 2 2	9, 10, 11
EFFLUENT DISPOSAL		5 or 6
GRAVEL PITs <sup>3</sup>		26, 27, 28
GULLED AND ERODED AREAS		3, 4, 5, 8, 10, 11, 12
MINESPOIL & WASTE, AND OTHER SPOIL BANKS (If toxic substances & physical properties not limiting) <sup>3</sup>		15, 16, 17, 18, 26, 27, 28
SHORELINES (Fluctuating water levels)		5 or 6
SKI SLOPES		4, 10
SOD WATERWAYS AND SPILLWAYS	1, 2, 3, 4, 6, 7, or 8	1, 2, 3, 4, 6, 7, or 8
SUNNY RECREATION AREAS (Picnic areas and playgrounds or driving and archery ranges, nature trails)	1, 2 or <b>23</b>	
CAMPING AND PARKING, NATURE TRAILS (Shaded)	19, <b>21</b> or <b>23</b>	
SAND DUNES (Blowing sand)	25	
WOODLAND ACCESS ROADS, SKID TRAILS AND LOG YARDING AREAS		9, 10, 16, <b>22</b> , 26
LAWNS AND HIGH MAINTENANCE AREAS	1, 19, <b>21</b> or <b>29</b>	

<sup>1</sup> The numbers following in these columns refer to seed mixtures in **Figure PS-3**. Mixes for shady areas are in **bold-italics** print (including mixes 20 through 24).  
<sup>2</sup> See county soil survey for drainage class. Soil surveys are available from the County Soil and Water Conservation District Office.  
<sup>3</sup> Use mix 26 when soil passing a 200 mesh sieve is less than 15% of total weight. Use mix 26 & 27 when soil passing a 200 mesh sieve is between 15 and 20% of total weight. Use mix 26, 27 & 28 when soil passing a 200 mesh sieve is above 20% of total weight.

Figure PS-3 Seed Mixtures for Permanent Seeding (con't)

No.	Seed Mixture (Variety) <sup>1</sup>	Lbs/1,000 Lbs/Acre	No. Sq. Ft.
12 <sup>5</sup>	Switchgrass (Blackwell, Shelter, Cave-in-rock) Perennial Ryegrass (Norlea, Manhattan) Crown Vetch (Chemung, Penngift) with inoculant <sup>1</sup>	101 5 15 Total 45	.25 .10 .35 1.05
13 <sup>6</sup>	Crown Vetch (Chemung, Penngift) with inoculant <sup>1</sup> (or Flatpea (Lathco) with inoculant <sup>1</sup> ) Switchgrass (Blackwell, Shelter, Cave-in-rock) Perennial Ryegrass (Norlea, Manhattan)	10 (30) 51 5 Total 20 (or 40)	.25 (.75) .10 .10 .45 (or .95)
14 <sup>4</sup>	Crown Vetch (Chemung, Penngift) with inoculant <sup>1</sup> (or Flatpea (Lathco) with inoculant <sup>1</sup> ) Perennial Ryegrass (Norlea, Manhattan)	15 (30) 10 Total 25 (or 40)	.45 (.75) .25 .60 (or 1.00)
15 <sup>6</sup>	Switchgrass (Blackwell, Shelter, Cave-in-rock) Big Bluestem (Niagra, Kaw) or Little Bluestem (Blaze, Aldous, Camper) Perennial Ryegrass (Norlea, Manhattan) Bird's-foot Trefoil (Empire, Viking) with inoculant <sup>1</sup>	51 51 5 .5 Total 20	.10 .10 .10 .10 .40
16 <sup>5</sup>	Tall Fescue (Kentucky 31) Flatpea (Lathco) with inoculant <sup>1</sup>	20 20 Total 50	.45 .25 1.20
17 <sup>6</sup>	Deer Tongue (Tioga) with inoculant <sup>1</sup> Bird's-foot Trefoil (Empire, Viking) with inoculant <sup>1</sup> Perennial Ryegrass (Norlea, Manhattan)	10 <sup>1</sup> 8 .3 Total 21	.25 .20 .07 .52
18 <sup>6</sup>	Deer Tongue (Tioga) with inoculant <sup>1</sup> Crown Vetch (Chemung, Penngift) with inoculant <sup>1</sup> Perennial Ryegrass (Norlea, Manhattan)	10 <sup>1</sup> 15 .3 Total 28	.25 .35 .07 .67
19 <sup>3</sup>	Chewings Fescue Hard Fescue Colonial Bentgrass Bird's-foot Trefoil (Empire, Viking) with inoculant <sup>1</sup> Perennial Ryegrass	35 30 5 10 20 Total 100	.80 .70 .10 .20 .50 2.30
20 <sup>5</sup>	Deleted due to invasive species		
21 <sup>5</sup>	Creeping Red Fescue (Pennlawn, Wintergreen)	Total 60	1.35
22 <sup>5</sup>	Creeping Red Fescue (Pennlawn, Wintergreen) Tall Fescue (Kentucky 31)	40 20 Total 60	.90 .45 1.35
23 <sup>5</sup>	Creeping Red Fescue (Pennlawn, Wintergreen) Flatpea (Lathco) with inoculant <sup>1</sup>	15 30 Total 45	.35 .25 3.60
24 <sup>5</sup>	Tall Fescue (Kentucky 31)	Total 150	3.60

Figure PS-3 Seed Mixtures for Permanent Seeding

No.	Seed Mixture (Variety) <sup>1</sup>	Lbs/Acre	Lbs/1,000 Sq. Ft.
1 <sup>7</sup>	Kentucky Bluegrass Creeping Red Fescue (Pennlawn, Wintergreen) Perennial Ryegrass (Norlea, Manhattan)	20 20 .5 Total 45	.45 .45 .10 1.00
2 <sup>5</sup>	Creeping Red Fescue (Pennlawn, Wintergreen) Redtop (Streecker, Common) Tall Fescue (Kentucky 31) or Smooth Bromegrass (Saratoga, Lincoln)	20 2 20 Total 42	.45 .05 .45 .95
3 <sup>5</sup>	Creeping Red Fescue (Pennlawn, Wintergreen) Bird's-foot Trefoil (Empire, Viking) with inoculant <sup>1</sup> Tall Fescue (Kentucky 31) or Smooth Bromegrass (Saratoga, Lincoln)	20 8 20 Total 48	.45 .20 .45 1.10
4 <sup>7</sup>	Creeping Red Fescue (Pennlawn, Wintergreen) or Tall Fescue (Kentucky 31) Redtop (Streecker, Common) Bird's-foot Trefoil (Empire, Viking) with inoculant <sup>1</sup>	20 2 .8 Total 30	.45 .05 .20 .70
5 <sup>7</sup>	White Clover Perennial Rye Grass	10 .2 Total 12	.25 .05 .30
6 <sup>5</sup>	Creeping Red Fescue Redtop (Streecker, Common) Perennial Rye Grass	20 2 20 Total 42	.50 .05 .50 1.05
7 <sup>7</sup>	Smooth Bromegrass (Saratoga, Lincoln) Perennial Ryegrass (Norlea, Manhattan) Bird's-foot Trefoil (Empire, Viking) with inoculant <sup>1</sup>	15 5 10 Total 30	.35 .10 .25 .79
8 <sup>6</sup>	Switchgrass (Blackwell, Shelter, Cave-in-rock) Weeping lovegrass Little Bluestem (Blaze, Aldous, Camper)	10 <sup>1</sup> 3 10 <sup>1</sup> Total 23	.25 .07 .25 .57
9 <sup>5</sup>	Creeping Red Fescue (Pennlawn, Wintergreen) Crown Vetch (Chemung, Penngift) with inoculant <sup>1</sup> (or Flatpea (Lathco) with inoculant <sup>1</sup> ) Tall Fescue (Kentucky 31) or Smooth Bromegrass (Saratoga, Lincoln) Redtop (Streecker, Common)	10 15 (30) 15 .2 Total 42 (or 57)	.25 .35 (.75) .35 .05 1.00 (or 1.40)
10 <sup>5</sup>	Creeping Red Fescue (Pennlawn, Wintergreen) Redtop (Streecker, Common) Crown Vetch (Chemung, Penngift) with inoculant <sup>1</sup> (or Flatpea (Lathco) with inoculant <sup>1</sup> )	20 2 15 (30) Total 37 (or 52)	.45 .05 .35 (.75) .85 (or 1.25)
11 <sup>5</sup>	Bird's-foot Trefoil (Empire, Viking) with inoculant <sup>1</sup> Crown Vetch (Chemung, Penngift) with inoculant <sup>1</sup> Creeping Red Fescue (Pennlawn, Wintergreen) or Tall Fescue (Kentucky 31) or Smooth Bromegrass (Saratoga, Lincoln)	8 15 20 Total 43	.20 .35 .45 1.00

Figure PS-3 Seed Mixtures for Permanent Seeding (con't)

No.	Seed Mixture (Variety) <sup>1</sup>	Lbs/Acre	Lbs/1,000 Sq. Ft.
25 <sup>4</sup>	American Beachgrass (Cape)	58,500 culms/acre	1,345 culms/ 100 sq. ft.
26 <sup>6</sup>	Switchgrass (Blackwell, Shelter, Cave-in-rock) Big Bluestem (Niagra, Kaw) Little Bluestem (Blaze, Aldous, Camper) Sand Lovegrass (NE-27, Bend) Bird's-foot Trefoil (Empire Viking)	4.0 4.0 2.0 1.5 2.0 Total 13.5	.10 .10 .05 .04 .05 .33
27 <sup>5</sup>	Flatpea (Lathco) Perennial Pea (Lancer) Crown Vetch (Chemung, Penngift) Tall Fescue (Kentucky 31)	10 2 10 .2 Total 24	.20 .05 .20 .65
28 <sup>5</sup>	Orchardgrass (Pennlate, Kay, Potomac) Tall Fescue (Kentucky 31) Redtop (Streecker, Common) Bird's-foot Trefoil (Empire-Viking)	5 10 2 .5 Total 22	.10 .20 .05 .10 .45
29	Turf Type Tall Fescue (Bonanza, Mustang, Rebel II, Spartan, Jaguar) or Perennial Rye (C'Ture 2000 <sup>®</sup> mix; Fiesta II, Blazer II, and Dasher II)	175 to 250	6 to 8

<sup>1</sup> Use proper inoculant for legume seeds, use four times recommended rate when hydroseeding.  
<sup>2</sup> Use Pure Live Seed (PLS) =  $\frac{\% \text{ Germination} \times \% \text{ Purity}}{100}$   
EXAMPLE: Common Bermuda seed with 70% germination and 80% purity =  $\frac{70 \times 80}{100}$  or  $\frac{56}{100}$  or 56%  
 $\frac{10 \text{ lbs PLS/acre}}{50\%}$  = 17.9 lbs/acre of bagged seed  
<sup>3</sup> DOT All purpose mix  
<sup>4</sup> Wild flower mix containing New England Aster, Baby's Breath, Black Eye Susan, Catchfly, Dwarf Columbine, Purple Coneflower, Lance-leaved Coreopsis, Gentiflower, Ox-eye Daisy, Scarlet Flax, Froglouse, Gayfeather, Rocky Lakesue, Spanish Lakesue, Corn Poppy, Spurred Snopdragon, Wallflower and/or Yarrow may be added to any seed mix given. Most seed suppliers carry a wild flower mixture that is suitable for the Northeast and contains a variety of both annual and perennial flowers. Seeding rates for the specific mixtures should be followed.  
<sup>5</sup> Considered to be a cool season mix.  
<sup>6</sup> Considered to be a warm season mix.

811

Know what's below.  
Call before you dig.

LOCATION: E:\DROPBOX (SOA)\ENGINEERING\CS ENERGY\2020-03-09\_STONINGTON\CAD\NOTES.DWG PLOTTED BY: DARIN GALLOWAY

soa

SIERRA OVERHEAD ANALYTICS

REV	DESCRIPTION	DATE
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CS Energy

Building a Cleaner Future

PROJECT NAME:  
STONINGTON SOLAR PROJECT

PROJECT ADDRESS:  
ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W

SEAL:  

STATE OF CONNECTICUT

DAVID RAY GALLOWAY

No. 34152

PROFESSIONAL ENGINEER

DATE:  
22-MAY-20

PROJECT #:  
#

DRAWN BY:  
MMM

CHECKED BY:  
DRG

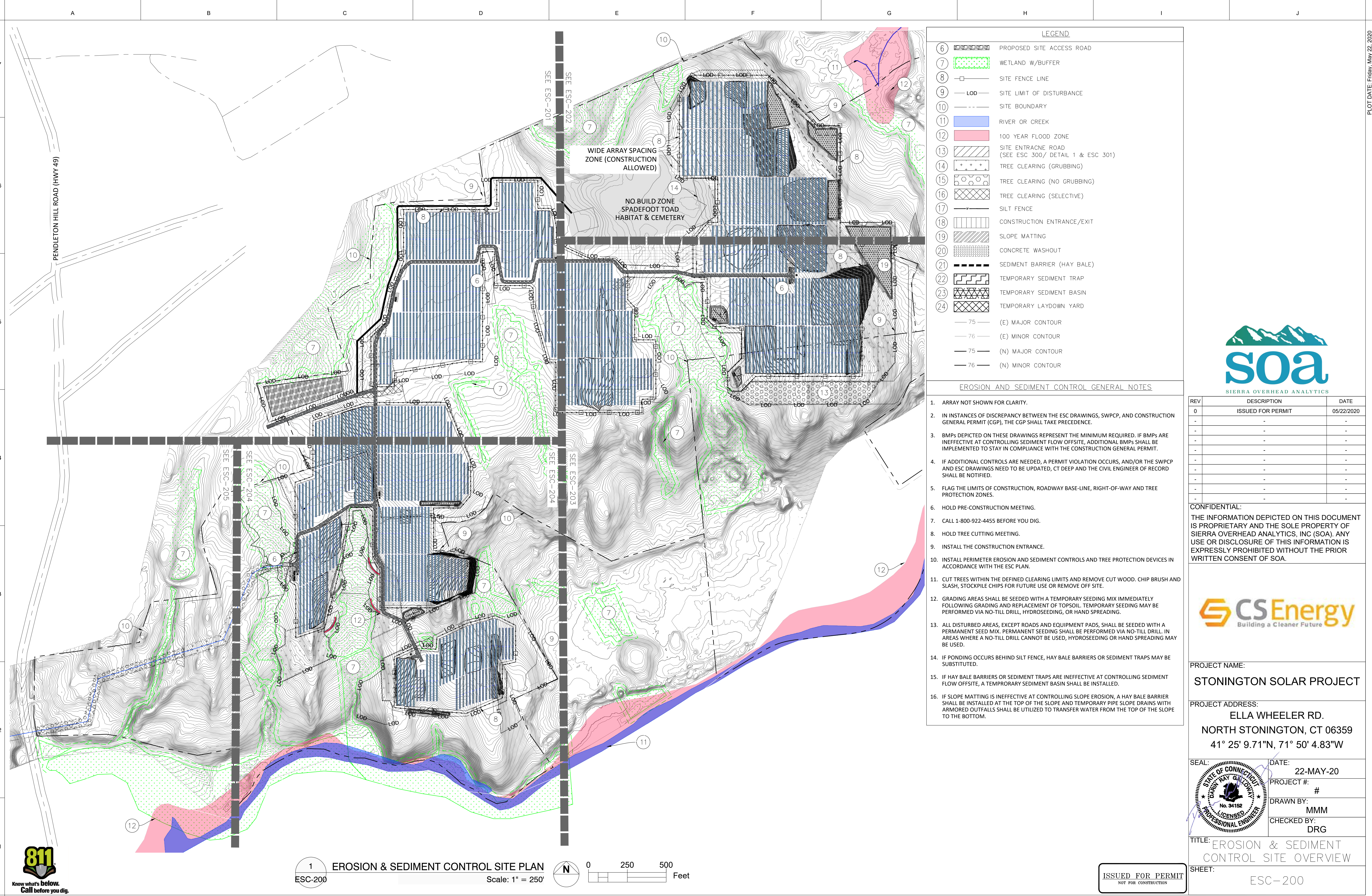
TITLE:  
EROSION & SEDIMENT CONTROL NOTES

SHEET:  
ESC-100

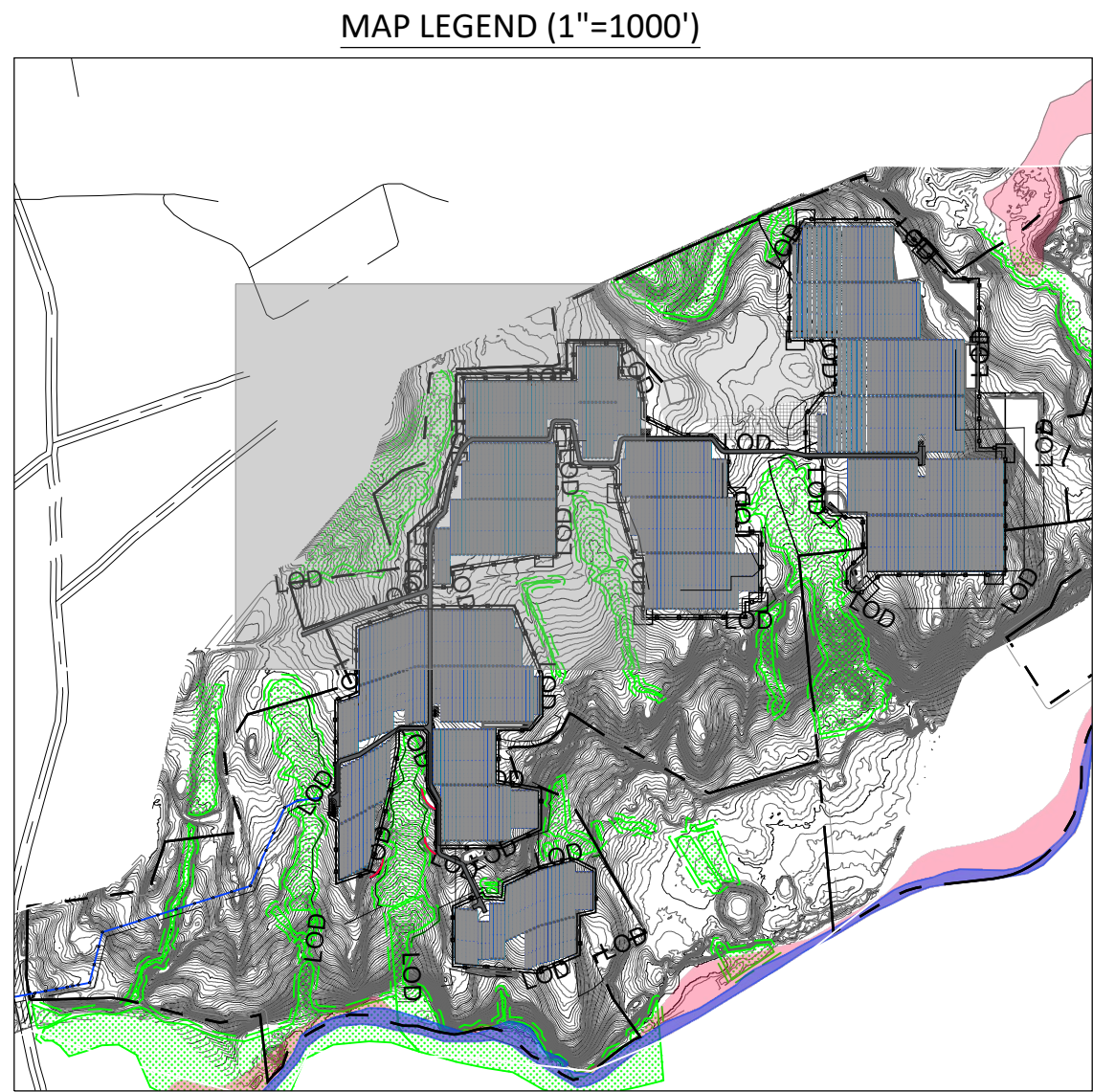
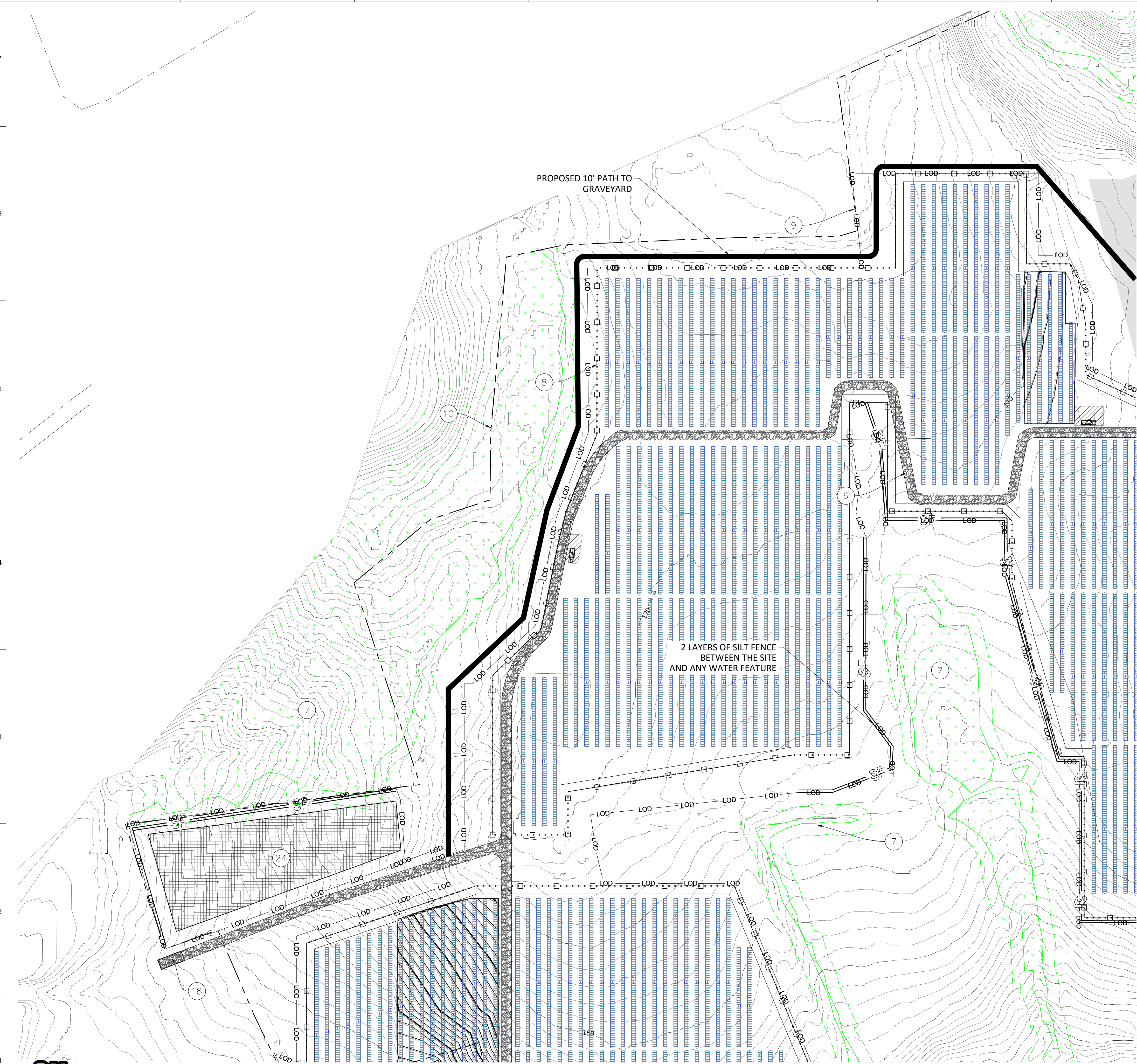
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NOT FOR CONSTRUCTION

PLOT DATE: Friday, May 22, 2020









LEGEND	
6	PROPOSED SITE ACCESS ROAD
7	WETLAND W/BUFFER
8	SITE FENCE LINE
9	SITE LIMIT OF DISTURBANCE
10	SITE BOUNDARY
11	RIVER OR CREEK
12	100 YEAR FLOOD ZONE
13	SITE ENTRANCE ROAD (SEE ESC 300/ DETAIL 1 & ESC 301)
14	TREE CLEARING (GRUBBING)
15	TREE CLEARING (NO GRUBBING)
16	TREE CLEARING (SELECTIVE)
17	SILT FENCE
18	CONSTRUCTION ENTRANCE/EXIT
19	SLOPE MATTING
20	CONCRETE WASHOUT
21	SEDIMENT BARRIER (HAY BALE)
22	TEMPORARY SEDIMENT TRAP
23	TEMPORARY SEDIMENT BASIN
24	TEMPORARY LAYDOWN YARD
75	(E) MAJOR CONTOUR
76	(E) MINOR CONTOUR
75	(N) MAJOR CONTOUR
76	(N) MINOR CONTOUR



REV	DESCRIPTION	DATE
0	ISSUED FOR PERMIT	05/22/2020
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STONINGTON SOLAR PROJECT

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NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W

SEAL: 	DATE: 22-MAY-20
	PROJECT #: #
	DRAWN BY: MMM
	CHECKED BY: DRG

TITLE:  
EROSION & SEDIMENT  
CONTROL SITE PLAN

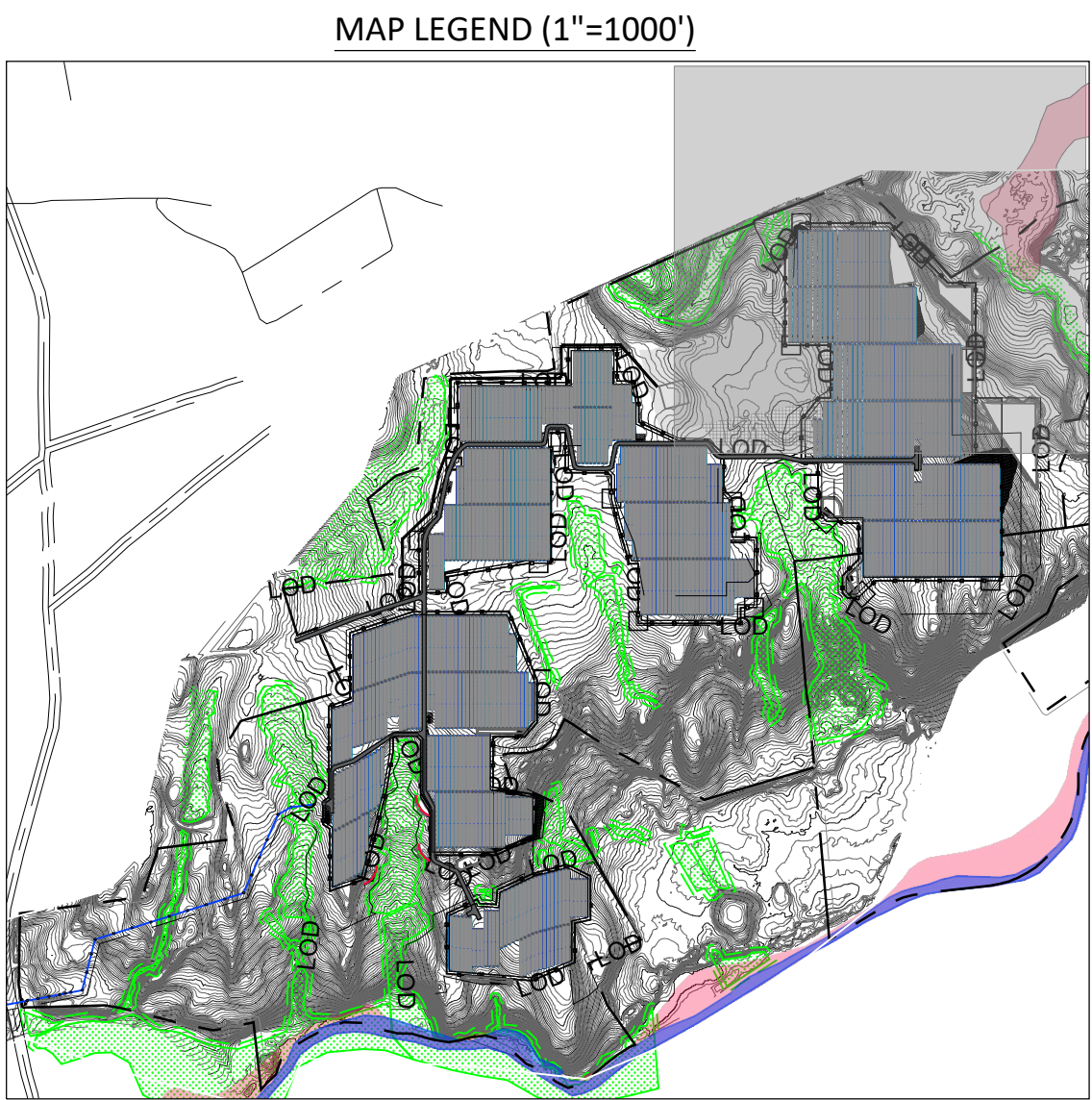
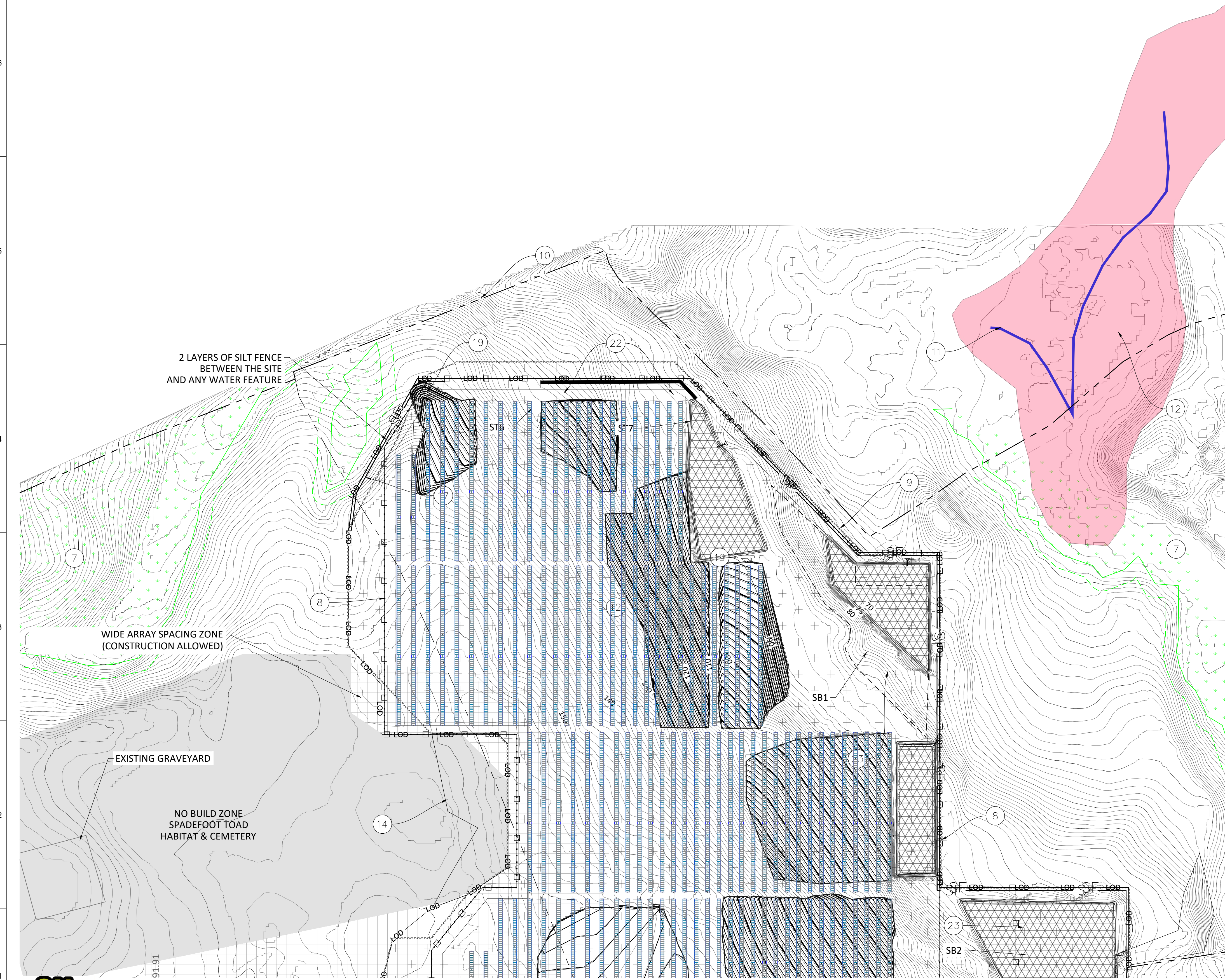
SHEET:  
ESC-201

1 EROSION & SEDIMENT CONTROL SITE PLAN  
Scale: 1" = 100'  
0 100 200 Feet

ISSUED FOR PERMIT  
NOT FOR CONSTRUCTION







LEGEND	
6	PROPOSED SITE ACCESS ROAD
7	WETLAND W/BUFFER
8	SITE FENCE LINE
9	SITE LIMIT OF DISTURBANCE
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13	SITE ENTRACNE ROAD (SEE ESC 300/ DETAIL 1 & ESC 301)
14	TREE CLEARING (GRUBBING)
15	TREE CLEARING (NO GRUBBING)
16	TREE CLEARING (SELECTIVE)
17	SILT FENCE
18	CONSTRUCTION ENTRANCE/EXIT
19	SLOPE MATTING
20	CONCRETE WASHOUT
21	SEDIMENT BARRIER (HAY BALE)
22	TEMPORARY SEDIMENT TRAP
23	TEMPORARY SEDIMENT BASIN
24	TEMPORARY LAYDOWN YARD
75	(E) MAJOR CONTOUR
76	(E) MINOR CONTOUR
75	(N) MAJOR CONTOUR
76	(N) MINOR CONTOUR



REV	DESCRIPTION	DATE
0	ISSUED FOR PERMIT	05/22/2020
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PROJECT NAME:  
**STONINGTON SOLAR PROJECT**

PROJECT ADDRESS:  
**ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W**

SEAL: 	DATE: <b>22-MAY-20</b>
	PROJECT #: <b>#</b>
	DRAWN BY: <b>MMM</b>
	CHECKED BY: <b>DRG</b>

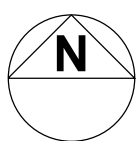
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**EROSION & SEDIMENT  
CONTROL SITE PLAN**

SHEET:  
**ESC-202**

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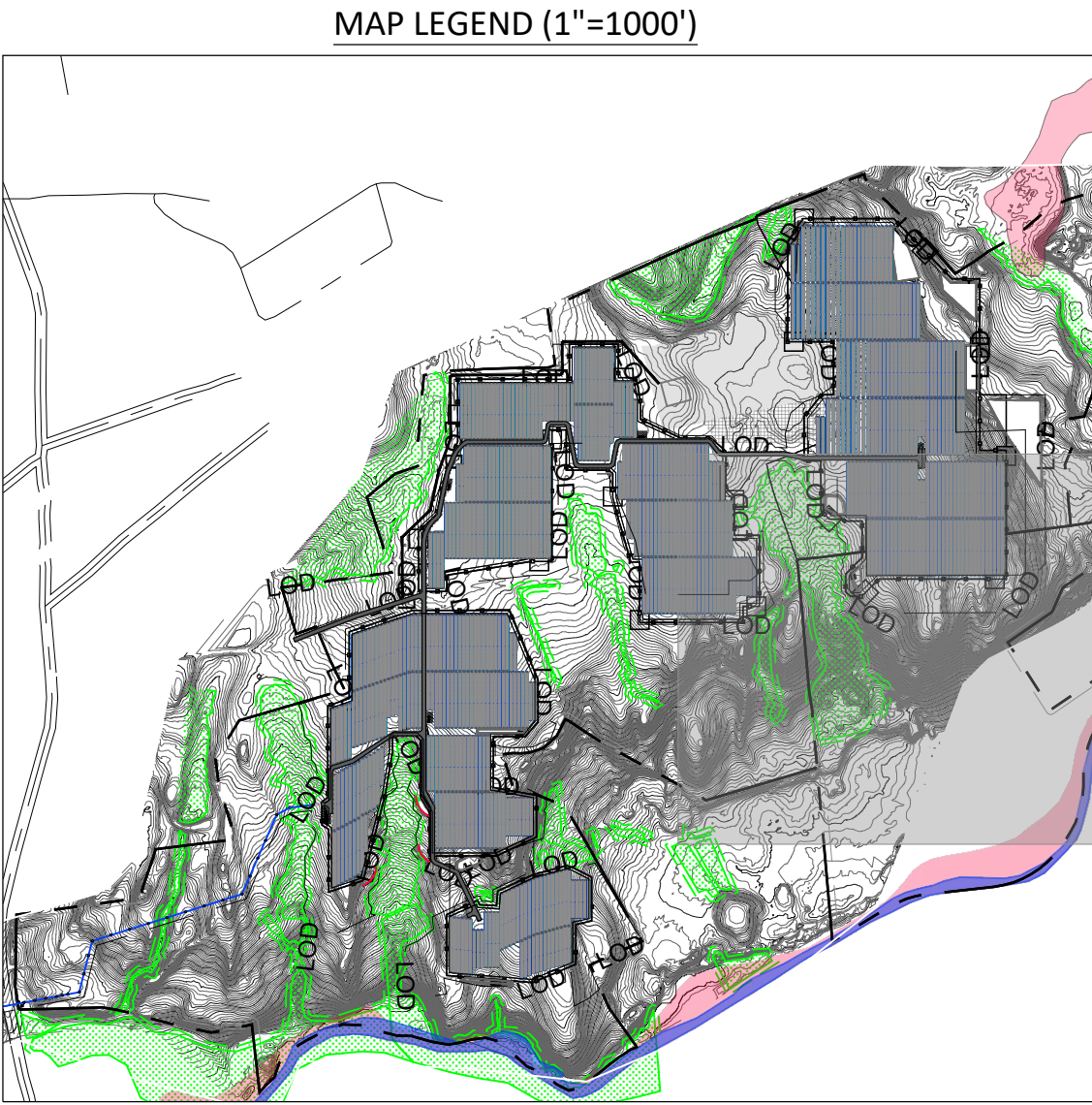
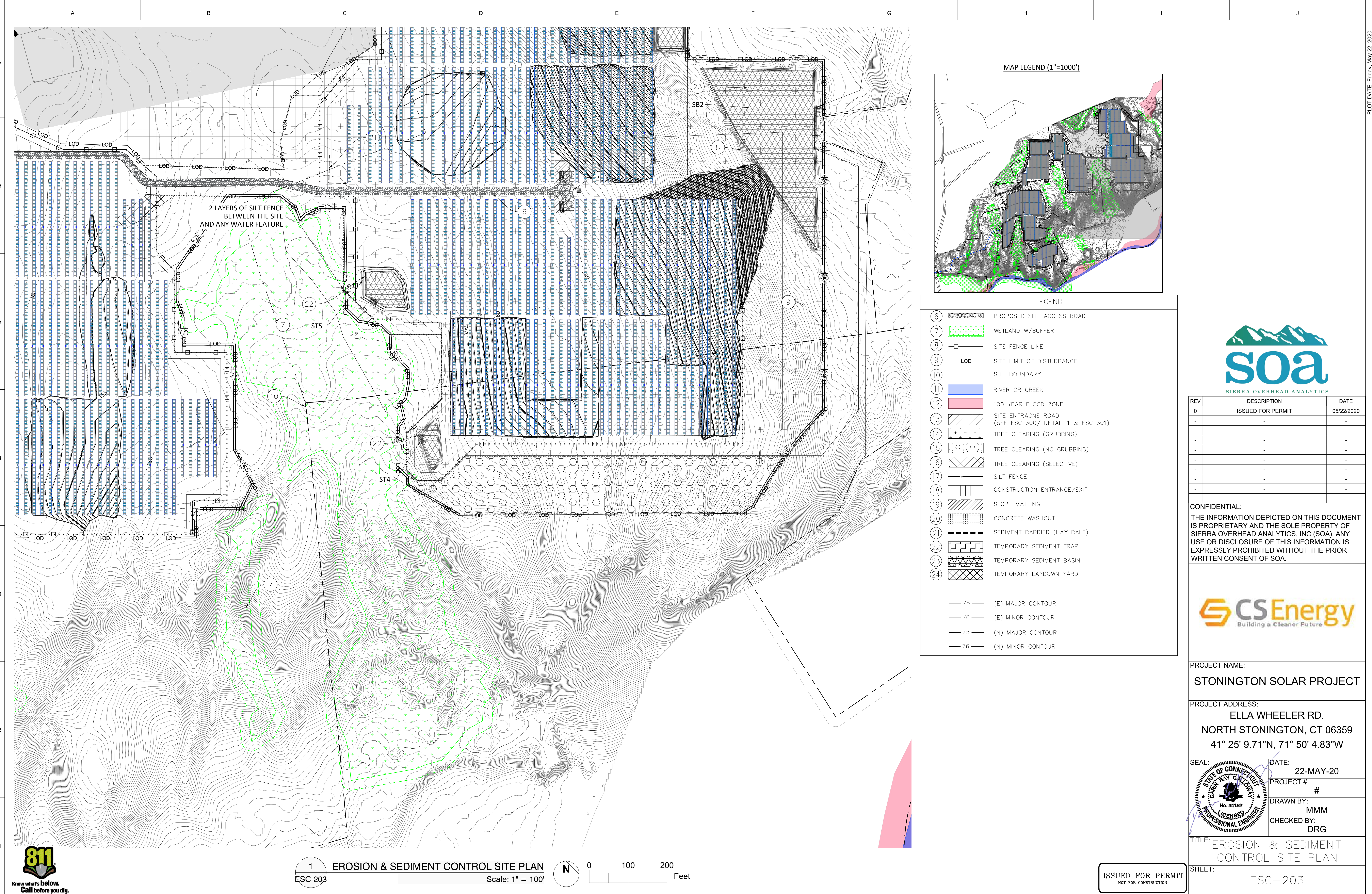


1 EROSION & SEDIMENT CONTROL SITE PLAN  
Scale: 1" = 100'



0 100 200  
Feet





LEGEND	
6	PROPOSED SITE ACCESS ROAD
7	WETLAND W/BUFFER
8	SITE FENCE LINE
9	SITE LIMIT OF DISTURBANCE
10	SITE BOUNDARY
11	RIVER OR CREEK
12	100 YEAR FLOOD ZONE
13	SITE ENTRANCE ROAD (SEE ESC 300/ DETAIL 1 & ESC 301)
14	TREE CLEARING (GRUBBING)
15	TREE CLEARING (NO GRUBBING)
16	TREE CLEARING (SELECTIVE)
17	SILT FENCE
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21	SEDIMENT BARRIER (HAY BALE)
22	TEMPORARY SEDIMENT TRAP
23	TEMPORARY SEDIMENT BASIN
24	TEMPORARY LAYDOWN YARD
— 75 — (E) MAJOR CONTOUR	
— 76 — (E) MINOR CONTOUR	
— 75 — (N) MAJOR CONTOUR	
— 76 — (N) MINOR CONTOUR	



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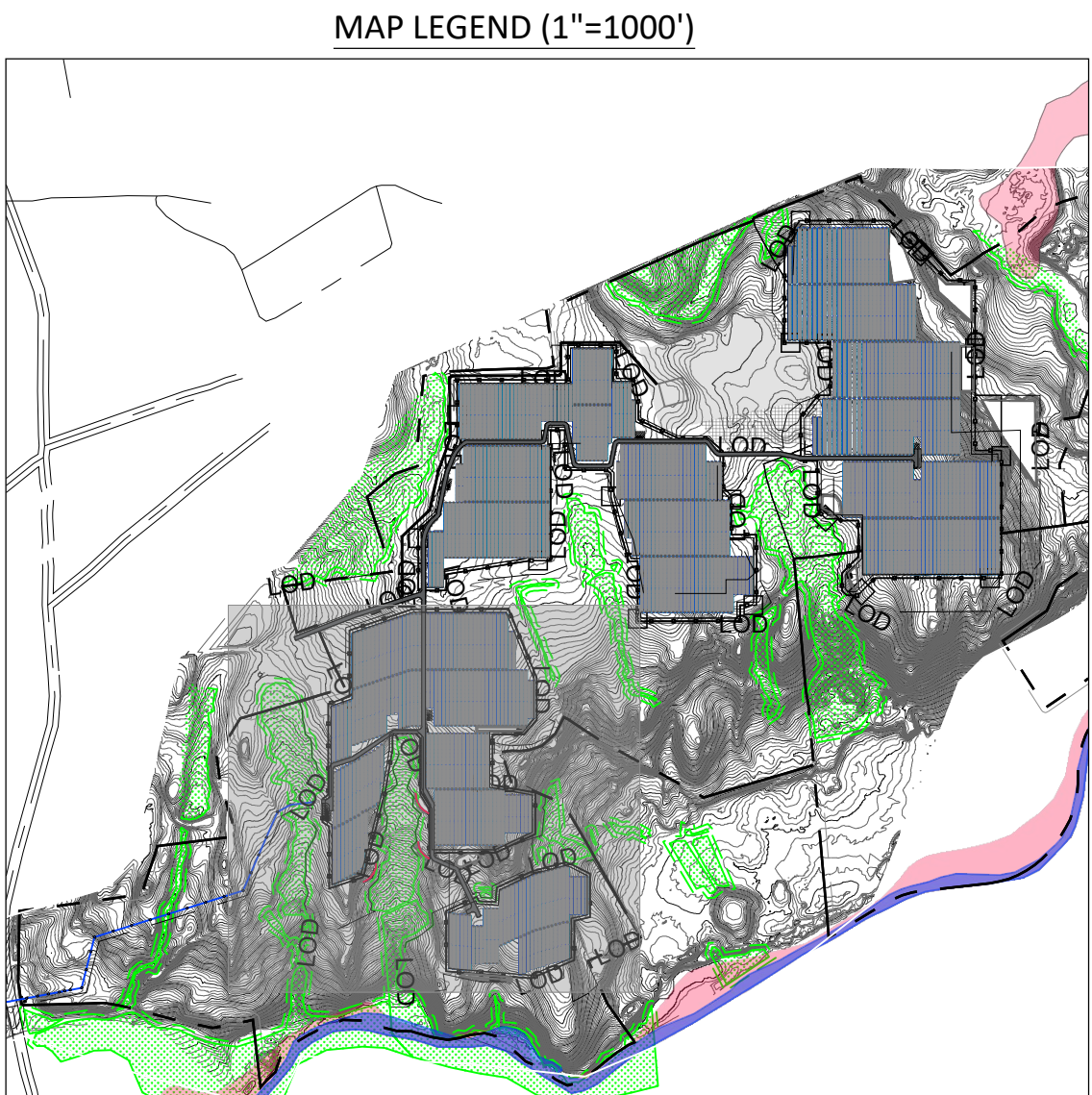
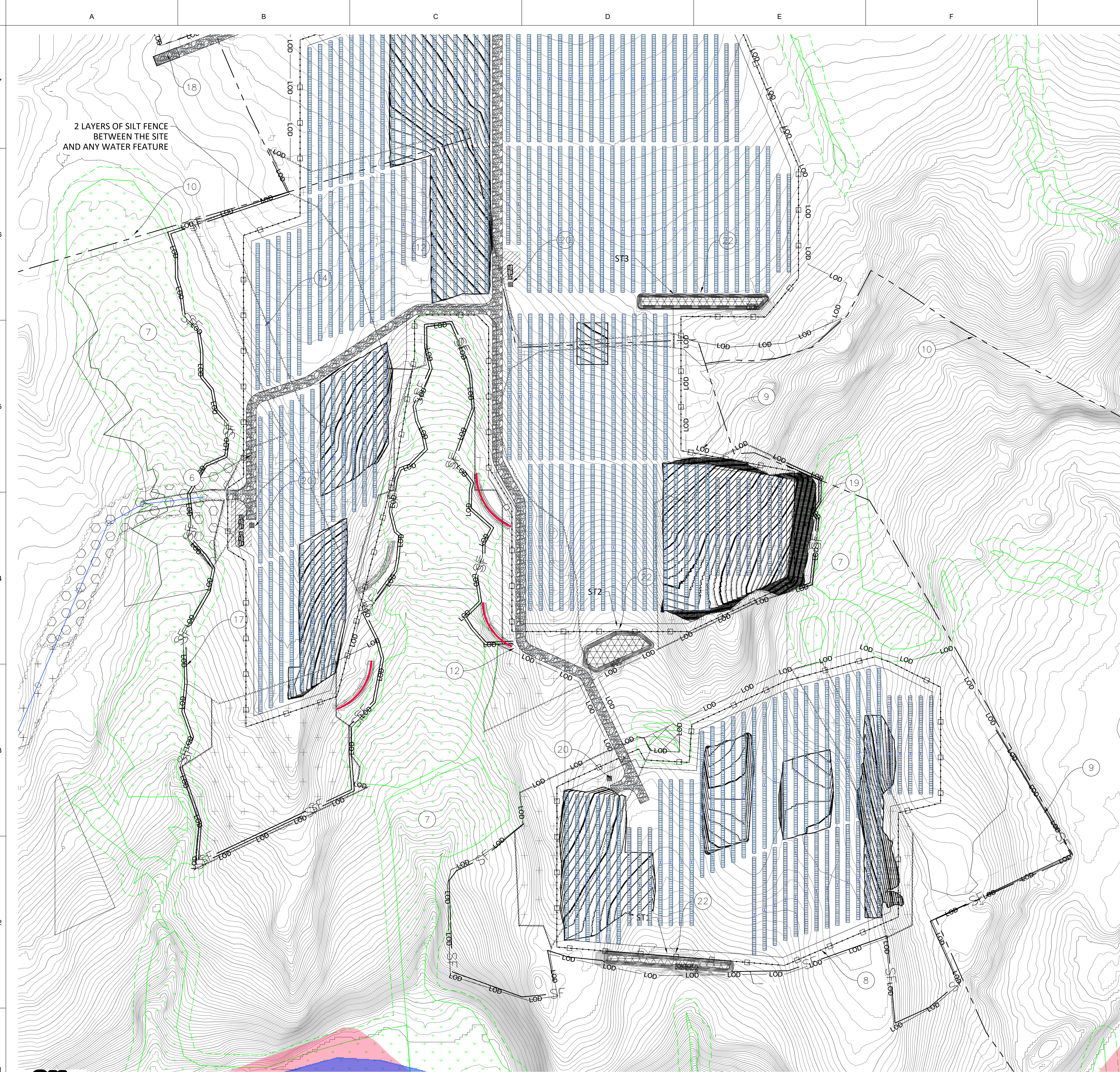
SEAL: 	DATE: 22-MAY-20
PROJECT #: #	DRAWN BY: MMM
CHECKED BY: DRG	

TITLE: EROSION & SEDIMENT CONTROL SITE PLAN

SHEET: ESC-203

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LEGEND	
6	PROPOSED SITE ACCESS ROAD
7	WETLAND W/BUFFER
8	SITE FENCE LINE
9	SITE LIMIT OF DISTURBANCE
10	SITE BOUNDARY
11	RIVER OR CREEK
12	100 YEAR FLOOD ZONE
13	SITE ENTRACNE ROAD (SEE ESC 300/ DETAIL 1 & ESC 301)
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24	TEMPORARY LAYDOWN YARD
75	(E) MAJOR CONTOUR
76	(E) MINOR CONTOUR
75	(N) MAJOR CONTOUR
76	(N) MINOR CONTOUR



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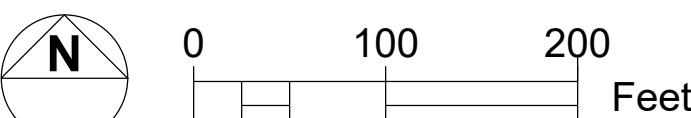
SEAL: 	DATE: <b>22-MAY-20</b>
	PROJECT #: <b>#</b>
	DRAWN BY: <b>MMM</b>
	CHECKED BY: <b>DRG</b>

TITLE: **EROSION & SEDIMENT  
CONTROL SITE PLAN**

SHEET: **ESC-204**

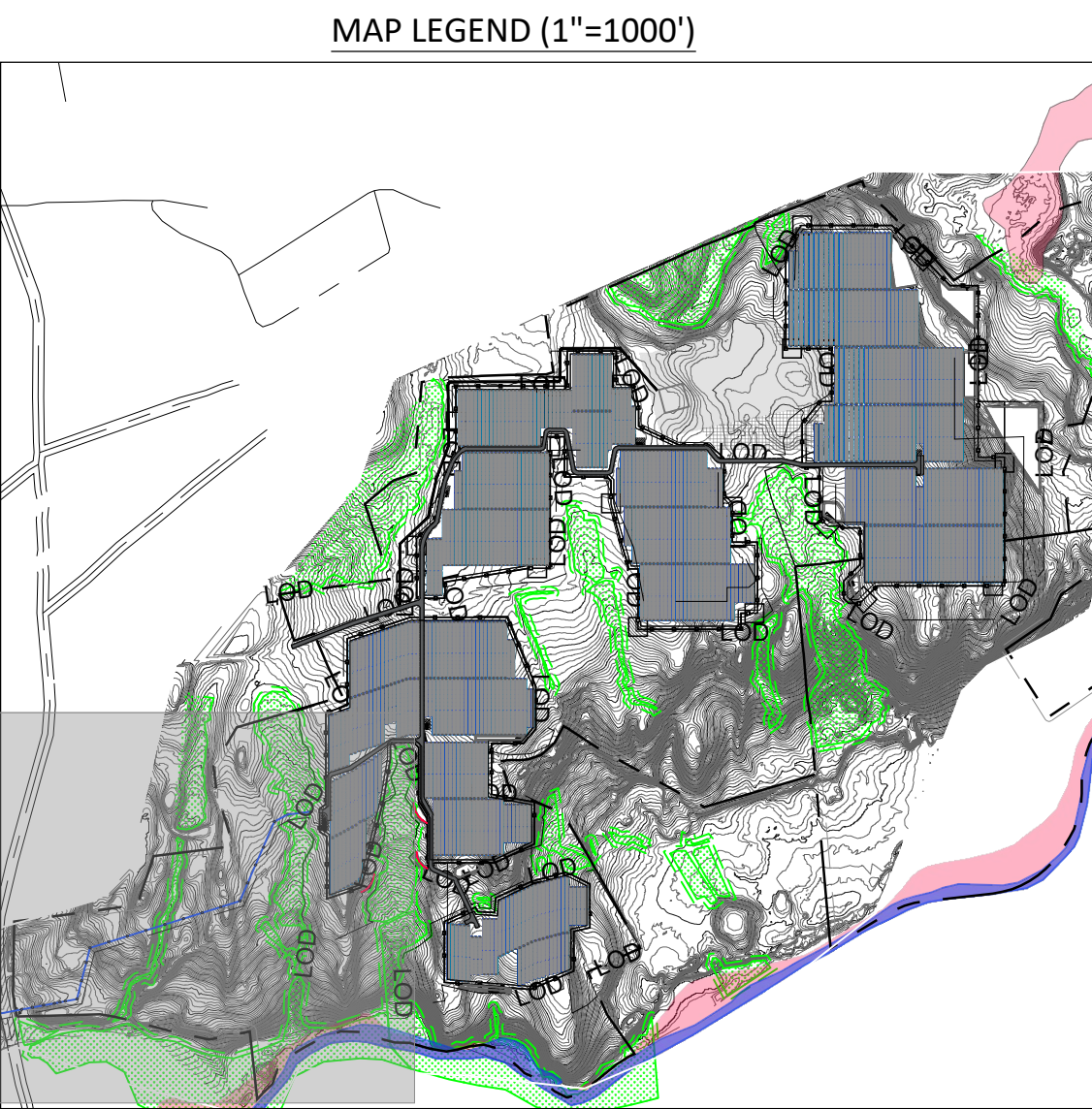


**1 EROSION & SEDIMENT CONTROL SITE PLAN**  
Scale: 1" = 100'



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LEGEND	
6	PROPOSED SITE ACCESS ROAD
7	WETLAND W/BUFFER
8	SITE FENCE LINE
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	MMM
	CHECKED BY:
	DRG

TITLE:

EROSION & SEDIMENT  
CONTROL SITE PLAN

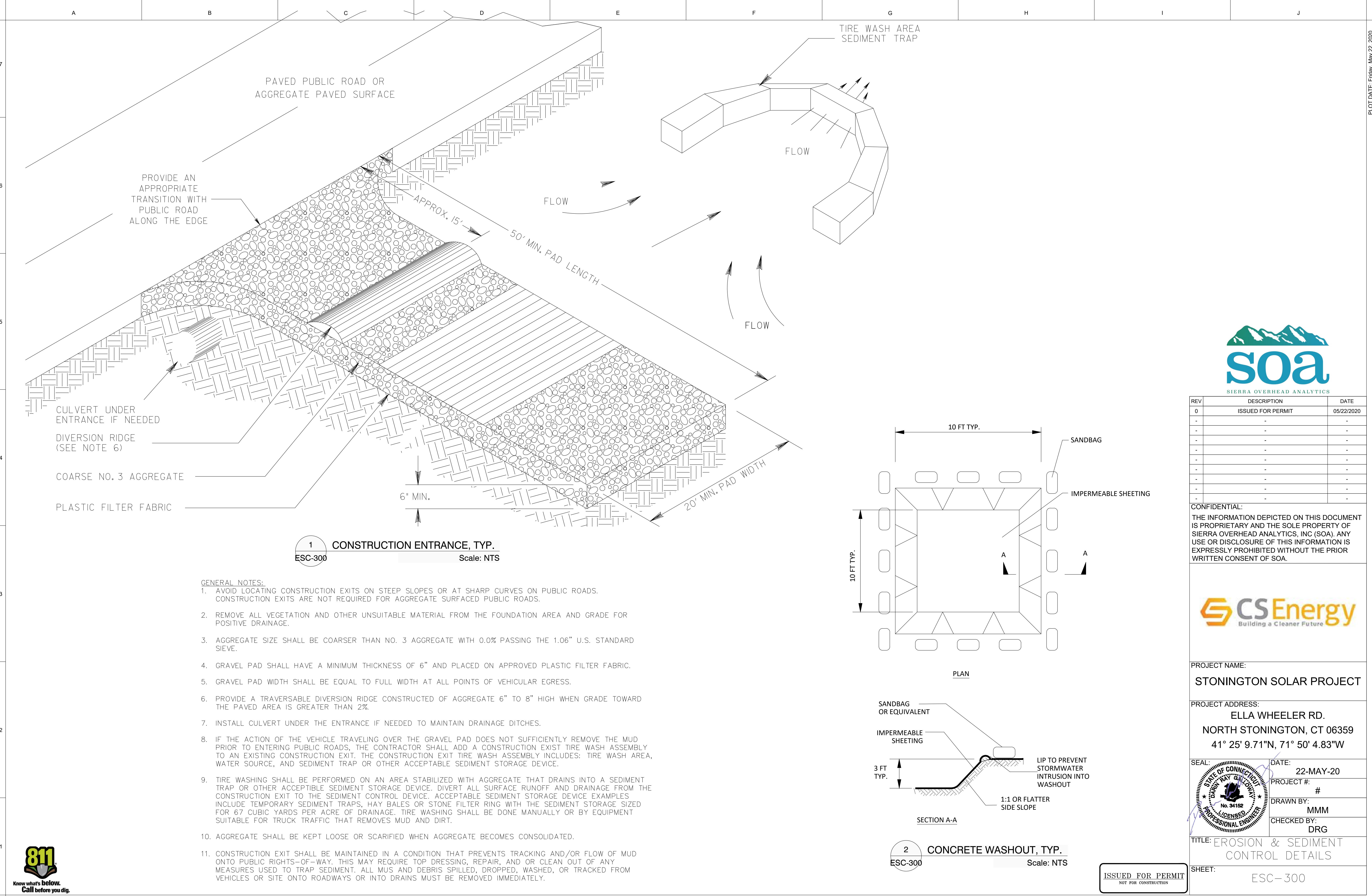
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ESC-205

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SEAL: 	DATE: 22-MAY-20
PROJECT #: #	DRAWN BY: MMM
CHECKED BY: DRG	

TITLE: EROSION & SEDIMENT CONTROL DETAILS

SHEET:  
 ESC-300

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7

12-Tire Tracked Soils

Construction Entrance (CE)

Definition

A stone stabilized pad sometimes associated with a mud rack, automotive spray, or other measures located at points of vehicular ingress and egress on a construction site.

Purpose

To reduce the tracking of sediment off site onto paved surfaces.

Applicability

At points of construction vehicle ingress and egress where sediment may be tracked onto adjoining paved surfaces by vehicles.

Planning Considerations

The construction entrance is intended to cause sediment to drop off of vehicle tires and prevent it from being tracked onto adjoining paved areas. Its design and maintenance requirements are dependent upon how intensely the entrance is used and the nature of the sediments that can be tracked. Consider the texture of the sediments to be retained by the construction entrance. The minimum construction entrance is 50 feet, but where the soils subject to tracking contain less than 80% sand, then the minimum length of the construction entrance is 100 feet (see textural triangle in Appendix H). For sites containing clay or silty soils consider developing a construction access road with a gravel base. (See Chapter 4, Special Treatments, Construction Access Roads). The length of the construction entrance may be reduced by the establishment of an access road with a stable surface that is not subject to soil tracking.

If the construction entrance drains to a paved surface and its grade exceeds 2%, then plan on installing a water bar within the construction entrance to divert water away from the paved surface. For access roads that slope down to the construction entrance, consider installing a water bar and associated sediment barrier to protect the construction entrance from unnecessary siltation during storm events.

Placing a geotextile beneath the stone pad of the construction entrance can reduce the pumping of subsoil into the stone by construction traffic and reduce maintenance costs.

Select the site of the construction entrance to avoid poorly drained soils where possible. Where lateral flows of water must be maintained through the construction entrance, consider having an engineer design subsurface drainage or other drainage facilities to eliminate the obstruction to flow.

Consider requiring the installation of construction access fencing to restrict construction traffic to the construction entrance.

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

Errata Corrections 1/08

5-12-2

Construction Entrance (CE)

Construction Entrance (CE)

Construction Entrance (CE)

6

4-Short Term Non-living Soil Protection

Temporary Erosion Control Blanket (ECB)

Definition

A manufactured blanket composed of biodegradable / photodegradable natural or polymer fibers and/or filaments that have been mechanically, structurally or chemically bound together to form a continuous matrix.

Purpose

To provide temporary surface protection to newly seeded and/or disturbed soils to absorb raindrop impact and to reduce sheet and rill erosion and to enhance the establishment of vegetation.

Applicability

- On disturbed soils where slopes are 2:1 or flatter.
- Where wind and traffic generated air flow may dislodge standard, unarmored mulches.
- May be used as a substitute for **Temporary Soil Protection**.
- May be used as a substitute for **Mulch for Seed**.

Planning Considerations

When considering the use of ECB keep in mind the blanket's capability to conform to ground surface irregularities. If the blanket is not capable of developing a continuous contact with the soil then it must be applied to a fine graded surface. Some blankets will soften and when wetted reconfirm to the ground. Also, when the ground is frozen, proper anchoring can be difficult, if not impossible.

Care must be taken to choose the type of blanket which is most appropriate for the specific need of the project. With the abundance of erosion control blankets available, it is impossible to cover all of the advantages, disadvantages and specifications of all manufactured blankets. There is no substitute for a thorough understanding of the manufacturer's instructions and recommendations in conjunction with a site visit by the erosion and sedimentation plan designer prior to and during installation to verify a product's appropriateness.

The success of temporary erosion control blankets is dependent upon strict adherence to the manufacturer's installation recommendations. As such, a final inspection should be planned to ensure that the lap joints are secure, all edges are properly anchored and all staking/stapling patterns follow the manufacturer's recommendations.

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

Errata Corrections 1/08

5-12-2

Temporary Erosion Control Blanket (ECB)

Temporary Erosion Control Blanket (ECB)

Temporary Erosion Control Blanket (ECB)

5

5-12-3

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

Errata Corrections 1/08

5-12-3

Construction Entrance (CE)

Construction Entrance (CE)

Construction Entrance (CE)

4

5-12-4

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

Errata Corrections 1/08

5-12-4

Construction Entrance (CE)

Construction Entrance (CE)

Construction Entrance (CE)

3

5-4-10

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

Errata Corrections 1/08

5-4-10

Temporary Erosion Control Blanket (ECB)

Temporary Erosion Control Blanket (ECB)

Temporary Erosion Control Blanket (ECB)

2

5-4-11

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

Errata Corrections 1/08

5-4-11

Temporary Erosion Control Blanket (ECB)

Temporary Erosion Control Blanket (ECB)

Temporary Erosion Control Blanket (ECB)

1

5-4-11

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

Errata Corrections 1/08

5-4-11

Temporary Erosion Control Blanket (ECB)

Temporary Erosion Control Blanket (ECB)

Temporary Erosion Control Blanket (ECB)

Location

Locate the entrance to provide maximum utilization by construction vehicles. Avoid poorly drained soils, where possible.

Construction Entrance Dimensions (see Figure CE-2)

Stone Thickness: not less than 6 inches.

Width:

A 12-foot minimum with points of ingress or egress flared sufficiently to accommodate the turning radius of the construction vehicles used.

Length:

A 50-foot minimum except where the tracked sediments contain less than 80% sand; a 100-foot minimum is required. If the traveled length is less than the minimum, then the construction entrance shall be the traveled length. On a site specific basis increase lengths as needed to prevent the tracking of sediment onto paved surfaces.

Construction

Clear the area of the entrance of all vegetation, roots, and other objectionable material. At poorly drained locations install subsurface drainage insuring the outlet to the drains are free flowing.

If using a geotextile in place of free draining material, unroll the geotextile in a direction parallel to the roadway centerline in a loose manner permitting it to conform to the surface irregularities when the stone is placed. Unless otherwise specified by the manufacturer, the minimum overlap of geotextile panels joined without sewing according to the manufacturer's recommendations. The geotextile may be temporarily secured with pins recommended or provided by the manufacturer but they shall be removed prior to placement of the stone.

Place the stone to the specified dimensions. Keep

additional stone available or stockpile for future use. If the grade of the construction entrance drains to the paved surface and it exceeds 2%, construct a water bar within the construction entrance at least 15 feet from its entrance on the paved surface diverting runoff water to a settling or filtering area.

Construct any drainage and settling facilities needed for washing operations. If wash racks are used, install according to the manufacturer's specifications.

Washing

If most of the sediment is not removed by travel over the stone, wash tires before vehicles enter a public road. Divert wash water away from the entrance to a settling area to remove sediment. Size settling area to hold the volume of water used during any 2-hour period. Using a wash rack may make washing more convenient and effective.

Maintenance

Maintain the entrance in a condition which will prevent tracking and washing of sediment onto paved surfaces. Provide periodic top dressing with additional stone or additional length, as conditions demand. Repair any measures used to trap sediment as needed. Immediately remove all sediment spilled, dropped, washed or tracked onto paved surfaces. Roads adjacent to a construction site shall be left clean at the end of each day.

If the construction entrance is being properly maintained and the action of a vehicle traveling over the stone pad is not sufficient to remove the majority of the sediment, then either (1) increase the length of the construction entrance, (2) modify the construction access road surface, or (3) install washing racks and associated settling area or similar devices before the vehicle enters a paved surface.

Figure CE-2 Diagram of Typical Construction Entrance

Source: USDA-NRCS

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

Errata Corrections 1/08

5-12-4

Construction Entrance (CE)

Construction Entrance (CE)

Construction Entrance (CE)

81

Know what's below. Call before you dig.

LOCATION: E:\DROPBOX (SOA)\ENGINEERING\CS ENERGY\2020-03-09\_STONINGTON\CAD\SITE PLANS.DWG PLOTTED BY: DARIN GALLOWAY

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NORTH STONINGTON, CT 06359  
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SEAL:

DATE:  
**22-MAY-20**

PROJECT #:  
**#**

DRAWN BY:  
**MMM**

CHECKED BY:  
**DRG**

TITLE:  
**EROSION & SEDIMENT CONTROL DETAILS**

SHEET:  
**ESC-301**

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PLOT DATE: Friday, May 22, 2020



7

6

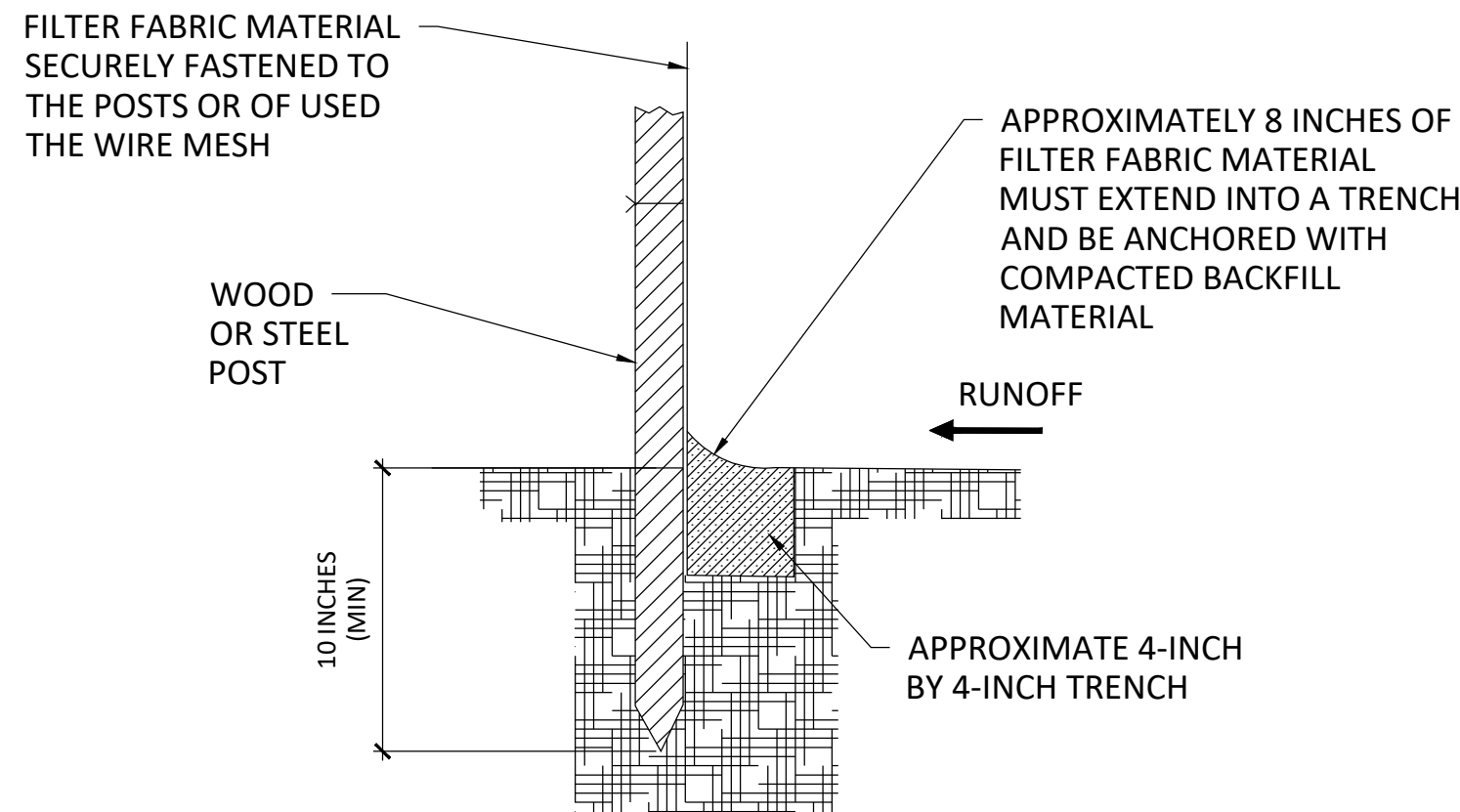
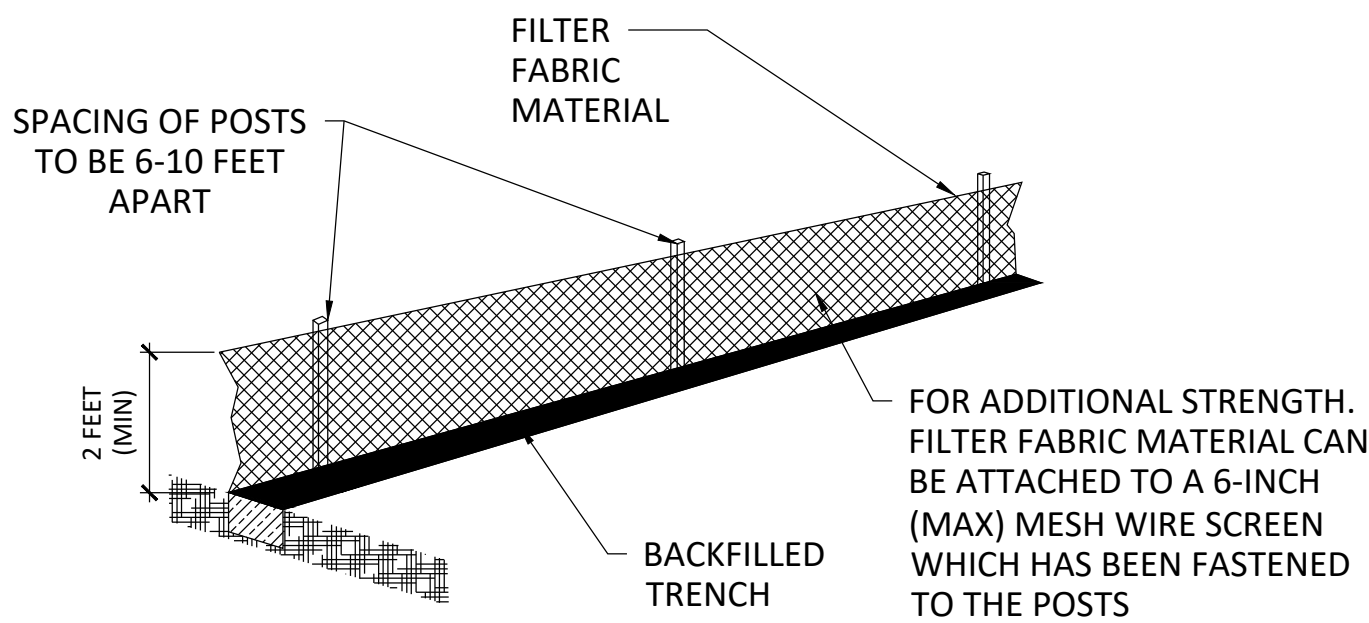
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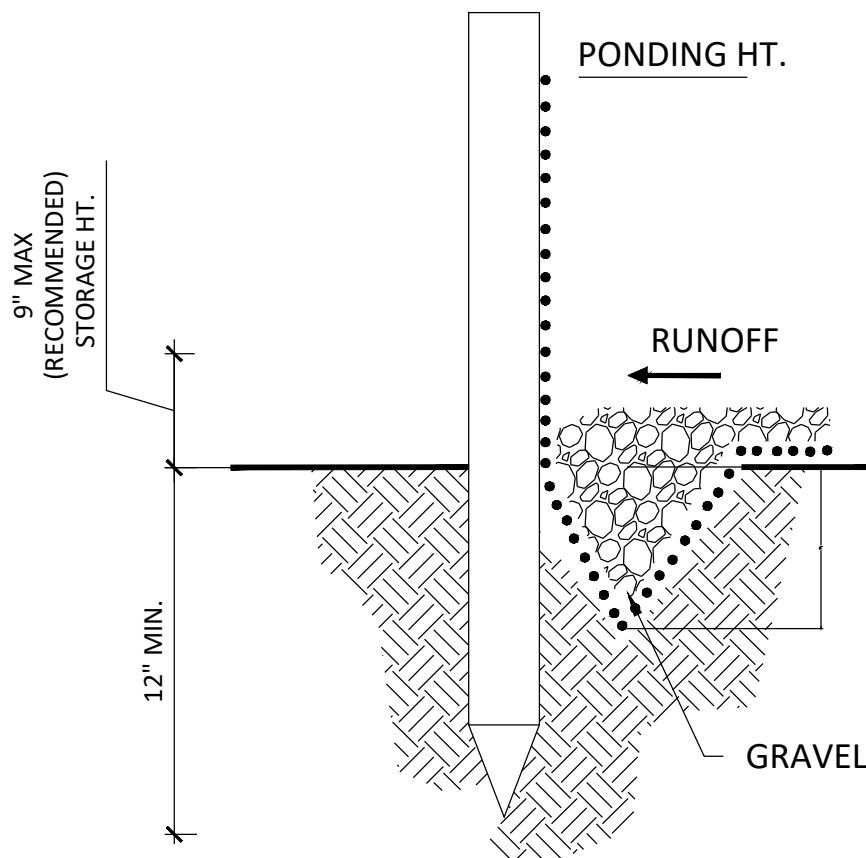
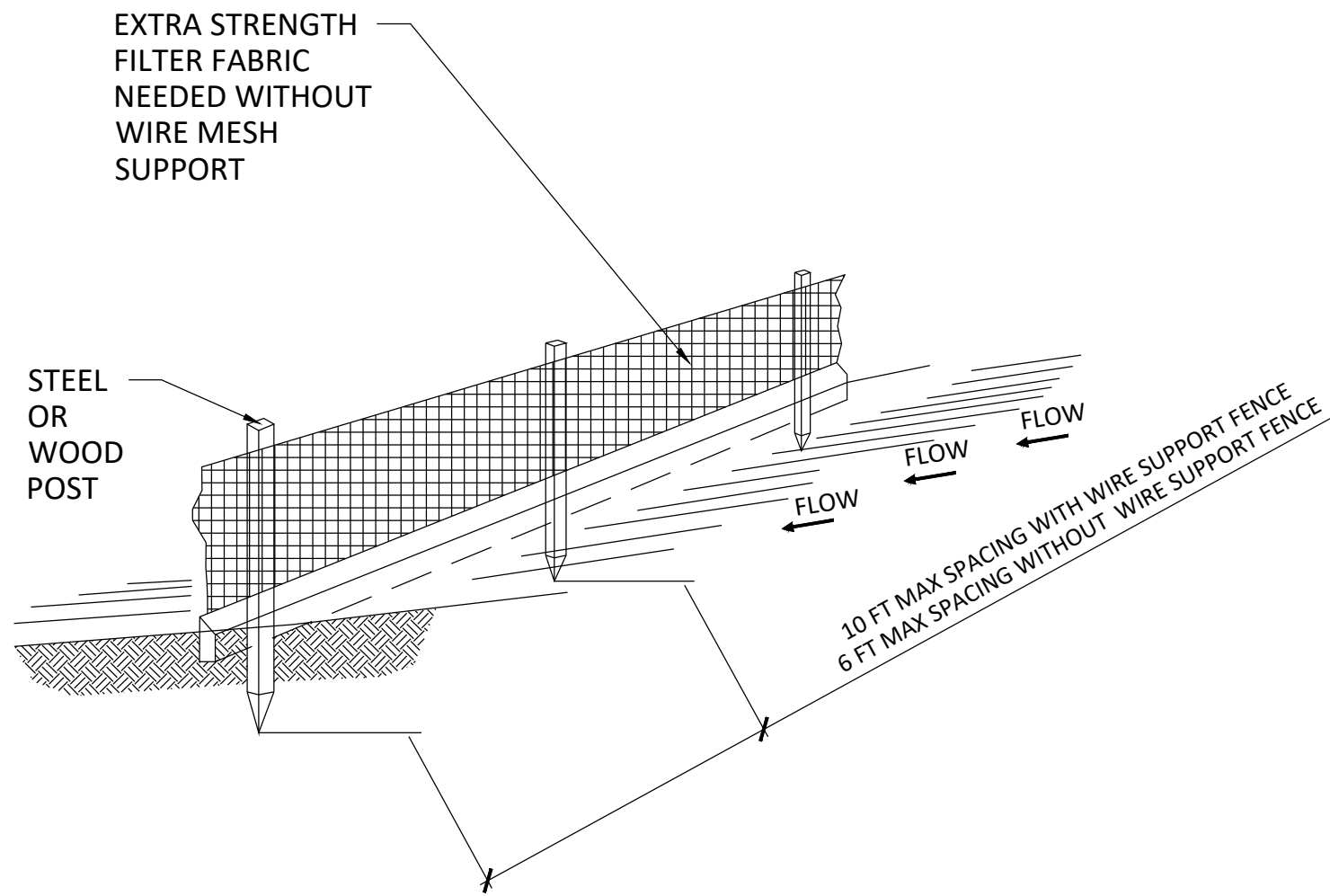
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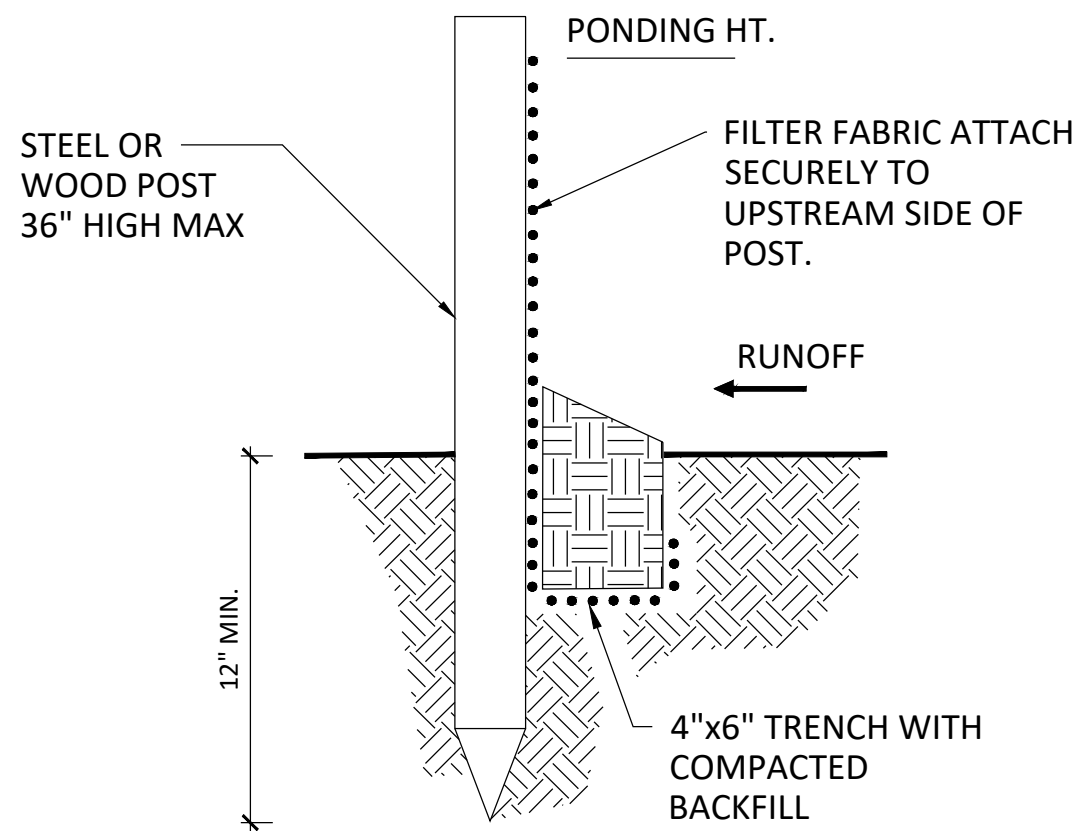
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1 SILT FENCE, TYP.  
ESC-302 Scale: NTS



ALTERNATE DETAIL  
TRENCH WITH GRAVEL



STANDARD DETAIL  
TRENCH WITH NATIVE BACKFILL

2 SILT FENCE ALTERNATE, TYP.  
ESC-302 Scale: NTS



REV	DESCRIPTION	DATE
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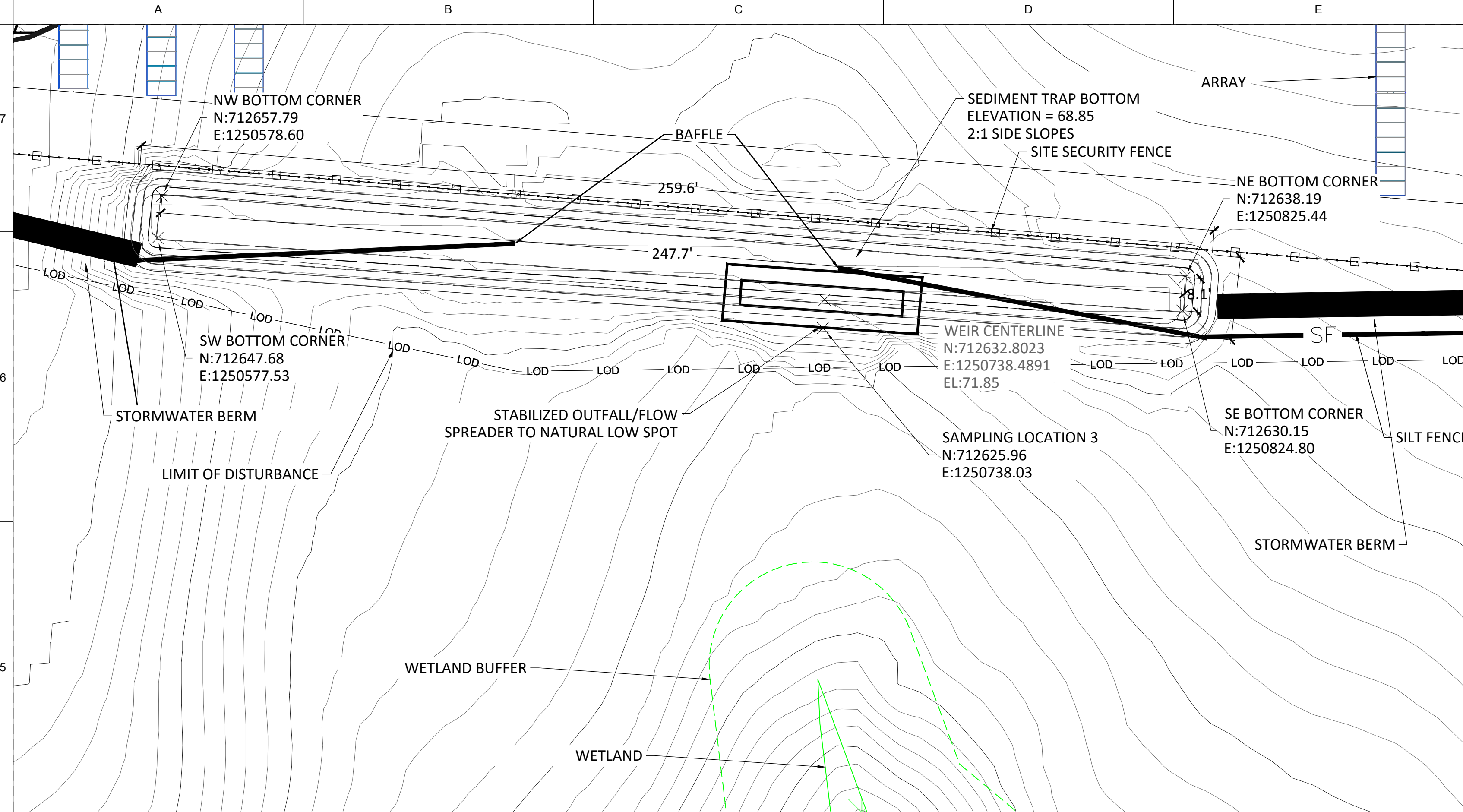
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	PROJECT #: #
	DRAWN BY: MMM
	CHECKED BY: DRG

TITLE: EROSION & SEDIMENT  
CONTROL DETAILS

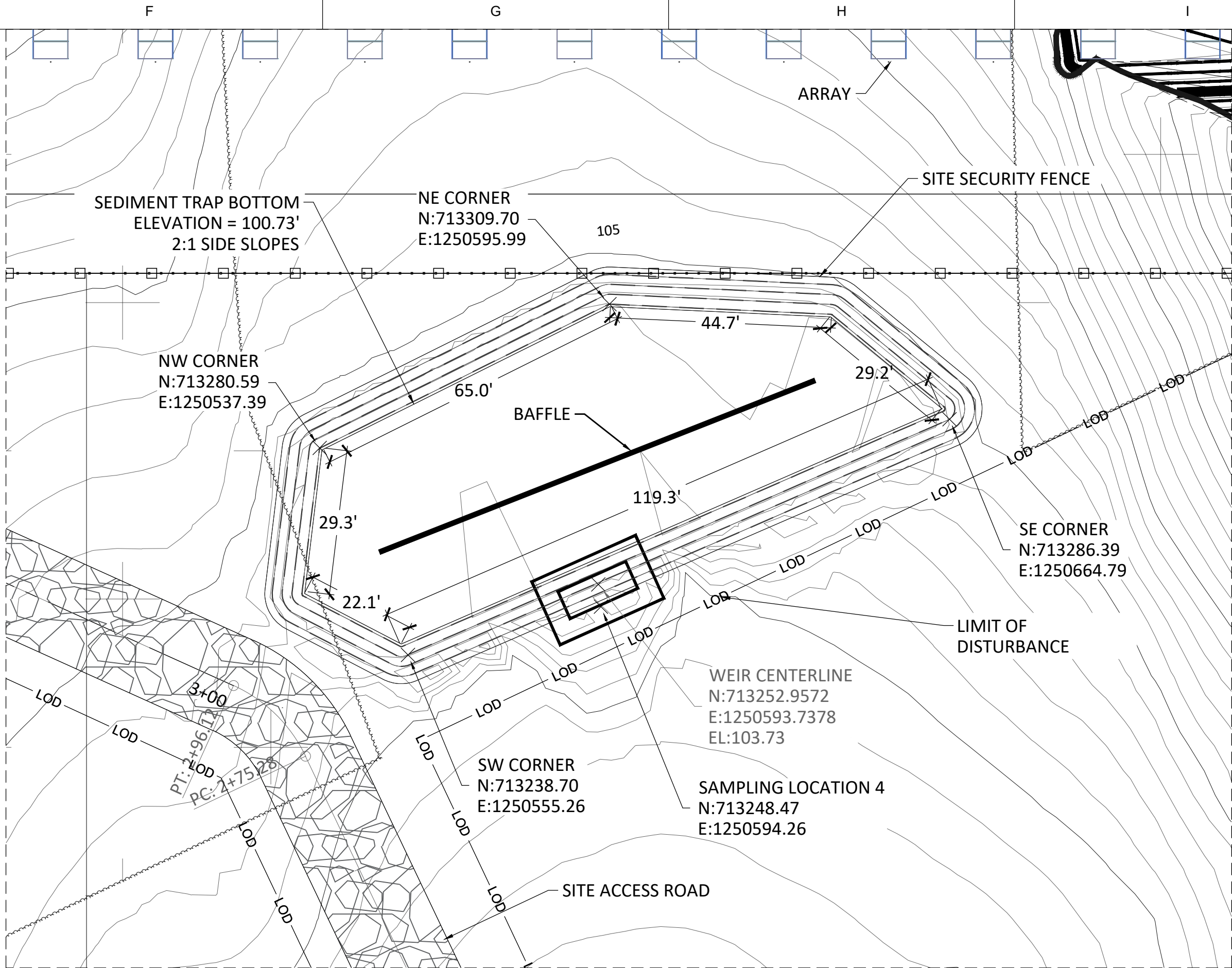
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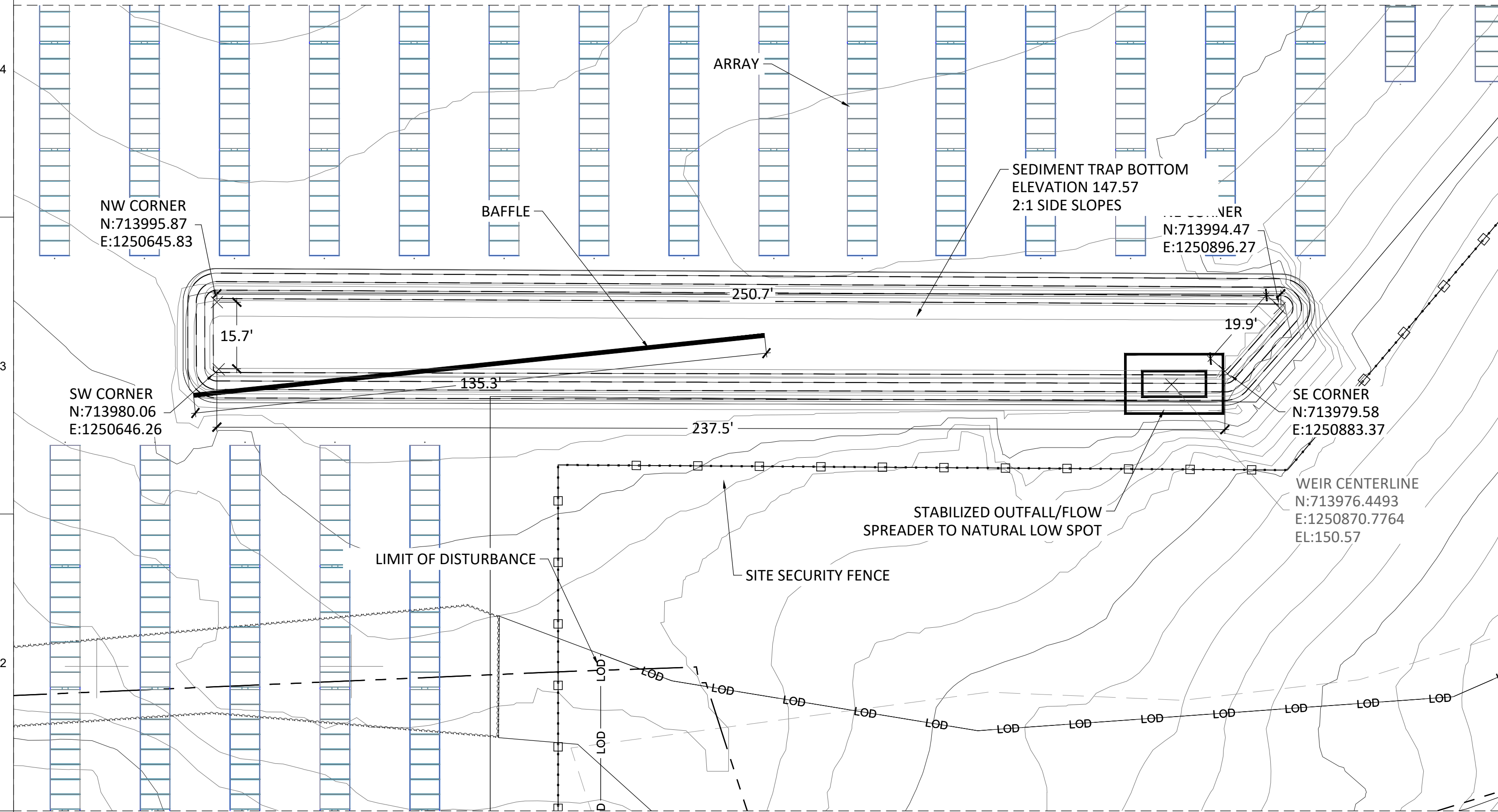




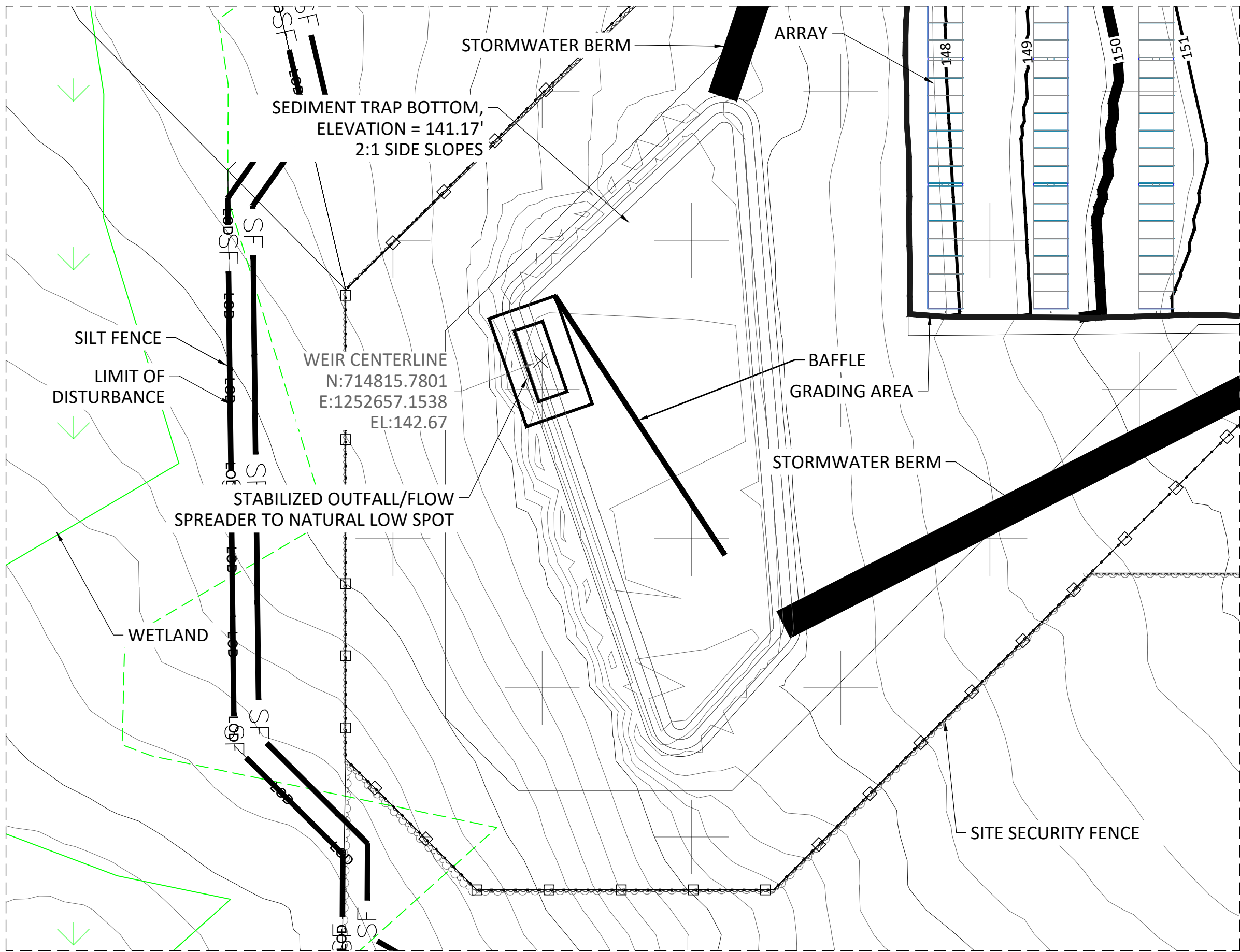
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ESC-303 Scale: 1"=20'



2 SEDIMENT TRAP 2  
ESC-303 Scale: 1"=20'



3 SEDIMENT TRAP 3  
ESC-303 Scale: 1"=20'



4 SEDIMENT TRAP 4  
ESC-303 Scale: 1"=20'



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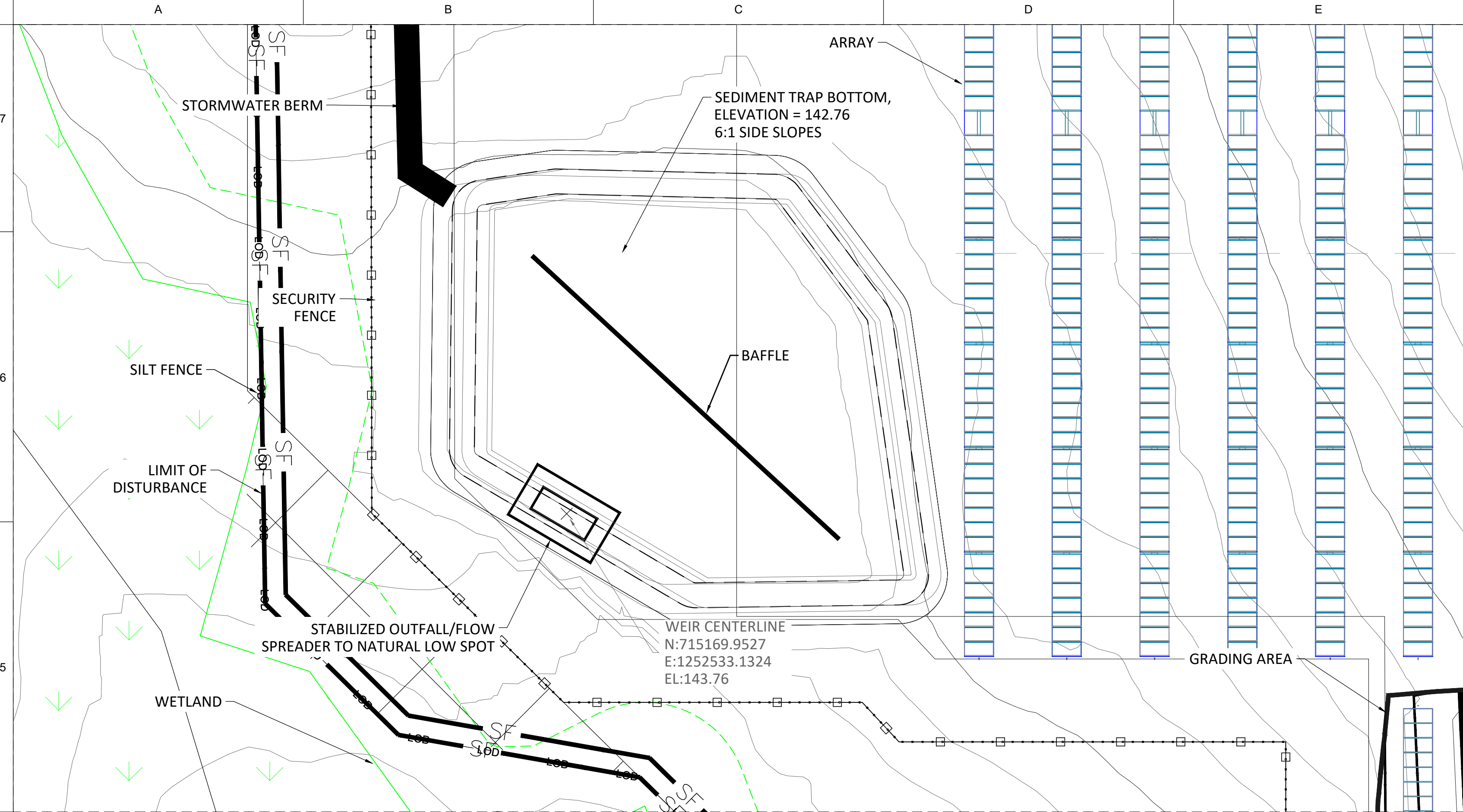
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PROJECT #: #	DRAWN BY: MMM
CHECKED BY: DRG	

TITLE: EROSION & SEDIMENT  
CONTROL DETAILS

SHEET:  
ESC-303







1 SEDIMENT TRAP 5  
ESC-304 Scale: 1"=20'



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	DRAWN BY: MMM
	CHECKED BY: DRG

TITLE: EROSION & SEDIMENT CONTROL DETAILS

SHEET: ESC- 304





I I- Sediment Impoundments, Barriers and Filters

Temporary Sediment Trap (TST)

**Definition**  
A temporary ponding area with a stone outlet formed by excavation and/or constructing an earthen embankment.

**Purpose**  
To detain sediment-laden runoff from small disturbed areas long enough to allow a majority of the sediment to settle out.

**Applicability**

- Below disturbed areas where the contributing drainage area is 5 acres or less. For drainage areas greater than 5 acres use **Temporary Sediment Basin** measure.
- Where the intended use is 2 years or less. For uses greater than 2 years use **Temporary Sediment Basin** measure.
- When diverting sediment-laden water with temporary diversions that meet the above limitations for use.

Planning Considerations

Sequence the construction of temporary sediment traps, along with other perimeter erosion and sediment controls so that they are constructed and made functional before land disturbance in the contributing drainage area takes place.

The temporary sediment trap has two storage requirements: one for wet storage and one for dry storage. Commonly, the wet storage is created by excavation within a drainage way and the dry storage created by the construction of a pervious stone dike across the drainage way. Sometimes the trap is formed, at least in part, by the construction of an embankment. Such an embankment constitutes a dam and is therefore limited to a height of no greater than 5 feet and requires care in its construction.

E&S plans should identify the size of the contributing drainage area, wet and dry storage requirements as well as the volume of sediment accumulation that will trigger trap cleaning. Sediment is required to be removed from the trap when the sediment accumulation exceeds half of the wet storage volume of the trap. The plans should also guarantee that access is provided for sediment removal and detail how excavation and sediment will be disposed (such as by use in fill areas on-site or removal to an approved off-site location).

Variations in temporary sediment trap design may be considered, but plan reviewers should ensure the minimum storage requirements and structural requirements noted below are maintained.

Specifications

**Location**  
Locate temporary sediment traps so that they can be installed prior to conducting any grading activities in the contributing watershed. Do not locate traps in close proximity to existing or proposed building foundations if there is any concern regarding seepage of water from the temporary sediment trap into the foundations or foundation excavation area. Locate traps to obtain maximum storage benefit from the terrain, for ease of clean out and disposal of the trapped sediment.

**Trap Capacity**  
The temporary sediment trap shall have an initial storage volume of 134 cubic yards per acre of drainage area, half of which shall be in the form of wet storage to provide a stable settling medium. The remaining storage volume shall be in the form of a drawdown (dry storage) which will provide extended settling time during less frequent, larger storm events. **Figure TST-1** contains the formulas for calculating the wet storage volume and the dry storage volume. The volume of wet storage shall be measured from the low point of the excavated area to the base of the stone outlet structure (see **Figure TST-2**). The volume of the dry storage shall be measured from the base of the stone outlet to the top of the stone outlet (overflow mechanism).

Try to provide a storage area which has a minimum 2:1 length to width ratio (measured from point of maximum runoff introduction to outlet)

Figure TST-1 Formula for Figuring Temporary Sediment Trap Storage Requirements

Wet storage volume may be approximated as follows:

$$V_w = 0.85 \times A_w \times D_w$$

where,

- $V_w$  = the wet storage volume in cubic feet
- $A_w$  = the surface area of the flooded area at the base of the stone outlet in square feet
- $D_w$  = the maximum depth in feet, measured from the low point in the trap to the base of the stone outlet.

Dry storage volume may be approximated as follows:

$$V_d = \frac{C A_w + A_d}{2} \times D_d$$

where,

- $V_d$  = the dry storage volume
- $A_w$  = the surface area of the flooded area at the base of the stone outlet in square feet.
- $A_d$  = the surface area of the flooded area at the top of the stone outlet (over flow mechanism), in square feet
- $D_d$  = the depth in feet, measured from the base of the stone outlet to the top of the stone outlet

Note: Conversion between cubic feet and cubic yards is: cubic feet x 0.037 = cubic yards.

Slope Limitations

All cut and fill slopes shall be 2:1 or flatter except for the excavated wet storage area where slopes shall not exceed 1.5:1. The maximum depth of excavation within the wet storage area should not exceed 3 feet to facilitate clean-out and for site safety considerations.

Inlet / Outlet Configuration

The outlet shall be located at the most distant hydraulic point from the inlet. In cases where a long narrow site runs perpendicular to the direction of flow, baffles consisting of stone dikes or other structurally sufficient barriers should be added along the long axis of the trap to increase travel distance through the trap (see **Figure TST-3**).

Outlet

Plan the outlet in such a manner that the minimum wet storage and dry storage volumes are created (see Trap Capacity section above) and 1 foot of free board between the top of the outlet and the crest of the embankment is established. The outlet consists of a pervious stone dike with a core of modified riprap and faced on the upstream side with DOT #3 stone. Temporary sediment traps must outlet onto stabilized (preferably undisturbed) ground, into a watercourse, stabilized channel, or into a storm drain system. **Figure TST-4** shows an example of an outlet for a temporary sediment trap.

Embankment

The maximum height of a temporary sediment trap embankment is limited to 5 feet as measured vertically

from the crest of the embankment to the down slope base of the embankment or toe of the stone dike, whichever is lower. Minimum top widths (W) and outlet heights (H<sub>o</sub>) for various embankment heights (H) are shown in **Figure TST-2**. Side slopes of the embankment shall be 2:1 or flatter.

Materials

**Modified Riprap:** shall meet the requirements of DOT Standard Specifications Section M.12.02.

**DOT #3 Stone:** shall meet the requirements of DOT Standard Specifications Section M.01.01 for #3 Aggregate.

Construction

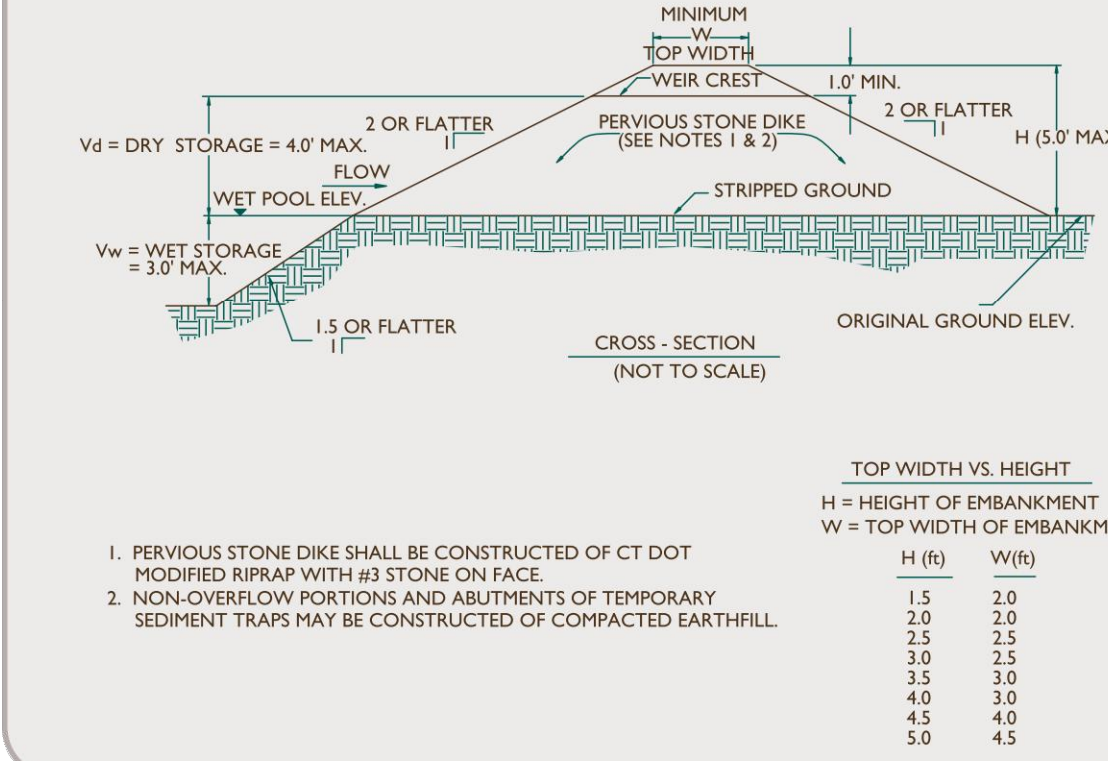
Clear, grub and strip any vegetation and root mat from any proposed embankment and outlet area. Remove stones and rocks whose diameter is greater than 3 inches and other debris.

Excavate wet storage and construct the embankment and/or outlet as needed to attain the necessary storage requirements. Use only fill material for the embankment that is free from excessive organics, debris, large rocks (over 6 inches) or other unsuitable materials. Compact the embankment in 9-inch layers by traversing with equipment while it is being constructed.

Stabilize the earthen embankment using any of the following measures: **Temporary Seeding, Permanent Seeding, or Stone Slope Protection** immediately after installation.

Carry out construction operations in such a manner that erosion and water pollution are minimized.

Figure TST-2 Minimum Top Width (w) Required for Temporary Sediment Trap Embankments According to Height of Embankment (feet)



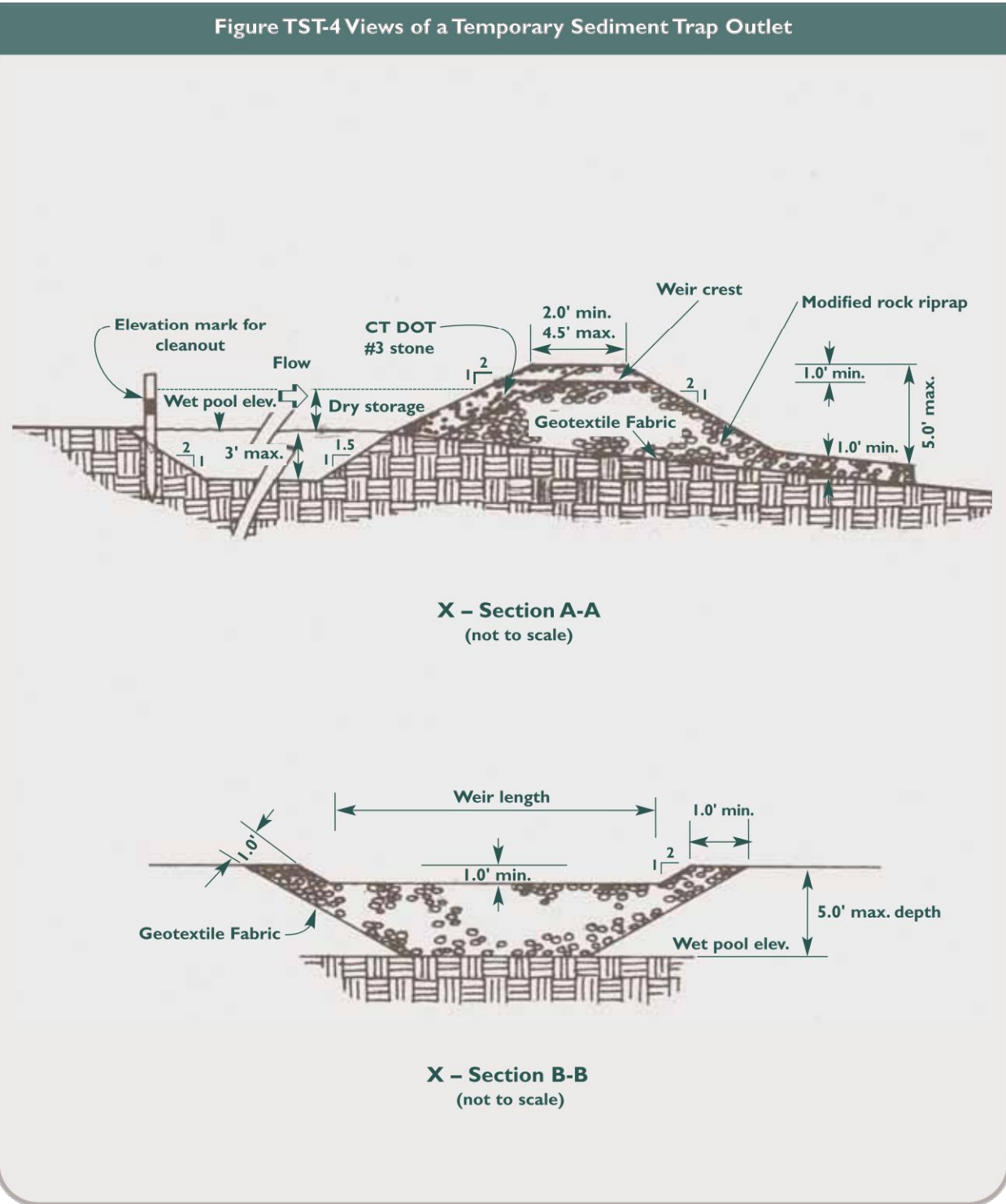
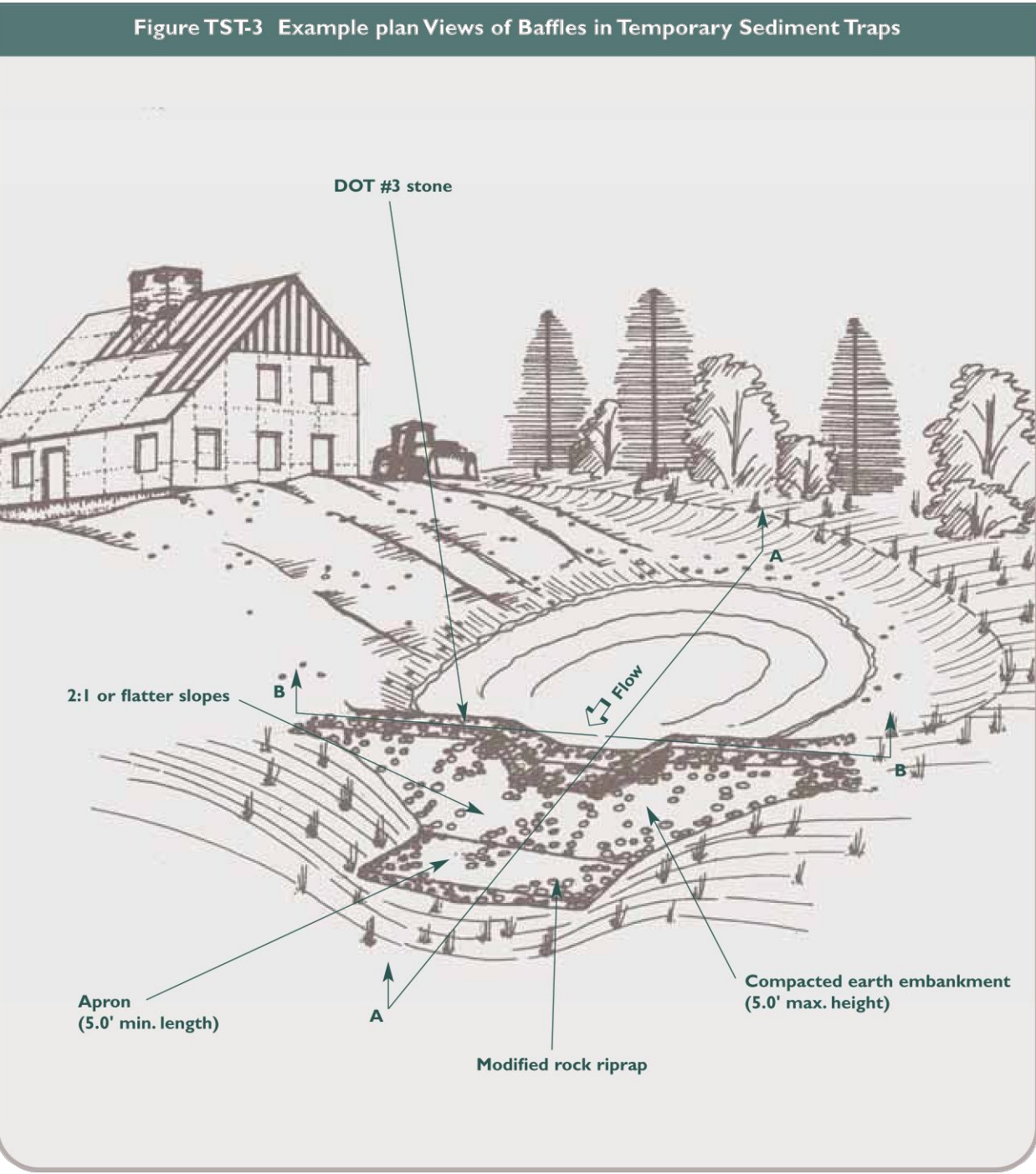
Source: USDA-NRCS

Maintenance

Inspect the temporary sediment trap at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater. Check the outlet to ensure that it is structurally sound and has not been damaged by erosion or construction equipment. The height of the stone outlet should maintained at least 1 foot below the crest of the embankment. Also check for sediment accumulation and filtration performance.

When sediments have accumulated to one half the minimum required volume of the wet storage, dewater the trap as needed, remove sediments and restore the trap to its original dimensions. Dispose of the sediment removed from the basin in a suitable area and in such a manner that it will not erode and cause sedimentation problems.

The temporary sediment trap may be removed after the contributing drainage area is stabilized. If it is to be removed, then the plans should show how the site of the temporary sediment trap is to be graded and stabilized after removal.



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PROJECT ADDRESS:  
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CHECKED BY: <b>DRG</b>	

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**EROSION & SEDIMENT CONTROL DETAILS**

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**ESC-305**

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## II- Sediment Impoundments, Barriers and Filters

### Geotextile Site Fence (GSF)

#### Definition

A temporary sediment barrier consisting of a geotextile fabric pulled taut and attached to supporting posts and entrenched.

#### Purpose

- To intercept and retain sediment from disturbed areas.
- To decrease the velocity of sheet flows and low volume concentrated flows.

#### Applicability

- Below small disturbed areas where the contributing drainage area (disturbed and undisturbed) is less than 1 acre in size.
- At storm water drainage inlets and catch basins where sedimentation will reduce the capacity of storm drainage systems or adversely affect adjacent areas, water-courses and other sensitive areas.
- Not for use in areas where rock, frozen ground or other hard surface prevents proper installation of the barrier (see Special Case Combinations in **Stone Check Dam** measure).
- Prohibited from use in drainageways whose flow is supported by ground water discharge.

#### Planning Considerations

See Planning Considerations for Sediment Impoundments, Barriers and Filters Functional Group. When used at a culvert outlet, plan to install the geotextile silt fence before the start of construction and complete the installation of the required outlet protection before the culvert is made functional. It is preferable to control sediment at the inlets rather than at the outlet. Use at outlets should be limited to situations where inlet controls are not possible or to act as a backup to inlet controls.

#### Specifications

##### Materials

**Geotextile fabric:** shall be a pervious sheet of polypropylene, nylon, polyester, ethylene or similar filaments and shall be certified by the manufacturer or supplier as conforming to the requirements shown in **Figure GSF-1**. The geotextile shall be non-rotting, acid and alkali resistant and have sufficient strength and permeability for the purpose intended, including handling and backfilling operations. Filaments in the geotextile shall be resistant to absorption. The filament network must be dimensionally stable and resistant to delamination. The geotextile shall be free of any chemical treatment or coating that will reduce its permeability. The geotextile shall also be free of any flaws or defects which will alter its physical properties. Torn or punctured geotextiles shall not be used.

**Supporting posts** shall be at least 42 inches long made of either 1.5 inch square hardwood stakes or steel posts with projections for fastening the geotextile possessing a minimum strength of 0.5 pound per linear foot.

##### Placement on the Landscape

Contributing drainage area 1 acre or less. Maximum slope length is as shown in **Figure GSF-2**.

**For toe of slope (Figure GSF-3):** Locate 5-10 feet down gradient from the toe of slope, generally on the contour with maintenance and sediment removal requirements in mind. When the contour can not be followed install the fence such that perpendicular wings are created to break the velocity of water flowing along the fence. See **Figure GSF-2** for spacing requirements.

**Swales (see Figure GSF-4):** Locate "U" shape across swale such that the bottom of both ends of the fence are higher than the top of the lowest section of the fence.

**Catch Basins in Swale on Slopes:** Locate 2 "U" shapes across swale as above; one immediately up slope from the catch basin and the other immediately down slope from the catch basin.

**Catch Basins in Depressions:** Encircle catch basin.

**Culvert Inlets:** Locate in a "U" shape approximately 6 feet from the culvert in the direction of the incoming flow.

Geotextile Silt Fence (GSF)

Geotextile Silt Fence (GSF)

Figure GSF-1 Geotextile Silt Fencing Minimum Requirements		
Physical Property	Test Method	Minimum Requirement
filtering efficiency	ASTM 5141	75% (min)
grab tensile strength (lbs.)	ASTM D4632	100 lbs
elongation @ failure	ASTM D4632	15 %
Mullen burst strength	ASTM D3786	250 psi
puncture strength	ASTM 4833	50 lbs
apparent opening size	ASTM D4751	no greater than 0.90 mm and no less than 0.60 mm
flow rate	ASTM D4491	0.2 gal/ft <sup>2</sup> /min
permeativity	ASTM D4491	0.05 sec. -1 (min)
ultraviolet radiation stability %	ASTM-D4355	70% after 500 hours of exposure (min)

**Culvert Outlets:** Locate across the swale at least 6 feet from the culvert outlet.

Figure GSF-2 Geotextile Silt Fence Slope/Length Limitations	
Slope Steepness <sup>1</sup>	Slope Length and Wing Spacing
5:1 or flatter	100 feet
3:1 to 5:1	75 feet
2:1 to 3:1	50 feet

<sup>1</sup> Where the gradient changes through the drainage area the steepest slope section shall be used.

##### Installation (see Figure GSF-3)

**Trench excavation:** Excavate a trench a minimum of 6 inches deep and 6 inches wide on the up slope side of the fence location. For slope and swale installations, extend the ends of the trench sufficiently up slope such that bottom end of the fence will be higher than the top of the lowest portion of the fence.

When the fence is not to be installed on the contour, excavate wing trenches spaced at the intervals given in **Figure GSF-2**.

When trench excavation is obstructed by an occasional stone or tree root, provide a smooth transition between the trench bottom and the obstruction.

**Support Posts:** Drive support posts on the down slope side of the trench to a depth of at least 12 inches into original ground.

Never install support posts more than 10 feet apart. Install support posts closer than 10 feet apart when concentrated flows are anticipated or when steep contributing slopes and soil conditions are expected to generate larger volumes of sediment. For catch basins in hollows, drive posts at each corner of

the catch basin. Whenever the geotextile filter fabric that is used exceeds the minimum material specifications contained in this measure, the spacing of the stakes shall be per manufacturer's recommendations.

**Geotextile Filter Fabric:** Staple or secure the geotextile to the support posts per manufacturer's instruction such that at least 6 inches of geotextile lies within the trench, the height of the fence does not exceed 30 inches<sup>2</sup> and the geotextile is taut between the posts. When the trench is obstructed by stones, tree roots, etc. allow the geotextile to lay over the obstruction such that the bottom of the geotextile points up slope.

In the absence of manufacturer's instructions, space wire staples on wooden stakes at a maximum of 4 inches apart and alternate their position from parallel to the axis of the stake to perpendicular.

Do not staple the geotextile to living trees. Provide reinforcement for the fence when it can be exposed to high winds.

When joints in the geotextile fabric are necessary, splice together only at a support posts, and securely seal (see manufacturer's recommendations).

**Backfill & Compaction:** Backfill the trench with tamped soil or aggregate over the geotextile (see **Figure GSF-3**). When the trench is obstructed by a stone, tree root, etc. make sure the bottom of the geotextile lies horizontal on the ground with the resulting flap on the up slope side of the geotextile and bury the flap 6 inches of tamped soil, or aggregate.

##### Maintenance

Inspect the silt fence at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater to determine maintenance needs. When used for dewatering operations, inspect frequently before, during and after pumping operations.

<sup>2</sup> higher barriers may impound volumes of water sufficient to push over the support posts

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Remove the sediment deposits or, if room allows, install a secondary silt fence up slope of the existing fence when sediment deposits reach approximately one half the height of the existing fence.

Replace or repair the fence within 24 hours of observed failure. Failure of the fence has occurred when sediment fails to be retained by the fence because:

- the fence has been overtopped, undercut or bypassed by runoff water,
- the fence has been moved out of position (knocked over), or
- the geotextile has decomposed or been damaged.

When repetitive failures occur at the same location, review conditions and limitations for use and determine if additional controls (e.g. temporary stabilization of contributing area, diversions, stone barriers) are needed to reduce failure rate or replace fence. See **Figure GSF-5** for trouble shooting failures.

Maintain the fence until the contributing area is stabilized.

After the contributing area is stabilized determine if sediment contained by the fence requires removal or regrading and stabilization. If the depth is greater than or equal to 6 inches, regrading or removal of the accumulated sediment is required. No removal or regrading is required if sediment depth is less than 6 inches.

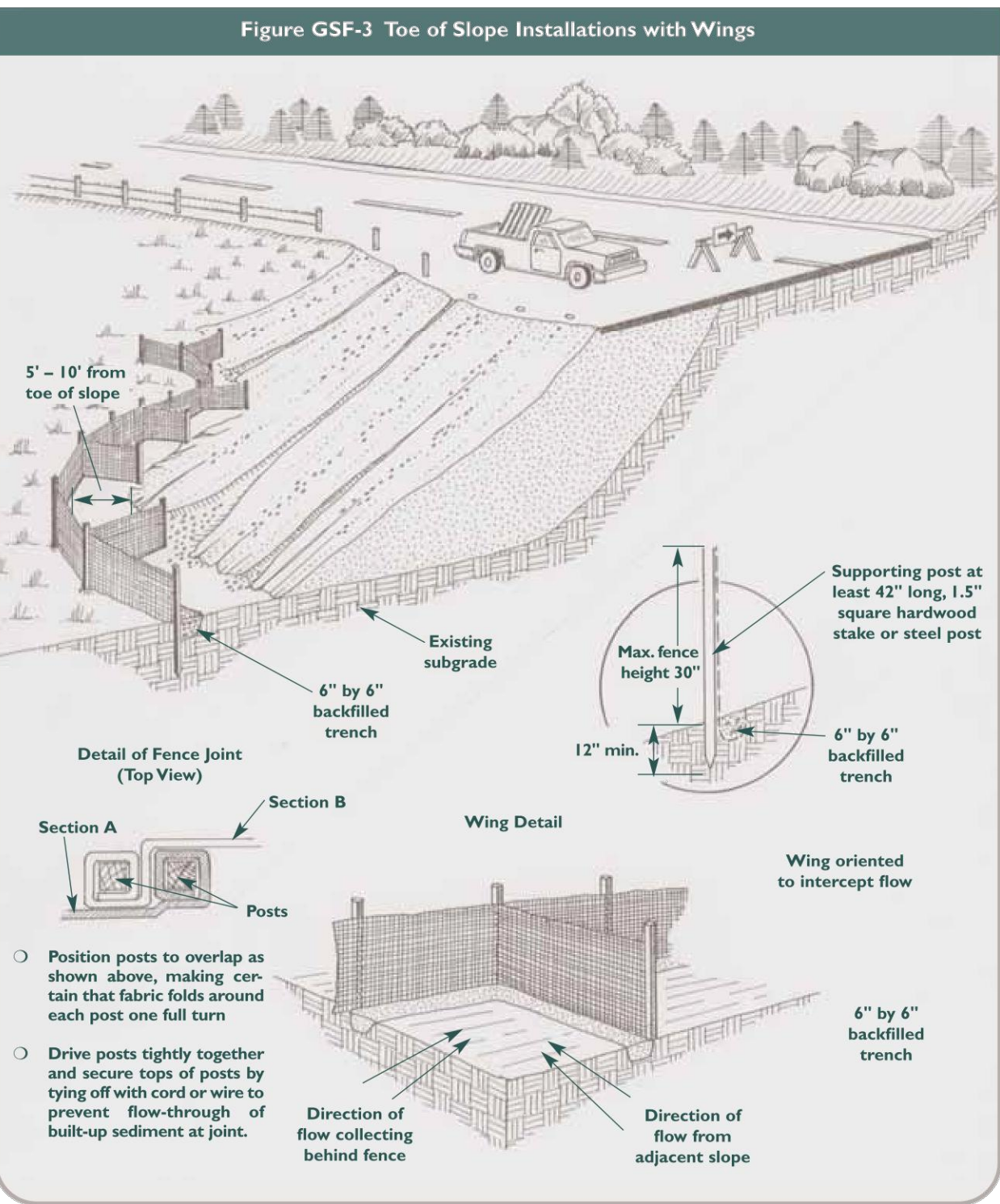
Remove the fence by pulling up the support posts and cutting the geotextile at ground level. Regrade or remove sediment as needed, and stabilize disturbed soils.

Geotextile Silt Fence (GSF)

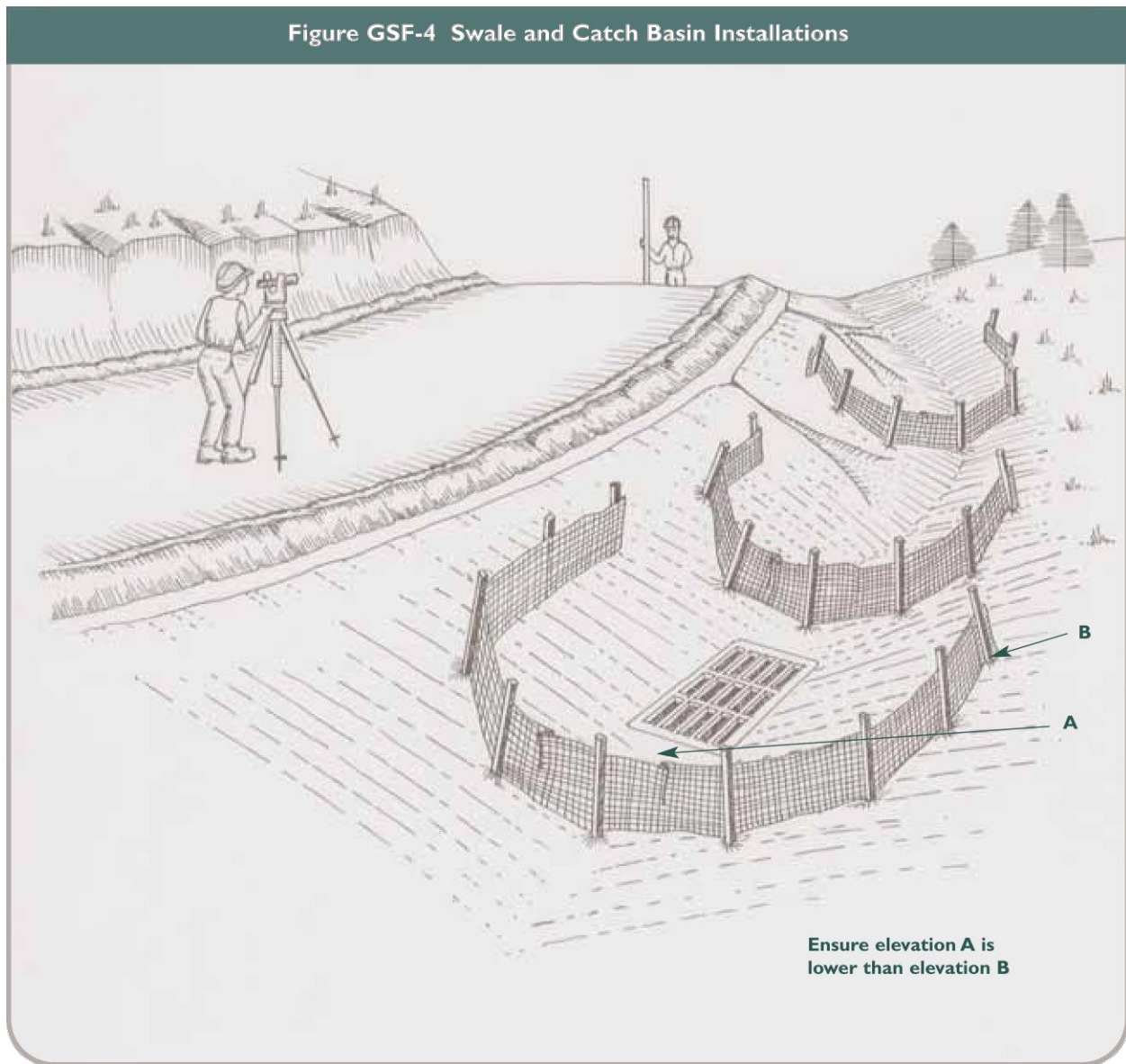
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Figure GSF-5 Silt Fence Trouble Shooting Guide		
Problem	Cause	Fix
fence fallen over or stakes broken from pressure of water	too large drainage area	Change to stone check dams or add additional controls up slope to reduce velocities and sediment loading (see measure matrix, Chapter 4 for other measures available).
	flows too concentrated	Repair or replace fence, increase staking frequency, angle stake up slope, consider installing hay bale barrier on the down slope side of fence in area of concentration or adding guy wire for support.
	stake not driven deep enough geotextile not properly attached to stakes	Repair or replace fence, increase stake depth. Recheck manufacturer's instructions on attachment and re-attach.
undercutting, toe failure	poor trenching or inadequate compaction, not enough geotextile buried	Install new fence properly or retrench, fill & compact rills at fence failure, drive stakes deeper as necessary to bury enough geotextile, fill & compact trench and down slope rills to provide support. For repeated failures consider installing hay bale barrier on the down slope side at the failure site after repair work is done.
	fence not on the contour, runoff eroding up slope side of barrier	Retrench, fill & compact rills at fence failure, and install perpendicular wings to break flow line such that bottom end of wing is higher than top of fence at wing joint OR install stone barriers on up slope side of fence to reduce runoff velocities. For repeated failures consider installing hay bale barrier on the down slope side at the failure site after repair work is done.
	poor transition from trench to obstruction at grade	Fill failed area to make smooth transition from trench to obstruction and re-bury flap of geotextile with 6 inches of tamped soil or aggregate. For repeated failures consider installing hay bale barrier on the down slope side at the failure site after repair work is done.
water running around ends	not extending end of fencing far enough up slope	Extend fence far enough up slope so that bottom of fence end is higher than top of lowest portion of fence, overlap joints at least 6 inches.

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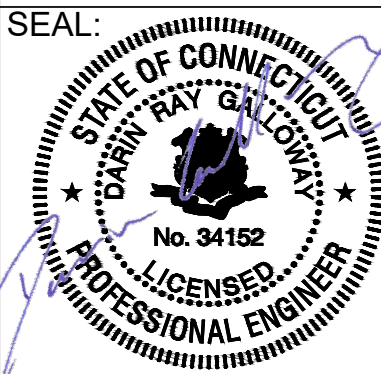


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STONINGTON SOLAR PROJECT

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CONTROL DETAILS

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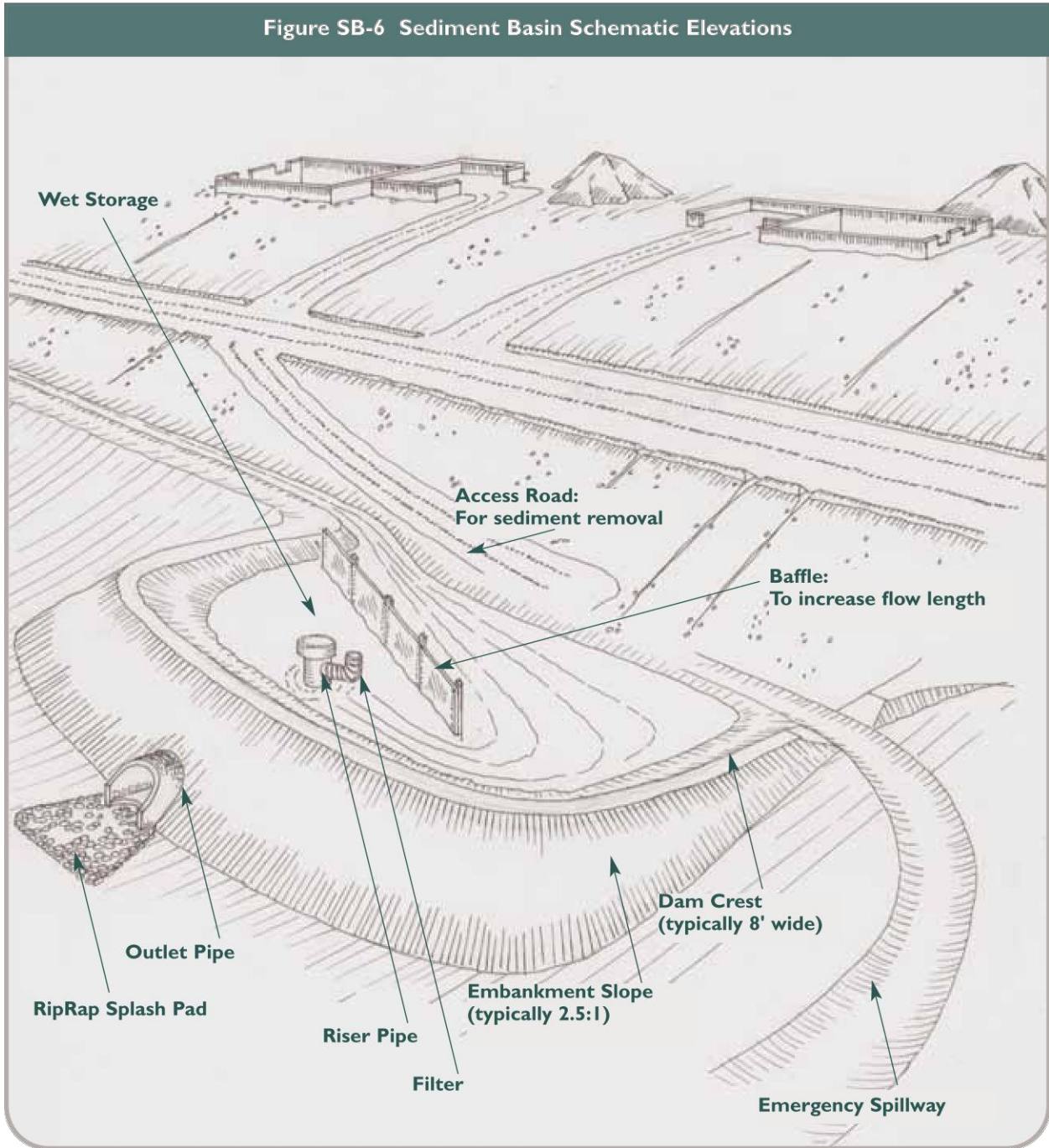


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Temporary Sediment Basin (SB)

Temporary Sediment Basin (SB)

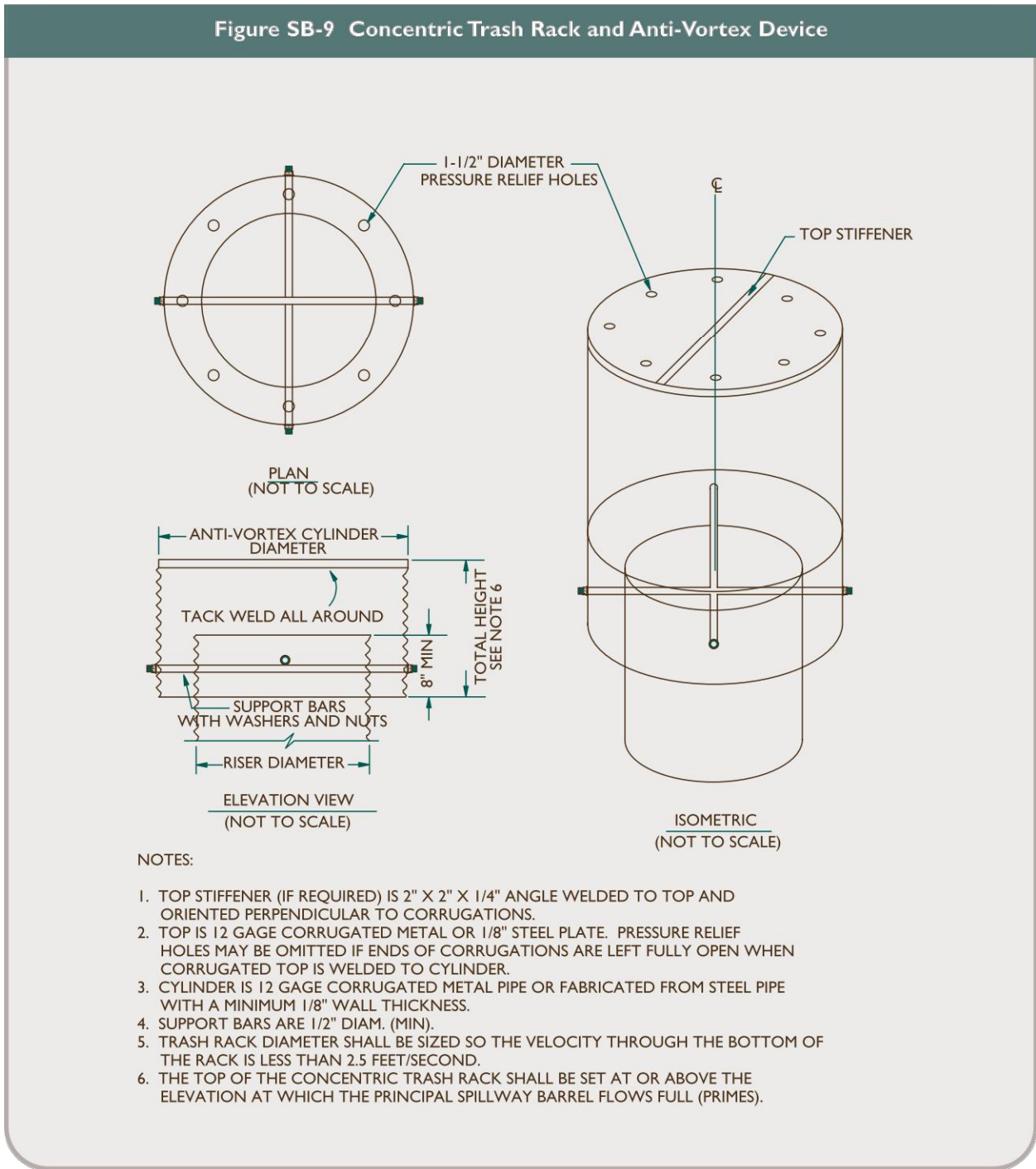
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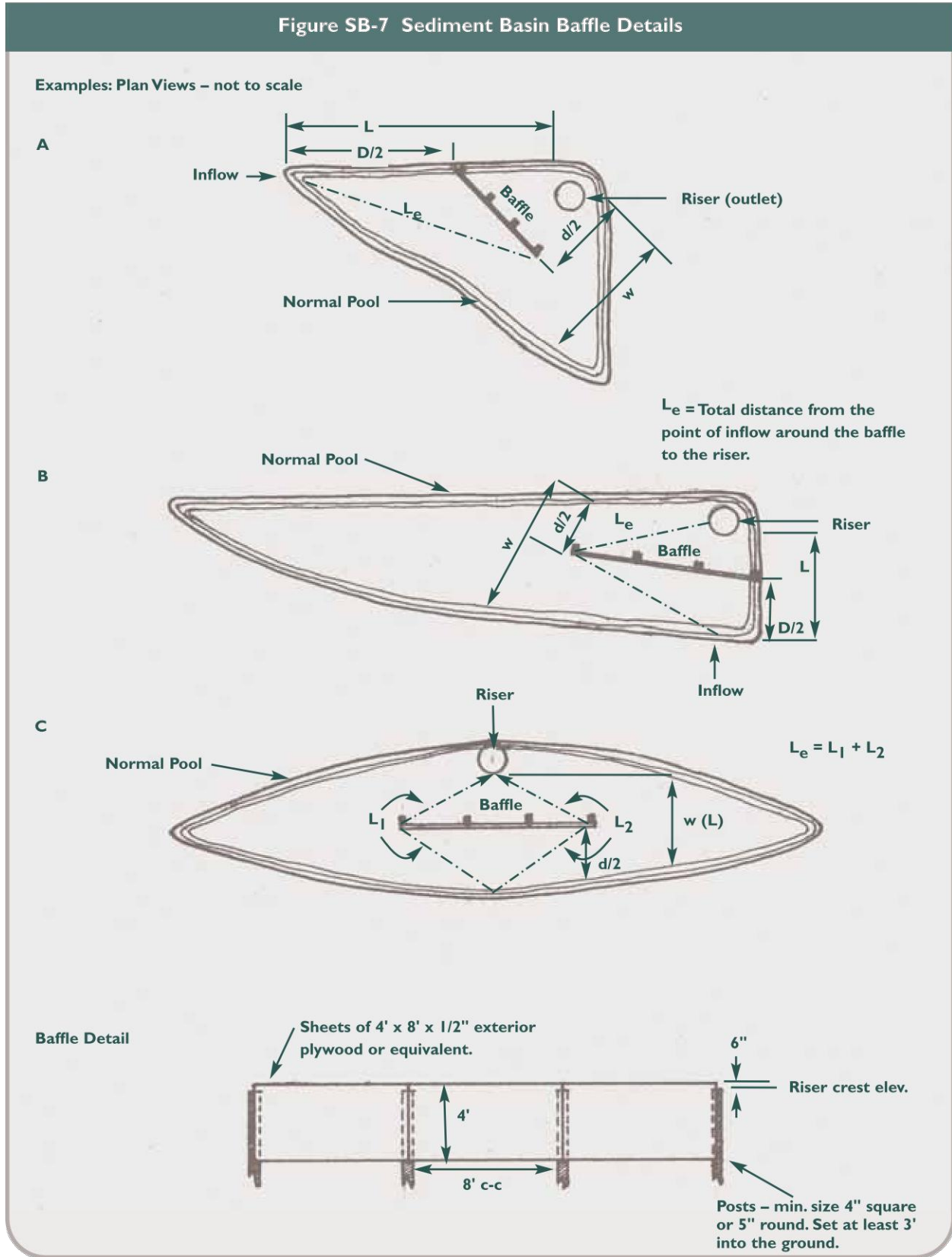
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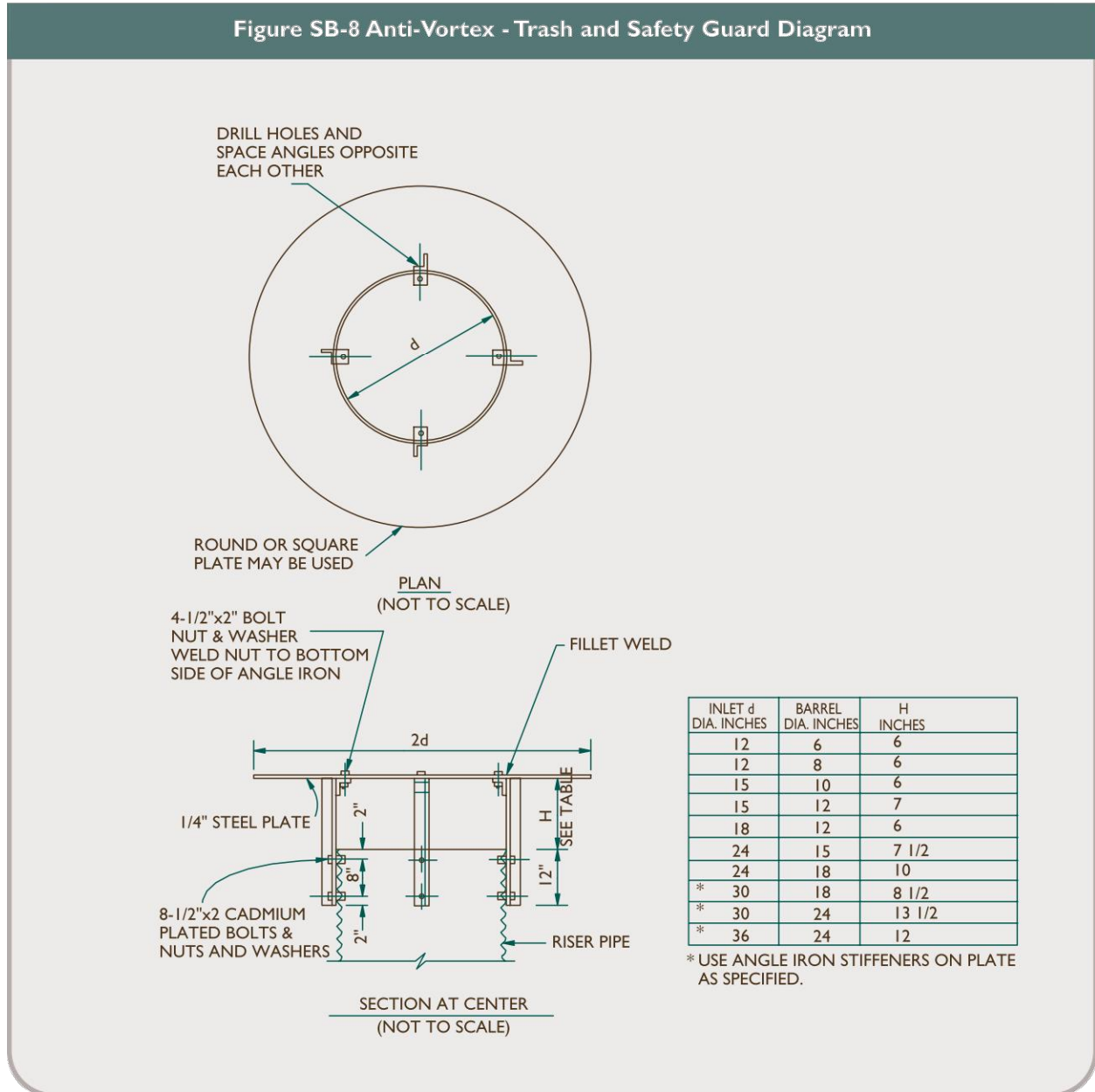
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Hay Bale Barrier (HB)

Hay Bale Barrier (HB)

Hay Bale Barrier (HB)

Hay Bale Barrier (HB)

Hay Bale Barrier (HB)

Hay Bale Barrier (HB)

## II- Sediment Impoundments, Barriers and Filters

### Hay Bale Barrier (HB)

**Definition**  
A temporary sediment barrier consisting of a row of entrenched and anchored bales of hay or straw.

- Purpose**
- To intercept and detain small amounts of sediment from small disturbed areas.
  - To decrease the velocity of sheet flows.
  - To redirect small volumes of water away from erodible soils.
  - To settle and assist in filtering waters discharged from pumping operations (see **Pumping Settling Basin** measure, Type I and Type II).

- Applicability**
- Below small disturbed areas where the drainage area (disturbed and undisturbed) is less than 1 acre in size.
  - Above disturbed slopes to direct surface water away from erodible areas where the drainage area (disturbed and undisturbed) is less than 1acre in size.
  - Where protection and effectiveness is required for less than 3 months.
  - Where sedimentation will reduce the capacity of storm drainage systems or adversely affect adjacent areas, watercourses and other sensitive areas.
  - Not for use in drainageways, except in special cases where it is applied with other measures (see **Geotextile Silt Fence** and **Stone Check Dams** Special Cases).
  - Not intended for use in streams.

**Planning Considerations**  
See Planning Considerations for Sediment Impoundments, Barriers and Filters Function Group.

#### Specifications

**Materials**  
**Hay Bales:** shall be made of hay or straw with 40 pounds minimum weight and 120 pounds maximum weight held together by twine or wire.

**Stakes for Anchoring Hay Bales:** shall be a minimum of 36 inches long and made of either hardwood with dimensions of at least 1.5 inches square or steel posts with a minimum weight of 0.5 pound per linear foot.

**Placement on the Landscape**  
Contributing drainage area is no greater than 1 acre. Maximum slope length is as shown in **Figure HB-1**.

**Toe of Slope:** Locate 5-10 feet down gradient from the toe of slope (see **Figure HB-2**), generally on the contour. When the contour can not be followed, stagger the bale installation and install perpendicular wings spaced as shown in **Figure HB-1** to break the velocity of water flowing behind the bales. The barrier should be located with

sufficient distance from the toe of the slope to allow access by equipment for removal of accumulated sediments

**Swales:** Not recommended. See **Geotextile Silt Fence** or **Stone Check Dam** measures.

**Catch Basins in Swales on Slopes:** Not recommended. See **Geotextile Silt Fence** or **Stone Check Dam** measures.

**Catch Basins in Depressions or Low Spots (yard drains):** Encircle catchbasin (see **Figure HB-3**).

**Culvert Inlets:** Not recommended. See **Geotextile Silt Fence** measure.

**Culvert Outlets:** Not recommended. Use **Temporary Sediment Trap** and/or **Stone Check Dam** measures.

**Pumping Settling Basin:** See **Pumping Settling Basin** measure.

**Installation (see Figure HB-2)**  
**Trench excavations:** Excavate a trench as wide as the bales and at least 4 inches deep. Each end of the trench should be winged upslope so that the bottom of the last bale is higher than the top of the lowest hay bale in the barrier.

Figure HB-1 Hay Bale Design Slope/Length Limitations	
Slope Steepness <sup>1</sup>	Slope Length and Wing Spacing
5:1 or shallower	100 feet
3:1 to 5:1	75 feet
2:1 to 3:1	50 feet

<sup>1</sup>Where the gradient changes through the drainage area the steepest slope section shall be used.

**Hay Bale Placement:** Place bales in a single row in the trench, lengthwise, with ends of adjacent bales tightly abutting one another and the bindings oriented around the sides rather than along the tops and bottoms of the bales (to avoid premature rotting of the bindings).

**Staking Hay Bales:** Anchor each bale with at least 2 stakes, driving the first stake in each bale toward the previously laid bale to force the bales together. Stakes must be driven a minimum of 18 inches into the ground. Fill any gaps between the bales with hay or straw to prevent water from escaping between the bales.

**Backfill & Tamped:** Backfill the bales with the excavated trench material to a minimum depth of 4 inches on the uphill side of the bales Tamp by hand or machine and compact the soil. Loose hay or straw scattered over the disturbed area immediately uphill from the hay bale barrier tends to increase barrier efficiency.

**Substitute Measures**  
**Geotextile Silt Fence** may be used as a substitute. When frozen or other similar ground conditions prevent the proper trenching or anchoring of hay bales, a sediment barrier consisting of a stone check dam with a hay bale core may be substituted for the hay bale barrier. See **Stone Check Dam** measure, "Special Case Combinations for Added Filtration & Frozen Ground Conditions" for details.

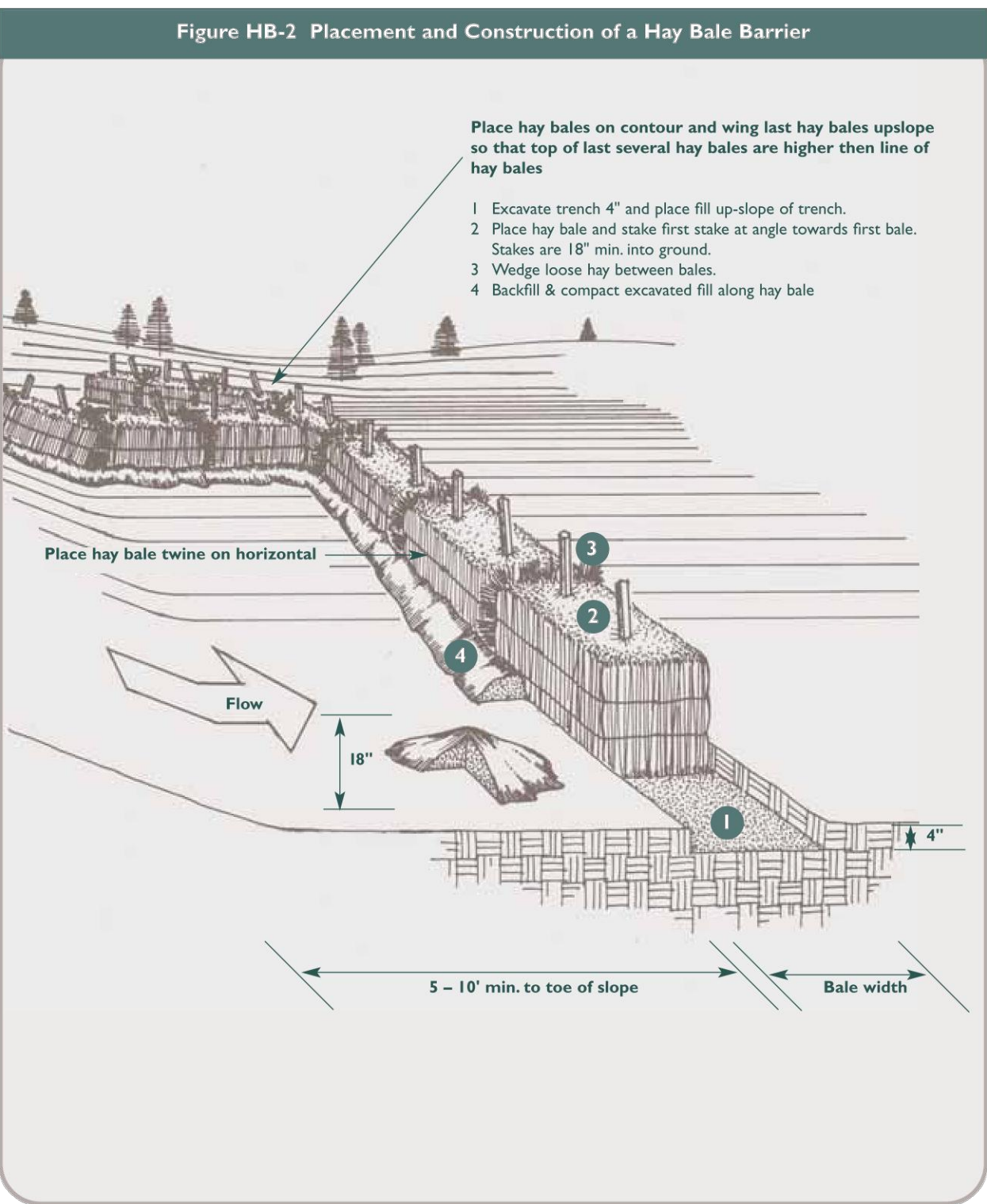
**Maintenance**  
Inspect the hay bale barrier at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater to determine maintenance needs. For dewatering operations, inspect frequently before, during, and after pumping operations. Remove the sediment deposits or install a secondary barrier upslope from the existing barrier when sediment deposits reach approximately one half the height of the barrier (see **Figure HB-4**). Replace or repair the barrier within 24 hours of observed failure. Failure of the barrier has occurred when sediment fails to be retained by the barrier because:

- (a) the barrier has been overtopped, undercut or bypassed by runoff water,
- (b) the barrier has been moved out of position, or
- (c) the hay bales have deteriorated or been damaged.

When repetitive failures occur at the same location, review conditions and limitations for use and determine if additional controls (e.g. temporary stabilization of contributing area, diversions, stone barriers) are needed to reduce failure rate or replace hay bale barrier. See **Figure HB-5** for trouble shooting failures. Maintain the hay bale barrier until the contributing area is stabilized. After the upslope areas have been permanently stabilized, pull the stakes out of the hay bales. Unless otherwise required, no removal or regrading of accumulated sediment is necessary. The hay bales may then be left in place or broken up for ground cover.

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

5-11-30



2002 Connecticut Guidelines for Soil Erosion and Sediment Control

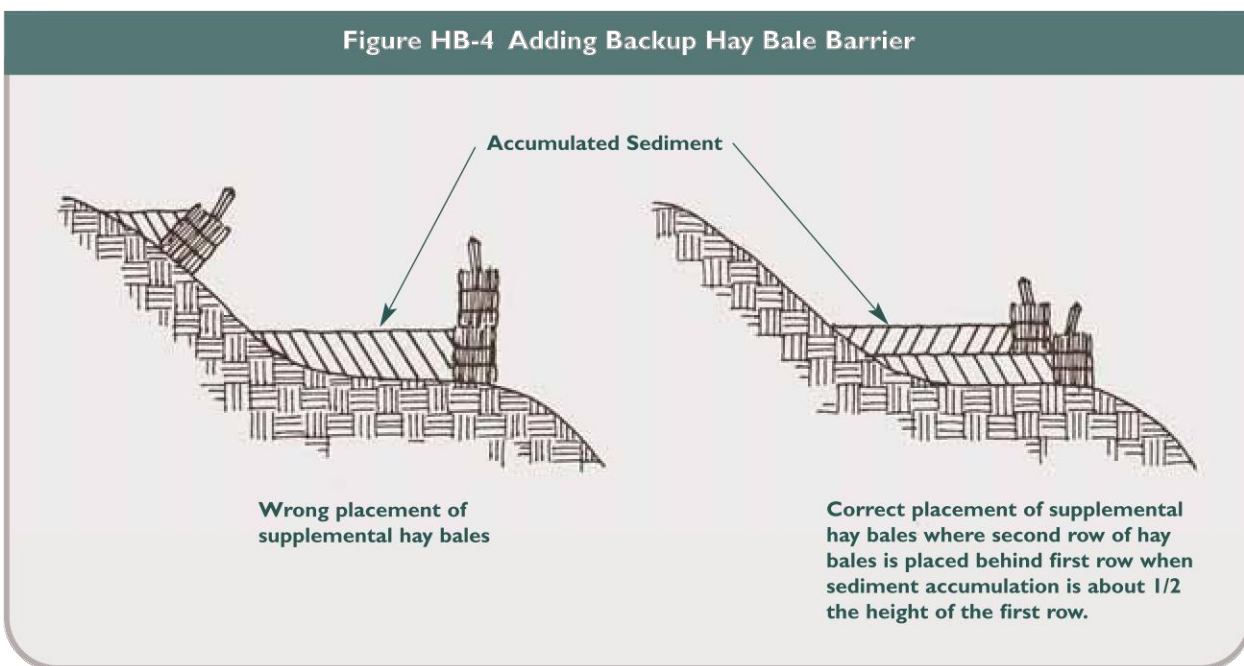


Figure HB-5 Hay Bale Barrier Trouble Shooting Guide		
Problem	Cause	Fix
undercutting	inadequate trenching	reset bales properly or for small failure backfill downslope rills, fill & compact under failing bale, fill joints with hay, backfill up slope side of bale with 4" wedge of wood chips or compacted soil
	spaces between bales	
	barrier not on the contour, runoff flowing along upslope side of barrier	same as above, and install perpendicular wings to break flow line such that bottom end of wing is higher than top of barrier
rilling around end	not extending end of hay bale barrier far enough upslope	extend hay bale barrier far enough upslope so that bottom of last bale is higher than top of lowest bale
hay bales moved	watershed too large	change to stone barrier
	flows too concentrated	change to geotextile silt fence or stone barrier
	inadequately staked	fill and compact any rills at hay bale barrier, reinstall bale, fill joints, backfill and compact, increase staking depths

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

5-11-30



REV	DESCRIPTION	DATE
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PROJECT NAME:  
**STONINGTON SOLAR PROJECT**

PROJECT ADDRESS:  
**ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W**

SEAL: 	DATE: <b>22-MAY-20</b>
	PROJECT #: <b>#</b>
	DRAWN BY: <b>MMM</b>
	CHECKED BY: <b>DRG</b>

TITLE:  
**EROSION & SEDIMENT  
CONTROL DETAILS**

SHEET:  
**ESC-308**

ISSUED FOR PERMIT  
NOT FOR CONSTRUCTION



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A

GENERAL STRUCTURAL NOTES:  
1. THE WORDS "THE ENGINEER" AND "CEOR" AS USED IN THESE NOTES REFER TO THE CIVIL ENGINEER OF RECORD AND SIERRA OVERHEAD ANALYTICS, INC.  
  
2. GENERAL CONTRACTORS SHALL BE FAMILIAR WITH ALL EXISTING SITE CONDITIONS AND DESIGN DOCUMENTS PROVIDED BY THE VARIOUS DESIGN PROFESSIONALS INVOLVED WITH THIS PROJECT.  
  
3. GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND SPATIAL RELATIONSHIPS SHOWN ON THESE DRAWINGS. ANY DISCREPANCIES, CONFLICTS, OR OMISSIONS FOUND SHALL BE REPORTED TO THE ENGINEER AND OTHER DESIGN PROFESSIONALS AS APPROPRIATE FOR RESOLUTION PRIOR TO PROCEEDING WITH ANY WORK ON THE PROJECT.  
  
4. ALL WORK SHALL COMPLY WITH THE CONNECTICUT STATE BUILDING CODE AND THE INTERNATIONAL BUILDING CODE, 2018 EDITION AND ALL FEDERAL, STATE, AND LOCAL CODES.  
  
5. ANY TESTING OR INSPECTIONS REQUIRED BY BUILDING OFFICIALS, PROJECT DRAWINGS, OR SPECIFICATIONS SHALL BE PERFORMED BY AN APPROVED INDEPENDENT TESTING LABORATORY.  
  
6. SITE VISITS AND OBSERVATIONS CONDUCTED BY THE ENGINEER SHALL NEITHER BE CONSTRUED AS INSPECTIONS NOR APPROVAL OF CONSTRUCTION.  
  
7. GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH O.S.H.A. STANDARDS.  
  
8. GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR BRACING AND SHORING ALL EXCAVATIONS, DEWATERING OF EXCAVATIONS FROM EITHER SURFACE WATER, GROUNDWATER, OR SEEPAGE, TEMPORARY AND EXISTING STRUCTURES, AND PARTIALLY COMPLETED PORTIONS OF THE WORK TO ASSURE THE SAFETY OF ANY PERSONS COMING IN CONTACT WITH THE WORK.  
  
9. ALL CT BUILDING CODES AND ASTM INTERNATIONAL (ASTM) SPECIFICATIONS NOTED ON THE DRAWINGS SHALL BE AMENDED TO DATE.  
  
10. UNLESS AS CALLED OUT AS "EXISTING" OR "NOT-IN-CONTRACT", EVERYTHING SHOWN ON THESE DRAWINGS SHALL BE PROVIDED AND INSTALLED AS PART OF THE WORK OF THE PROJECT.  
  
11. GENERAL CONTRACTOR SHALL REVIEW ALL SUBMITTALS, INCLUDING SHOP DRAWINGS, AND VERIFY CORRECTNESS PRIOR TO SUBMISSION TO THE ENGINEER.

STRUCTURAL STEEL NOTES:

12. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 UNLESS NOTED OTHERWISE.
13. ALL STRUCTURAL WIDE FLANGE BEAMS, GIRDERS, AND COLUMNS SHALL CONFORM TO ASTM A992 (Fy = 50 KSI).
14. STEEL PIPE COLUMNS SHALL CONFORM TO ASTM A501 (Fy = 36 KSI) OR ASTM A53, TYPE E OR S, GRADE B (Fy = 35 KSI).
15. STRUCTURAL STEEL TUBE SHALL CONFORM TO ASTM A501, GRADE B (Fy = 46 KSI).
16. BOLTS SHALL CONFORM TO ASTM A325, UNLESS OTHERWISE NOTED.
17. DIAMETER OF BOLT HOLES IN STEEL SHALL BE 1/16" LARGER THAN THE BOLT SIZE, UNLESS OTHERWISE NOTED.
18. ALL WELDS SHALL BE IN CONFORMANCE WITH THE STRUCTURAL WELDING CODE OF THE AMERICAN WELDING SOCIETY. ALL STRUCTURAL WELDING SHALL USE THE SHIELDED METAL ARC WELDING PROCESS WITH E70XXX ELECTRODES. USE LOW HYDROGEN ELECTRODES FOR BOLTS AND REINFORCING BARS.
19. SHOP WELDING SHALL BE PERFORMED IN APPROVED FABRICATORS SHOP PER IBC SECTION 1704.1.
20. ANCHOR BOTS AND THREADED RODS SHALL CONFORM TO EITHER ASTM A307 OR A36 UNLESS OTHERWISE NOTED.
21. FABRICATION AND ERECTION SHALL COMPLY WITH AISC SPECIFICATIONS, AS REVISED TO DATE.
22. SUBMIT SHOP DRAWINGS TO THE ENGINEER PRIOR TO FABRICATION.
23. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH CIVIL, ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND COORDINATE ANY CONFLICTS BEFORE PROCEEDING.
24. TORQUE TUBES, IF USED, SHALL BE PLACED WITH MILL CAMBER UPWARD.
- FOUNDATION NOTES:  
25. FOUNDATION DESIGN IS BASED ON SOIL BEARING PRESSURE OF 2,500 PSF FOR "DEAD" PLUS "LONG TERM LIVE" LOADS. SEE GEOTECHNICAL REPORT.
26. FOOTING SHALL BEAR ON APPROPRIATE SOIL AS DESCRIBER IN THE GEOTECH REPORT.
27. ALL EXCAVATION AND FILL BENEATH FOUNDATIONS SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER OF RECORD (GEOR) OR THEIR AUTHORIZED REPRESENTATIVE.
28. SHOULD ANY SUBSURFACE CONDITION NOT BE IN ACCORDANCE WITH THE GEOTECH REPORT, THE GEOR SHALL BE NOTIFIED IMMEDIATELY FOR RESOLUTION PRIOR TO CONTINUING WORK.

D

- DESIGN CRITERIA NOTES:  
29. DESIGN CODES:  
  
29.1. NORTH STONINGTON ORDINANCE  
29.2. CONNECTICUT STATE BUILDING CODE  
29.3. CONNECTICUT GENERAL STATUTES  
29.4. INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION.  
29.5. ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES  
29.6. AMERICAN CONCRETE INSTITUTE (ACI) 318-14
- RISK CATEGORY: I  
SEISMIC DESIGN CATEGORY: B  
SITE CLASS: C - PER GEOTECH  
Ss: 0.16  
S1: 0.052  
Sds: 0.12  
Sd1: 0.11
- GROUND SNOW LOAD: 30 PSF  
SNOW LOAD IMPORTANCE FACTOR: 1.0  
ULTIMATE DESIGN WIND SPEED (Vult): 135 MPH  
NOMINAL DESIGN WIND SPEED (Vasd): 105 MPH
- WIND EXPOSURE CATAGORY: C  
WIND IMPORTANCE FACTOR (Iw): 1.0  
FROST DEPTH: 42" BELOW EXISTING GROUND SURFACE
- CONCRETE NOTES:  
30. CONCRETE SHALL BE REGULAR WEIGHT WITH HARDROCK AGGREGATES, U.N.O.
31. CEMENT SHALL CONFORM TO ASTM C-150 TYPE II.
32. AGGREGATES SHALL CONFORM TO ASTM C-33 WITH PROVEN SHRINKAGE CHARACTERISTICS OF LESS THAN -0.04%.
33. CONCRETE SHALL BE READY MIXED PER ASTM C-94.
34. GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING CONCRETE MIX DESIGNS WHICH CONFORM TO THE CLASS AND STRENGTH REQUIREMENTS.
35. GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE MIX DESIGN TO THE ENGINEER FOR APPROVAL PRIOR TO CONCRETE PLACEMENT.
36. CONCRETE CLASS AND STRENGTH SHALL BE NOTED AS FOLLOWS:
- | CONCRETE CLASS              | SLAB ON GRADE |
|-----------------------------|---------------|
| MAXIMUM AGGREGATE SIZE      | 1"            |
| AIR ENTRAINMENT             | 6% +/-1.5%    |
| MINIMUM SACKS PER YARD      | 5.0           |
| MAXIMUM WATER/CEMENT RATIO  | 0.45          |
| SLUMP                       | 4" +/-0.5"    |
| 28 DAY COMPRESSIVE STRENGTH | 4,000 PSI     |
37. ONLY ONE CLASS AND STRENGTH OF CONCRETE SHALL BE POURED ON THE PROJECT AT ONE TIME.
38. CONCRETE SHALL BE TESTED IN ACCORDANCE WITH IBC SECTION 1704.
39. ALL REINFORCING STEEL, ANCHOR BOLTS AND SLEEVES SHALL BE PLACED AND SECURED IN POSITION PRIOR TO POURING CONCRETE.
40. CURE ALL EXPOSED CONCRETE SURFACES WITH LIQUID MEMBRANE-FORMING CURING COMPOUND CONFORMING TO ASTM C309, TYPE 1, CLASS A OR OTHER APPROVED CURING METHOD.
41. APPLY CURING COMPOUND IMMEDIATELY AFTER PLACING CONCRETE.
42. WHERE CONCRETE PLACEMENT OCCURS IN TEMPERATURES OVER 90 DEGREES OR IN WINDY CONDITIONS, GENERAL CONTRACTOR SHALL TAKE ADDITIONAL MEASURES TO ENSURE PROPER CONCRETE CURING.
43. RE-APPLY CURING COMPOUND TO CONTROL JOINTS WHEN CONTROL JOINT SAW-CUTTING OCCURS AFTER APPLICATION OF CURING COMPOUND.
44. FOR COLD WEATHER CONCRETE PLACEMENT, PERFORM IN ACCORDANCE WITH ACI 318-14, SECTION 26.5.4
45. FOR HOT WEATHER CONCRETE PLACEMENT, PERFORM IN ACCORDANCE WITH ACI 318-14, SECTION 26.5.5.
46. IF PLACEMENT OF CONCRETE OCCURS DURING HOT WEATHER CONDITIONS, REINFORCING STEEL SHALL BE KEPT COOL DURING CONCRETE PLACEMENT.
47. GENERAL CONTRACTOR IS RESPONSIBLE FOR FILLING AND REPAIRING CRACKS AS DETERMINED BY THE ENGINEER OR THEIR REPRESENTATIVE.

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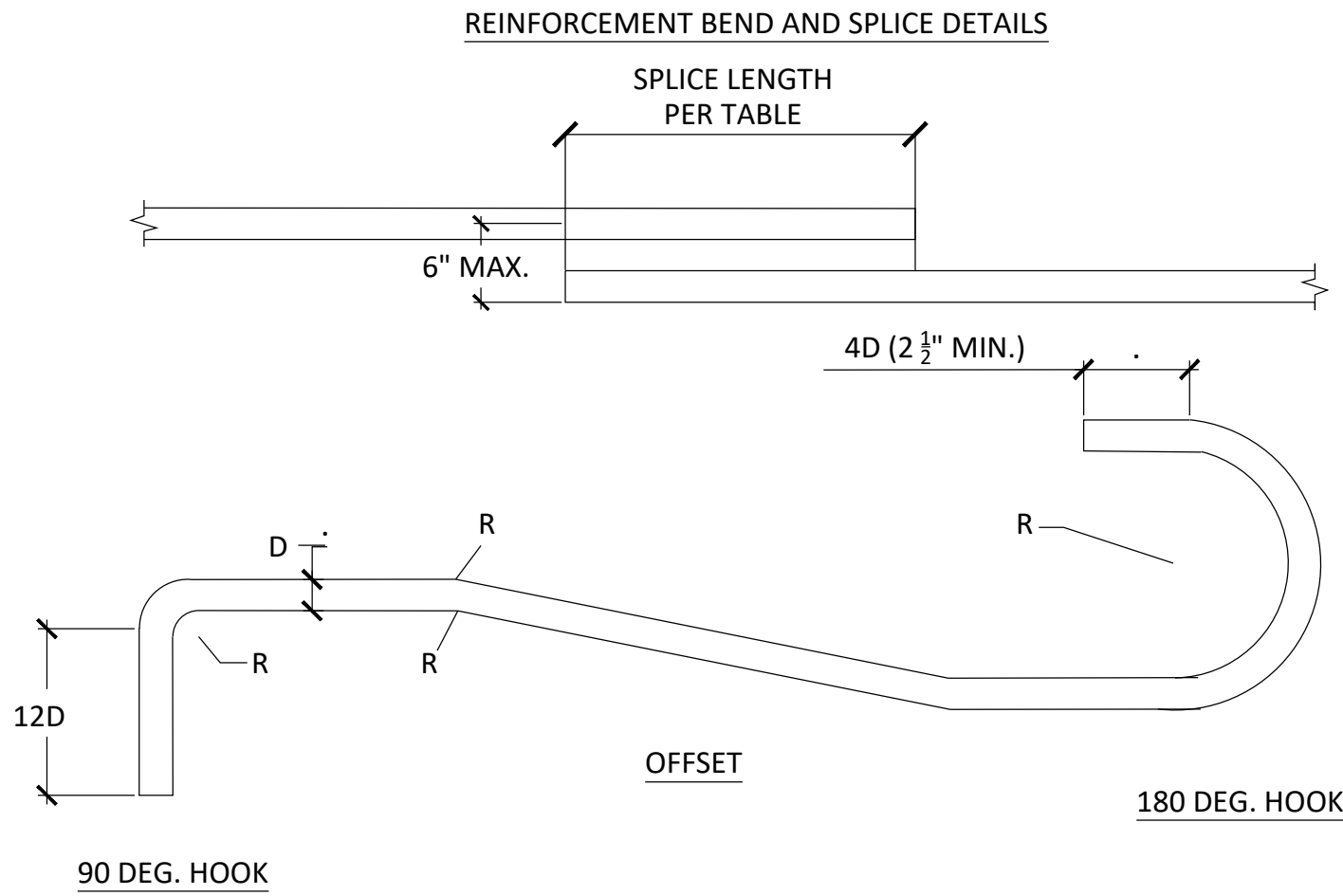
SPECIAL INSPECTIONS:

48. PROVIDE SPECIAL INSPECTION OF THE ITEMS LISTED IN THE TABLE BELOW IN ACCORDANCE WITH IBC CHAPTER 17.
49. SPECIAL INSPECTIONS SHALL BE OBJECTIVE, COMPETENT AND INDEPENDENT FROM THE CONTRACTOR RESPONSIBLE FOR THE WORK BEING INSPECTED.
50. SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER.

LIST OF SPECIAL INSPECTIONS FOR EACH STRUCTURAL PAD		
1. CONCRETE CONSTRUCTION	PERIODIC	CONTINUOUS
A. INSPECTION OF RE-INFORCING STEEL AND PLACEMENT	X	
B. INSPECTION OF ANCHORS POST INSTALLED IN HARDENED CONCRETE MEMBERS	X	
C. VERIFY USE OF REQUIRED MIX DESIGN	X	
D. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE TEMPERATURE FOR CONCRETE	X	
2. INSPECTION OF SOILS	PERIODIC	CONTINUOUS
A. VERIFY MATERIALS BELOW CONCRETE PAD FOUNDATION ARE ADEQUATE TO ACHEIVE THE DESIGN BEARING CAPACITY	X	
B. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL BELOW ALL CONCRETE PADS	X	
C. PRIOR TO PLACEMENT OF COMPACTED FILL OBSERVE SUBGRADE AND VERIFY EXISTING CONDITION IS AS DESCRIBED IN THE SOILS REPORT	X	

REINFORCING STEEL NOTES:

51. ALL REINFORCING STEEL SHALL BE AS FOLLOWS:
- 51.1. NO.3 BARS AND SMALLER - ASTM A615, GRADE 60  
51.2. NO. 4 BARS AND LARGER - ASTM A615, GRADE 60  
51.3. REINFORCING STEEL TO BE WELDED - ASTM A706, GRADE 60  
51.4. WELDED WIRE FABRIC - ASTM A185
52. ALL BARS SHALL BE CLEAN OF RUST, GREASE, OR OTHER MATERIALS LIKELY TO IMPAIR BOND.
53. ALL BENDS SHALL BE MADE COLD.
54. SPLICING OF BARS SHALL HAVE MINIMUM LAP PER DETAIL BELOW IN ALL CASES UNLESS DIMENSIONED OTHERWISE ON DETAILS.



BAR SIZE	LAP LENGTH
#3	18"
#4	23"
#5	29"
#6	35"
#7	50"
#8	57"
#9	55"

D = DIAMETER OF BAR  
R = RADIUS OF BEND MEASURED ON THE INSIDE OF BAR  
= 2 1/2 D FOR #2 ONLY  
= 3D FOR #3 THROUGH #8  
= 4D FOR #9 THROUGH #11  
= 5D FOR #14 & #18

55. ALL REINFORCEMENT BARS SHALL BE ACCURATELY AND SECURELY PLACED BEFORE POURING CONCRETE OR APPLYING GROUT.
56. MINIMUM LAP FOR WELDED WIRE FABRIC SHALL BE 1.5 MESH.
57. WELDING OF REINFORCING STEEL SHALL COMPLY WITH AWS D1.4-79, USING HYDROGEN ELECTRODES.
58. SPACING OF BARS SHALL BE CONSIDEREED AS MAXIMUM SPACING.

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REV	DESCRIPTION	DATE
0	ISSUED FOR PERMIT	05/22/2020
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**STONINGTON SOLAR PROJECT**

PROJECT ADDRESS:  
**ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W**

SEAL: 	DATE: <b>22-MAY-20</b>
PROJECT #: <b>#</b>	DRAWN BY: <b>MMM</b>
CHECKED BY: <b>DRG</b>	

TITLE:  
**STRUCTURAL NOTES**

SHEET:  
**S-100**



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- EQUIPMENT PAD CONSTRUCTION NOTES:
- PRIOR TO FORMING AND POURING ANY AND ALL CONCRETE PADS AND FOUNDATIONS, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PAD DIMENSIONS AND PROVIDE FINAL EQUIPMENT DETAILS TO THE ENGINEER FOR APPROVAL.
  - CONTRACTOR SHALL SEAL ALL CONDUITS AFTER CONDUCTORS ARE IN PLACE. FILL VOIDS AROUND STUB UPS WITH CONCRETE FLUSH WITH SURROUNDING GRADE.

EQUIPMENT ANCHORAGE SCHEDULE		
ITEM	BOLT	EMBED (IN)
TURNKEY INVERTER	HDA-P M10X100 / 20	4

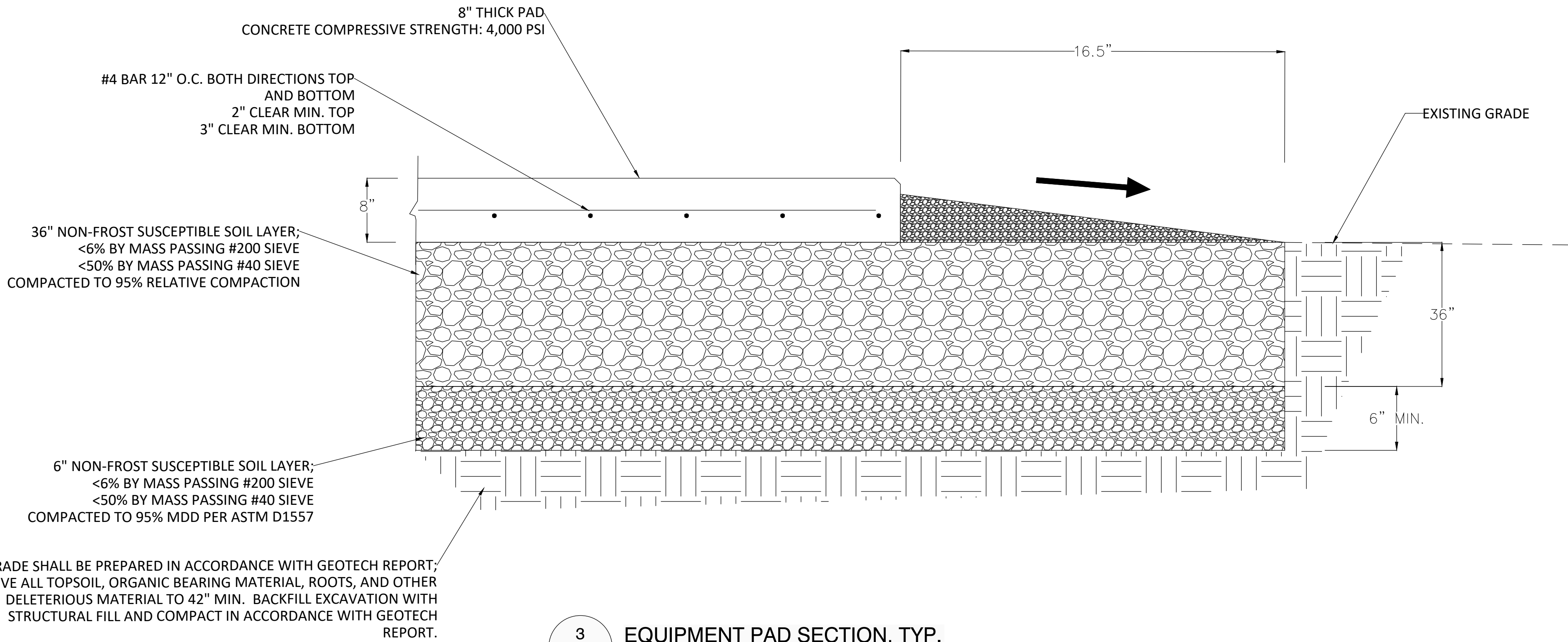
- NOTE:
- PROVIDE 8" MINIMUM EDGE DISTANCE FROM ANCHORS TO ALL SLAB EDGES
  - ANCHORS SHALL BE UTILIZED IN MANUFACTURED PROVIDE MOUNTING LOCATIONS.
  - EMBED ESTIMATED THROUGH COMPARISON TO SIMILAR PADS AND LOCATIONS

2

EQUIPMENT ANCHORAGE

S-200

Scale: NTS



3

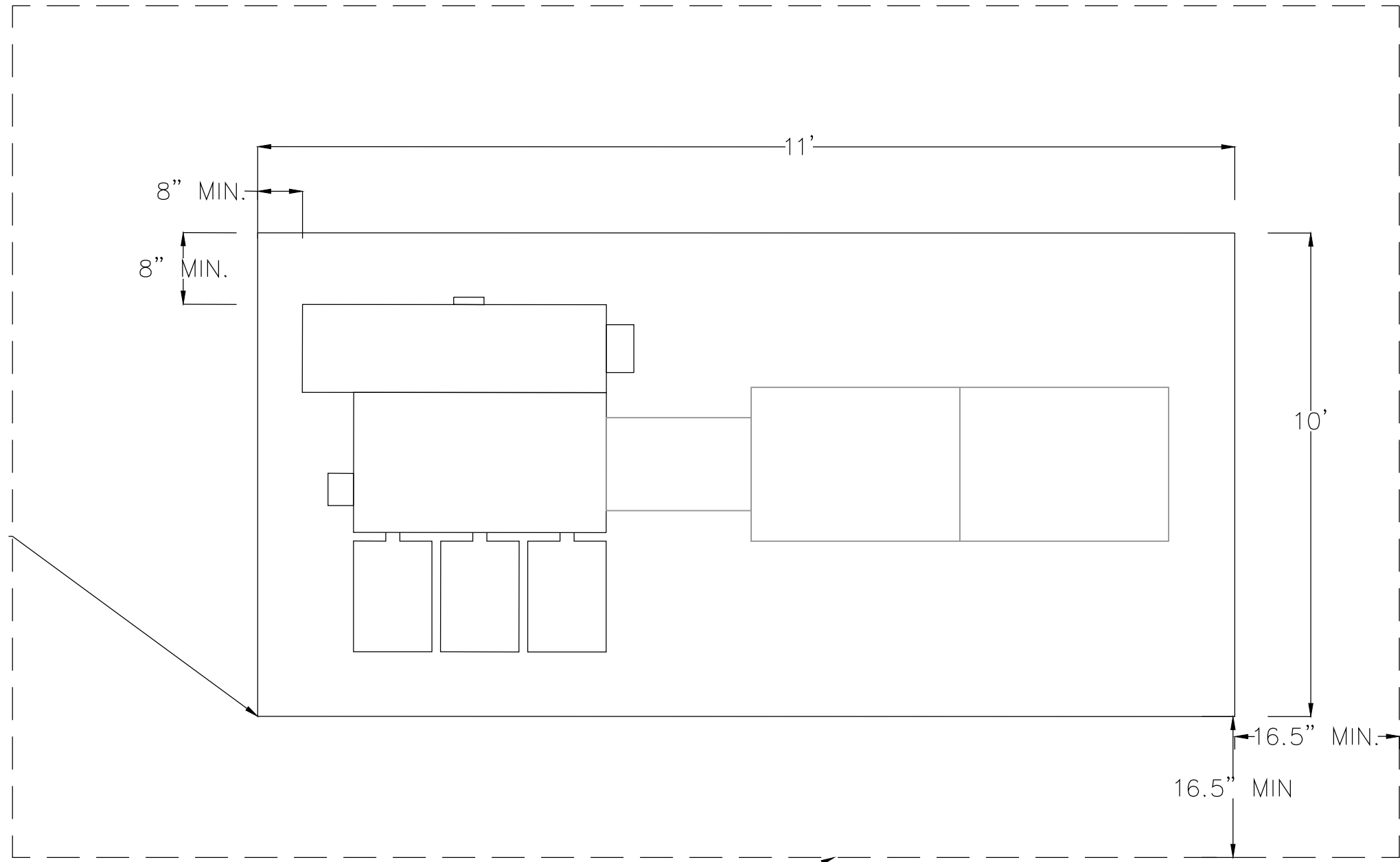
EQUIPMENT PAD SECTION, TYP.

S-200

NTS

- SUBGRADE PREPARATION NOTES:
- ALL WORK SHALL ADHERE TO THE FOLLOWING DOCUMENTS:
    - SEI/ASCE 32-01 (OR CURRENT) DESIGN AND CONSTRUCTION OF FROST-PROTECTED SHALLOW FOUNDATIONS.
  - NON-FROST SUSCEPTIBLE SOIL IS DEFINED AS A SOIL THAT DOES NOT DISPLAY SIGNIFICANT DETRIMENTAL ICE SEGREGATION (I.E. ICE LENS DEVELOPMENT) DURING FREEZING. GENERALLY, GRANULAR SOILS WITH LESS THAN 6% BY MASS PASSING A #200 SIEVE (0.074 MM) HAVE LOW FROST SUSCEPTIBILITY, WHEREAS SILTS AND CLAYS OR SANDS AND GRAVELS (I.E. GRANULAR SOILS) WITH HIGH FINES CONTENT GENERALLY HAVE A MEDIUM TO HIGH FROST SUSCEPTIBILITY.
  - CONTRACTOR SHALL SUBMIT NON-FROST SUSCEPTIBLE SOIL REPORT TO ENGINEER PRIOR TO INSTALLATION.
  - SITE SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM EQUIPMENT PADS.
  - HORIZONTAL INSULATION PLACED LESS THAN 12" BELOW GROUND SURFACE, OR ANY PORTION EXTENDING OUTWARD MORE THAN 24" FROM THE FOUNDATION EDGE, SHALL BE PROTECTED AGAINST DAMAGE FROM CONCRETE OR ASPHALT PAVEMENT ON THE GROUND SURFACE DIRECTLY ABOVE THE INSULATION BY CEMENTITIOUS BOARD OR PLYWOOD RATED FOR BELOW-GROUND USE, OR BY OTHER APPROVED MATERIALS PLACED DIRECTLY ON THE TOP SURFACE OF THE INSULATION.
  - POLYSTYRENE INSULATION SHALL NOT BE EXPOSED TO PETROLEUM- BASED PRODUCTS.

- EQUIPMENT NOTES:
- EQUIPMENT LOCATIONS DEPICTED ON THIS DETAIL ARE APPROXIMATE. REFER TO ELECTRICAL SHEETS FOR EXACT LOCATIONS.
  - FRONT OF EQUIPMENT SHALL FACE ROAD.
  - SEE ELECTRICAL PLANS FOR SLAB PENETRATION LOCATIONS.
  - PROVIDE 6" MIN. SLACK IN ALL CONDUCTORS AND WIRES TO ACCOUNT FOR SLAB MOVEMENT.



SUBGRADE PREPARATION FOOTPRINT

1

EQUIPMENT PAD DETAIL, TYP.

S-200

Scale: NTS



REV	DESCRIPTION	DATE
0	ISSUED FOR PERMIT	05/22/2020
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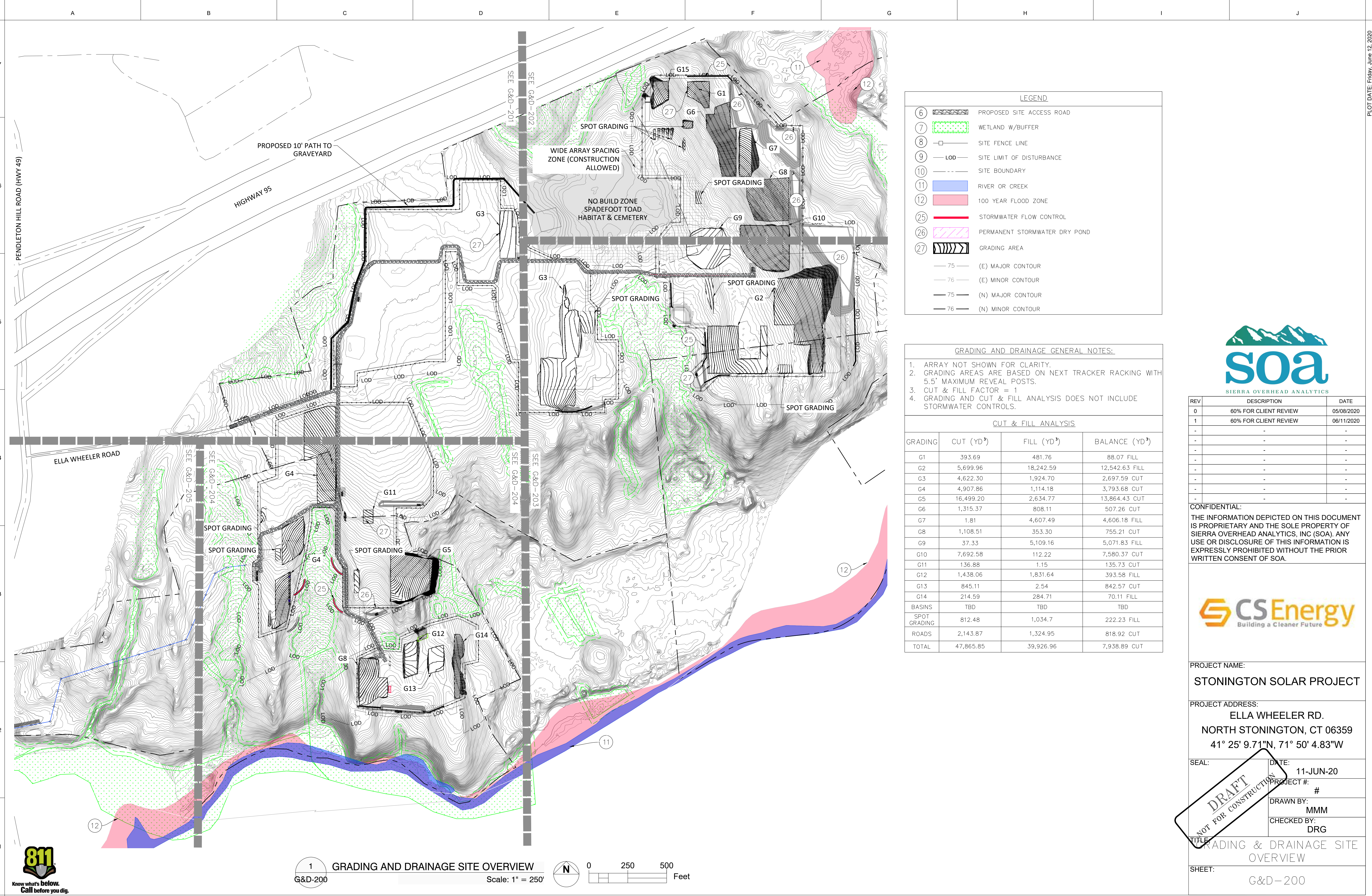
SEAL: [Professional Engineer Seal] DATE: 22-MAY-20  
PROJECT #: #  
DRAWN BY: MMM  
CHECKED BY: DRG

TITLE:  
EQUIPMENT PAD DETAILS

SHEET:  
S-200







LEGEND		
6		PROPOSED SITE ACCESS ROAD
7		WETLAND W/BUFFER
8		SITE FENCE LINE
9		SITE LIMIT OF DISTURBANCE
10		SITE BOUNDARY
11		RIVER OR CREEK
12		100 YEAR FLOOD ZONE
25		STORMWATER FLOW CONTROL
26		PERMANENT STORMWATER DRY POND
27		GRADING AREA
— 75 — (E) MAJOR CONTOUR		
— 76 — (E) MINOR CONTOUR		
— 75 — (N) MAJOR CONTOUR		
— 76 — (N) MINOR CONTOUR		

- GRADING AND DRAINAGE GENERAL NOTES:
1. ARRAY NOT SHOWN FOR CLARITY.
  2. GRADING AREAS ARE BASED ON NEXT TRACKER RACKING WITH 5.5' MAXIMUM REVEAL POSTS.
  3. CUT & FILL FACTOR = 1
  4. GRADING AND CUT & FILL ANALYSIS DOES NOT INCLUDE STORMWATER CONTROLS.

CUT & FILL ANALYSIS			
GRADING	CUT (YD <sup>3</sup> )	FILL (YD <sup>3</sup> )	BALANCE (YD <sup>3</sup> )
G1	393.69	481.76	88.07 FILL
G2	5,699.96	18,242.59	12,542.63 FILL
G3	4,622.30	1,924.70	2,697.59 CUT
G4	4,907.86	1,114.18	3,793.68 CUT
G5	16,499.20	2,634.77	13,864.43 CUT
G6	1,315.37	808.11	507.26 CUT
G7	1.81	4,607.49	4,606.18 FILL
G8	1,108.51	353.30	755.21 CUT
G9	37.33	5,109.16	5,071.83 FILL
G10	7,692.58	112.22	7,580.37 CUT
G11	136.88	1.15	135.73 CUT
G12	1,438.06	1,831.64	393.58 FILL
G13	845.11	2.54	842.57 CUT
G14	214.59	284.71	70.11 FILL
BASINS	TBD	TBD	TBD
SPOT GRADING	812.48	1,034.7	222.23 FILL
ROADS	2,143.87	1,324.95	818.92 CUT
TOTAL	47,865.85	39,926.96	7,938.89 CUT



REV	DESCRIPTION	DATE
0	60% FOR CLIENT REVIEW	05/08/2020
1	60% FOR CLIENT REVIEW	06/11/2020
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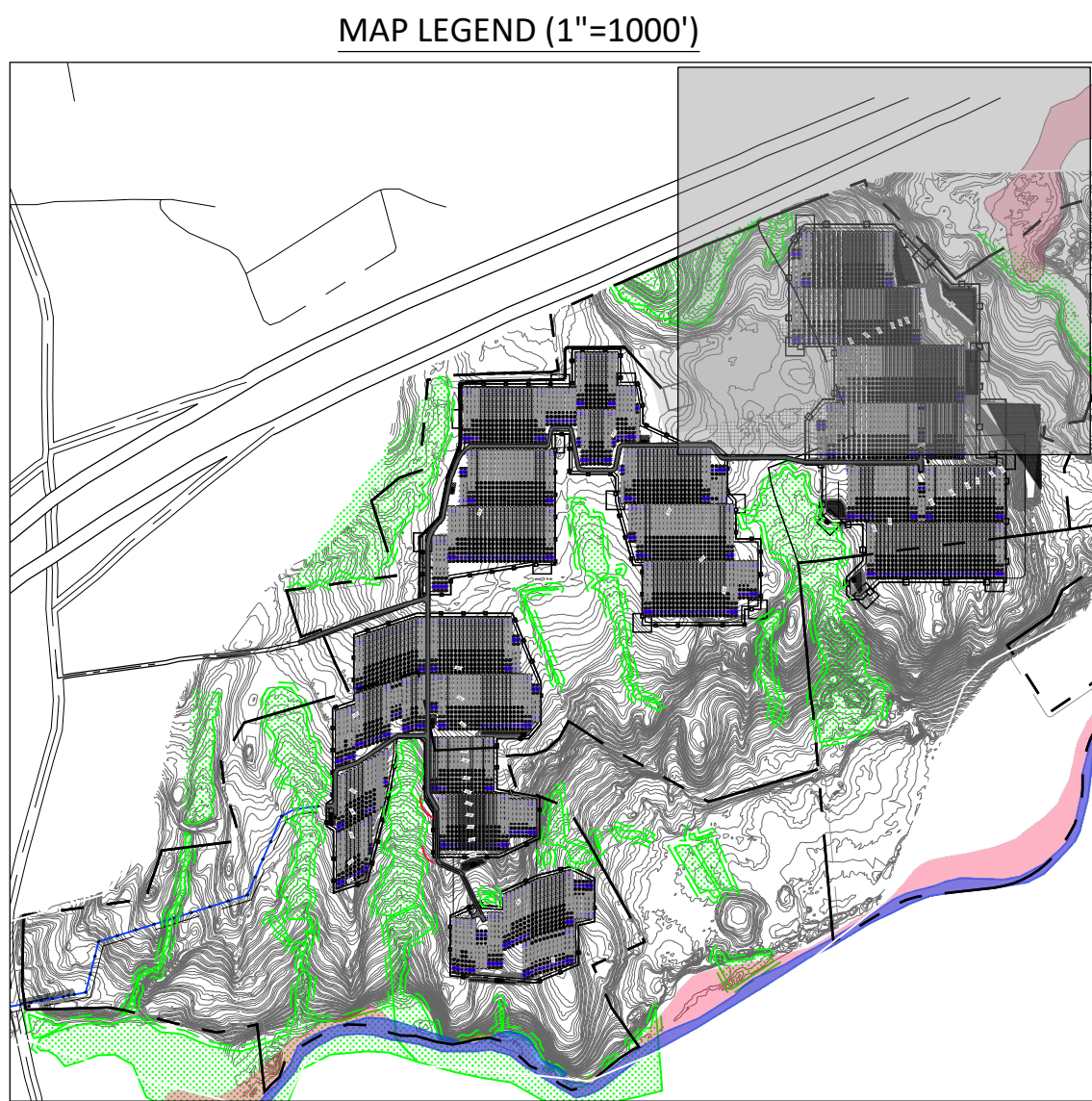
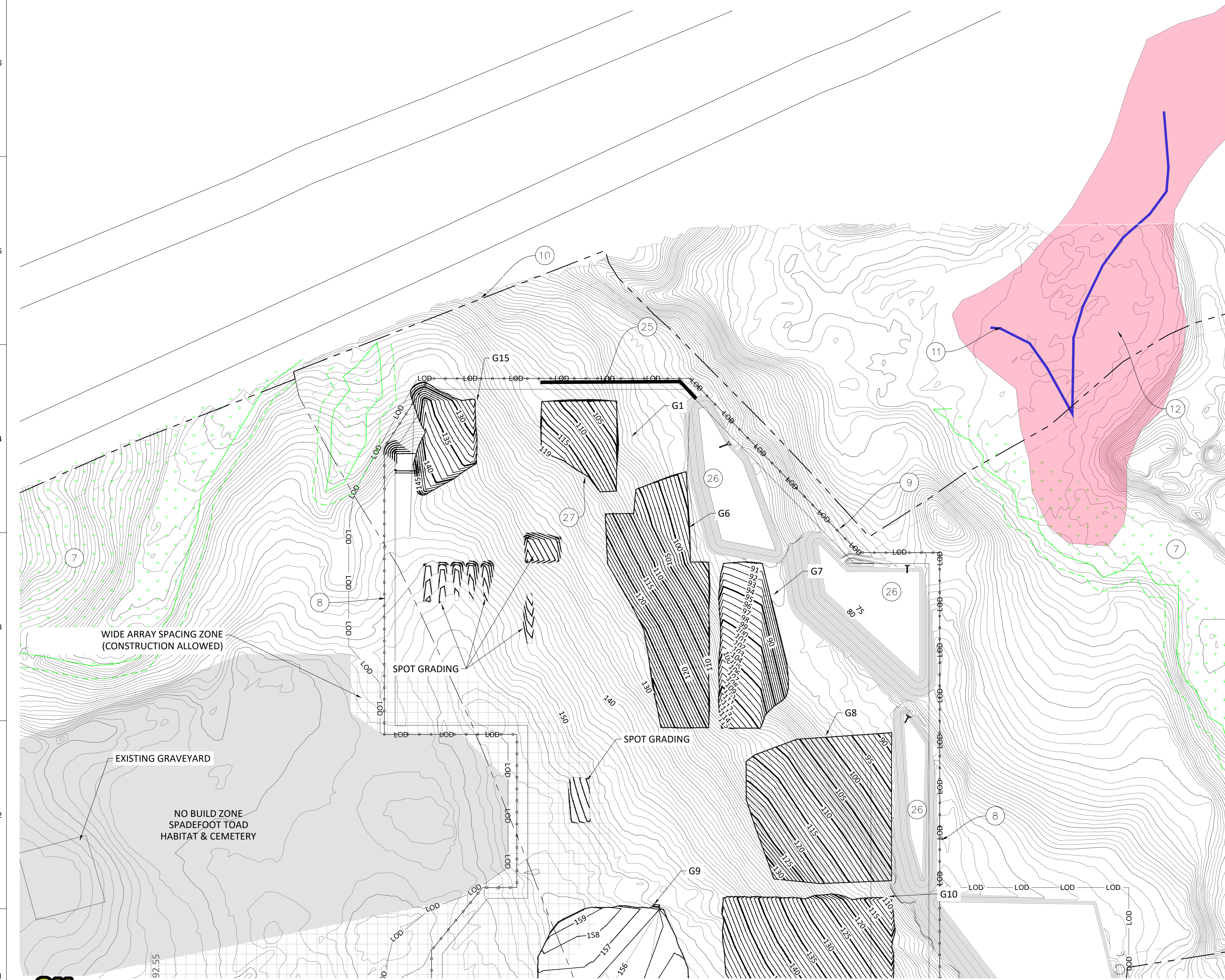
SEAL:	DATE: 11-JUN-20
	PROJECT #: #
	DRAWN BY: MMM
	CHECKED BY: DRG

TITLE: **GRADING & DRAINAGE SITE OVERVIEW**  
SHEET: **G&D-200**









LEGEND	
6	PROPOSED SITE ACCESS ROAD
7	WETLAND W/BUFFER
8	SITE FENCE LINE
9	SITE LIMIT OF DISTURBANCE
10	SITE BOUNDARY
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75	(N) MAJOR CONTOUR
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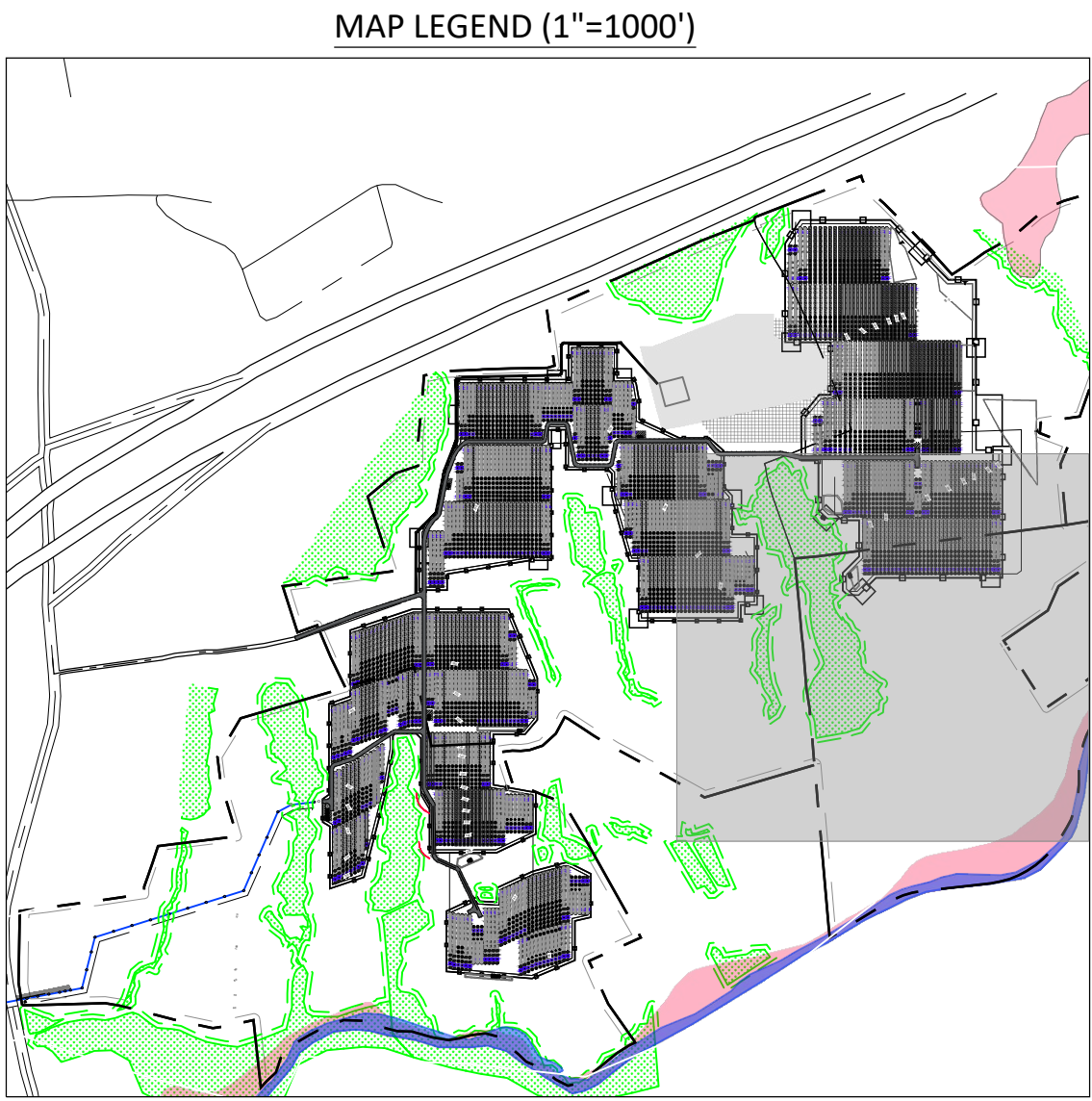
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PROJECT ADDRESS:	
ELLA WHEELER RD. NORTH STONINGTON, CT 06359 41° 25' 9.71"N, 71° 50' 4.83"W	
SEAL:	DATE: 11-JUN-20
PROJECT #:	
#	
DRAWN BY: MMM	
CHECKED BY: DRG	
TITLE: GRADING & DRAINAGE SITE PLAN	
SHEET: G&D-202	





LEGEND		
6		PROPOSED SITE ACCESS ROAD
7		WETLAND W/BUFFER
8		SITE FENCE LINE
9		SITE LIMIT OF DISTURBANCE
10		SITE BOUNDARY
11		RIVER OR CREEK
12		100 YEAR FLOOD ZONE
25		STORMWATER FLOW CONTROL
26		PERMANENT STORMWATER DRY POND
27		GRADING AREA
		(E) MAJOR CONTOUR
		(E) MINOR CONTOUR
		(N) MAJOR CONTOUR
		(N) MINOR CONTOUR

GRADING AND DRAINAGE GENERAL NOTES:	
1.	ARRAY NOT SHOWN FOR CLARITY
2.	GRADING AREAS ARE BASED ON NEXT TRACKER RACKING WITH 5.5' MAXIMUM REVEAL POSTS.
3.	GRADING AND CUT & FILL ANALYSIS DOES NOT INCLUDE STORMWATER CONTROLS.



REV	DESCRIPTION	DATE
0	60% FOR CLIENT REVIEW	05/08/2020
1	60% FOR CLIENT REVIEW	06/11/2020
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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PROJECT NAME:  
**STONINGTON SOLAR PROJECT**

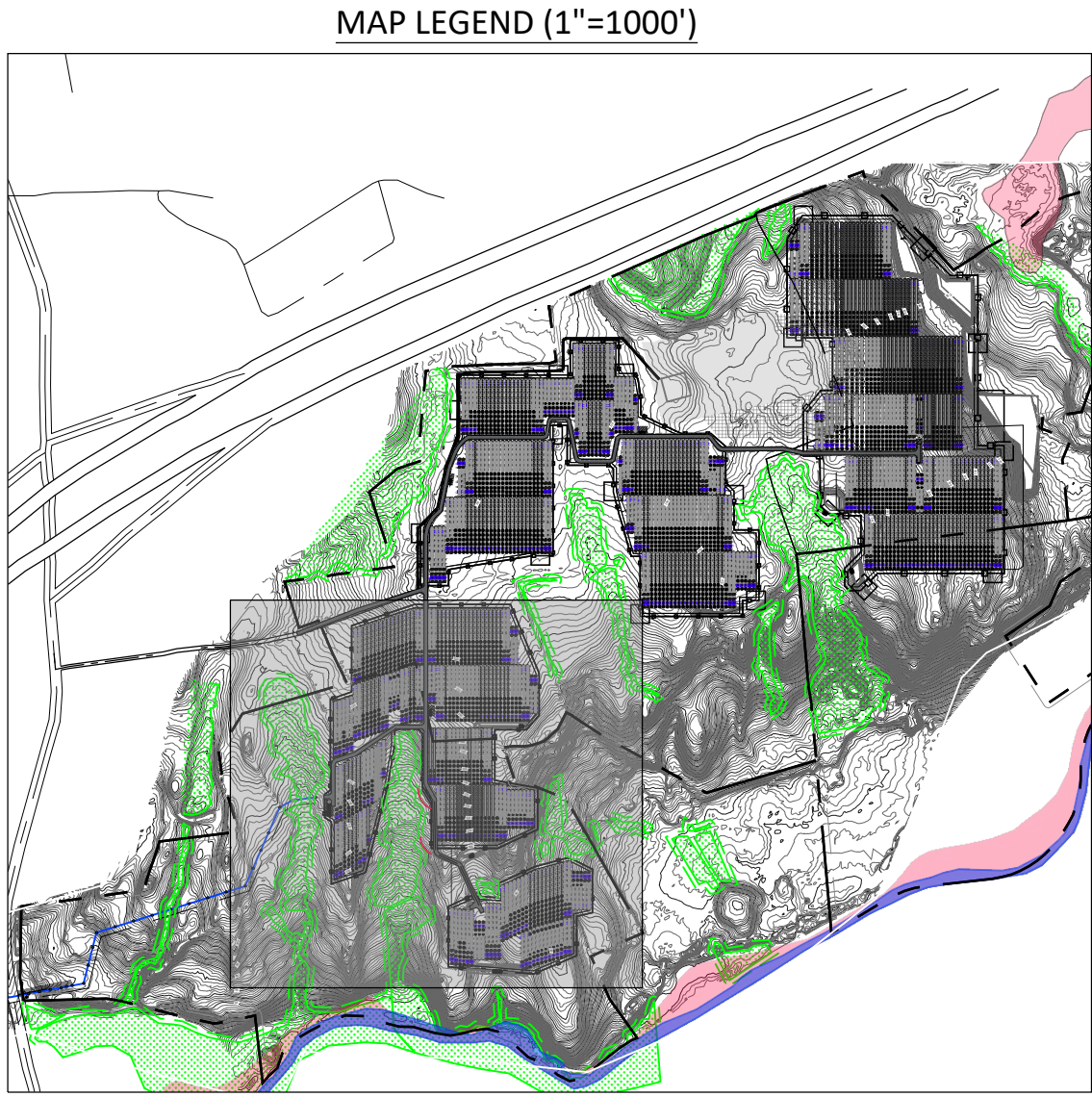
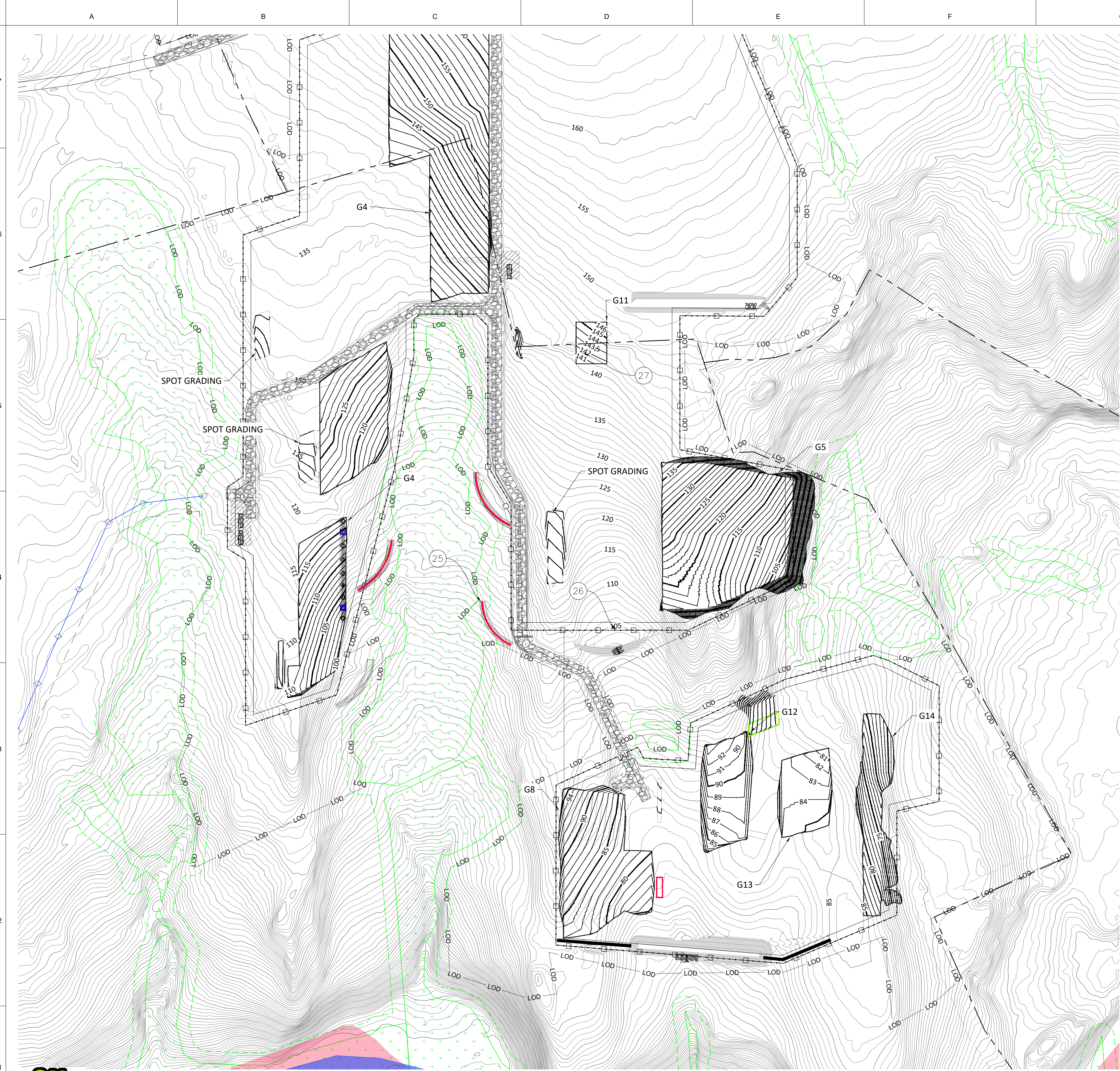
PROJECT ADDRESS:  
**ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W**

SEAL:	DATE: 11-JUN-20
PROJECT #:	#
DRAWN BY:	MMM
CHECKED BY:	DRG

TITLE: **GRADING & DRAINAGE SITE PLAN**

SHEET: **G&D-203**





LEGEND	
6	PROPOSED SITE ACCESS ROAD
7	WETLAND W/BUFFER
8	SITE FENCE LINE
9	SITE LIMIT OF DISTURBANCE
10	SITE BOUNDARY
11	RIVER OR CREEK
12	100 YEAR FLOOD ZONE
25	STORMWATER FLOW CONTROL
26	PERMANENT STORMWATER DRY POND
27	GRADING AREA
75	(E) MAJOR CONTOUR
76	(E) MINOR CONTOUR
75	(N) MAJOR CONTOUR
76	(N) MINOR CONTOUR

GRADING AND DRAINAGE GENERAL NOTES:

- ARRAY NOT SHOWN FOR CLARITY
- GRADING AREAS ARE BASED ON NEXT TRACKER RACKING WITH 5.5' MAXIMUM REVEAL POSTS.
- GRADING AND CUT & FILL ANALYSIS DOES NOT INCLUDE STORMWATER CONTROLS.



REV	DESCRIPTION	DATE
0	60% FOR CLIENT REVIEW	05/08/2020
1	60% FOR CLIENT REVIEW	06/11/2020
-	-	-
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-	-	-
-	-	-
-	-	-

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PROJECT NAME:  
STONINGTON SOLAR PROJECT

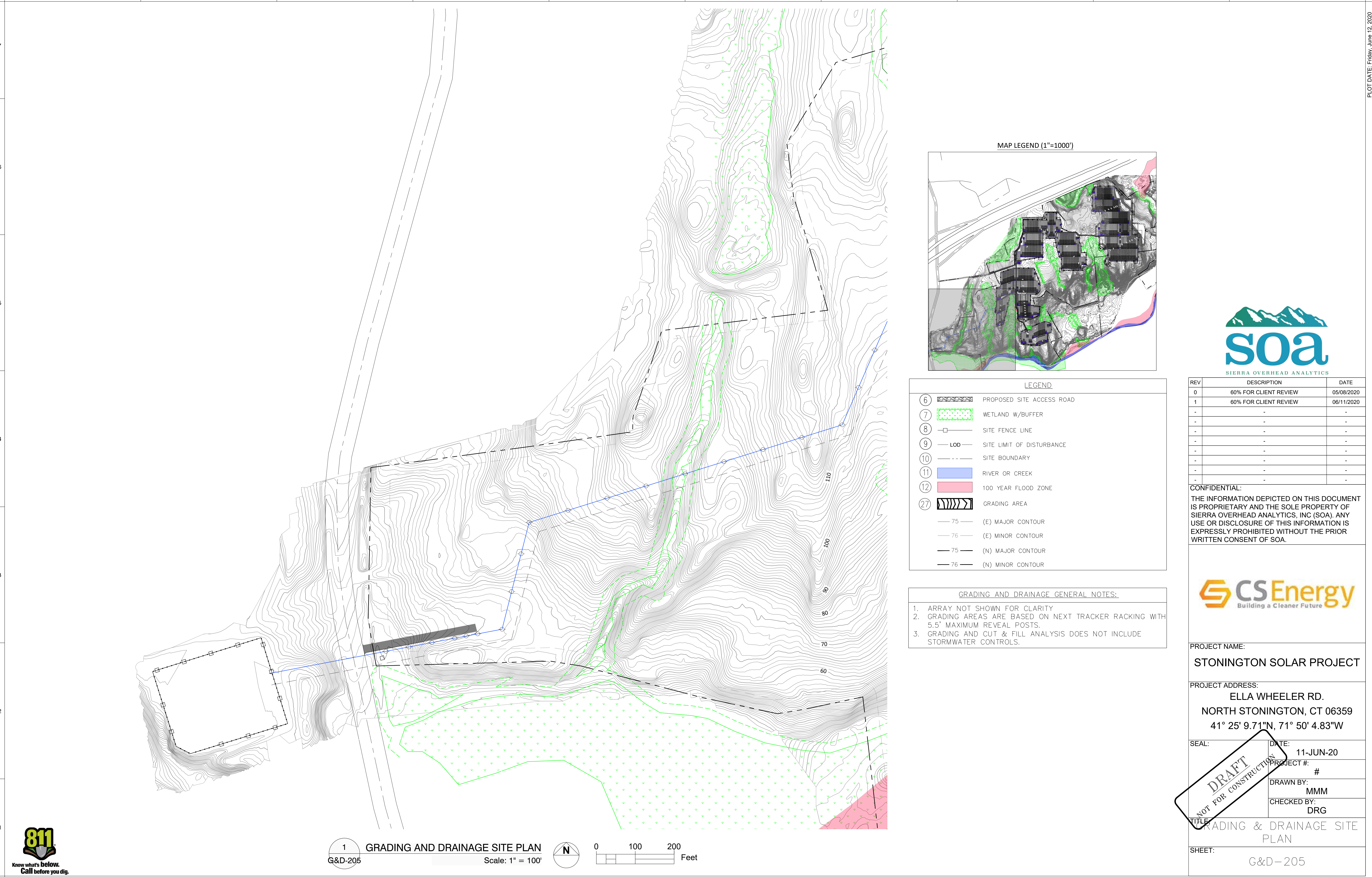
PROJECT ADDRESS:  
ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W

SEAL: DATE: 11-JUN-20  
PROJECT #:  
DRAWN BY: MMM  
CHECKED BY: DRG

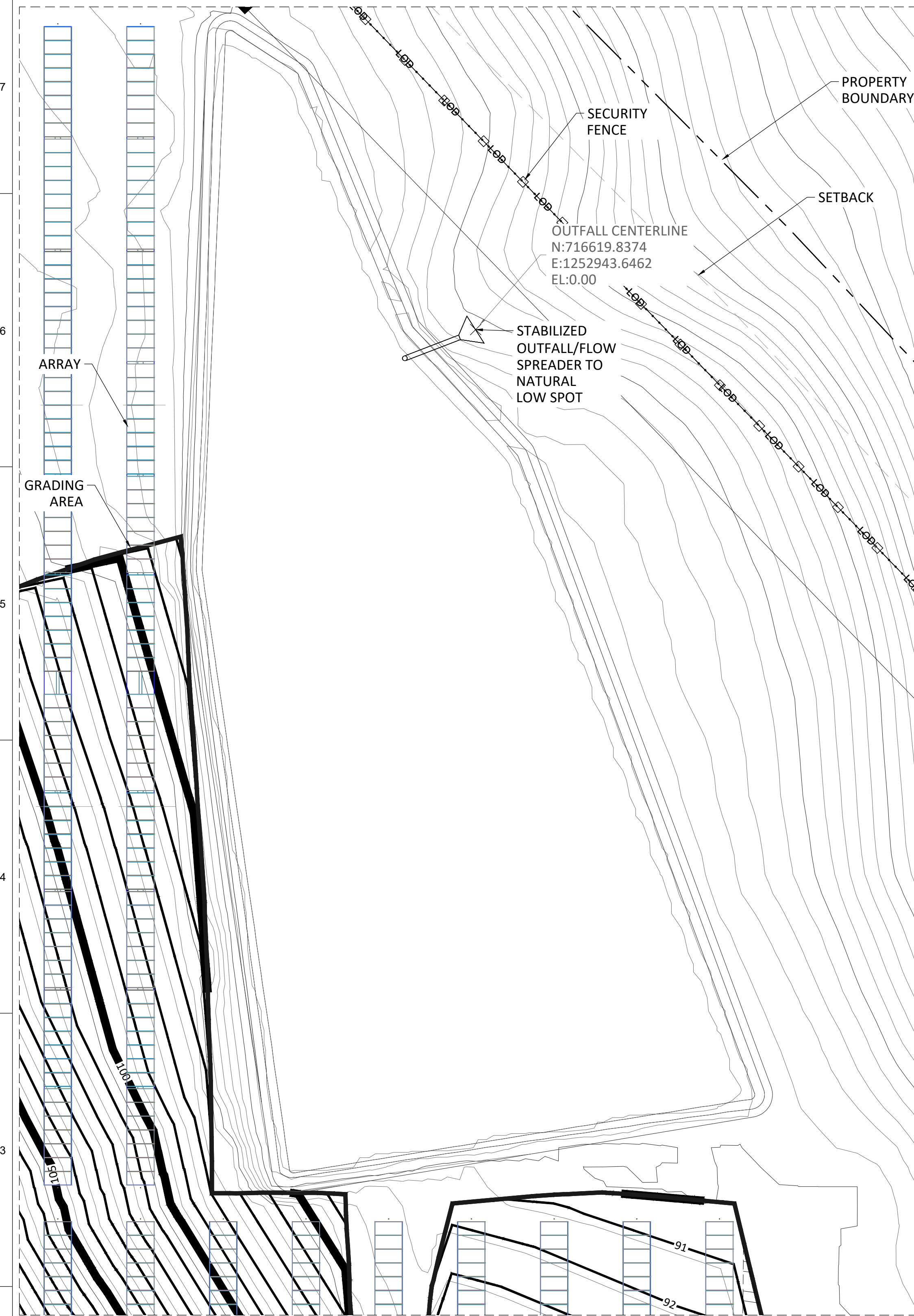
TITLE: GRADING & DRAINAGE SITE PLAN

SHEET: G&D-204









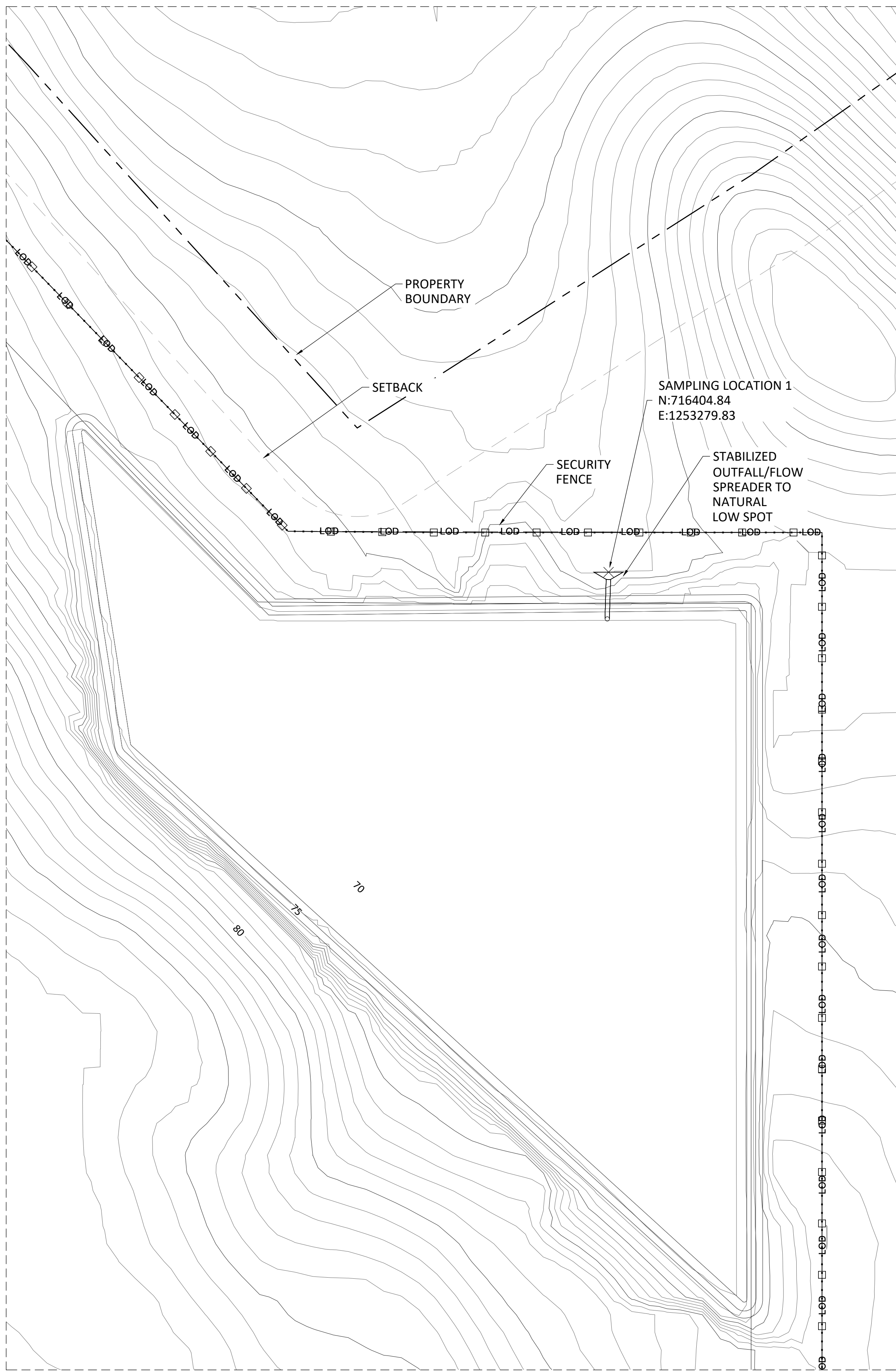
1

DRY STORMWATER DETENTION BASIN 1

G&D-300

Scale: 1"=20'

- GENERAL NOTES:
1. TEMPORARY SEDIMENT TRAPS USED DURING CONSTRUCTION, WILL BE RE-PURPOSED AS DRY STORMWATER DETENTION BASINS.
  2. FOLLOWING THE END OF CONSTRUCTION THEY WILL BE CLEANED AND BROUGHT BACK TO DESIGNED GRADE TO ENSURE PROPER INFILTRATION AND FLOW SPREADING.
  3. THE OVERFLOW PIPE WILL BE CLEANED AND REPAIRED IF DAMAGE OR EXCESS SEDIMENT IS CREATED DURING CONSTRUCTION ACTIVITIES.
  4. FOLLOWING CONVERSION TO PERMANENT FEATURE RE-SEED AND STABILIZE.



2

DRY STORMWATER DETENTION BASIN 2

G&D-300

Scale: 1"=20'



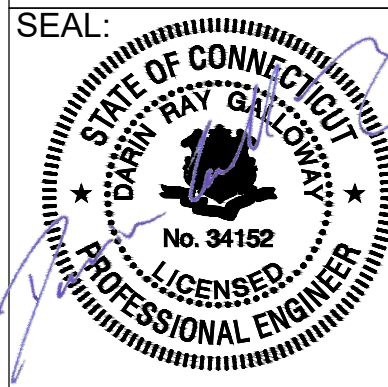
REV	DESCRIPTION	DATE
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PROJECT NAME:  
**STONINGTON SOLAR PROJECT**

PROJECT ADDRESS:  
**ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W**

SEAL: 	DATE: <b>22-MAY-20</b>
PROJECT #: <b>#</b>	DRAWN BY: <b>MMM</b>
CHECKED BY: <b>DRG</b>	

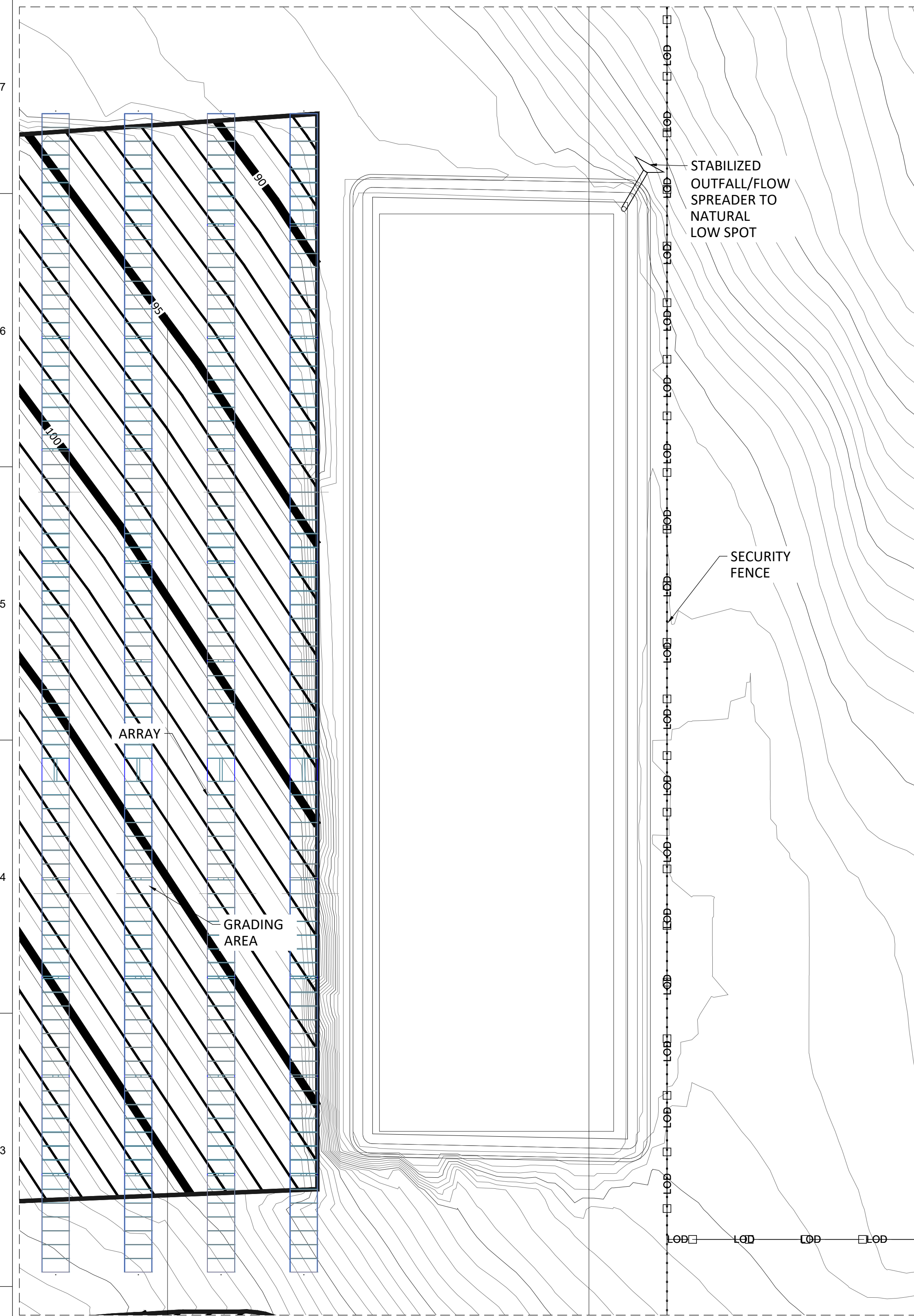
TITLE:  
**GRADING & DRAINAGE  
DETAILS**

SHEET:  
**G&D-300**

ISSUED FOR PERMIT  
NOT FOR CONSTRUCTION





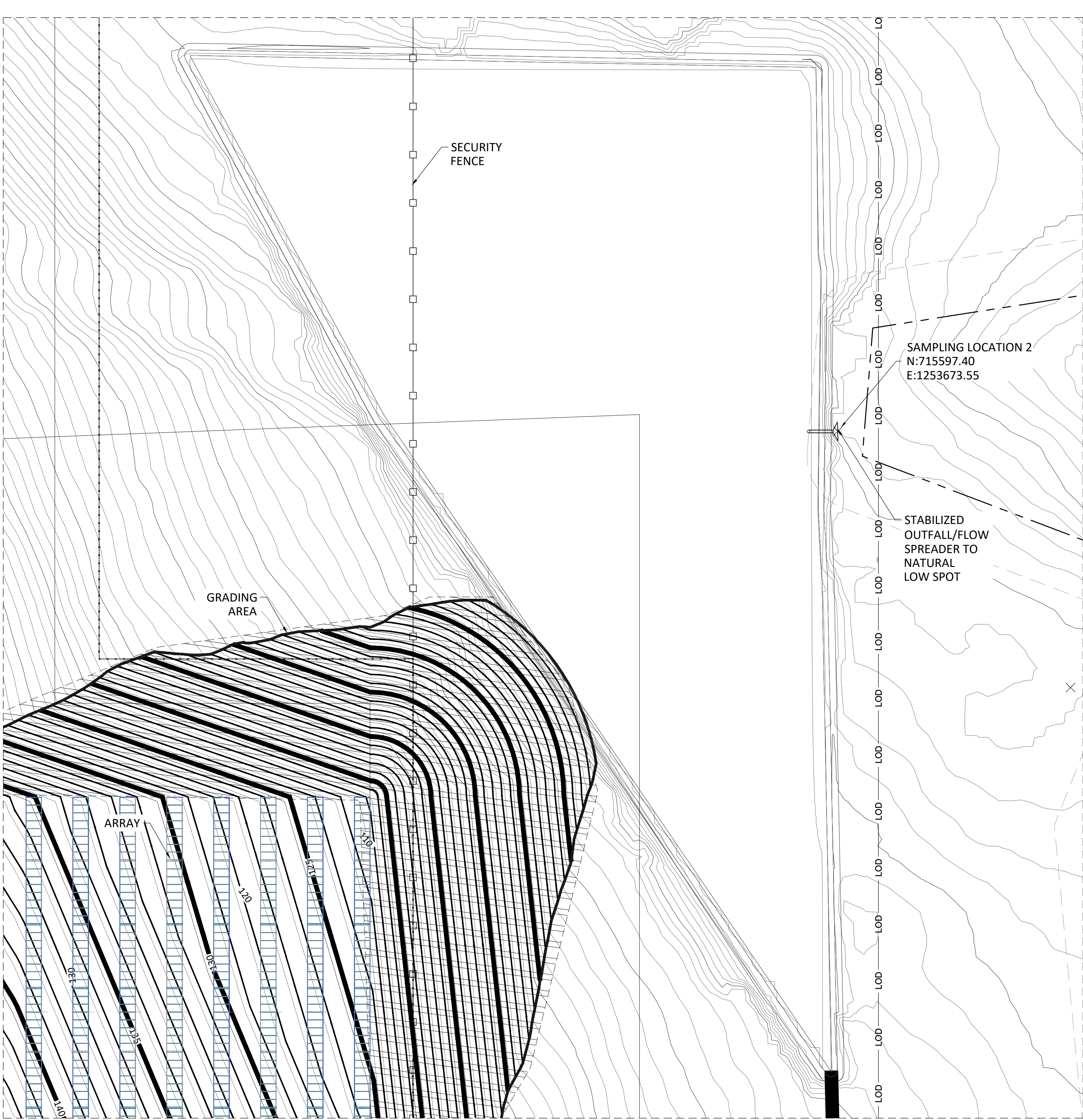


1

DRY STORMWATER DETENTION BASIN 3

G&D-301

Scale: 1"=20'



2

DRY STORMWATER DETENTION BASIN 4

G&D-301

Scale: 1"=30'

- GENERAL NOTES:
- TEMPORARY SEDIMENT TRAPS USED DURING CONSTRUCTION, WILL BE RE-PURPOSED AS DRY STORMWATER DETENTION BASINS.
  - FOLLOWING THE END OF CONSTRUCTION THEY WILL BE CLEANED AND BROUGHT BACK TO DESIGNED GRADE TO ENSURE PROPER INFILTRATION AND FLOW SPREADING.
  - THE OVERFLOW PIPE WILL BE CLEANED AND REPAIRED IF DAMAGE OR EXCESS SEDIMENT IS CREATED DURING CONSTRUCTION ACTIVITIES.
  - FOLLOWING CONVERSION TO PERMANENT FEATURE RE-SEED AND STABILIZE.



REV	DESCRIPTION	DATE
0	ISSUED FOR PERMIT	05/22/2020
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STONINGTON SOLAR PROJECT

PROJECT ADDRESS:  
ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W

SEAL:	DATE: 22-MAY-20
PROJECT #: #	DRAWN BY: MMM
CHECKED BY: DRG	

TITLE: GRADING & DRAINAGE  
DETAILS

SHEET:  
G&D-301

ISSUED FOR PERMIT  
NOT FOR CONSTRUCTION







7

6

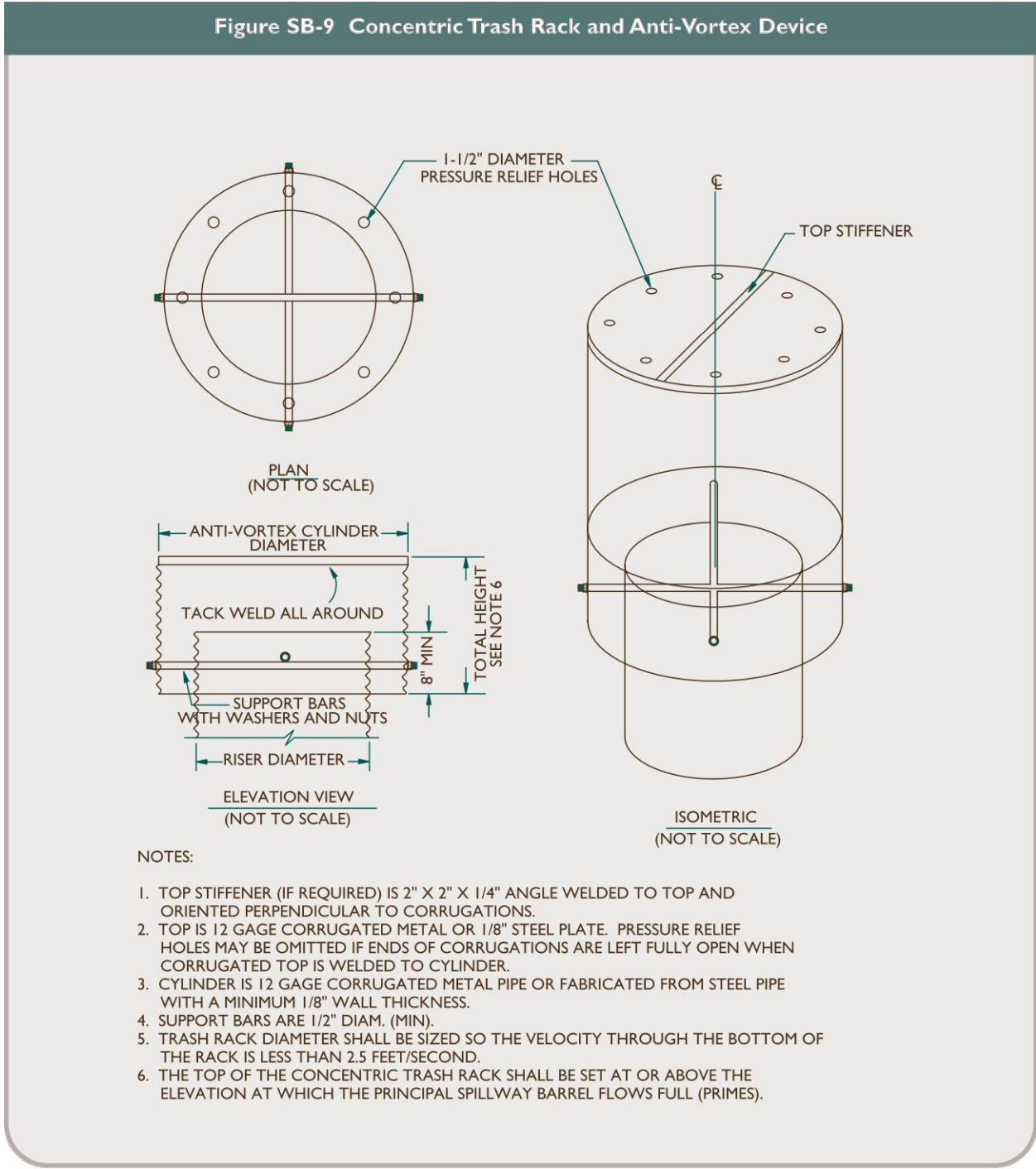
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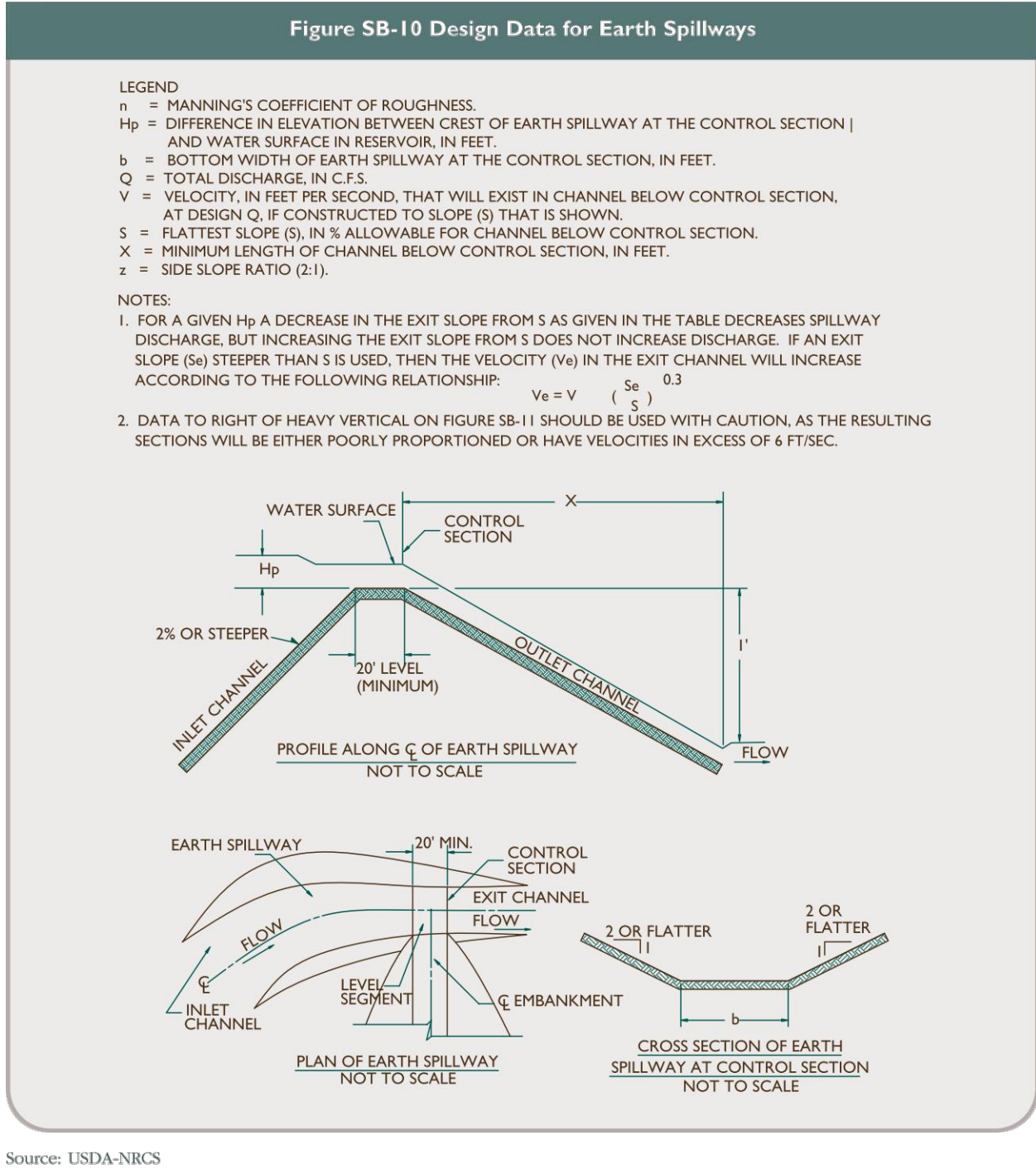
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Source: USDA-NRCS

2002 Connecticut Guidelines for Soil Erosion and Sediment Control

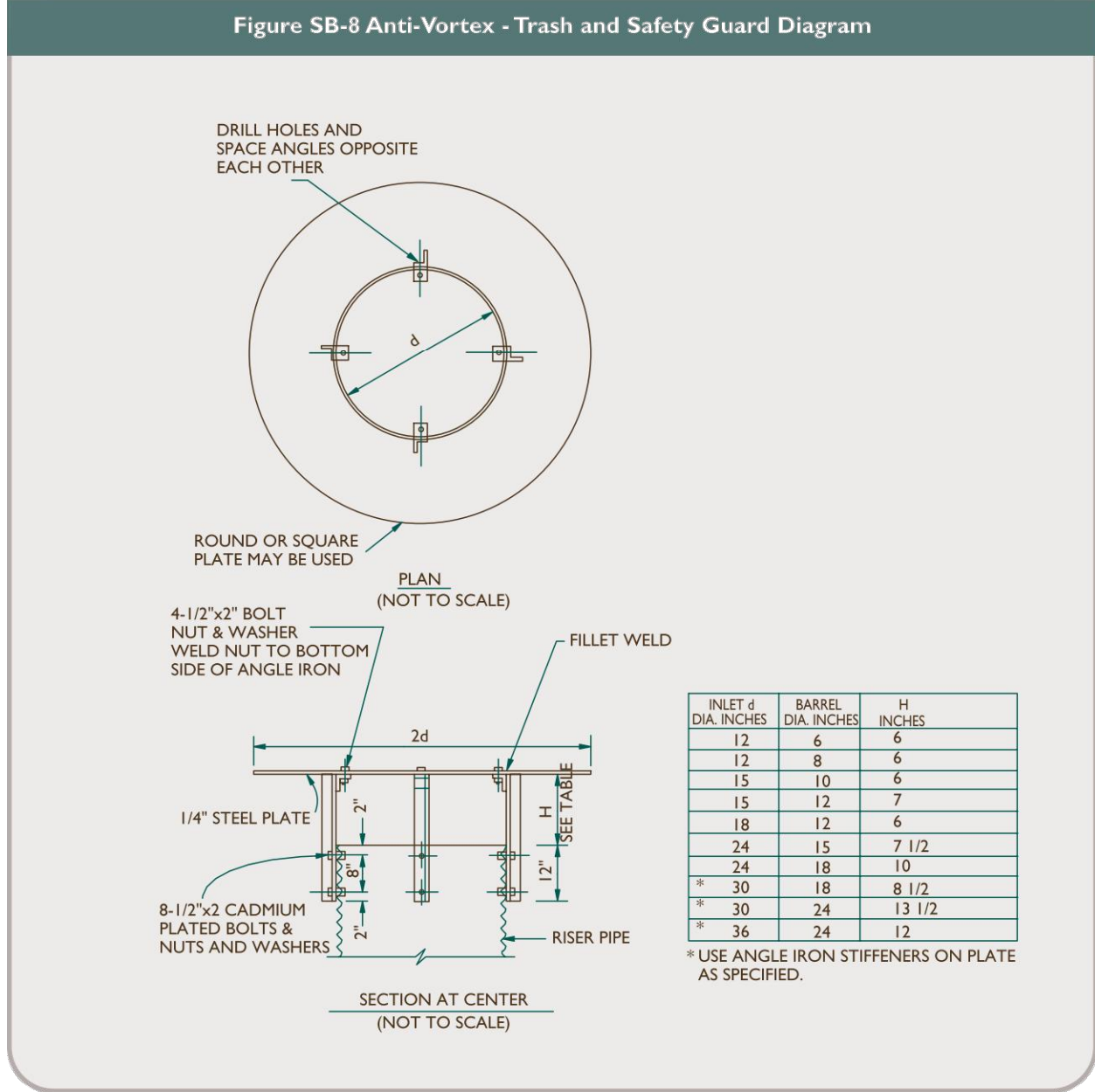
5-11-17



Source: USDA-NRCS

5-11-18

2002 Connecticut Guidelines for Soil Erosion and Sediment Control



Source: USDA-NRCS

5-11-16

2002 Connecticut Guidelines for Soil Erosion and Sediment Control



REV	DESCRIPTION	DATE
0	ISSUED FOR PERMIT	05/22/2020
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-	-	-
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PROJECT NAME:

STONINGTON SOLAR PROJECT

PROJECT ADDRESS:

ELLA WHEELER RD.  
NORTH STONINGTON, CT 06359  
41° 25' 9.71"N, 71° 50' 4.83"W

SEAL: DATE: 22-MAY-20

PROJECT #:

#

DRAWN BY: MMM

CHECKED BY: DRG

TITLE: GRADING & DRAINAGE DETAILS

SHEET: G&D-303

ISSUED FOR PERMIT  
NOT FOR CONSTRUCTION





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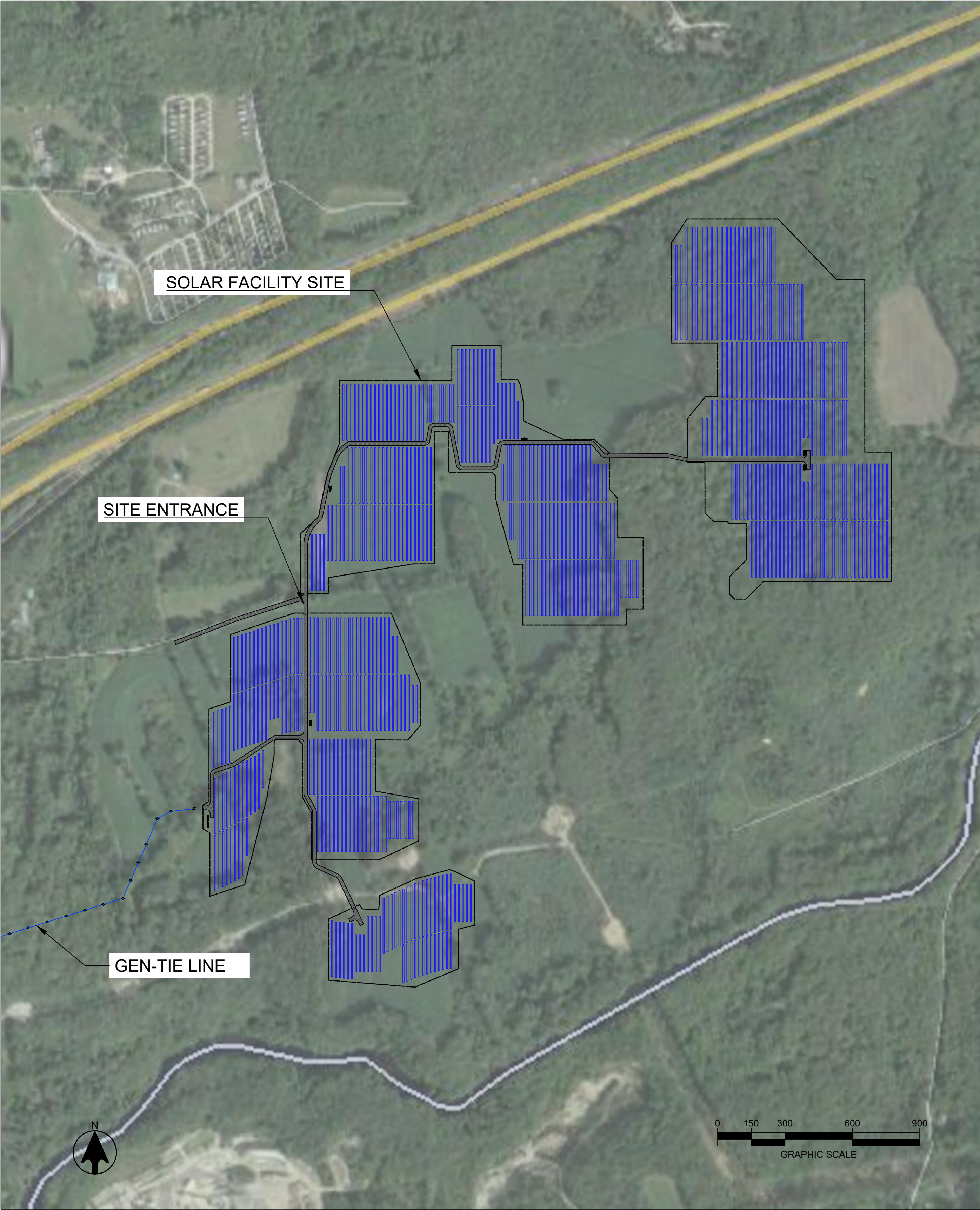
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19.97 MW DC / 15 MW AC PHOTOVOLTAIC PROJECT

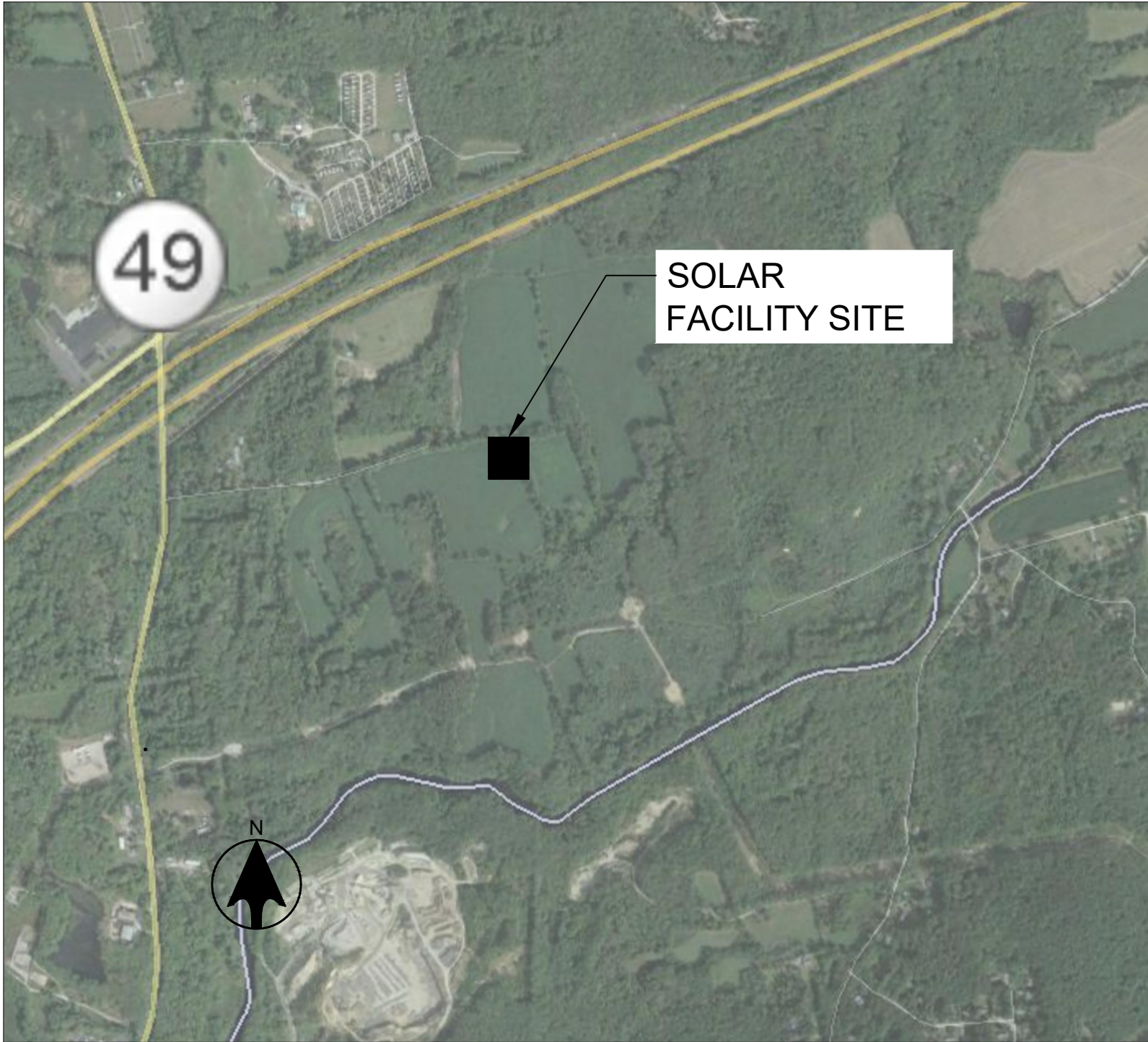
# NORTH STONINGTON

ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W

## SITE OVERVIEW



## VICINITY MAP



## PROJECT INFORMATION

SITE INFORMATION	
PROJECT AREA	143.15 ACRES
FENCE HEIGHT	7 FEET
FENCE PERIMETER	ARRAY 5&6 - 6,425 LINEAR FEET
	ARRAY 3&4 - 7,910 LINEAR FEET
	ARRAY 1&2A - 6,435 LINEAR FEET
	ARRAY 2B - 2,535 LINEAR FEET
SYSTEM INFORMATION	
DC SYSTEM SIZE - MAX POWER	19.978 MW DC
AC SYSTEM SIZE - NAMEPLATE	15 MW AC
MODULES	(45,927) LONGI LR4-72HBD 435M (435 W)
INVERTERS	(6) SUNGROW SG2500U (2500kW)
STRING INFORMATION	
STRING LENGTH	27 MODULES
TOTAL STRINGS	1,701
MAX DC SYSTEM V <sub>oc</sub>	1500 V
STRUCTURAL INFORMATION	
RACKING COMPANY	NEXTRACKER
CONFIGURATION	81 MODULES PER TABLE
ROW SPACING (PITCH)	21'- 2" & 27'- 0"
GROUND COVERAGE RATIO	33% & 26%
AREA OF PANELS	88 ACRES
ARRAY TILT	TRACKER TYPE
ROTATION ANGLE	-50° TO 50°
# OF PILES	TO BE UPDATED PER TRACKER DWGS
PILE LENGTH	TO BE UPDATED PER TRACKER DWGS
EMBEDMENT DEPTH	TO BE UPDATED PER TRACKER DWGS
TYPICAL MODULE HEIGHT	TO BE UPDATED PER TRACKER DWGS
MIN MODULE HEIGHT	TO BE UPDATED PER TRACKER DWGS
MAX MODULE HEIGHT	TO BE UPDATED PER TRACKER DWGS
DESIGN INFORMATION	
WIND SPEED	125 MPH ASCE 7-16
GROUND SNOW LOAD	30 PSF
FROST DEPTH	TBD
ASHRAE WEATHER STATION	WESTERLY STATE AIRPORT, RI, USA
EXTREME MIN	-16.5°C
HIGH TEMP (2%)	29.9°C

## CONTACT INFORMATION

SYSTEM OWNER		UTILITY
PROJECT NAME		PAWCATUCK SOLAR, LLC
ADDRESS LINE 1		ELLA WHEELER RD
ADDRESS LINE 2		NORTH STONINGTON, CT 06359
PHONE #		PHONE #
EMAIL		EMAIL
PROJECT MANAGER		ELECTRICAL PE
NAME		ALLISON KIMBALL
ADDRESS LINE 1		1800 ROUTE 34, SUITE 209
ADDRESS LINE 2		WALL, NJ 07719
PHONE #		(732) 894-5061
EMAIL		akimbal@kmbdg.com
PROJECT ENGINEER		CIVIL PE
NAME		DARIN GALLOWAY
ADDRESS LINE 1		P.O. BOX 61412
ADDRESS LINE 2		RENO, NV 89506
PHONE #		(775) 848 - 5540
EMAIL		dgalloway@sierraoverhead.com
SYSTEMS ENGINEER		CONTRACTOR
NAME		CS ENERGY, LLC
ADDRESS LINE 1		2045 LINCOLN HWY
ADDRESS LINE 2		EDISON, NJ 08817
PHONE #		(732) 520-5000
EMAIL		jweiser@csenergy.com

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

CT CERTIFICATE OF REGISTRATION: PEC 0001173

DATE: **03/09/2020**

PROJECT #: **20005500**

DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

TITLE:  
**COVER SHEET**

SHEET:  
**T-001**



</



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1.9 IDENTIFICATION

A. WIRE DESIGNATION MARKERS: PROVIDE FUNGUS RESISTANT, VINYL OR VINYL-CLOTH CONDUCTOR MARKERS IN OUTLET, JUNCTION AND PULL BOXES INDICATING WIRE USAGE (I.E SWITCH LEG, POWER FEED, TRAVELERS, ETC). THIS IS IN ADDITION TO WIRE CIRCUIT IDENTIFICATION REQUIREMENTS AND IS INTENDED TO CLARIFY WIRING WITHIN BOXES.

B. CIRCUIT IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. IDENTIFY BRANCH CIRCUIT OR FEEDER NUMBER FOR POWER AND LIGHTING CIRCUITS, AND WIRE DESIGNATION INDICATED ON EQUIPMENT MANUFACTURER'S SHOP DRAWING FOR CONTROL WIRING. MAINTAIN CONSISTENCY WITH SIMILAR PREVIOUSLY ESTABLISHED IDENTIFICATION SCHEMES FOR THE FACILITY'S ELECTRICAL INSTALLATIONS.

1.10 SITE CONDITIONS:

A. A TOTAL OF 19,978.24 KW-DC, 15,000KW-AC OF PHOTOVOLTAIC SYSTEM WILL BE INSTALLED AT THE ELLA ROAD SOLAR SITE LOCATED IN NORTH STONINGTON, CT.

B. PHOTOVOLTAIC ARRAYS WILL BE INSTALLED ON THE POST DRIVEN TRACKER GROUND MOUNT ARRAY AS IDENTIFIED IN THE DRAWINGS.

C. THE ASHRAE EXTREME ANNUAL DRY BULB MINIMUM TEMPERATURE AT THE SITE IS -16.5 DEG CELSIUS.

D. THE ASHRAE 2% DRY BULB HIGH AMBIENT TEMPERATURE AT THE SITE IS 29.9 DEG CELSIUS.

1.11 PHOTOVOLTAIC CIRCUIT DESIGN:

A. THE NUMBER OF MODULES IN A STRING BASED ON MANUFACTURERS SPECIFICATIONS FOR THE TEMPERATURE CO-EFFICIENT FOR VOLTAGE FOR THE LONGI 435 (435W) MODULE IS -0.30%/DEG C AT AN AMBIENT TEMPERATURE OF 25 DEG C. BASED ON THE RECORD LOW AMBIENT TEMPERATURE OF -16.5 DEG C, THE TEMPERATURE DIFFERENTIAL IS 29.9 DEG C. CALCULATION: THE MAXIMUM VOLTAGE CALCULATED FROM THE DATA SIMULATED BY SAM USING SANDIA NATIONAL LABORATORIES' PHOTOVOLTAIC ARRAY PERFORMANCE MODEL WAS FOUND TO BE 1500 V.

B. THE PHOTOVOLTAIC ARRAY STRINGS USE 27 MODULES IN SERIES EACH.

C. ALL THE DC CIRCUIT CONNECTIONS HAVE BEEN DESIGNED TO HAVE A VOLTAGE DROP OF LESS THAN 2% FROM THE MODULE TO INVERTER TERMINALS AT STANDARD TEST CONDITIONS. REFER TO WIRING SCHEDULE FOR SAMPLE CALCULATION.

D. PHOTOVOLTAIC ARRAY DC WIRE SIZING IS BASED ON ETAP SOFTWARE PROVIDED DERATE VALUES PER BACKFILL SOIL THERMAL RESISTIVITY AND DUCT BANK CONFIGURATION.

E. ALL MATING STRING WIRING CONNECTORS SHALL BE OF THE SAME BRAND NAME. MC4 COMPATIBLE CONNECTORS SHALL NOT MATE WITH MC4 OR OTHER BRAND NAME MC4 COMPATIBLE CONNECTORS.

F. PHOTOVOLTAIC SOURCE CIRCUITS ARE PROTECTED BY OVER CURRENT PROTECTION IN ACCORDANCE WITH NEC SEC 690.9.

G. PHOTOVOLTAIC INVERTERS ARE PROVIDED WITH GROUND FAULT PROTECTION AND INTERRUPTION ABILITIES IN ACCORDANCE WITH NEC SEC. 690.5. 690.11 DOES NOT APPLY.

H. PHOTOVOLTAIC ARRAYS HAVE BEEN PROVIDED WITH DISCONNECTING MEANS IN ACCORDANCE WITH NEC SEC 690.13.

I. PHOTOVOLTAIC ARRAYS HAVE A COMMON DC AND AC GROUNDING ELECTRODE SYSTEM COMPLYING WITH THE REQUIREMENTS OF NEC SEC 690.47.

J. ALL PHOTOVOLTAIC EQUIPMENT INCLUDING PV MODULES, COMBINER BOXES, DISCONNECTS, INVERTERS, AC CIRCUIT BREAKERS WILL BE IDENTIFIED AND INFORMATION ON MAXIMUM SYSTEM VOLTAGE, CURRENT, OPERATING VOLTAGE AND CURRENT WILL BE NOTED WITH A WARNING LABEL ON A CLEARLY VISIBLE LOCATION.

K. ALL PHOTOVOLTAIC DC CONDUCTORS SHALL BE 2000V PV WIRE "SUNLIGHT RESISTANT" MARKED FOR EXPOSED WIRING. 2000V PV WIRE, DIRECT BURIAL FOR DIRECT BURIED WIRED, 2000V XLPE INSULATION /RHW-2 FOR ALL WIRING IN CONDUIT. RATING OF AC EQUIPMENTS SHALL MATCH EXISTING EQUIPMENTS.

L. ALL EQUIPMENT SHALL BE RATED FOR A MAXIMUM SYSTEM VOLTAGE OF 2000V AND ALL TERMINALS WILL BE RATED FOR STRANDED WIRES AND HAVE A 90°C TEMPERATURE RATING.

M. CONDUITS HAVE BEEN SIZED TO MEET THE CONDUIT FILL REQUIREMENTS OF NEC. CHAPTER 9 TABLE 1.

1.12 CB LABELS, DC DISC LABELS, INV LABELS, WARNING LABELS:

A. ALL LABELS SHALL BE UV STABILIZED, WEATHERPROOF AND DURABLE.

B. TEXT ON LABELS SHALL BE OF ARIAL FONT - IT SHALL BE LEGIBLE AND CLEAR.

C. THE TONE OF THE BACKGROUND COLOR SHALL BE BRIGHT TO ATTRACT ATTENTION. YELLOW (106) FOR CAUTION LABELS AND ORANGE (152) FOR WARNING LABELS.

D. LABELS SHALL BE SECURELY FASTENED TO SPECIFIED LOCATIONS BY USING A WEATHER PROOF AND DURABLE ADHESIVE SUITABLE FOR THE MATERIAL OF THE LABEL AND THE LOCATION.

E. THE LABELS SHALL BE POSTED AT THE LOCATIONS SPECIFIED. IF FOR REASONS OF REDUCED ACCESS OR SPACE, THE LABELS SHALL BE POSTED AT THE CLOSEST LOCATION THAT BEST SERVES THE INTENT OF THE LABEL. NOTIFY THE ENGINEER/SUPERVISOR IN SUCH A CASE BEFORE ATTACHING.

1.13 ABBREVIATIONS

A AMPERES (AMP)  
AC ALTERNATING CURRENT  
AF AMP FRAME  
AT AMP TRIP  
BIL BASIC IMPULSE LEVEL  
CB COMBINER BOX  
COM COMMUNICATIONS  
CT CURRENT TRANSFORMER  
CPT CONTROL POWER TRANSFORMER  
CU COPPER  
DC DIRECT CURRENT  
EMT ELECTRICAL METALIC TUBING  
EPR ETHYLENE PROPYLENE RUBBER  
GEM GROUND ENHANCEMENT MATERIAL  
G/GND GROUND  
GFCI GROUND FAULT CIRCUIT INTERRUPTER  
GFD GROUND FAULT PROTECTION  
Inom NOMINAL CURRENT (AMPS)  
KCMIL THOUSAND CIRCULAR MILS  
KV THOUSAND VOLT  
KVA THOUSAND VOLT-AMPS  
KW THOUSAND WATT  
LFMC LIQUID TIGHT FLEXIBLE METALLIC CONDUIT  
MPPT MAXIMUM POWER POINT  
MV MEDIUM VOLTAGE  
NEC NATIONAL ELECTRIC CODE  
NESC NATIONAL ELECTRIC SAFETY CODE  
PCC POINT OF COMMON COUPLING  
PT POTENTIAL (VOLTAGE) TRANSFORMER  
PV PHOTOVOLTAIC  
PVC POLYVINYL CHLORIDE  
RMC RIGID METAL CONDUIT  
SA SURGE ARRESTER  
SCH SCHEDULE  
SPD SURGE PROTECTION DEVICE  
UL UNDERWRITER'S LAB  
V VOLTAGE (VOLT)  
Z IMPEDANCE

1.14 SYMBOLS:

EXISTING GAS HEADER

ROAD (NEW)

PV MODULE

AC LINE (15kV) ABOVE GRADE CONDUIT ROUTE

DC LINE (2000V)

GROUND

OVERHEAD LINE

UNDERGROUND CABLE ROUTE

GROUND ROD/PLATE

CB COMBINER BOX

LOAD BREAK DISCONNECT SWITCH

FUSED DISCONNECT SWITCH

POWER CIRCUIT BREAKER (15kV)

CIRCUIT BREAKER ( $\leq$  1000V)

POTENTIAL TRANSFORMER

CURRENT TRANSFORMER

GROUND

UTILITY METER

DEAD BREAK ELBOW (15kV)

CABLE "LUG" TERMINATION

TRANSFORMER

FUSE

GROUND FAULT DEVICE

SURGE PROTECTION DEVICE

OH CABLE TERMINATION "POT HEAD"

SURGE ARRESTER "SA"

EQUIPMENT PAD

GRAVEL ACCESS ROAD

REV	DESCRIPTION	DATE
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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:

NORTH STONINGTON

PROJECT ADDRESS:

ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W

SEAL:

FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE:  
03/09/2020

PROJECT #:  
2000500

DRAWN BY:  
V. PISSAREVSKI

CHECKED BY:  
R. VUDI

TITLE:

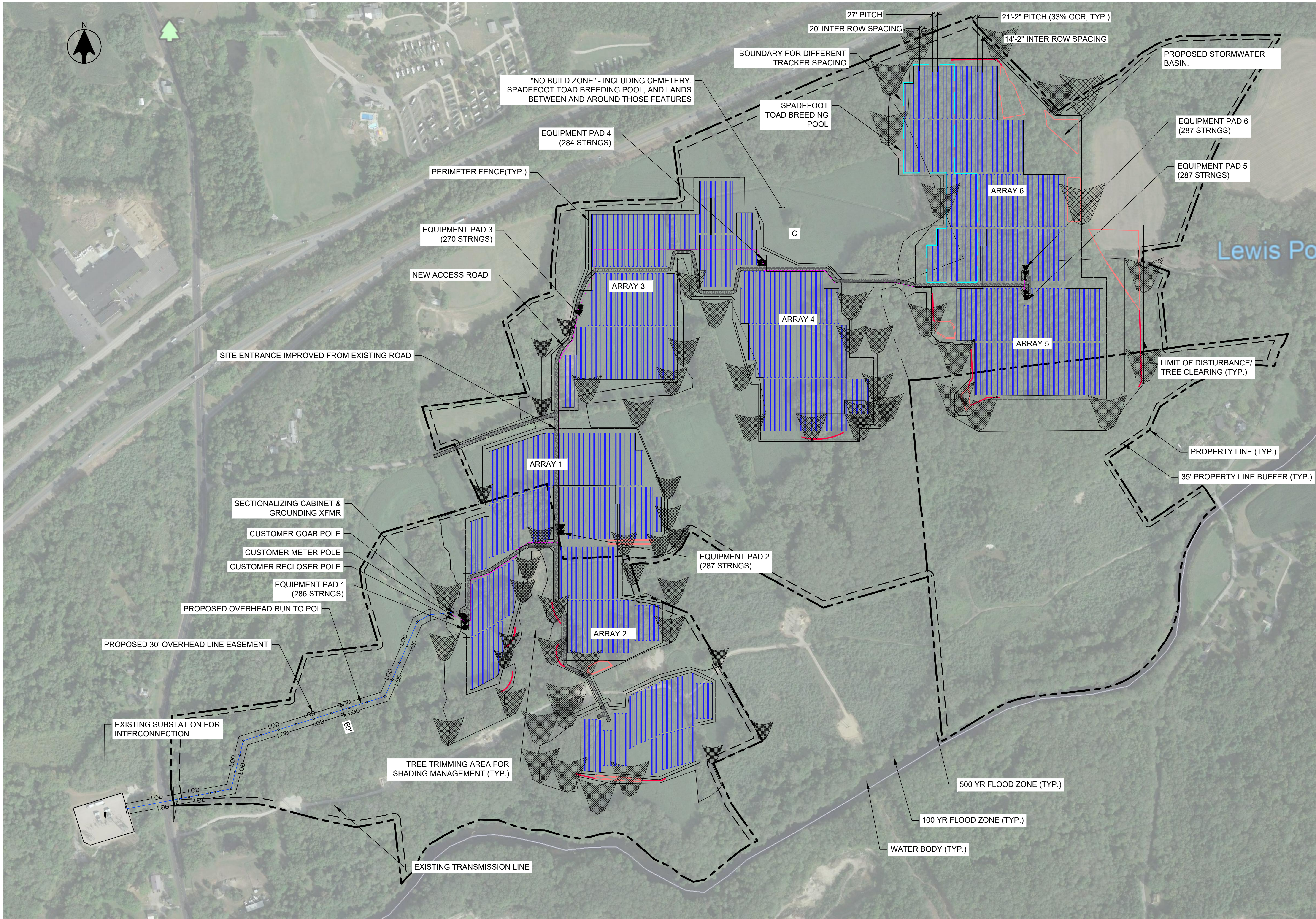
GENERAL NOTES SHEET 2

SHEET:

E-002

PLOT DATE: Thursday, June 04, 2020





SYSTEM SUMMARY

STRING QTY.	1,701
MODULES / STR	27
MODULE QTY.	45,927
TOTAL DC SIZE	19.97 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

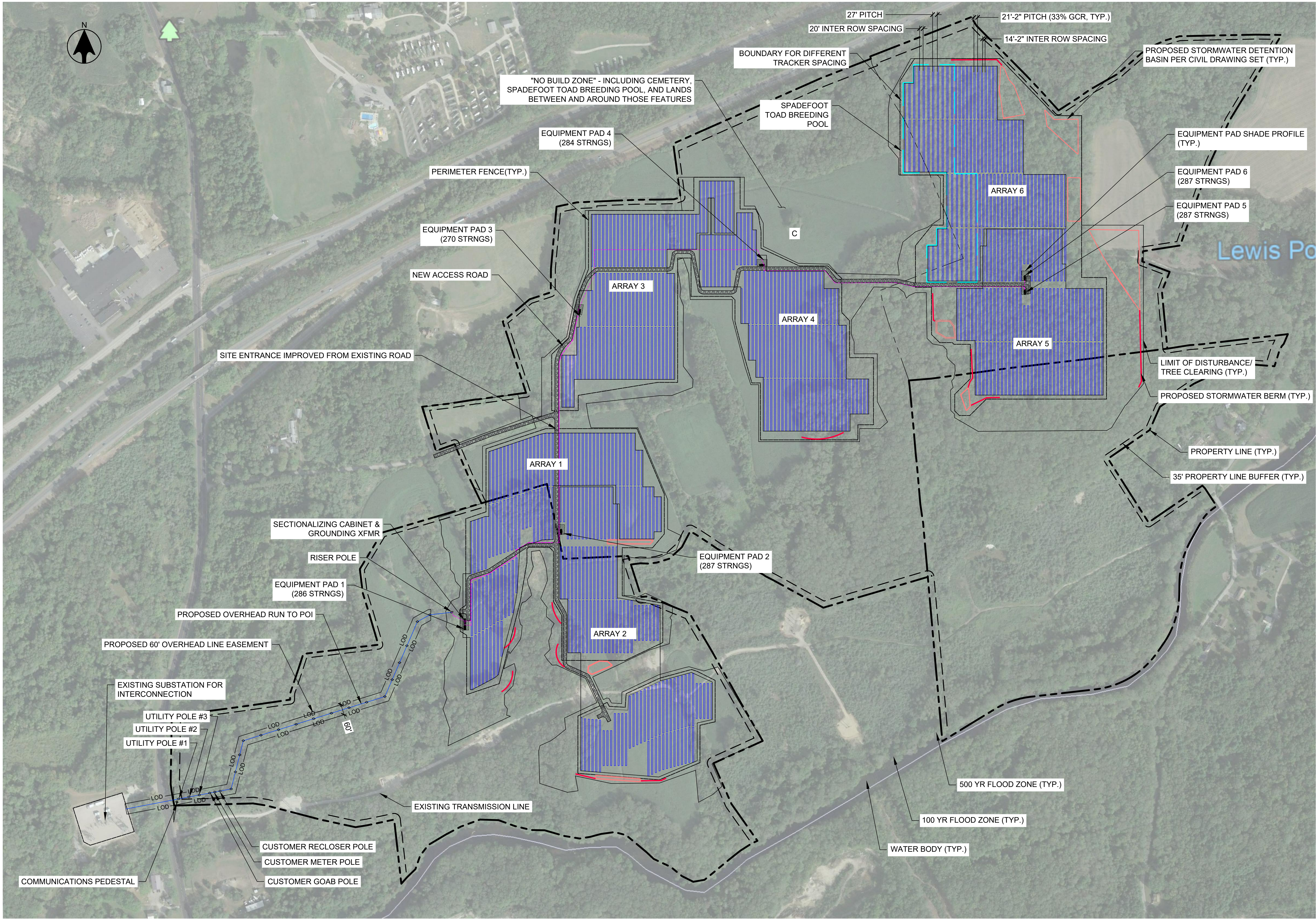


DATE: **03/09/2020**  
PROJECT #: **2000500**  
DRAWN BY: **V. PISSAREVSKI**  
CHECKED BY: **R. VUDI**

TITLE:  
**OVERALL SITE PLAN**

SHEET:  
**E-100**





SYSTEM SUMMARY

STRING QTY.	1,701
MODULES / STR	27
MODULE QTY.	45,927
TOTAL DC SIZE	19.97 MW
AZIMUTH	180°
GCR	33% & 26%
RACKING	NEXTRACKER

NOTES:

- DISTANCE BETWEEN UTILITY POLES ASSUMED TO BE 60 FEET.
- DISTANCE BETWEEN EQUIPMENT TOP CUSTOMER POLES ASSUMED TO BE 30 FEET. ALL OTHER POLES ARE PLACED 105 FEET APART.
- EQUIPMENT PAD SHADE PROFILE BASED ON 10 FEET HIGH STRUCTURE.

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

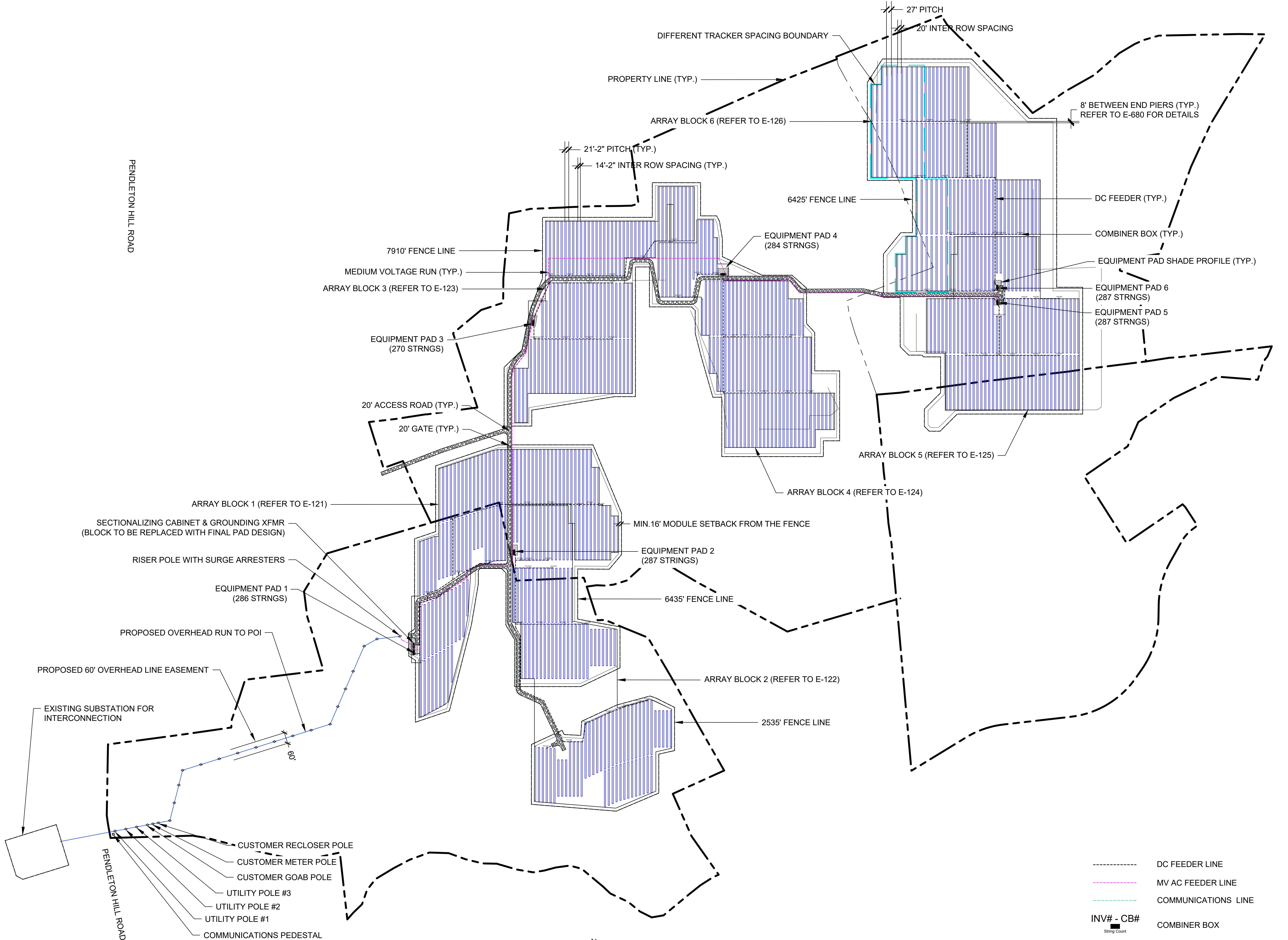


DATE: 03/09/2020  
PROJECT #: 2000500  
DRAWN BY: V. PISSAREVSKI  
CHECKED BY: R. VUDI

TITLE:  
**OVERALL SITE PLAN**

SHEET:  
**E-101**





SYSTEM SUMMARY

STRING QTY.	1,701
MODULES / STR	27
MODULE QTY.	45,927
TOTAL DC SIZE	19.97 MW
AZIMUTH	180°
GCR	33% & 26%
RACKING	NEXTRACKER
CB QTY.	95

NOTES:

- DISTANCE BETWEEN UTILITY POLES ASSUMED TO BE 60 FEET.
- DISTANCE BETWEEN EQUIPMENT TOP CUSTOMER POLES ASSUMED TO BE 30 FEET. ALL OTHER POLES ARE PLACES 105 FT APART.
- EQUIPMENT PAD SHADE PROFILE BASED ON 10 FEET HIGH STRUCTURE.

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 385-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

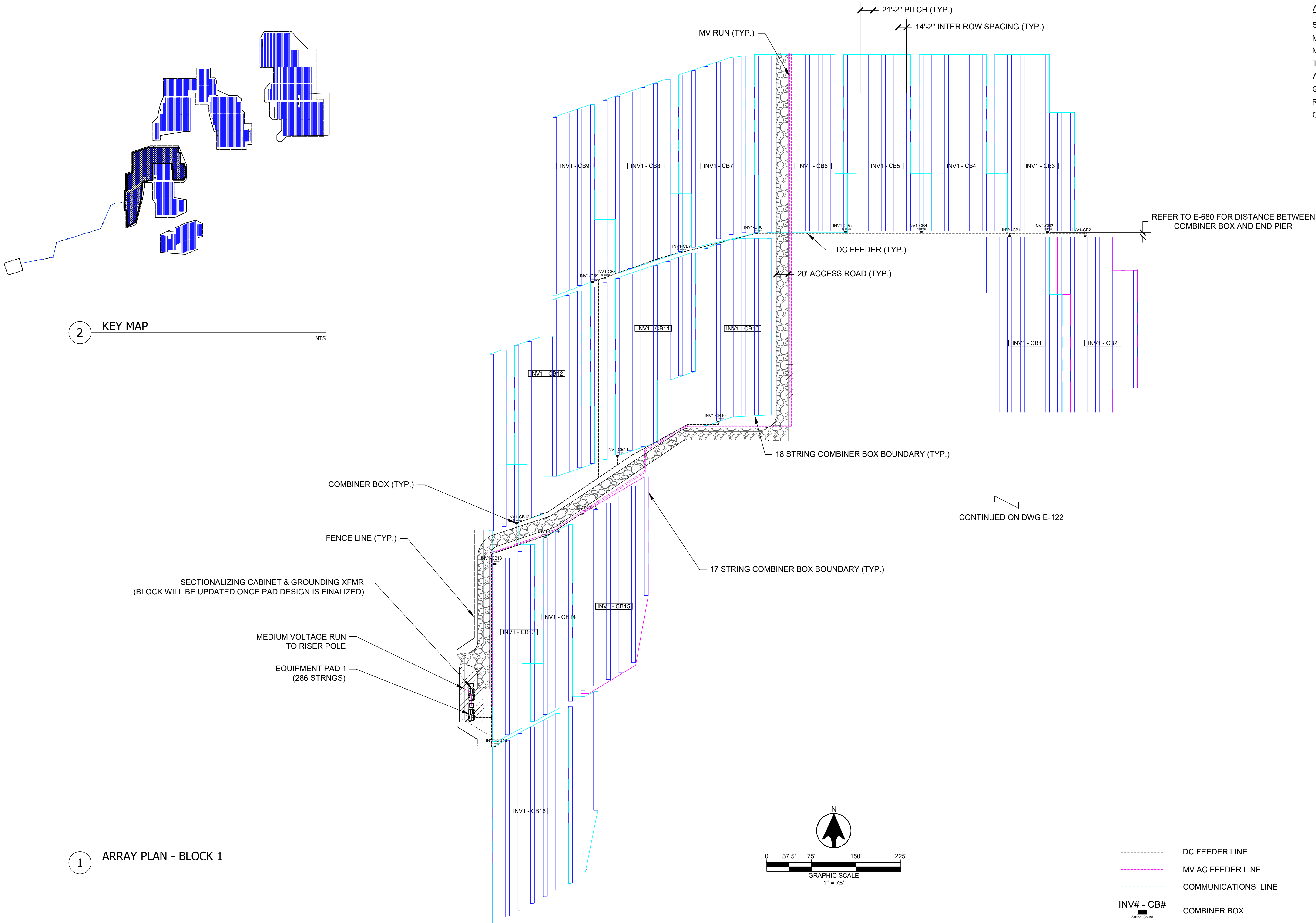
DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

TITLE:  
**OVERALL ARRAY SITE PLAN**

SHEET:  
**E-120**





ARRAY 1 SYSTEM SUMMARY

STRING QTY.	286
MODULES / STR	27
MODULE QTY.	7,722
TOTAL DC SIZE	3,359 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	16

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
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NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173




DATE: 03/09/2020

PROJECT #: 2000500

DRAWN BY: V. PISSAREVSKI

CHECKED BY: R. VUDI

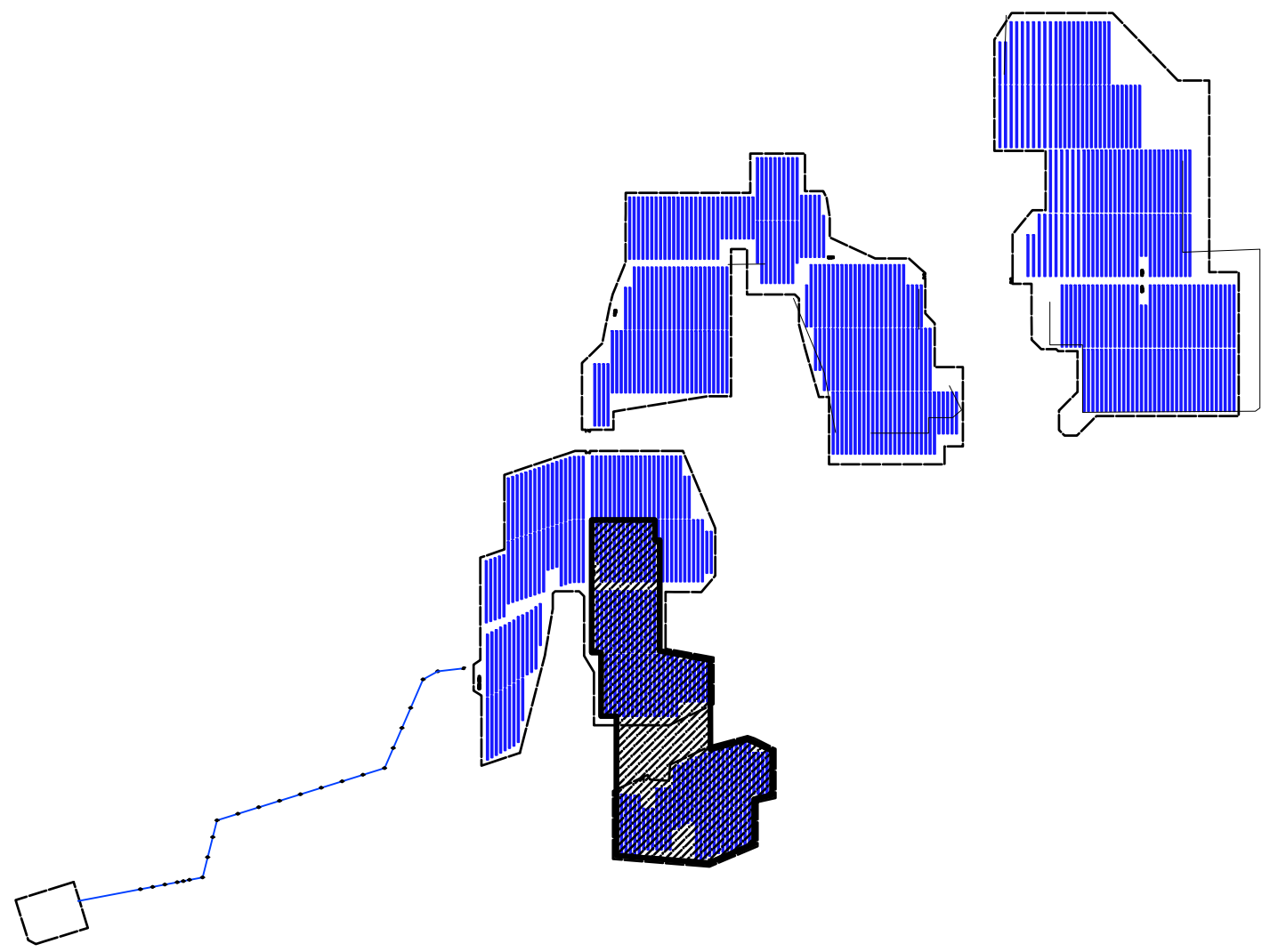


FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

TITLE:  
**ARRAY PLAN - BLOCK 1**

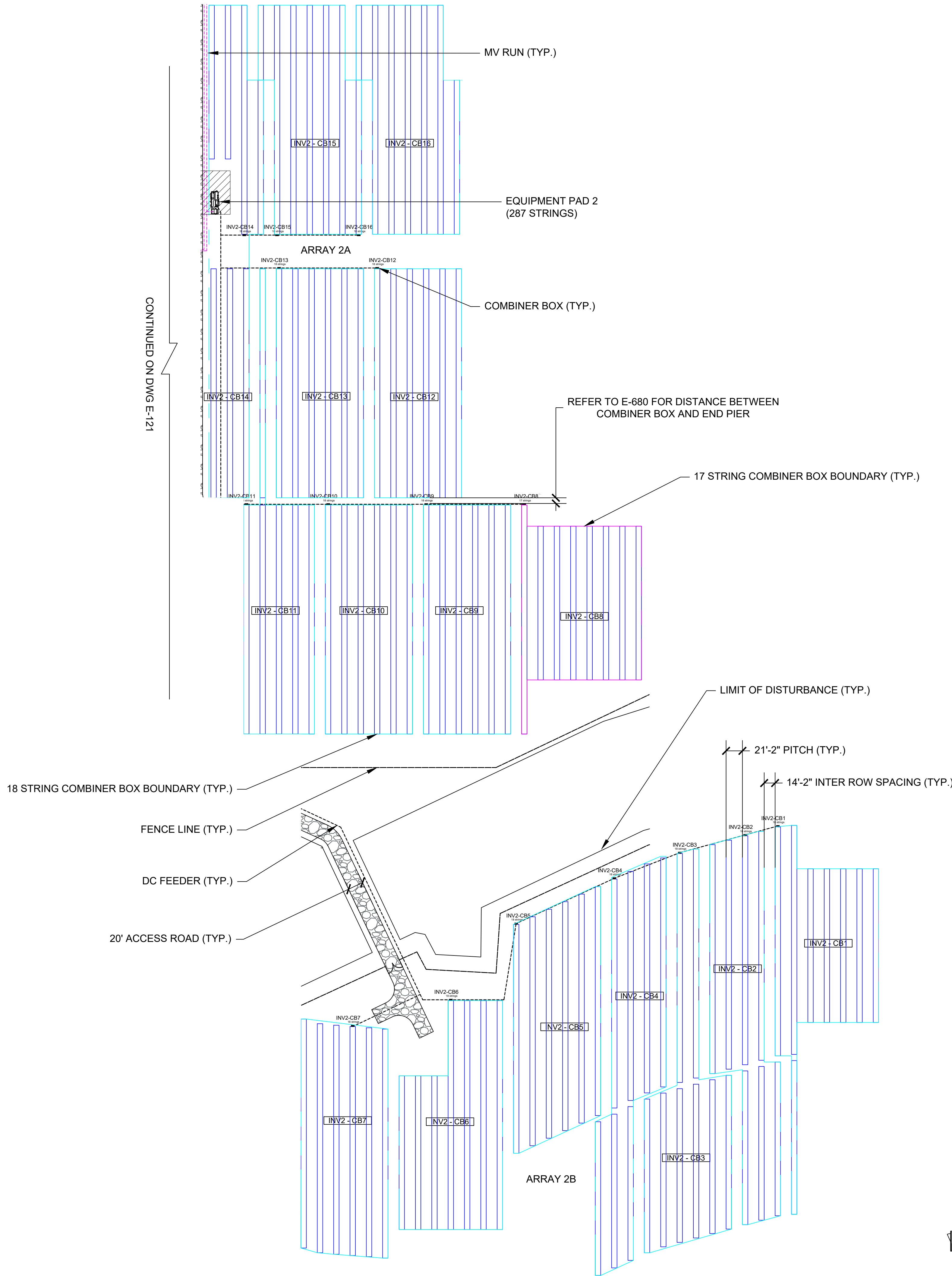
SHEET:  
**E-121**





2 KEY MAP  
NTS

CONTINUED ON DWG E-121



1 ARRAY PLAN - BLOCK 2

ARRAY 2 SYSTEM SUMMARY

STRING QTY.	287
MODULES / STR	27
MODULE QTY.	7,749
TOTAL DC SIZE	3.37 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	16

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173



Stephen A. Bray  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657



1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 395-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

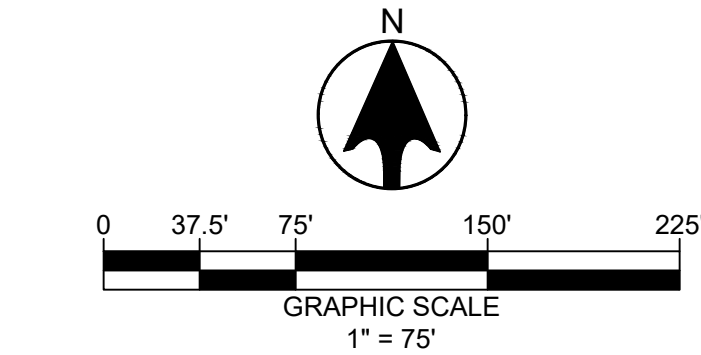
PROJECT #: **2000500**

DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

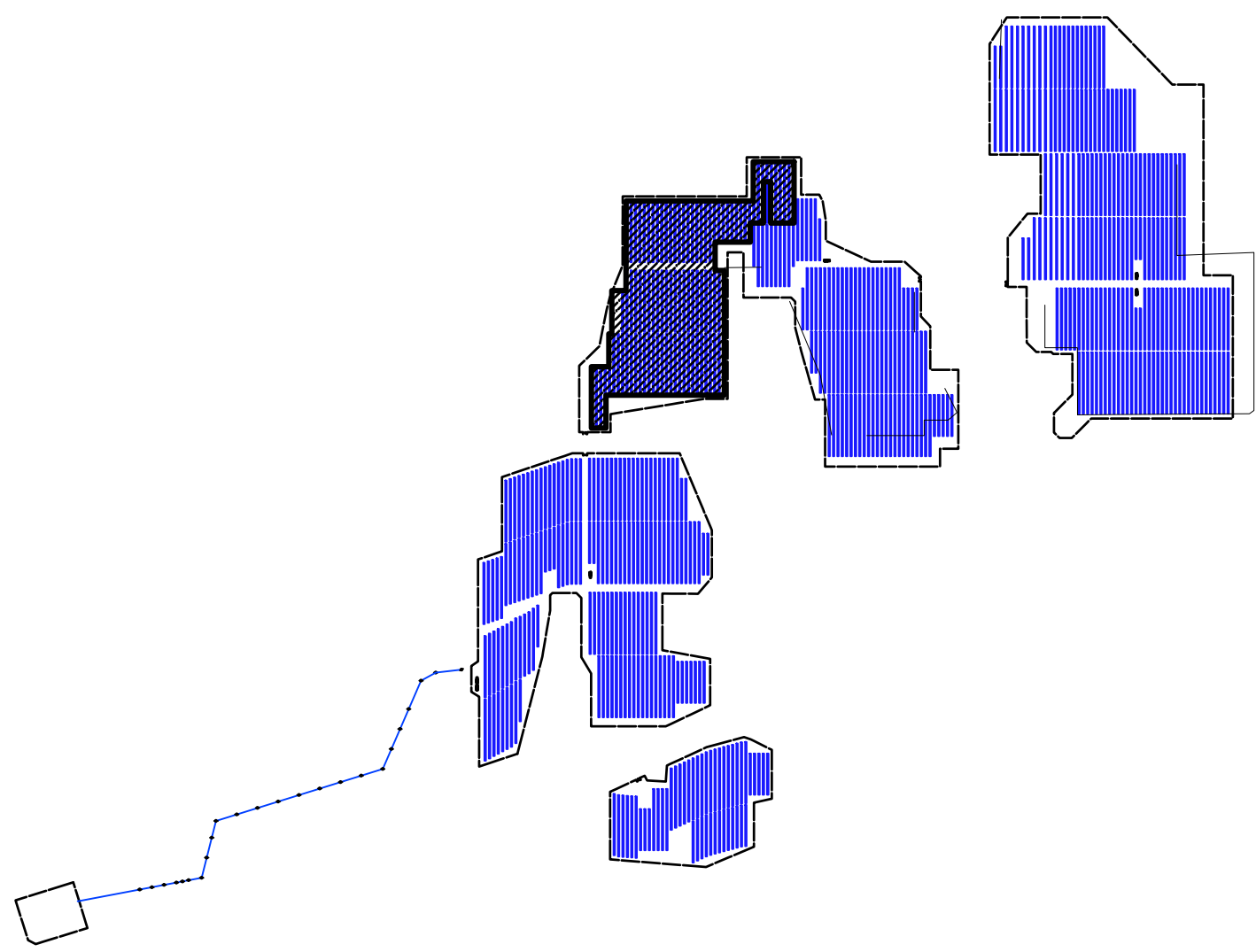
TITLE:  
**ARRAY PLAN - BLOCK 2**

SHEET:  
**E-122**

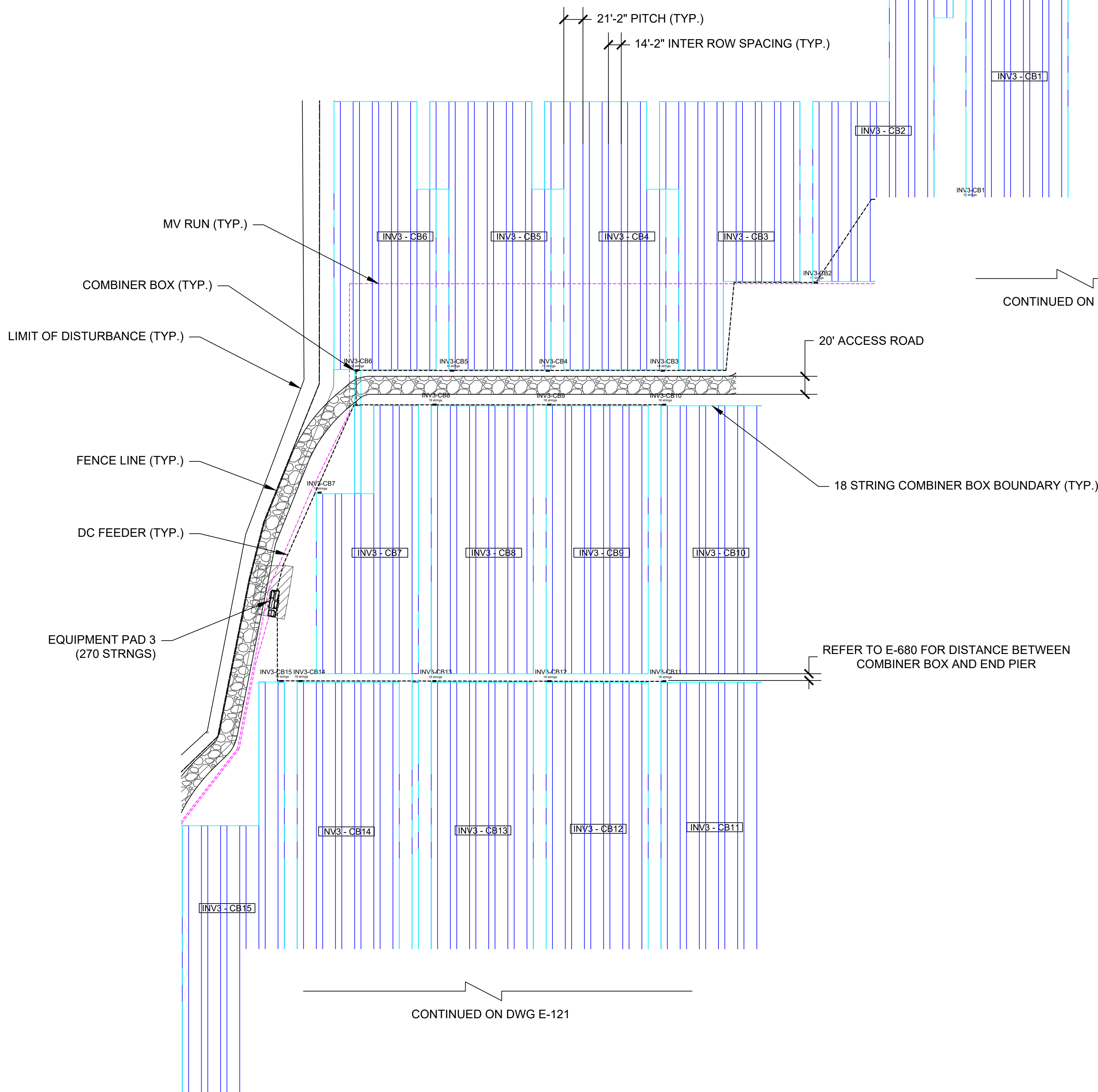


- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

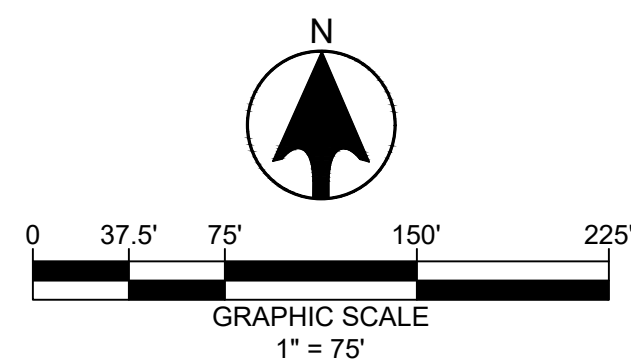




2 KEY MAP



1 ARRAY PLAN - BLOCK 3



- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- EQUIPMENT PAD WITH INVERTER

#### ARRAY 3 SYSTEM SUMMARY

STRING QTY.	270
MODULES / STR	27
MODULE QTY.	7,290
TOTAL DC SIZE	3.17 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	15

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

**KMB**  
DESIGN GROUP  
kmbdg.com

1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 385-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

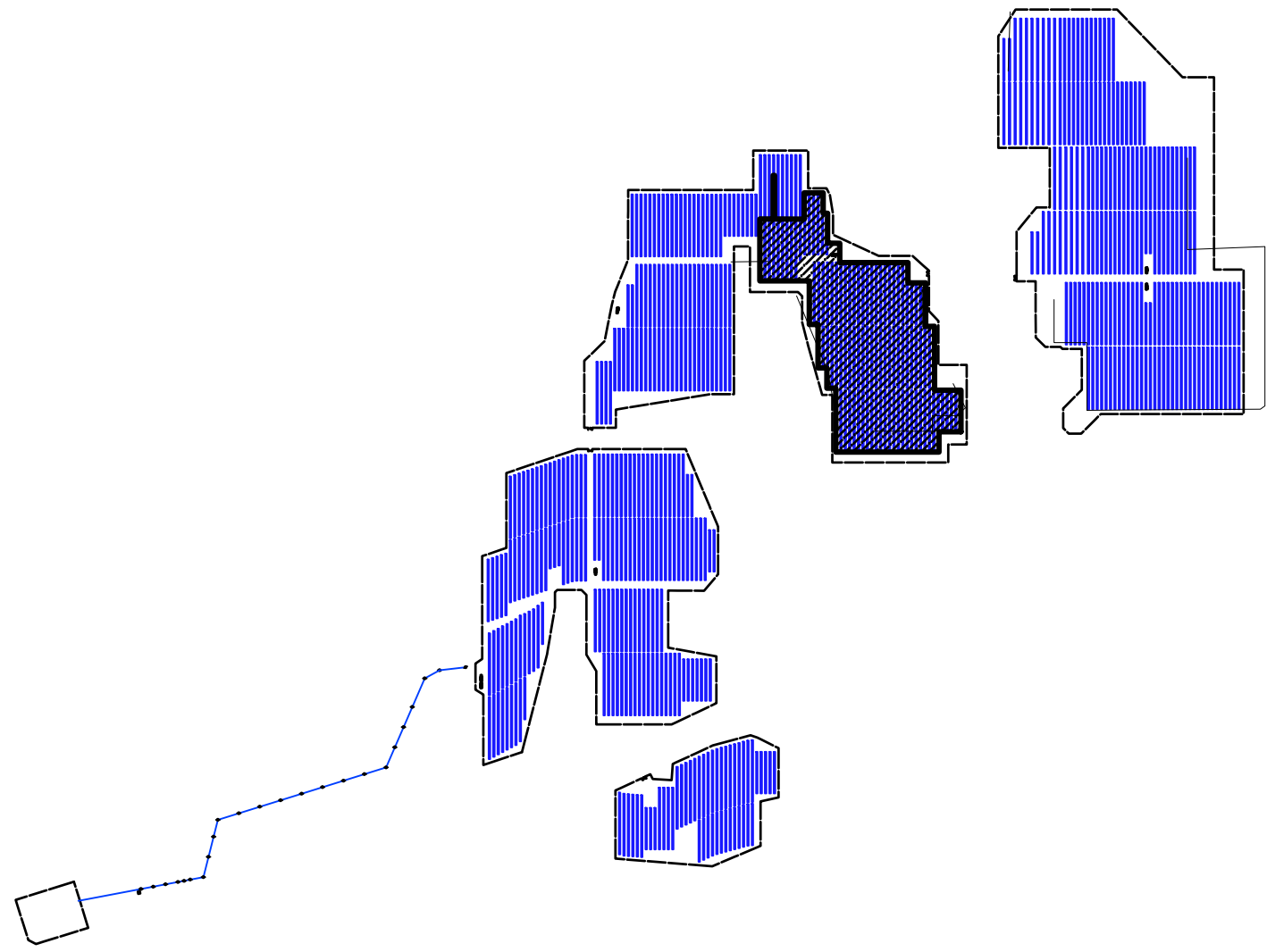
DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

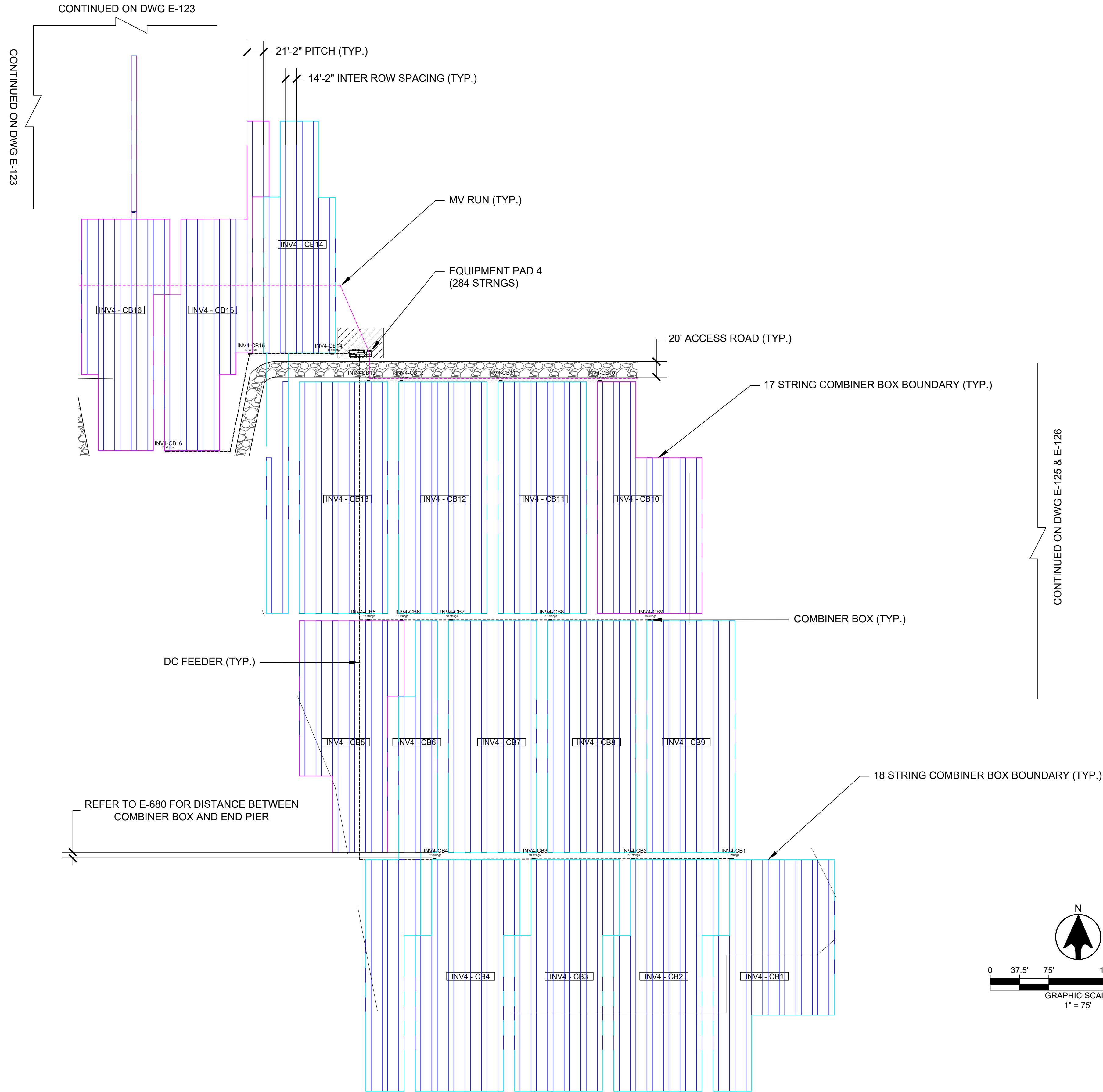
TITLE:  
**ARRAY PLAN - BLOCK 3**

SHEET:  
**E-123**

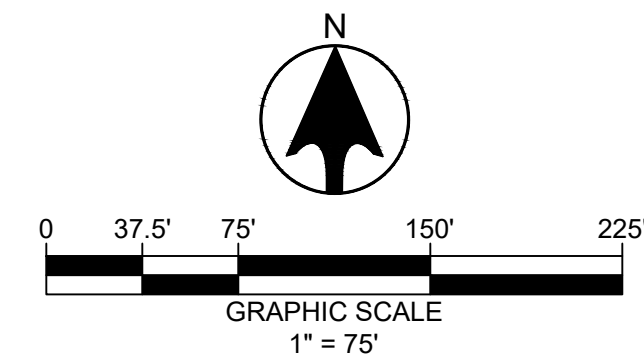




2 KEY MAP



1 ARRAY PLAN - BLOCK 4



- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

ARRAY 4 SYSTEM SUMMARY

STRING QTY.	284
MODULES / STR	27
MODULE QTY.	7,668
TOTAL DC SIZE	3.33 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	16

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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**ENERPARC**

ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

**KMB**  
DESIGN GROUP  
kmbdg.com  
1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 385-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

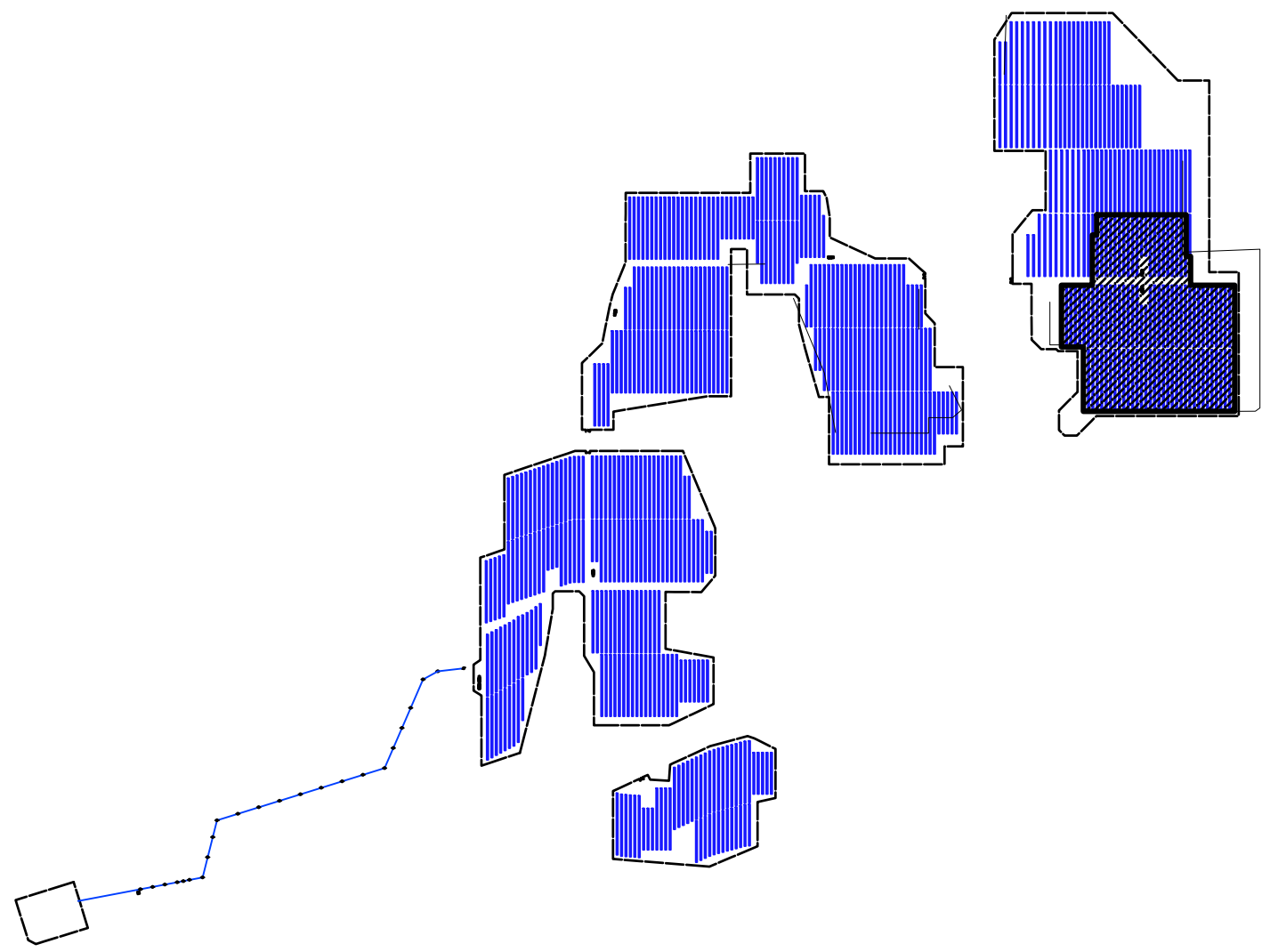
DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

TITLE:  
**ARRAY PLAN - BLOCK 4**

SHEET:  
**E-124**



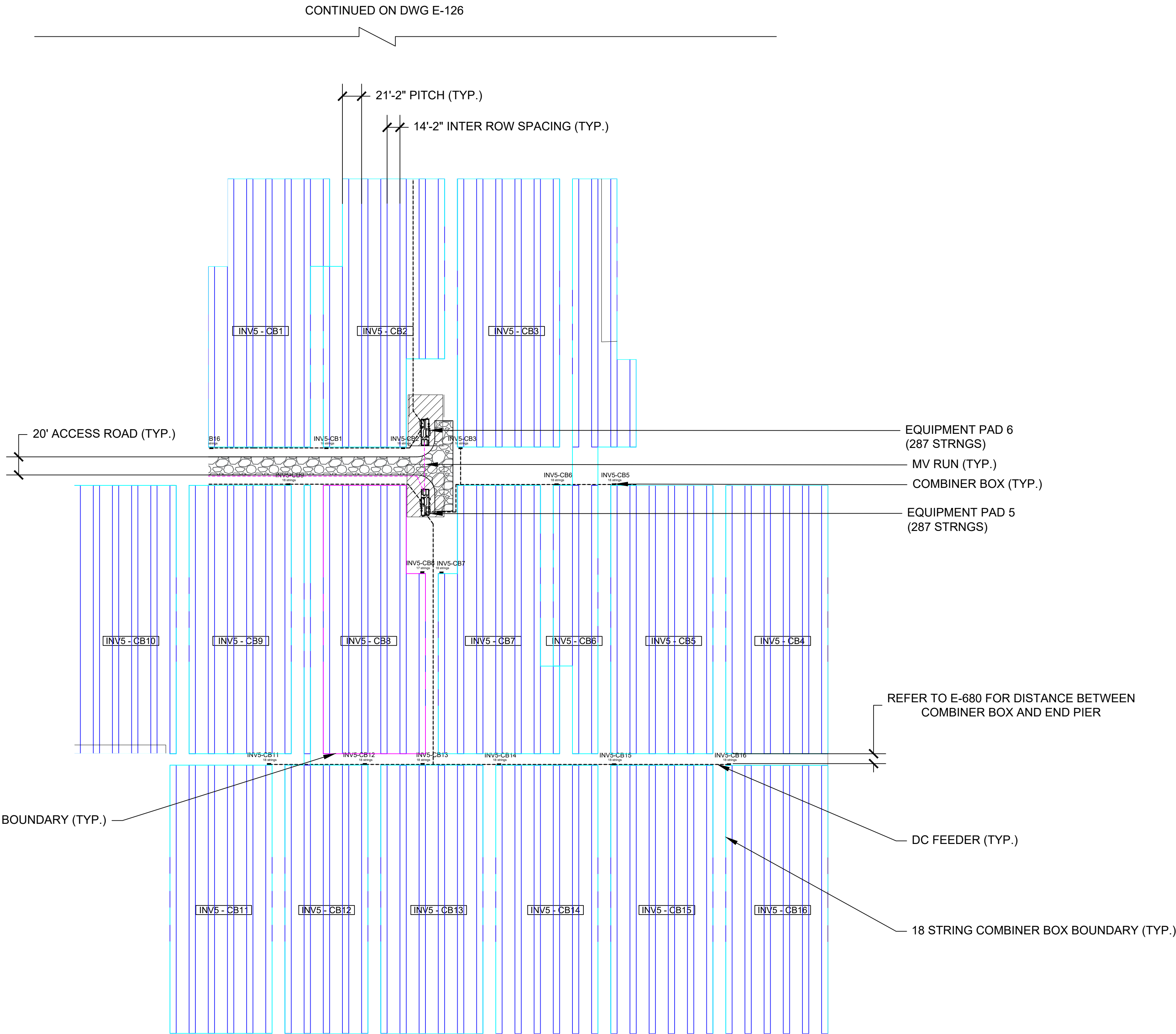


2 KEY MAP

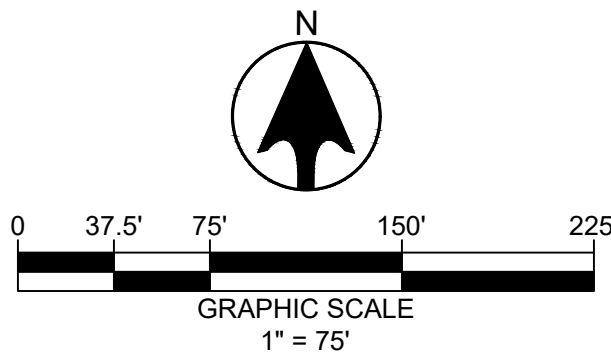
NTS

CONTINUED ON DWG E-124

17 STRING COMBINER BOX BOUNDARY (TYP.)



1 ARRAY PLAN - BLOCK 5



- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

ARRAY 5 SYSTEM SUMMARY

STRING QTY.	287
MODULES / STR	27
MODULE QTY.	7,749
TOTAL DC SIZE	3.37 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	16

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

DATE: 03/09/2020

PROJECT #: 2000500

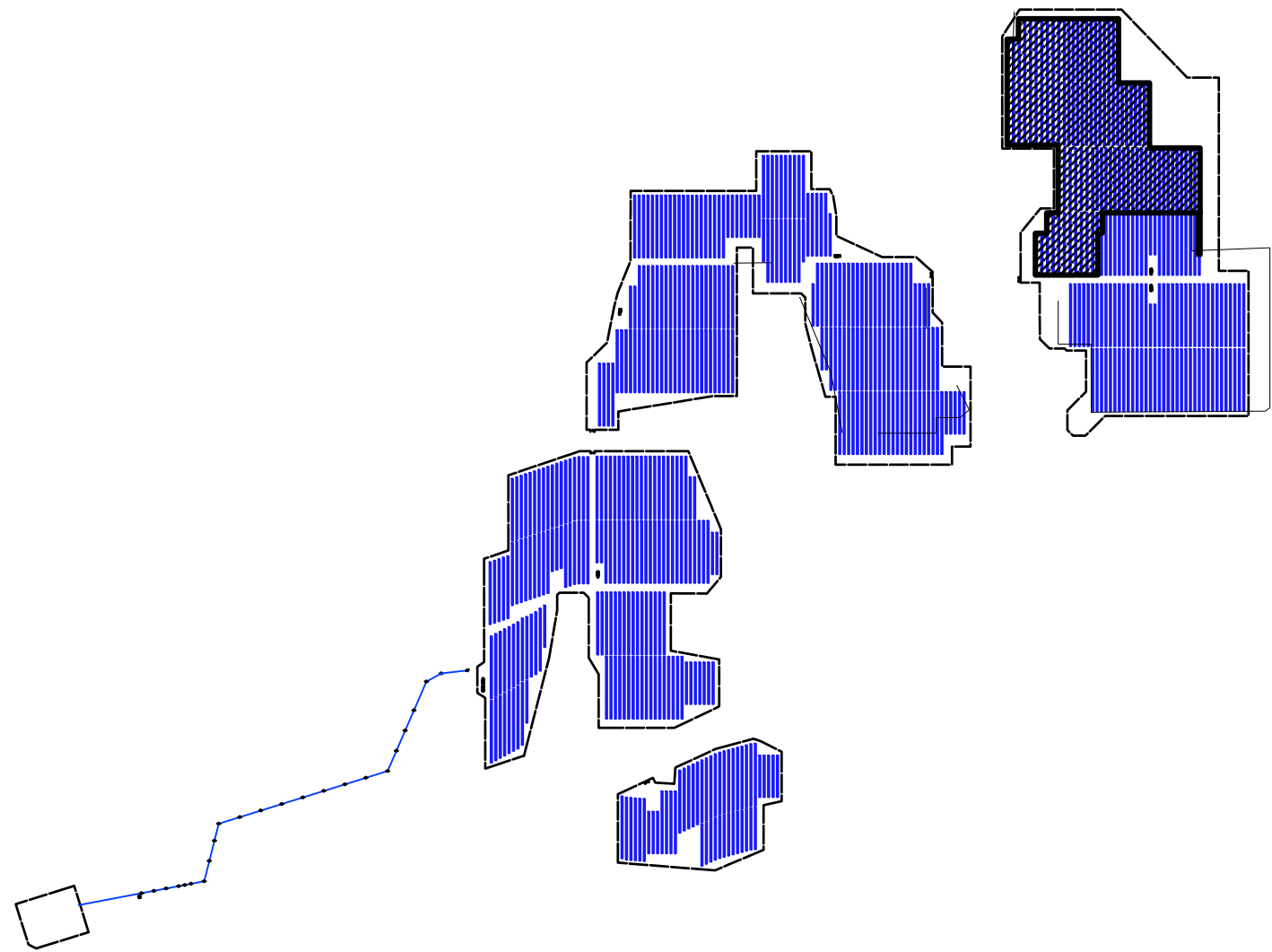
DRAWN BY: V. PISSAREVSKI

CHECKED BY: R. VUDI

TITLE:  
**ARRAY PLAN - BLOCK 5**

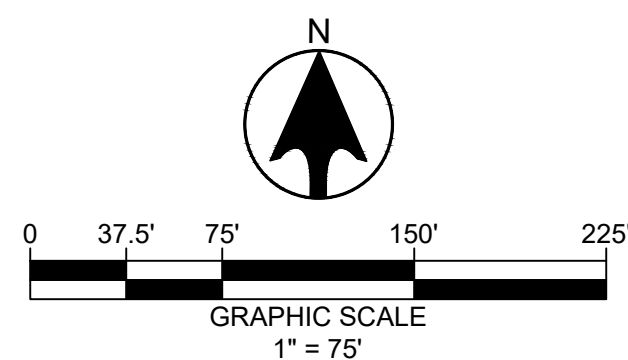
SHEET:  
**E-125**



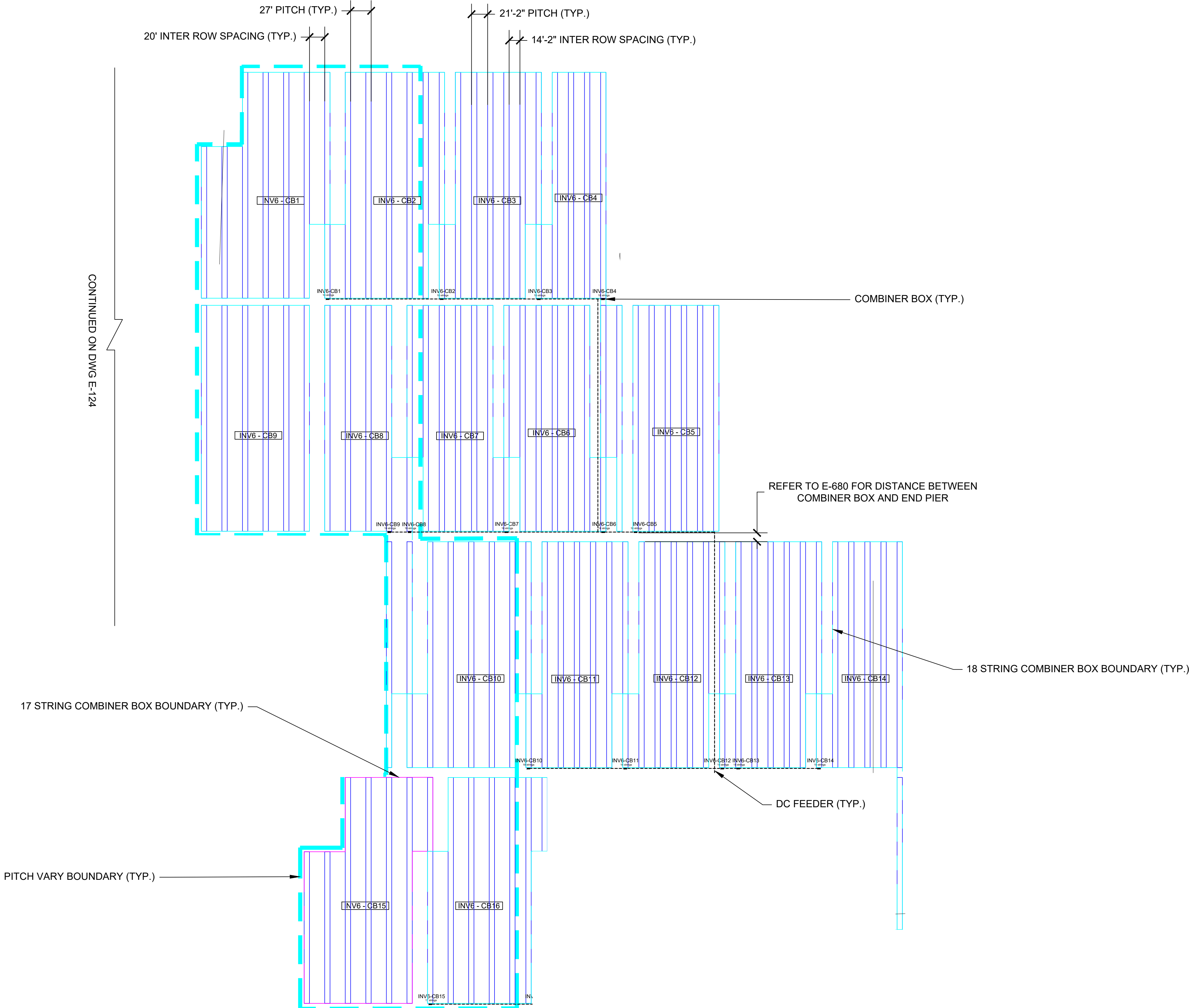


2 KEY MAP

NTS



1 ARRAY PLAN - BLOCK 6



- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

ARRAY 6 SYSTEM SUMMARY

STRING QTY.	287
MODULES / STR	27
MODULE QTY.	7,749
TOTAL DC SIZE	3.37 MW
AZIMUTH	180°
GCR	26 % & 33%
RACKING	NEXTRACKER
CB QTY.	16

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:  
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PROJECT ADDRESS:  
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NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

STEPHEN A. BRAY  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

**KMB**  
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WALL, NJ 07719  
(732) 395-5633

FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

DRAWN BY:  
**V. PISSAREVSKI**

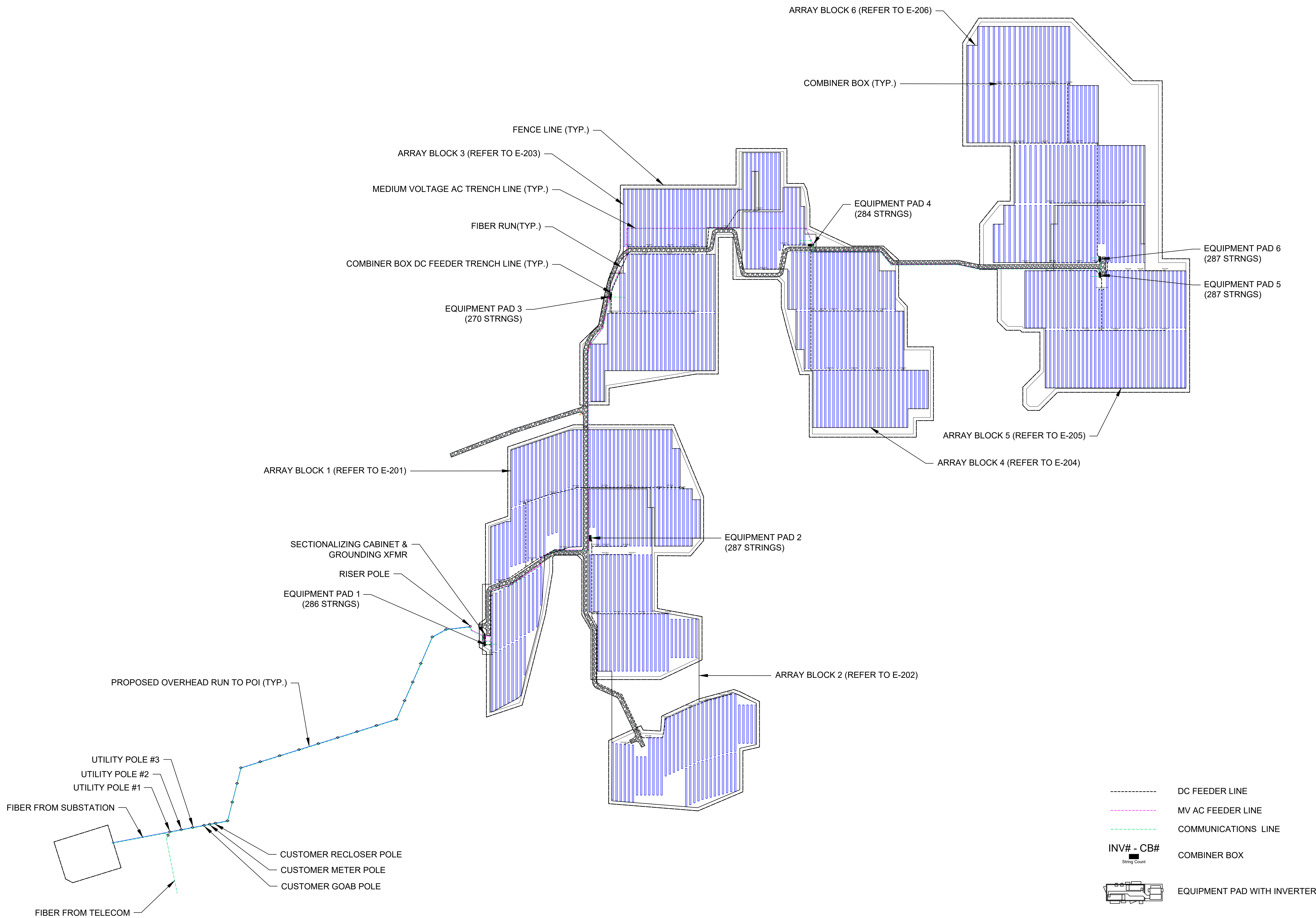
CHECKED BY:  
**R. VUDI**

TITLE:  
**ARRAY PLAN - BLOCK 6**

SHEET:  
**E-126**



1 OVERALL TRENCH PLAN



REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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Oakland, CA 94612, USA

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SEAL:

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**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657



**KMB**  
DESIGN GROUP  
kmbdgg.com

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STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

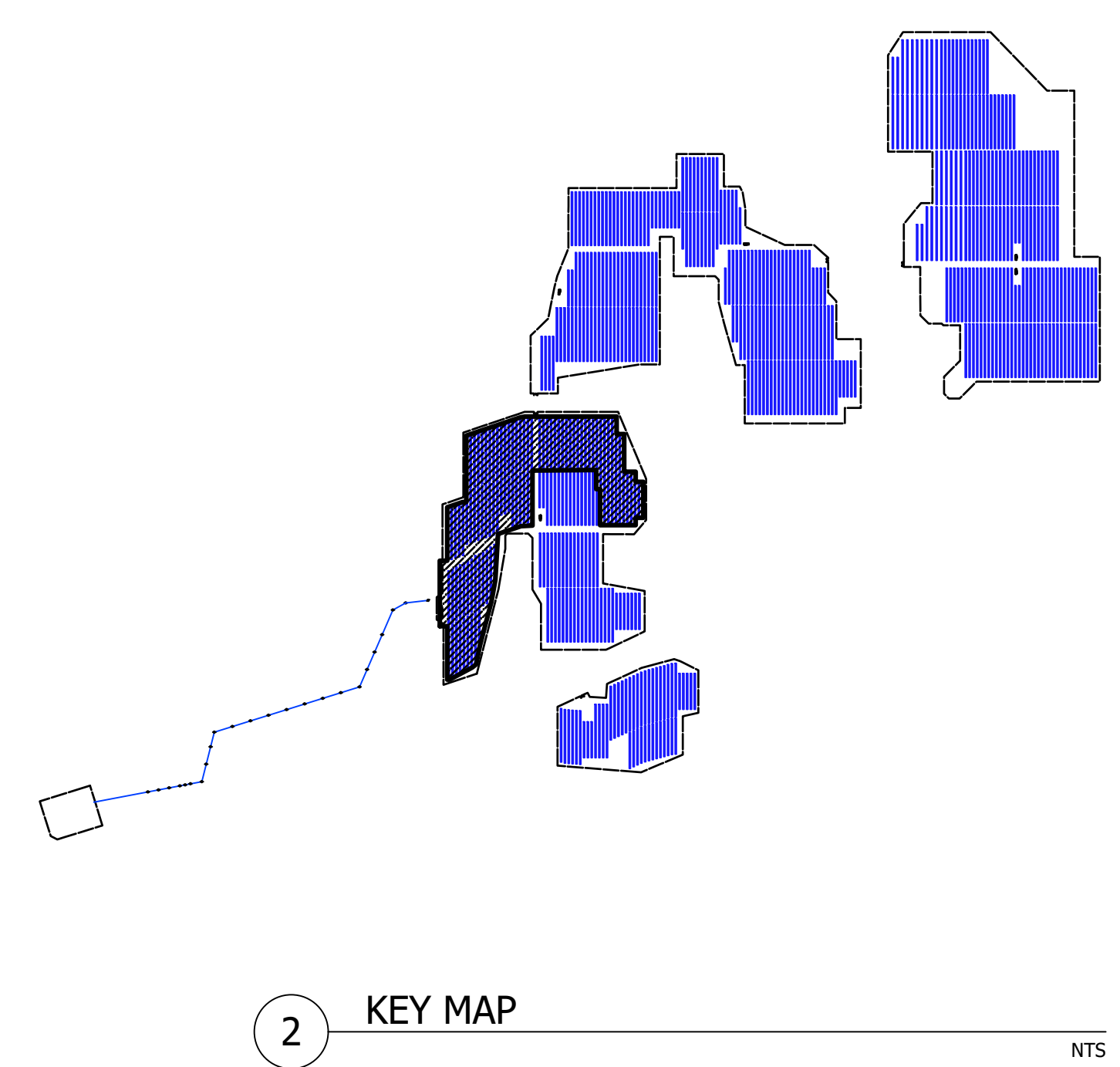
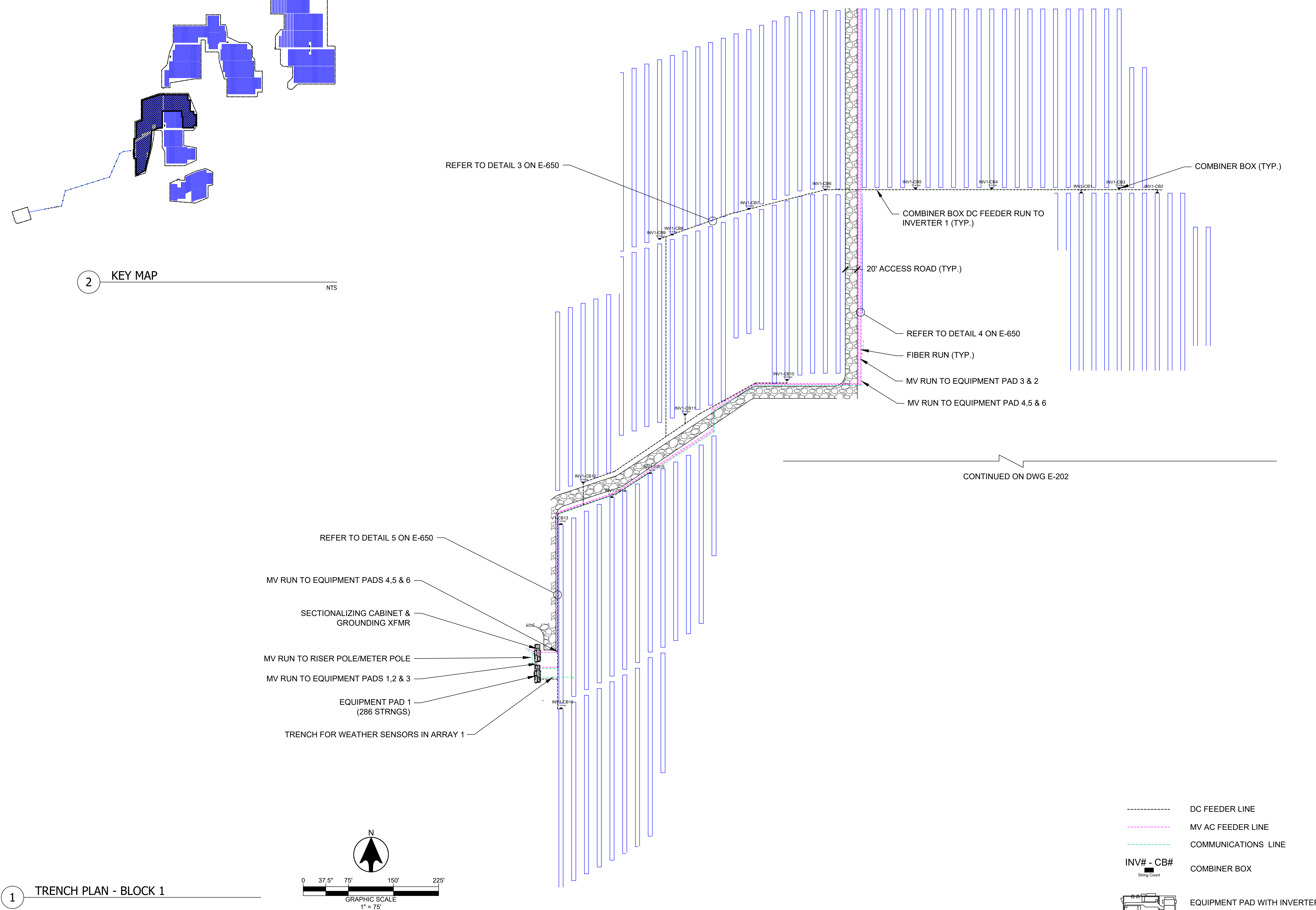
DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

TITLE:  
**TRENCH PLAN**

SHEET:  
**E-200**





**ARRAY 1 SYSTEM SUMMARY**

STRING QTY.	286
MODULES / STR	27
MODULE QTY.	7,722
TOTAL DC SIZE	3.359 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	16

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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**ENERPARC INC.**  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

**PROJECT NAME:**  
NORTH STONINGTON

**PROJECT ADDRESS:**  
ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

**KMB DESIGN GROUP**  
kmbdg.com  
1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 395-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: 03/09/2020

PROJECT #: 2000500

DRAWN BY: V. PISSAREVSKI

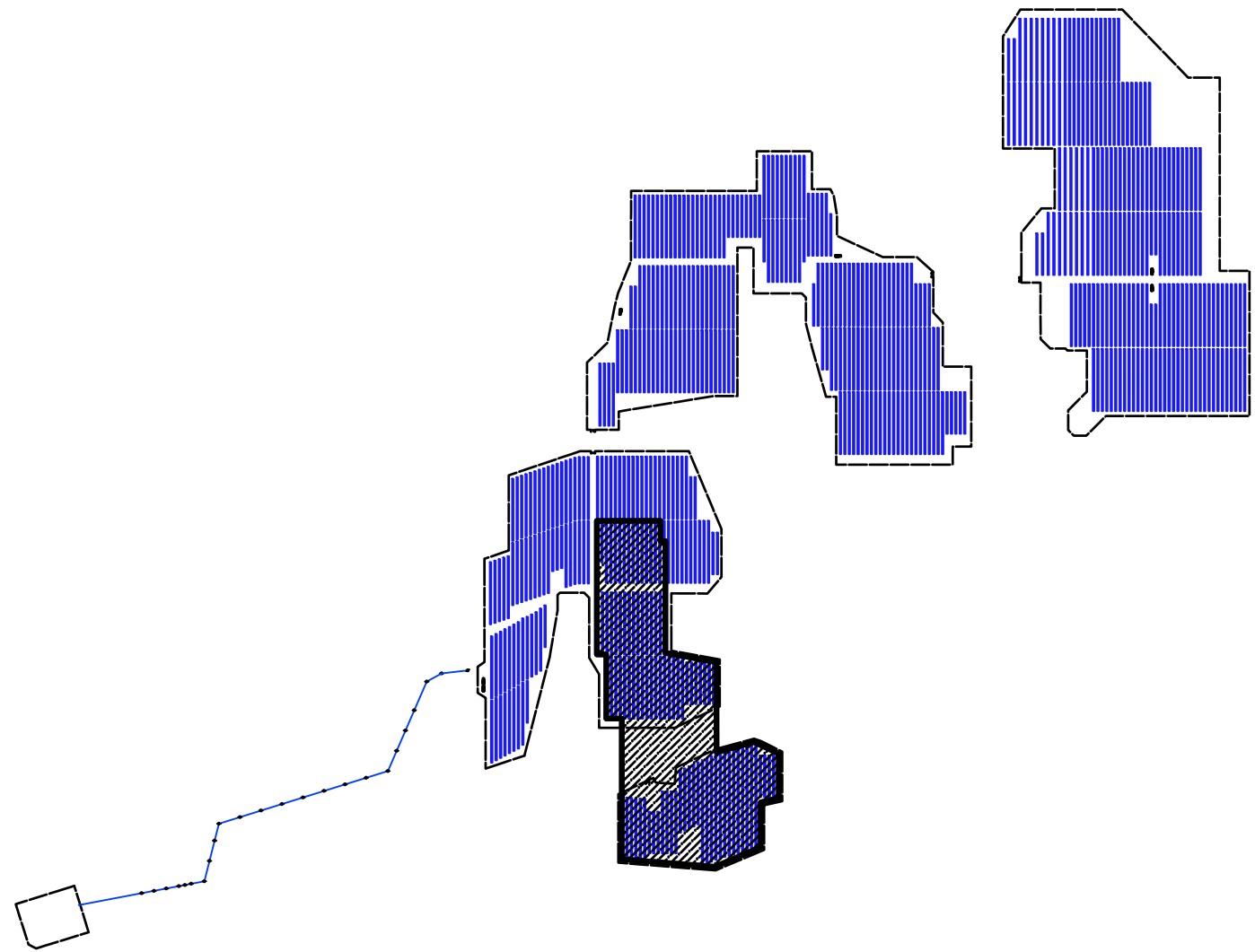
CHECKED BY: R. VUDI

**TITLE:**  
TRENCH PLAN - BLOCK 1

**SHEET:**  
E-201

PLOT DATE: Thursday, June 04, 2020

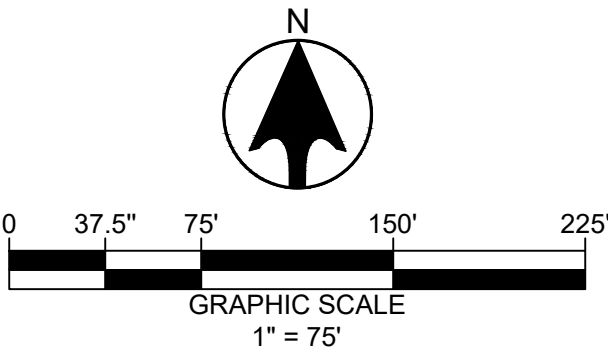




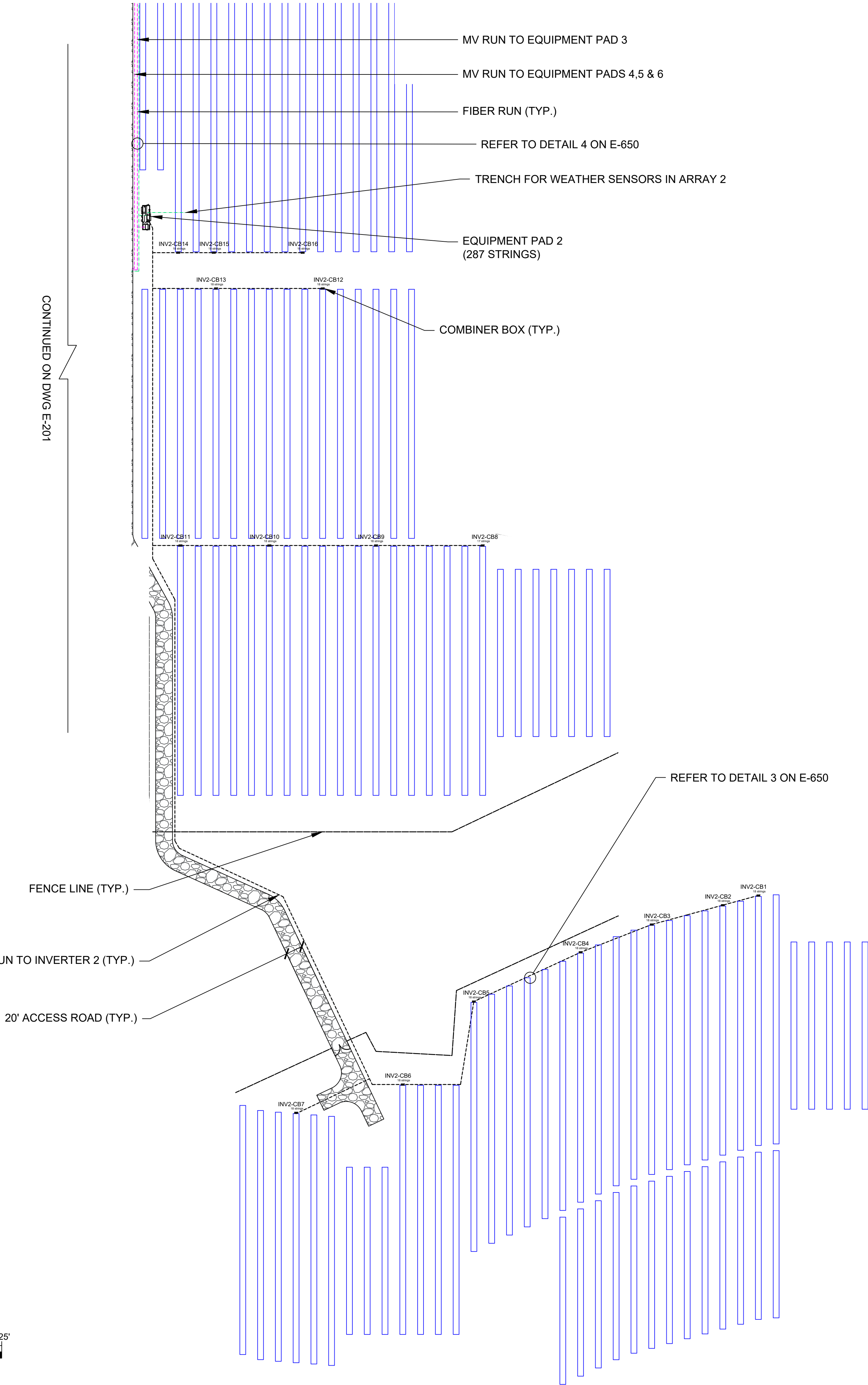
2 KEY MAP

COMBINER BOX DC FEEDER RUN TO INVERTER 2 (TYP.)

20' ACCESS ROAD (TYP.)



1 TRENCH PLAN - BLOCK 2



- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

ARRAY 2 SYSTEM SUMMARY

STRING QTY.	287
MODULES / STR	27
MODULE QTY.	7,749
TOTAL DC SIZE	3.37 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	16

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173




DATE: 03/09/2020

PROJECT #: 2000500

DRAWN BY: V. PISSAREVSKI

CHECKED BY: R. VUDI

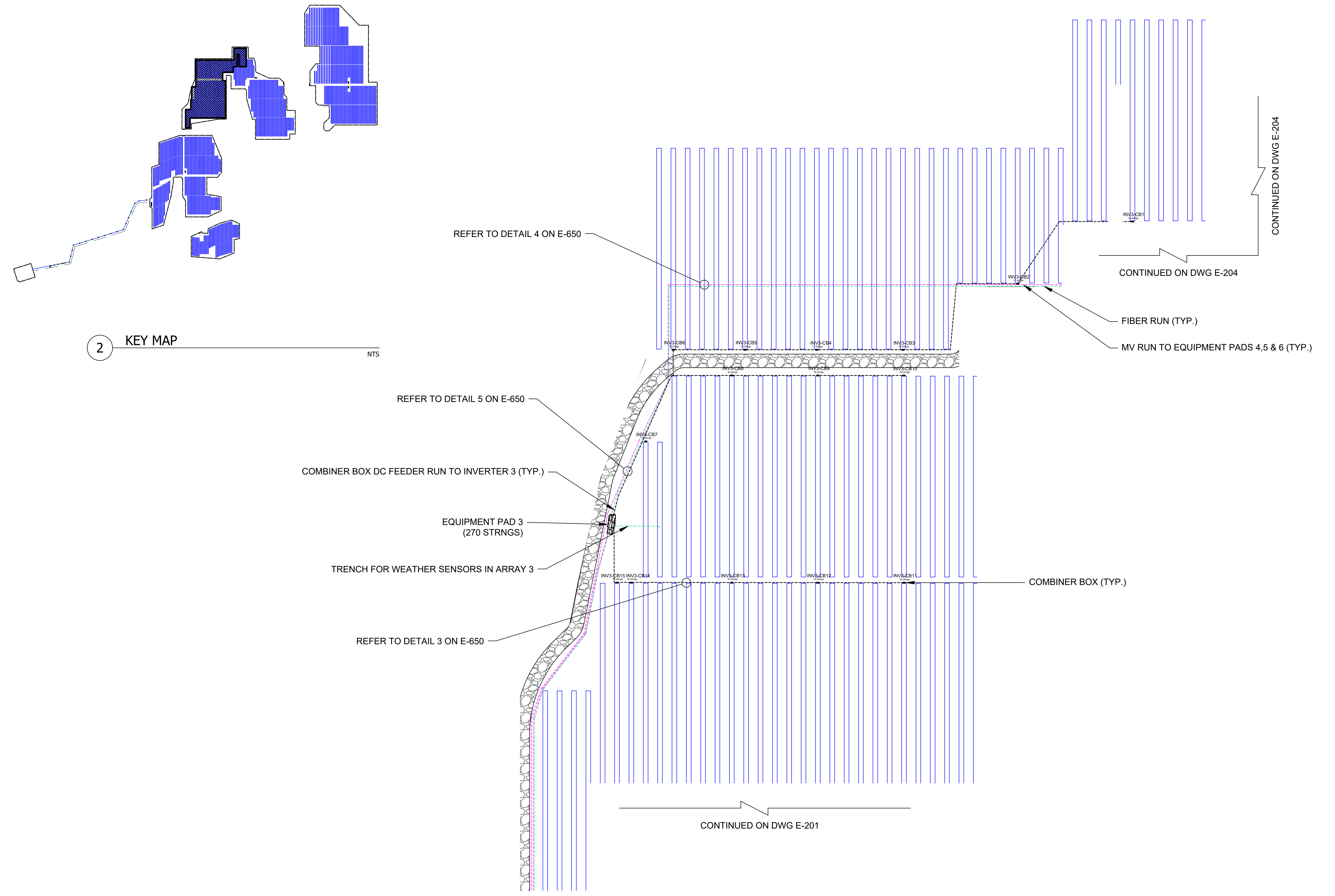


FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

TITLE:  
**TRENCH PLAN - BLOCK 2**

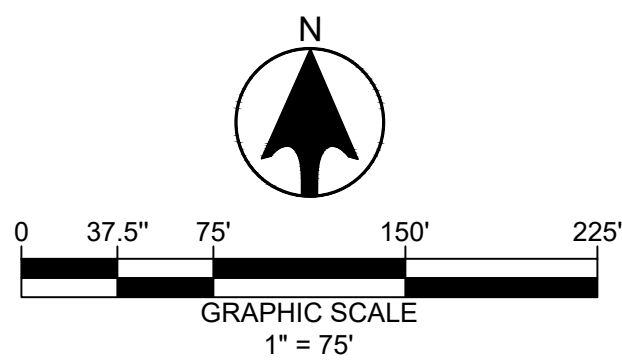
SHEET:  
**E-202**





2 KEY MAP

1 TRENCH PLAN - BLOCK 3



- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

ARRAY 3 SYSTEM SUMMARY	
STRING QTY.	270
MODULES / STR	27
MODULE QTY.	7,290
TOTAL DC SIZE	3.17 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	15

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
O	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:  
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NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173



**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657



1800 ROUTE 34, SUITE 200  
WALL, NJ 07719  
(732) 395-9433  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

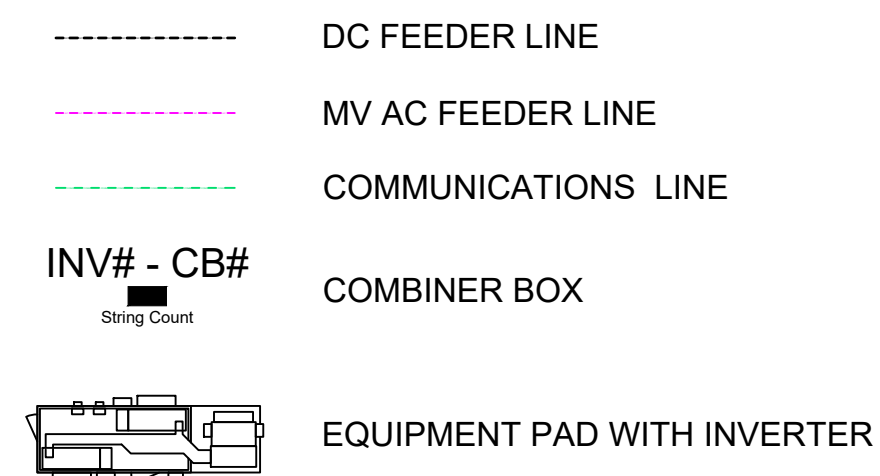
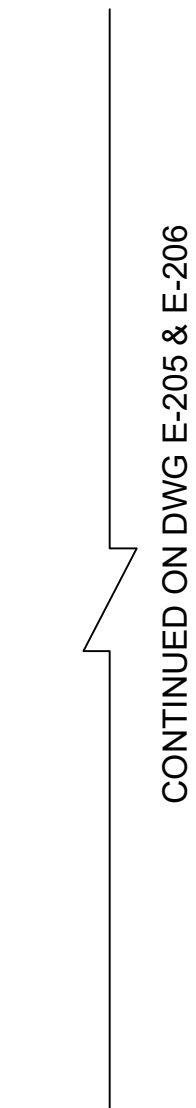
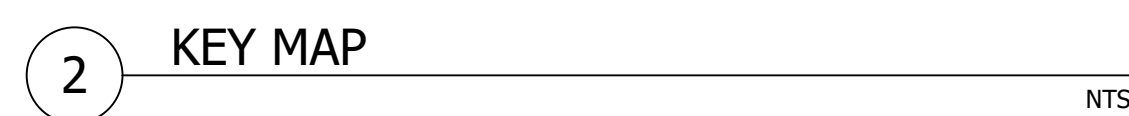
DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

TITLE:  
**TRENCH PLAN - BLOCK 3**

SHEET:  
**E-203**





<u>ARRAY 4 SYSTEM SUMMARY</u>	
STRING QTY.	284
MODULES / STR	27
MODULE QTY.	7,668
TOTAL DC SIZE	3.33 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	16



REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
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H	90% DESIGN SET	5/18/20
O	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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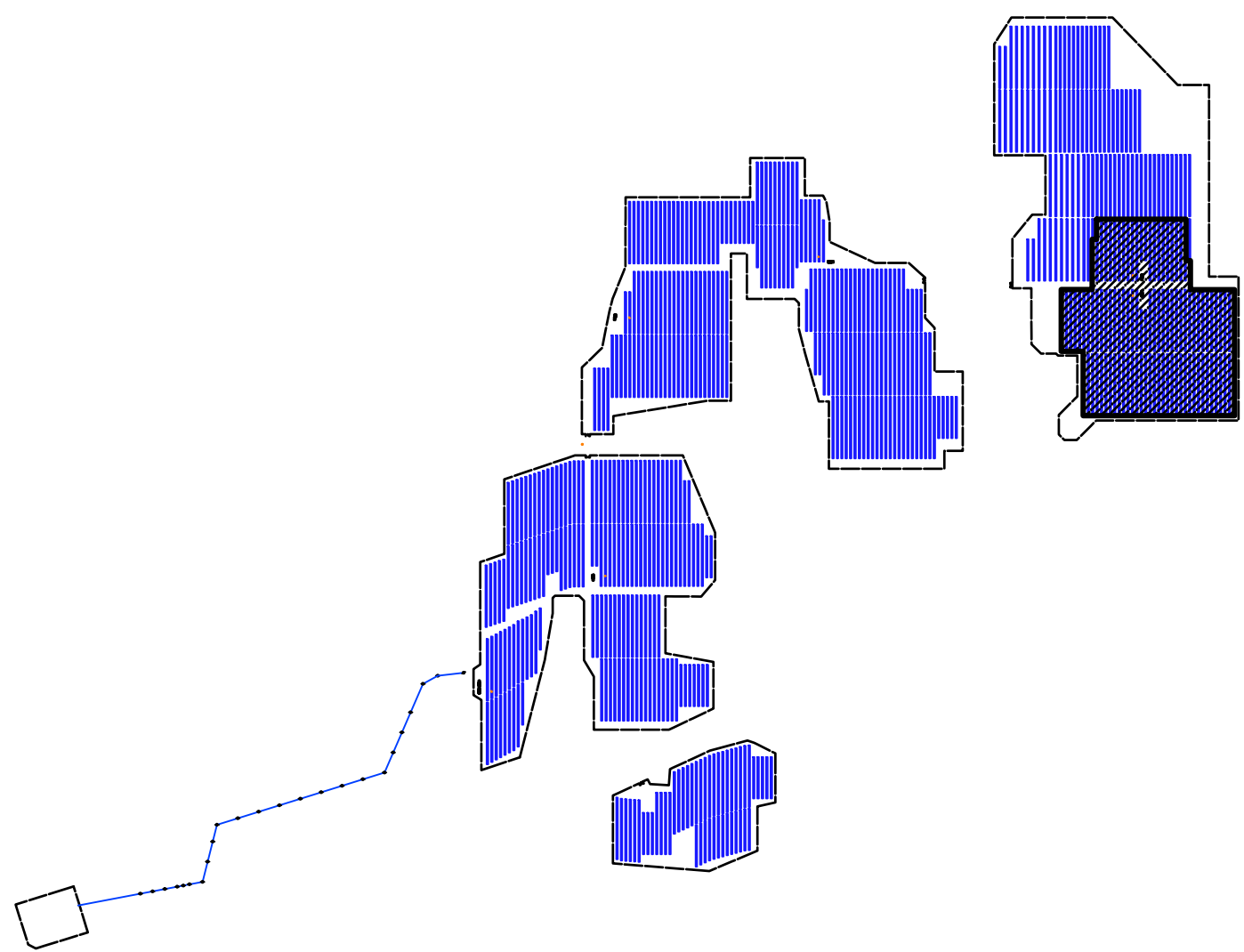


PROJECT NAME:	NORTH STONINGTON
PROJECT ADDRESS:	ELLA WHEELER RD, NORTH STONINGTON, CT 06359 41°25'9.71"N, 71°50'4.83"W

<p>SEAL:</p> <p>C.T. CERTIFICATE OF REGISTRATION: PEC.0001173</p>  <p>Stephen A. Bray PROFESSIONAL ENGINEER CT LICENSE: 26657</p>	 <p><b>KMB</b> DESIGN GROUP kmbdesign.com</p> <p>1800 ROUTE 34, SUITE 200 WALL, NJ 07719 (732) 390-5433</p> <p>FOR ALL QUESTIONS, PLEASE CONTACT TEXT: FOX - PROJECT MANAGER</p> <p>DATE: 03/09/2020</p> <p>PROJECT #: 2000500</p> <p>DRAWN BY: V. PISSAREVSKI</p> <p>CHECKED BY: R. VUDI</p>
--	--

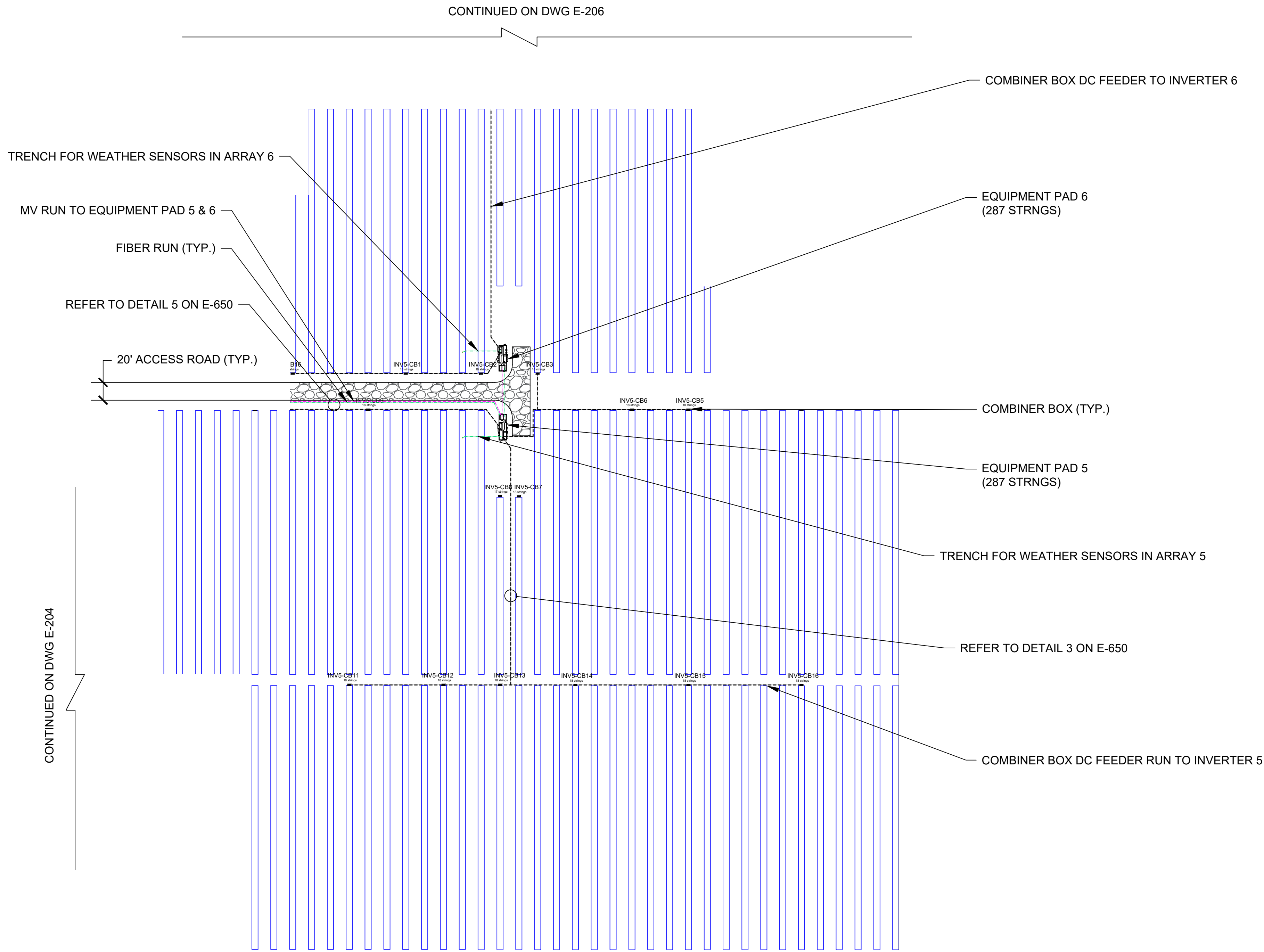
TITLE:	TRENCH PLAN - BLOCK 4
SHEET:	E-204





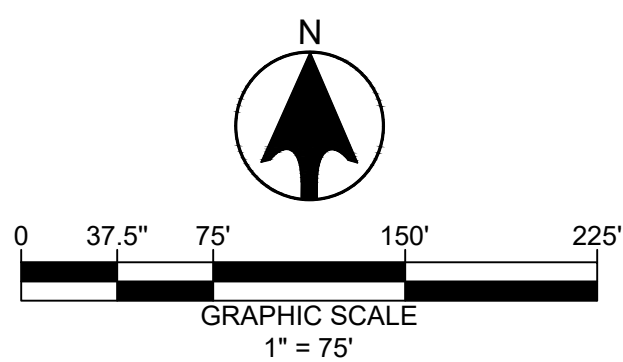
2 KEY MAP

NTS



CONTINUED ON DWG E-204

CONTINUED ON DWG E-206



1 TRENCH PLAN - BLOCK 5

- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

ARRAY 5 SYSTEM SUMMARY

STRING QTY.	287
MODULES / STR	27
MODULE QTY.	7,749
TOTAL DC SIZE	3.37 MW
AZIMUTH	180°
GCR	33%
RACKING	NEXTRACKER
CB QTY.	16

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
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G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
I	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:

NORTH STONINGTON

PROJECT ADDRESS:

ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W

SEAL:



DATE: 03/09/2020

PROJECT #: 2000500

Stephen A. Bray  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

DRAWN BY: V. PISSAREVSKI  
CHECKED BY: R. VUDI

TITLE:

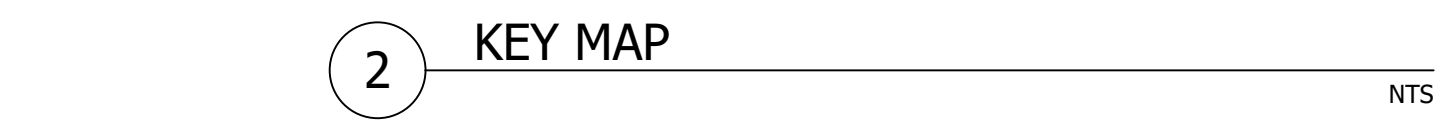
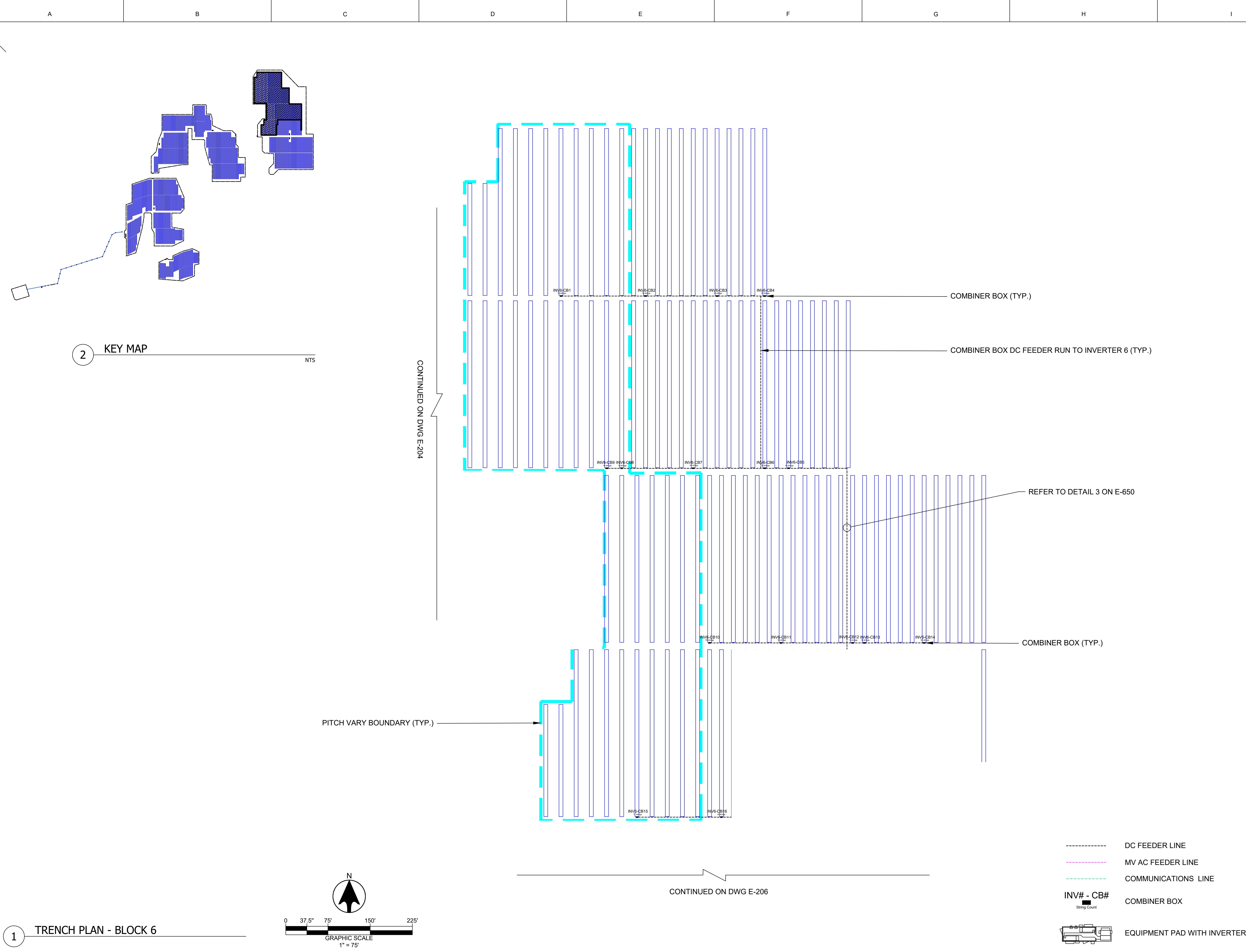
TRENCH PLAN - BLOCK 5

SHEET:

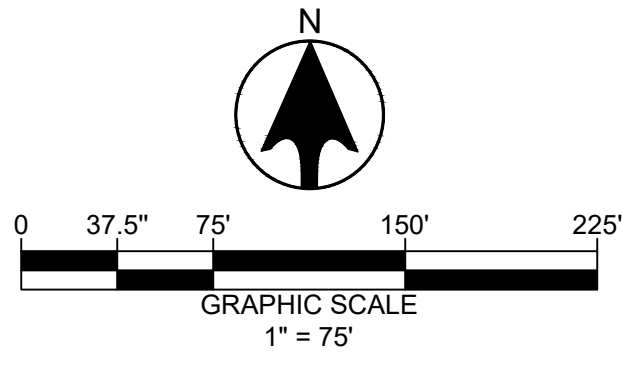
E-205

PLOT DATE: Thursday, June 04, 2020





1 TRENCH PLAN - BLOCK 6



- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

ARRAY 6 SYSTEM SUMMARY		
STRING QTY.	287	
MODULES / STR	27	
MODULE QTY.	7,749	
TOTAL DC SIZE	3.37 MW	
AZIMUTH	180°	
GCR	26 % & 33%	
RACKING	NEXTRACKER	
CB QTY.	16	

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 395-5633  
kmbdg.com

FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: 03/09/2020

PROJECT #: 2000500

DRAWN BY: V. PISSAREVSKI

CHECKED BY: R. VUDI

TITLE:  
**TRENCH PLAN - BLOCK 6**

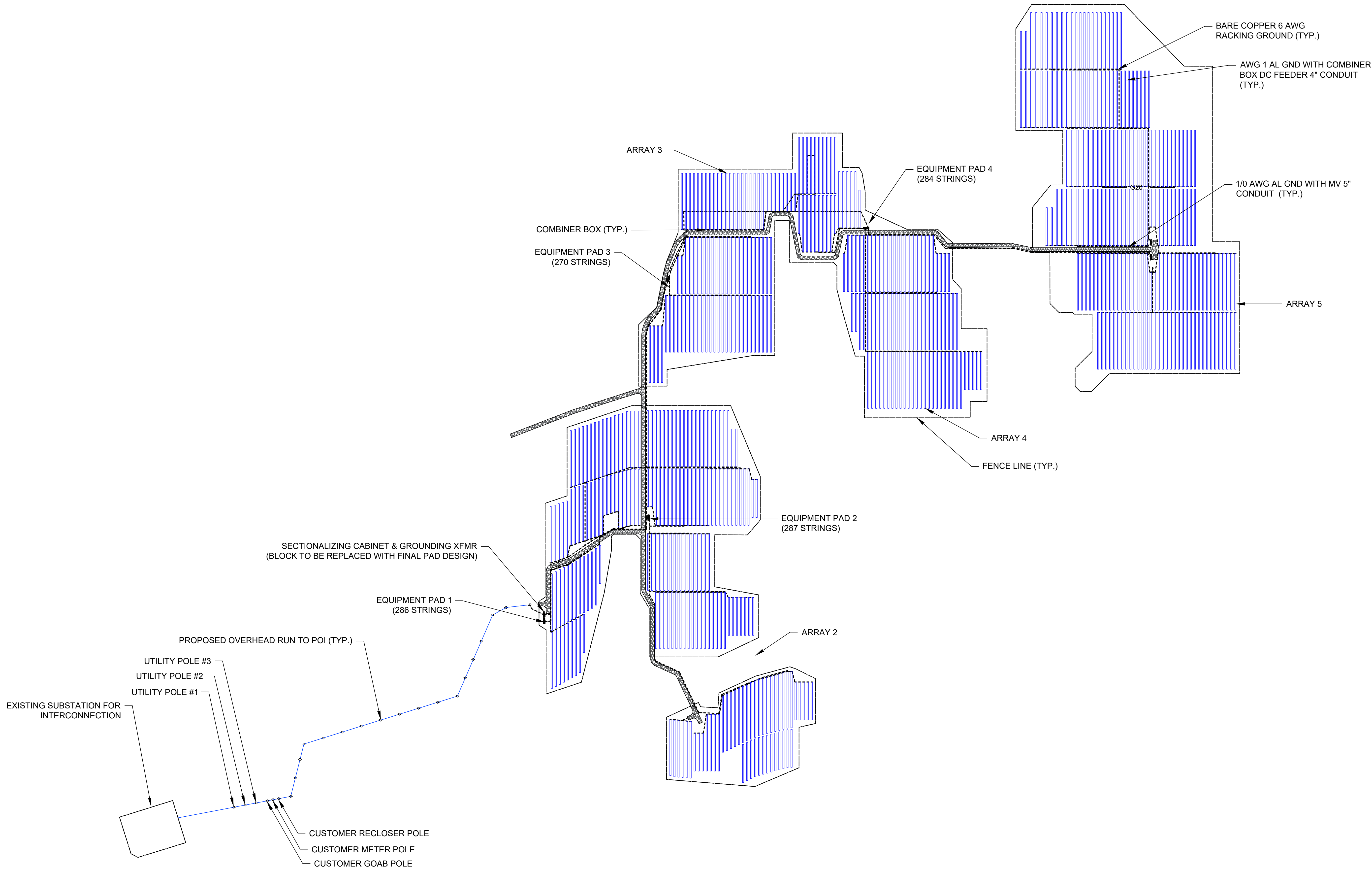
SHEET:  
**E-202**



NOTES:

1. CODE REQUIRED AND INDUSTRY STANDARD AA-8000 ALUMINUM ALLOY CONDUCTORS REQUIRE NO MORE MAINTENANCE THAN COPPER PER NFPA 70B, "RECOMMENDED PRACTICE FOR ELECTRICAL EQUIPMENT MAINTENANCE". THIS STANDARD DOES NOT DIFFERENTIATE BETWEEN AA-8000 AND COPPER WIRE.
2. MODERN ALUMINUM CONDUCTORS DO NOT REACT ANY DIFFERENTLY THAN COPPER IN MECHANICAL CONNECTION. THEY HAVE THE SAME SUGGESTED MAINTENANCE CYCLE.

H



REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
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**ENERPARC**

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SEAL:

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**KMB**  
DESIGN GROUP  
kmbdgg.com

1800 ROUTE 14, SUITE 200  
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(732) 385-5633  
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STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

DRAWN BY: **V. PISSAREVSKI**

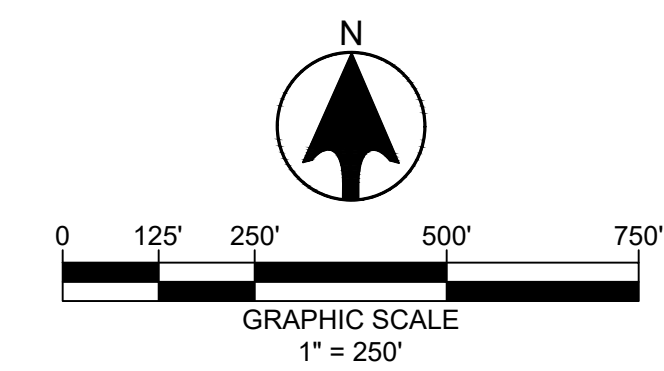
CHECKED BY: **R. VUDI**

**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657 6/4/20

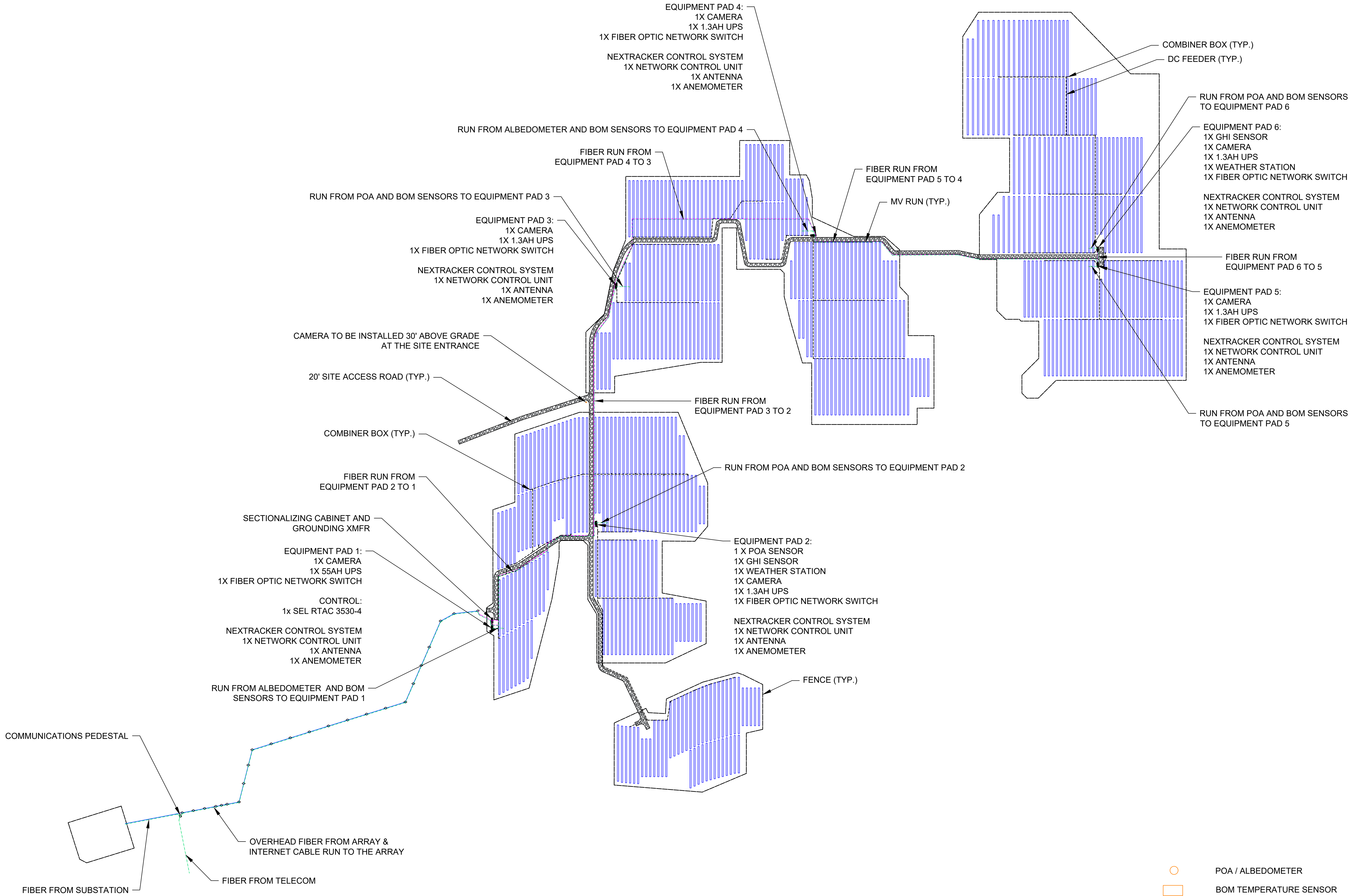
TITLE:  
**GROUNDING PLAN**

SHEET:  
**E-250**

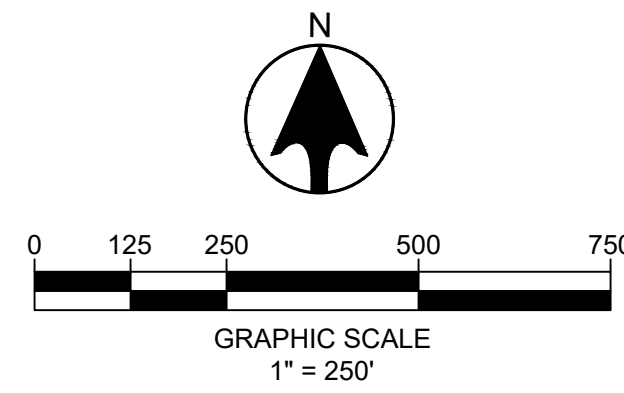
1 GROUNDING PLAN







1 COMMUNICATION PLAN



- POA / ALBEDOMETER
- BOM TEMPERATURE SENSOR
- DC FEEDER LINE
- MV AC FEEDER LINE
- COMMUNICATIONS LINE
- INV# - CB#  
String Count
- COMBINER BOX
- EQUIPMENT PAD WITH INVERTER

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
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PROJECT NAME:  
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PROJECT ADDRESS:  
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NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173



Stephen A. Bray  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657



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WALL, NJ 07719  
(732) 395-9433  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

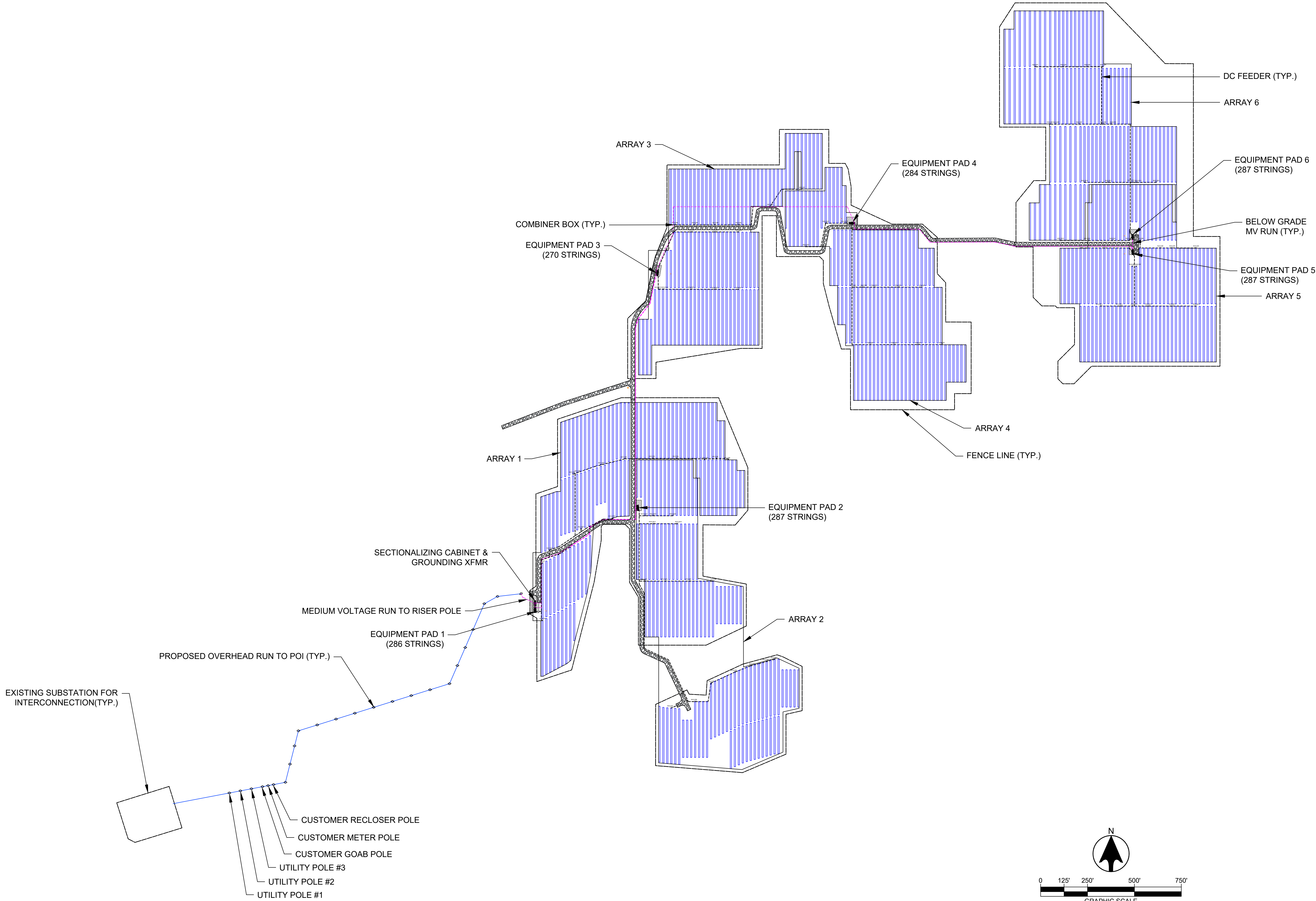
DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

TITLE:  
**COMMUNICATION PLAN**

SHEET:  
**E-300**





REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
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0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA


PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
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NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:



Stephen A. Bray  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657



1800 ROUTE 34, SUITE 200  
WALL, NJ 07719  
(732) 395-5623  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

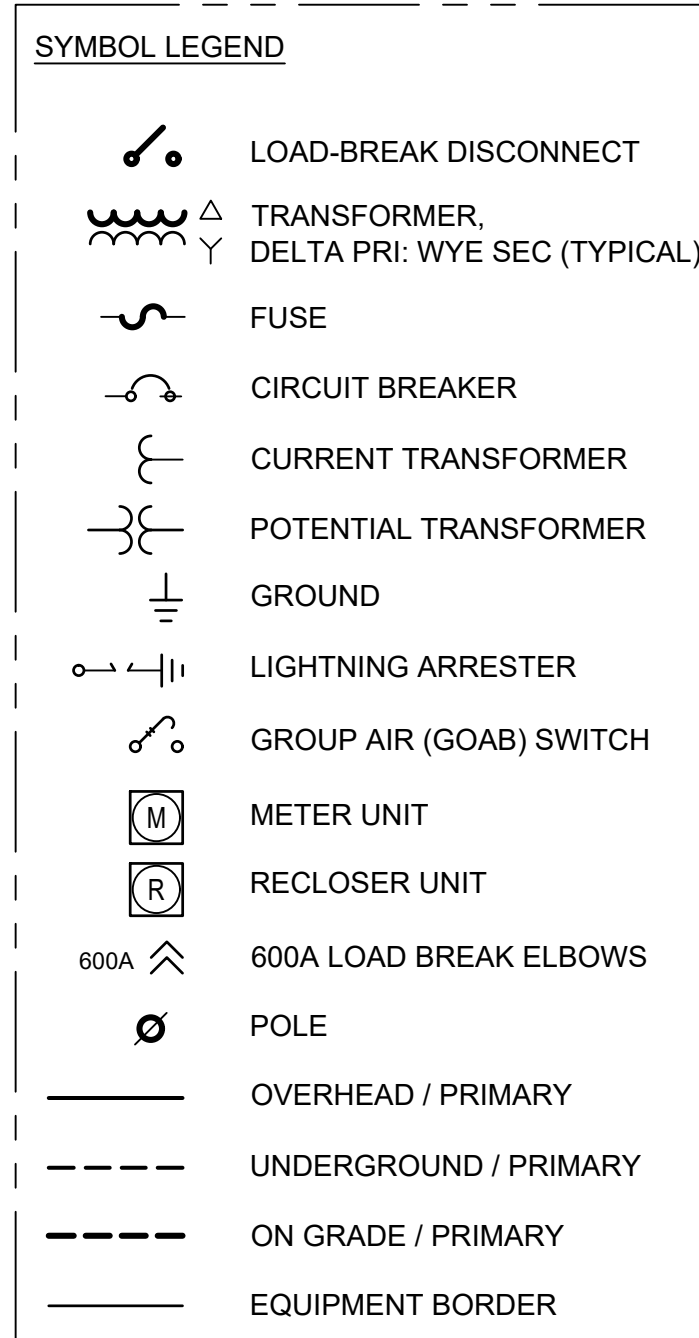
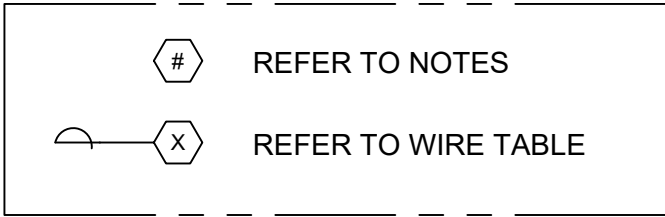
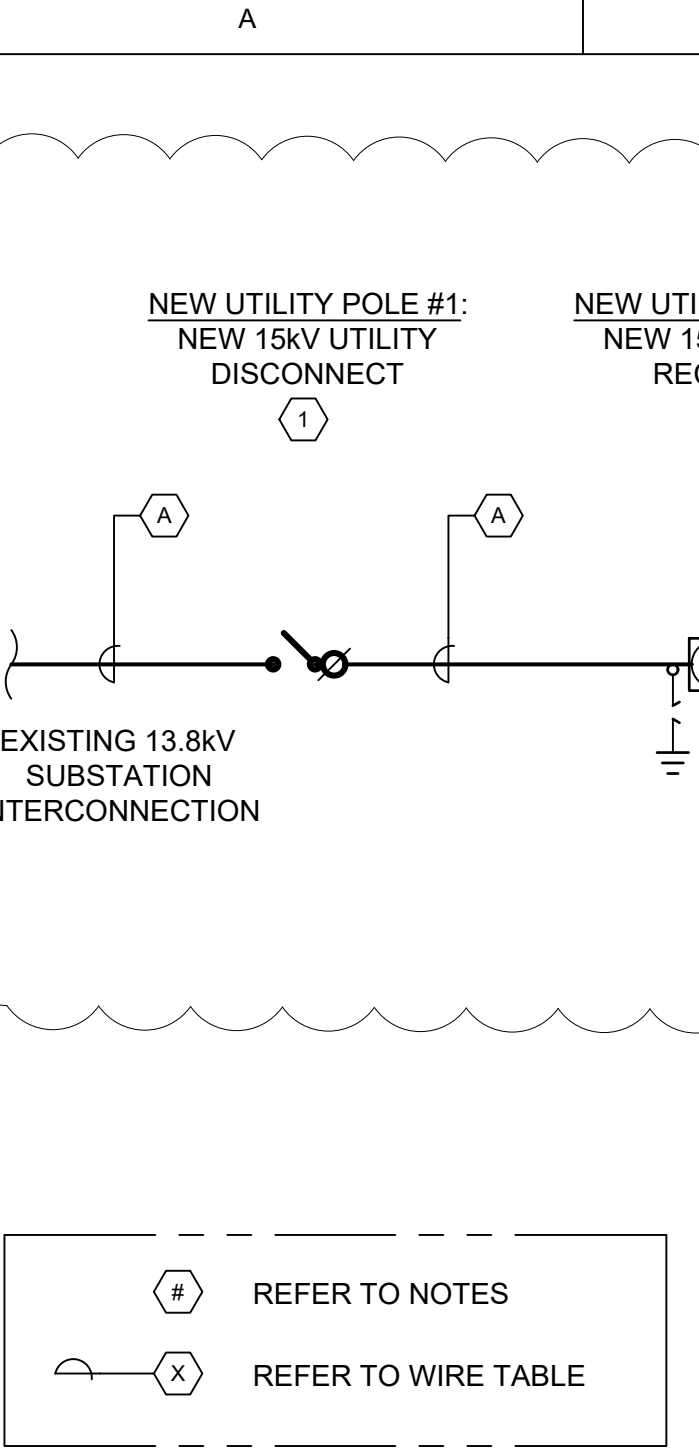
DRAWN BY:  
**V. PISSAREVSKI**

CHECKED BY:  
**R. VUDI**

TITLE:  
**MV SITE PLAN**

SHEET:  
**E-350**





SEL-651R RELAY SETTINGS								
ANSI	PICKUP							DELAY PER TCC
#	VPHASE, A, HZ					DEFAULT TIME DELAY (SEC)	DEFAULT TIME DELAY (CYCLES)	TIME DELAY AND TCC
	PERCENTAGE	ACTUAL						
59-1	110% ≤ V	15180	V L-L (PRI)	1.73	V (SEC)	1.95	117.00	-
59-2	V ≥ 120%	16560	V L-L (PRI)	1.88	V (SEC)	0.11	6.60	-
27-1	V ≤ 50%	6900	V L-L (PRI)	0.78	V (SEC)	1.05	63.00	-
27-2	V ≤ 88%	12144	V L-L (PRI)	1.38	V (SEC)	1.95	117.00	-
81U-1	56.5HZ					0.16	9.60	-
81U-2	58.5HZ					300	18000	-
81O-1	61.2HZ					300	18000	-
81O-2	62 HZ					0.16	9.60	-
51C	196A PRIMARY (0.22A SECONDARY)					-	-	3.0 TD U3 CURVE
51P	785A PRIMARY (0.87A SECONDARY)					-	-	3.0 TD U4 CURVE
51GC	50A PRIMARY (0.05A SECONDARY)					-	-	2.0 TD U3 CURVE
59N-1	86.52% OF VNOM	11939.76	V (PRI)	1.36	V (SEC)	0.05	3.00	-
59N-2	27.01% OF VNOM	3727.38	V (PRI)	0.42	V (SEC)	0.95	57.00	-
79	95% ≤VNOM≤ 105.8%	13110	≤VNOM(PRIMARY) ≤	14600.4	V (SEC)	300	180000	-
		1.49	≤VNOM (SEC)≤	1.66	V (SEC)			
	59.3HZ<FREQUENCY<60.5							
a. SETTINGS TAKE INTO ACCOUNT AN ESTIMATED 3 CYCLE OPENING TIME ON THE RECLOSER. b. FAIL-SAFE RELAY TO TRIP AT A MAXIMUM OF 2 SECONDS FOLLOWING LOSS OF DC POWER AND OR HARDWARE FAILURE c. AUTO-RESTORATION (79) FUNCTION WILL NOT CLOSE-IN UNTIL HEALTHY VOLTAGE AND FREQUENCY HAVE BEEN MAINTAINED FOR A MINIMUM OF 5 MINUTES.								

PV SYSTEM SUMMARY	
MODULE MODEL	LONGI LR4-72HBD-435M
MODULE STC DC RATING	435
STRINGS COUNT	1,701
MODULES PER STRING	27
MODULES COUNT	45,927
TOTAL STC DC SIZE	19,978
TOTAL STC AC SIZE	15,000 kW
INVERTER MODEL	(QTY 6) SUNGROW SG-2500-U
TRANSFORMER	(QTY 6) 2750KVA PAD MOUNTED
POWER FACTOR	1
RACKING SYSTEM	GROUND-MOUNT
SITE COORDINATES	41°25'9.71"N 71°50'4.83"W

NOTES	
#	DESCRIPTION
1	EQUIPMENT IS PROVIDED AND INSTALLED BY EVERSOURCE.
2	CUSTOMER TO PROVIDE PHONE LINE TO UTILITY METER POLE FOR UTILITY ACCESS IF NEEDED.
3	(3) 8.4 kV MAXIMUM CONTINUOUS OPERATING VOLTAGE (MCOV) LIGHTNING ARRESTERS. ONE PER PHASE. ARRESTERS ARE SIZED PER IEEE C62.11 WITH THE ASSUMPTION THAT MAXIMUM VOLTAGE IS 5% OF NOMINAL (14.5kV)
4	RECLOSER TO BE PROVIDED WITH SEL 651R RELAY. RELAY TO HAVE DC BATTERY OR UPS BACK-UP WITH A MINIMUM OF 40AH BATTERY BACKUP. RELAY EQUIPPED WITH FAIL-SAFE PROTECTION AND TO BE TRIPPED WITHIN 2.0 SECONDS OF DC FAILURE.  AC POWER TO DC SUPPLY LOCATED ON THE UTILITY SIDE OF THE RECLOSER
5	TEST SWITCHES SHALL BE INCLUDED AS SHOWN FOR O&M PURPOSES.
6	EXTERNAL 66.4:1 PT'S IN GWYE - GWYE CONFIGURATION WITH EXTERNAL TEST SWITCH
7	INTERNAL 600:1 CT(3) C10 AT +/-1% ACCURACY AND 0.13VA BURDEN AT 1A
8	MEDIUM VOLTAGE PORCELAIN BUSHINGS AND SPADES
9	500A 3Ø FUSED SWITCH

WIRE TABLE	
WIRE	DESCRIPTION
A	NEW (3) 15KV CLASS OVERHEAD 3Ø WIRE & (1) GROUND CONDUCTOR BY EVERSOURCE
B	(3) 636 KCM 26/7 ASCR (GROSBEAK), 3Ø, 3W CONDUCTORS & (1) 3/0 AWG 6/1 ACSR (PIGEON) GROUND CONDUCTOR
C	3 SETS OF (3) 500 kCMIL AL (MV-105), 100%, 15KV CLASS, EPR , WITH 1/3 CONCENTRIC NEUTRAL, 3Ø CONDUCTORS WITH AND (1) 3/0 AWG AL, 600V, EQUIPMENT GROUNDING CONDUCTOR IN 5" CONDUIT.
D	3 SETS OF (3) 500 kCMIL AL (MV-105), 133%, 15KV CLASS, EPR , PV JACKETED, 3Ø CONDUCTORS WITH AND (1) 3/0 AWG AL, 600V, EQUIPMENT GROUNDING CONDUCTOR IN 5" CONDUIT.
E	1 SET OF (3) 750kCMIL AL (MV-105), 133%, 15KV CLASS, EPR , PV JACKETED, 3Ø CONDUCTORS WITH AND (1) 1/0 AWG AL, 600V, EQUIPMENT GROUNDING CONDUCTOR IN 5" CONDUIT.

- NOTES:
- FULL LOAD AMPERAGE OF THE SITE IS CALCULATED PER THE MAXIMUM TRANSFORMER RATING.
  - EQUIPMENT GROUND CONDUCTORS ARE SIZED PER TABLE 250.122 FOR THE CIRCUIT OCPD.

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:

**NORTH STONINGTON**

PROJECT ADDRESS:

**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

STEPHEN A. BRAY  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

DATE: 03/09/2020

PROJECT #: 2000500

DRAWN BY: V. PISSAREVSKI

CHECKED BY: R. VUDI

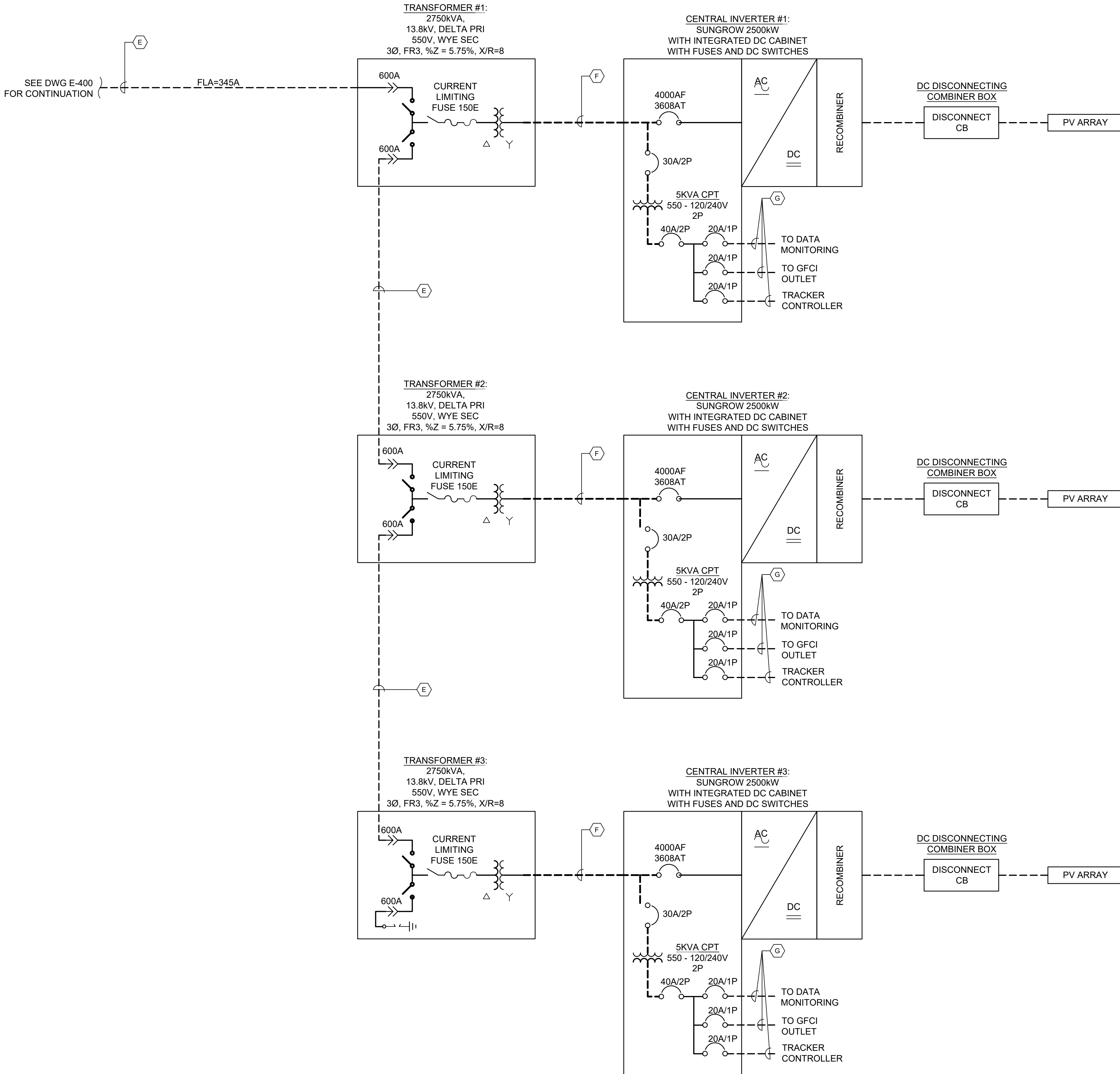
TITLE:

**SINGLE LINE DIAGRAM  
SHEET 1**

SHEET:

**E-400**





WIRE TABLE	
WIRE	DESCRIPTION
E	1 SET OF (3) 750 kCMIL AL (MV-105),15KV CLASS, EPR, 133%, PVC JACKETED 3Ø CONDUCTORS AND (1) #1/0AWG AL, 600V, EQUIPMENT GROUND CONDUCTOR IN 5" CONDUIT
F	COPPER BUS BAR CONNECTION PROVIDED BY SUNGROW
G	(2) #10 CU TWHN-2 W (1) #10 CU GND, IN 1" EMT CONDUIT

INVERTER SETTINGS			
DEVICE	PICKUP	V (L - N)	TIME DELAY
27-1	$V \geq 88\%$	279.40	2.00
27-2	$V \geq 50\%$	158.80	1.10
59-1	$110\% \leq V < 120\%$	349.30	2.00
59-2	$V \geq 120\%$	381.10	0.16
81U-1	58.5 HZ		300.00
81U-2	56.5 Hz		0.16
81O-1	61.2 Hz		300.00
81O-2	62.0 Hz		0.16
INVERTER SHALL RESUME OPERATING UPON 5 MINUTES OF STABLE GRID. 5 MINUTE PERIOD SHALL RESET FOR ANY ELEMENT TRIP			

- NOTES:
- FULL LOAD AMPERAGE OF THE SITE IS CALCULATED PER THE MAXIMUM TRANSFORMER RATING.
  - EQUIPMENT GROUND CONDUCTORS ARE SIZED PER TABLE 250.122 FOR THE CIRCUIT OCPD.
  - REFER E-403 FOR STRING AND COMBINER BOX WIRING DETAIL.

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
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E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
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41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

**KMB**  
DESIGN GROUP  
kmbdsg.com

1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 385-5623

FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

DRAWN BY:  
**V. PISSAREVSKI**

CHECKED BY:  
**R. VUDI**

TITLE:

**SINGLE LINE DIAGRAM  
SHEET 2**

SHEET:

**E-401**



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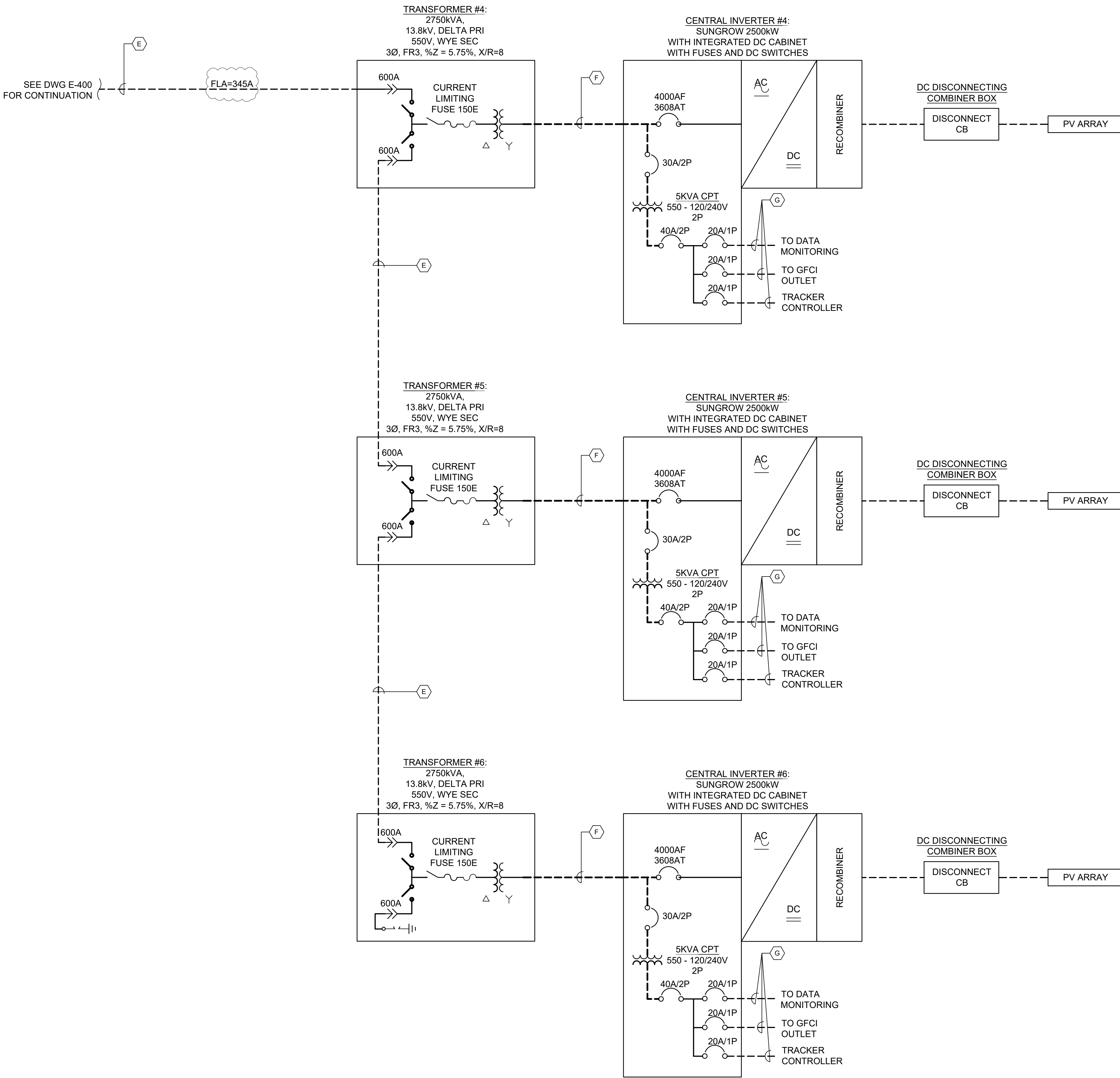
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WIRE TABLE	
WIRE	DESCRIPTION
E	1 SET OF (3) 750 kCMIL AL (MV-105),15KV CLASS, EPR, 133%, PVC JACKETED 3Ø CONDUCTORS AND (1) #1/0 AWG AL, 600V, EQUIPMENT GROUND CONDUCTOR IN 5" CONDUIT
F	COPPER BUS BAR CONNECTION PROVIDED BY SUNGROW
G	(2) #10 CU TWHN-2 W (1) #10 CU GND, IN 1" EMT CONDUIT

INVERTER SETTINGS			
DEVICE	PICKUP	V (L - N)	TIME DELAY
27-1	V ≥ 88%	279.40	2.00
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81O-2	62.0 Hz		0.16
INVERTER SHALL RESUME OPERATING UPON 5 MINUTES OF STABLE GRID. 5 MINUTE PERIOD SHALL RESET FOR ANY ELEMENT TRIP			

- NOTES:
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  - EQUIPMENT GROUND CONDUCTORS ARE SIZED PER TABLE 250.122 FOR THE CIRCUIT OCPD.
  - REFER E-403 FOR STRING AND COMBINER BOX WIRING DETAIL.

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
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H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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41°25'9.71"N, 71°50'4.83"W**

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**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

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WALL, NJ 07719  
(732) 385-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

TITLE:

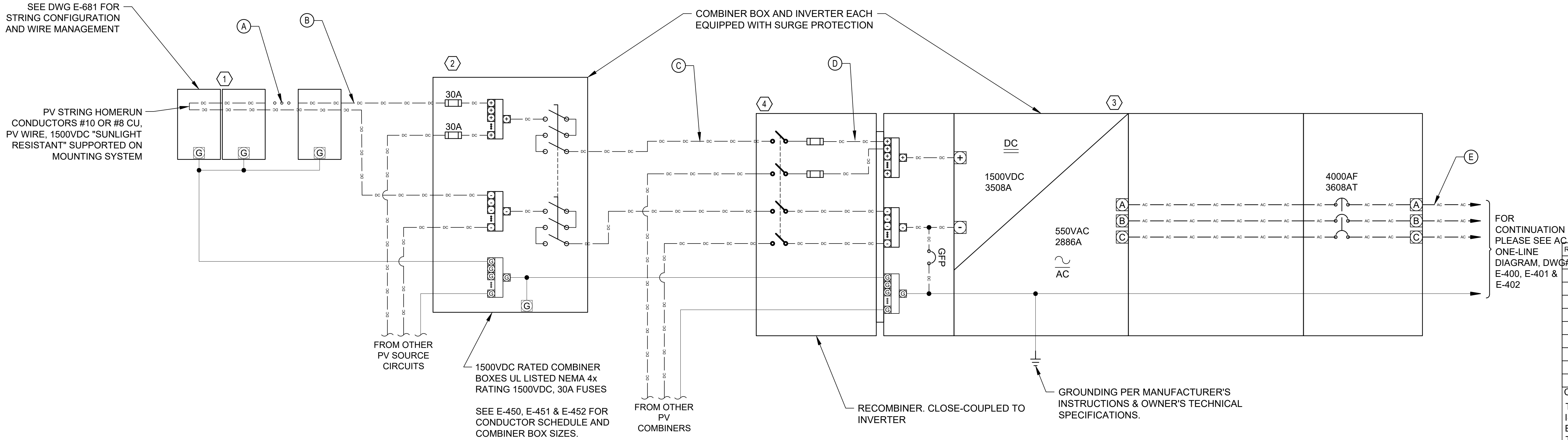
**SINGLE LINE DIAGRAM  
SHEET 3**

SHEET:

**E-402**



ELECTRICAL DC ONE-LINE DIAGRAM TYPICAL



EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	DETAIL	REMARKS
1	PV SOURCE CONDUCTORS	(27)x LONGI LR4-72HBD 435W IN EACH STRING	
2	PV COMBINER BOX	1500VDC, UL LISTED, 90°C, NEMA 4X, 30A FUSES. MANUFACTURER TBD	REFER TO WIRING SCHEDULE E-450, E-451 & E-452
3	INVERTER	(6) SUNGROW SG2500U 2500 KW PV SKID	WITH DC AND AC DISCONNECTS
4	RECOMBINER	1500VDC, UL LISTED FUSES WITH CONTACTORS	REFER TO INVERTER INSTALLATION MANUAL

CONDUCTOR AND CONDUIT SCHEDULE

ITEM	DESCRIPTION	CONDUCTOR	CONDUIT	PATH
A	PV SOURCE CONDUCTORS	2 X #12, CU, 1500VDC PV WIRE	N/A - BACK OF MODULE WIRING	N/A
B	PV STRING HOMERUN CONDUCTORS	2 X #10 OR #8, CU, 1500VDC PV WIRE	N/A - HOME RUN WIRING	BACK OF RACKING
C	DC COMBINER BOX OUTPUT CONDUCTORS	REFER TO CONDUCTOR SCHEDULE		PVC SCH 40 CONDUIT IN TRENCH
D	RECOMBINER OUTPUT	REFER TO MANUFACTURES INSTRUCTIONS		RECOMBINER IS CLOSE-COUPLED TO INVERTER
E	INVERTER OUTPUT CONDUCTORS	REFER TO AC ONE-LINE DIAGRAM, E-400, E-401 & E-402		BUS BAR TO TRANSFORMER

PV ARRAY SCHEDULE

INVERTER REF	MODULE			NUM STRINGS	MODS / STRING	TOTAL # OF MODULES	TOTAL POWER (KW)	INVERTER TYPE
	MFG	MODEL	POWER (W)					
INV1	LONGI	LR4-72HBD	435	286	27	7722	3,359	SUNGROW SG2500U
INV2	LONGI	LR4-72HBD	435	287	27	7749	3,371	
INV3	LONGI	LR4-72HBD	435	270	27	7290	3,171	
INV4	LONGI	LR4-72HBD	435	284	27	7668	3,336	
INV5	LONGI	LR4-72HBD	435	287	27	7749	3,371	
INV6	LONGI	LR4-72HBD	435	287	27	7749	3,371	
TOTAL				1,701		45,927	19,978	

NOTE:

- REFER TO E-450, E-451 & E-452 FOR CONDUCTOR SCHEDULE OF DC RECOMBINER AND COMBINER BOXES.
- CONTRACTOR SHALL VERIFY THAT THE COMBINER BOXES USED MATCH THE STRING COUNT PRIOR TO INSTALLATION.



ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:

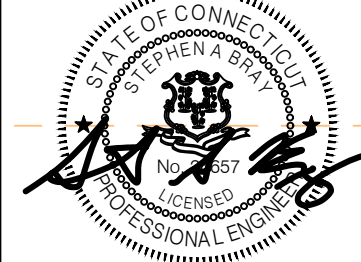
NORTH STONINGTON

PROJECT ADDRESS:

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41°25'9.71"N, 71°50'4.83"W

SEAL:

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DATE: 03/09/2020

PROJECT #: 2000500

Stephen A. Bray  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

DRAWN BY: V. PISSAREVSKI  
CHECKED BY: R. VUDI

TITLE: SINGLE LINE DIAGRAM  
SHEET 4

SHEET: E-403



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LONGI 435W COEFFICIENTS	
PMAX	-0.37%/°C
VOC	-0.30%/°C
ISC	0.06%/°C

DESIGN TEMPERATURE COEFFICIENTS	
ASHRAE HIGH TEMP	29.9°C
ASHRAE LOW TEMP	-16.5°C

LONGI 435W BIFACIAL PANEL PARAMETERS ITEM A	
VOC	49.8VDC
VMP	41.4VDC
ISC	11.16ADC
INOM	10.51ADC
BIFACIALITY FACTOR	125%
WIRE	#12 PV WIRE

STRING OF 27X435W ITEM B	
WITH NEC 690.7 & 690.8	
VMAX	1500VDC
VNOM	1117.8VDC
ISC	13.95ADC
INOM	13.14ADC
WITH NEC 690.8	
STRING FUSE	21.8ADC -> 30ADC
WIRE	#10 PV WIRE OR #8 PV WIRE

COMBINER WITH 18X30A FUSES USING 435W ITEM (C), (1)	
WITH NEC 690.7 & 690.8	
VMAX	1500VDC
VNOM	1117.8VDC
ISC	252ADC
INOM	237ADC
WITH NEC 690.8	
INV OCPD	391.7ADC -> 400ADC
WIRE	2 SETS OF 600KCMIL PV WIRE AL OR 750KCMIL PV WIRE

COMBINER WITH 17X20A FUSES USING 435W ITEM (C), (2)	
WITH NEC 690.7 & 690.8	
VMAX	1500VDC
VNOM	1117.8VDC
ISC	237.15ADC
INOM	223.4ADC
WITH NEC 690.8	
INV OCPD	370ADC -> 400ADC
WIRE	2 SETS OF 600KCMIL PV WIRE AL OR 750KCMIL PV WIRE

SYSTEM DESIGN CALCULATIONS:

STRING FUSE DISCONNECT SIZING (PER NEC 2014 690.9(B)): FORMULA - ISC \*1.25\*1.25  
1 STRING (18 MODULES) = 10.11A\*1.25\*1.25 = 15.79A ~ 20A

COMBINER BOX MAX ISC CURRENT FORMULA [NEC 2017 690.8(A)(1)] - ISC \*BIFACIALITY FACTORY\* 1.25 \*NUMBER OF STRINGS  
18 STRING COMBINER BOX = 11.16A \*1.25\*1.25\* 18 = 314A  
17 STRING COMBINER BOX = 11.16A \*1.25\*1.25\* 17 = 297A

INVERTER FUSE DISCONNECT SIZING (PER NEC 2017 690.9(B)):  
FORMULA - ISC \*BIFACIALITY FACTOR\*1.56 \*NUMBER OF STRINGS  
18 STRING COMBINER BOX = 11.16A \*1.25\*1.56\* 18 = 391.7A ~ 400A  
17 STRING COMBINER BOX = 11.16A \*1.25\*1.56\* 17 = 369.9A ~ 400A

DC HOME RUN CONDUCTOR SIZING PER NEC 2017 690.8(A) & (B):  
1 STRING (27 MODULES) = 11.16A\*BIFACIALITY FACTOR\*1.56 = 21.76A  
PER NEC 2017 TABLE 310.15(B)(16) FOR COPPER CONDUCTORS WITH 90 DEGREE CELSIUS TEMPERATURE RATING, #10 CONDUCTOR CAN HANDLE UP TO 40A.

COMBINER BOX OUTPUT CONDUCTOR SIZING PER NEC 2017 690.8(A) & (B):  
18 STRING COMBINER BOX = 11.16\*BIFACIALITY FACTOR\*1.56\*18 = 391.72A  
PER NEC 2017 TABLE 310.15(B)(16) FOR ALUMINIUM CONDUCTORS WITH 90 DEGREE CELSIUS TEMPERATURE RATING, 2 SETS OF 600KCMIL CONDUCTOR CAN HANDLE UP TO 770A AND 2 SETS OF 750KCMIL CONDUCTOR CAN HANDLE UP TO 870A.

SAMPLE VOLTAGE DROP FORMULA FOR INV1- CB1:  
VOLTAGE DROP FROM COMBINER BOX TO INVERTER = [INOM \* BIFACIALITY FACTOR\* (RESISTANCE OF WIRE/1000) \* 2 \* DISTANCE \* # OF STRINGS]/ (VMP \* # OF MODULES PER STRING\* # OF SETS)  
VOLTAGE DROP FROM COMBINER BOX TO INVERTER = [10.51A \* 1.25\* (0.0353/1000) \*2 \* 1565FT \* 18]/ (41.4V\*27\*2) = 0.0117 = 1.17%

VOLTAGE DROP FROM STRING TO COMBINER BOX = [INOM \* BIFACIALITY FACTOR\* (RESISTANCE OF WIRE/1000) \* 2 \* DISTANCE ]/ (VMP \* # OF MODULES PER STRING)  
VOLTAGE DROP FROM MODULE TO COMBINER BOX = [10.51A \* 1.25 \* (0.778/1000) \*2 \* 390FT]/ (41.4V\*27) = 0.0071 = 0.71%

NOTES:

- CODE REQUIRED AND INDUSTRY STANDARD  
AA-8000 ALUMINUM ALLOY CONDUCTORS  
REQUIRE NO MORE MAINTENANCE THAN COPPER  
PER NFPA 70B, "*RECOMMENDED PRACTICE FOR ELECTRICAL EQUIPMENT MAINTENANCE*". THIS STANDARD DOES NOT DIFFERENTIATE BETWEEN AA-8000 AND COPPER WIRE.
- MODERN ALUMINUM CONDUCTORS DO NOT REACT ANY DIFFERENTLY THAN COPPER IN MECHANICAL CONNECTION, THEY HAVE THE SAME SUGGESTED MAINTENANCE CYCLE.
- ALL DC CONDUCTORS SHALL BE 2000V RATED PV WIRE.

INVERTER 1 : SUNGROW SG-2500-U 2500kW												
COMBINER BOX	STRINGS	MODULE TYPE	MODULE WATTAGE	HOMERUN CONDUCTOR	COMBINER OUTPUT CONDUCTOR	SETS	CONDUIT	MAX DC HOMERUN LENGTH TO COMBINER BOX FT	MAX DC HOMERUN VOLTAGE DROP	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	TOTAL DC VOLTAGE DROP
INV1-CB1	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	390	0.71%	1565	1.17%	1.88%
INV1-CB2	17	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	350	0.64%	1690	1.19%	1.83%
INV1-CB3	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	390	0.71%	1625	1.21%	1.92%
INV1-CB4	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	1415	1.06%	1.81%
INV1-CB5	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	1285	0.96%	1.71%
INV1-CB6	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	440	0.80%	1135	0.85%	1.65%
INV1-CB7	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	420	0.77%	1005	0.75%	1.52%
INV1-CB8	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	420	0.77%	870	0.65%	1.42%
INV1-CB9	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	375	0.69%	870	0.65%	1.34%
INV1-CB10	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	395	0.72%	760	0.57%	1.29%
INV1-CB11	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	435	0.80%	580	0.43%	1.23%
INV1-CB12	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	470	0.86%	375	0.28%	1.14%
INV1-CB13	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	380	0.70%	285	0.21%	0.91%
INV1-CB14	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	665	1.22%	380	0.28%	1.50%
INV1-CB15	17	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	405	0.74%	455	0.32%	1.06%
INV1-CB16	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	430	0.79%	100	0.07%	0.86%

INVERTER 2 : SUNGROW SG-2500-U 2500kW												
COMBINER BOX	STRINGS	MODULE TYPE	MODULE WATTAGE	HOMERUN CONDUCTOR	COMBINER OUTPUT CONDUCTOR	SETS	CONDUIT	MAX DC HOMERUN LENGTH TO COMBINER BOX FT	MAX DC HOMERUN VOLTAGE DROP	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	TOTAL DC VOLTAGE DROP
INV2-CB1	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 750 KCMIL AL + #1 AL GND	2	4"	535	0.98%	1720	1.02%	2.00%
INV2-CB2	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 750 KCMIL AL + #1 AL GND	2	4"	550	1.00%	1670	1.00%	2.00%
INV2-CB3	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 750 KCMIL AL + #1 AL GND	2	4"	560	1.02%	1585	0.95%	1.97%
INV2-CB4	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 750 KCMIL AL + #1 AL GND	2	4"	540	0.99%	1495	0.89%	1.88%
INV2-CB5	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 750 KCMIL AL + #1 AL GND	2	4"	425	0.78%	1355	0.81%	1.59%
INV2-CB6	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	370	0.68%	1190	0.89%	1.57%
INV2-CB7	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	370	0.68%	1240	0.93%	1.61%
INV2-CB8	17	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	375	0.69%	790	0.56%	1.25%
INV2-CB9	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	665	0.50%	1.25%
INV2-CB10	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	540	0.40%	1.15%
INV2-CB11	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	390	0.71%	430	0.32%	1.03%
INV2-CB12	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	295	0.22%	0.97%
INV2-CB13	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	170	0.13%	0.88%
INV2-CB14	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	80	0.06%	0.81%
INV2-CB15	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	390	0.71%	125	0.09%	0.80%
INV2-CB16	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	230	0.17%	0.92%

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:  NORTH STONINGTON	
PROJECT ADDRESS:  ELLA WHEELER RD, NORTH STONINGTON, CT 06359 41°25'9.71"N, 71°50'4.83"W	
SEAL:    Stephen A. Bray PROFESSIONAL ENGINEER CT LICENSE: 26657	 DATE: 03/09/2020 PROJECT #: 2000500 DRAWN BY: V. PISSAREVSKI CHECKED BY: R. VUDI
TITLE:  CONDUCTOR SCHEDULE	
SHEET:  E-450	



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INVERTER 3 : SUNGROW SG-2500-U 2500kW												
COMBINER BOX	STRINGS	MODULE TYPE	MODULE WATTAGE	HOMERUN CONDUCTOR	COMBINER OUTPUT CONDUCTOR	SETS	CONDUIT	MAX DC HOMERUN LENGTH TO COMBINER BOX FT	MAX DC HOMERUN VOLTAGE DROP	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	TOTAL DC VOLTAGE DROP
INV3-CB1	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	1130	0.84%	1.59%
INV3-CB2	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	535	0.98%	910	0.68%	1.66%
INV3-CB3	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	440	1.28%	650	0.49%	1.77%
INV3-CB4	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	525	0.39%	1.59%
INV3-CB5	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	390	1.14%	420	0.31%	1.45%
INV3-CB6	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	370	1.08%	310	0.23%	1.31%
INV3-CB7	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	630	1.84%	165	0.12%	1.96%
INV3-CB8	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	360	0.27%	1.47%
INV3-CB9	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	485	0.36%	1.56%
INV3-CB10	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	615	0.46%	1.66%
INV3-CB11	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	475	0.35%	1.55%
INV3-CB12	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	350	0.26%	1.01%
INV3-CB13	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	0.75%	220	0.16%	0.91%
INV3-CB14	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	75	0.06%	1.26%
INV3-CB15	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	560	1.63%	50	0.04%	1.67%

INVERTER 4 : SUNGROW SG-2500-U 2500kW												
COMBINER BOX	STRINGS	MODULE TYPE	MODULE WATTAGE	HOMERUN CONDUCTOR	COMBINER OUTPUT CONDUCTOR	SETS	CONDUIT	MAX DC HOMERUN LENGTH TO COMBINER BOX FT	MAX DC HOMERUN VOLTAGE DROP	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	TOTAL DC VOLTAGE DROP
INV4-CB1	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	335	0.98%	1160	0.87%	1.85%
INV4-CB2	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	1035	0.77%	1.97%
INV4-CB3	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	910	0.68%	1.88%
INV4-CB4	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	780	0.58%	1.78%
INV4-CB5	17	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	350	1.02%	390	0.28%	1.30%
INV4-CB6	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	680	1.24%	430	0.32%	1.56%
INV4-CB7	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	495	0.37%	1.57%
INV4-CB8	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	620	0.46%	1.66%
INV4-CB9	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	750	0.56%	1.76%
INV4-CB10	17	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	420	1.22%	380	0.27%	1.49%
INV4-CB11	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	350	0.19%	1.39%
INV4-CB12	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	125	0.09%	1.29%
INV4-CB13	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	85	0.06%	1.26%
INV4-CB14	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	60	0.04%	1.24%
INV4-CB15	17	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	490	1.43%	165	0.12%	1.55%
INV4-CB16	17	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	580	1.69%	375	0.26%	1.95%

- NOTES:
- CODE REQUIRED AND INDUSTRY STANDARD AA-8000 ALUMINUM ALLOY CONDUCTORS REQUIRE NO MORE MAINTENANCE THAN COPPER PER NFPA 70B, "*RECOMMENDED PRACTICE FOR ELECTRICAL EQUIPMENT MAINTENANCE*". THIS STANDARD DOES NOT DIFFERENTIATE BETWEEN AA-8000 AND COPPER WIRE.
  - MODERN ALUMINUM CONDUCTORS DO NOT REACT ANY DIFFERENTLY THAN COPPER IN MECHANICAL CONNECTION, THEY HAVE THE SAME SUGGESTED MAINTENANCE CYCLE.
  - ALL DC CONDUCTORS SHALL BE 2000V RATED PV WIRE.

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
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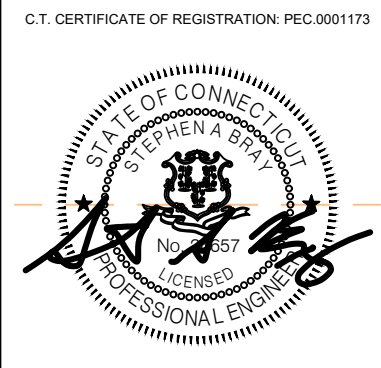


ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA


PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:



Stephen A. Bray  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657



1800 ROUTE 34, SUITE 200  
WALL, NJ 07719  
(732) 385-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

DRAWN BY:  
**V. PISSAREVSKI**

CHECKED BY:  
**R. VUDI**

TITLE:  
**CONDUCTOR SCHEDULE**

SHEET:  
**E-451**



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INVERTER 5 : SUNGROW SG-2500-U 2500kW												
COMBINER BOX	STRINGS	MODULE TYPE	MODULE WATTAGE	HOMERUN CONDUCTOR	COMBINER OUTPUT CONDUCTOR	SETS	CONDUIT	MAX DC HOMERUN LENGTH TO COMBINER BOX FT	MAX DC HOMERUN VOLTAGE DROP	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	TOTAL DC VOLTAGE DROP
INV5-CB1	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	430	1.25%	200	0.15%	1.40%
INV5-CB2	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	370	1.08%	115	0.09%	1.17%
INV5-CB3	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	125	0.09%	1.29%
INV5-CB4	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	380	0.28%	1.48%
INV5-CB5	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	255	0.19%	1.39%
INV5-CB6	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	190	0.14%	1.34%
INV5-CB7	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	525	1.53%	45	0.03%	1.56%
INV5-CB8	17	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	500	1.46%	45	0.03%	1.49%
INV5-CB9	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	205	0.15%	1.35%
INV5-CB10	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	330	0.25%	1.45%
INV5-CB11	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	425	0.32%	1.52%
INV5-CB12	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	390	1.14%	320	0.24%	1.38%
INV5-CB13	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	370	1.08%	255	0.19%	1.27%
INV5-CB14	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	320	0.24%	1.44%
INV5-CB15	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	445	0.33%	1.53%
INV5-CB16	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	570	0.43%	1.63%

INVERTER 6 : SUNGROW SG-2500-U 2500kW												
COMBINER BOX	STRINGS	MODULE TYPE	MODULE WATTAGE	HOMERUN CONDUCTOR	COMBINER OUTPUT CONDUCTOR	SETS	CONDUIT	MAX DC HOMERUN LENGTH TO COMBINER BOX FT	MAX DC HOMERUN VOLTAGE DROP	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	TOTAL DC VOLTAGE DROP
INV6-CB1	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	415	0.76%	1390	1.04%	1.80%
INV6-CB2	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	430	0.79%	1240	0.93%	1.72%
INV6-CB3	18	LONGI LR4-72HBD-435M	435	2 X #8 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	430	0.79%	1110	0.83%	1.62%
INV6-CB4	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	370	1.08%	1025	0.77%	1.85%
INV6-CB5	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	700	0.52%	1.72%
INV6-CB6	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	435	1.27%	720	0.54%	1.81%
INV6-CB7	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	435	1.27%	850	0.63%	1.90%
INV6-CB8	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	415	1.21%	975	0.73%	1.94%
INV6-CB9	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	550	1.01%	1000	0.75%	1.76%
INV6-CB10	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	430	1.25%	510	0.38%	1.63%
INV6-CB11	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	430	1.25%	380	0.28%	1.53%
INV6-CB12	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	430	1.25%	255	0.19%	1.44%
INV6-CB13	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	250	0.19%	1.39%
INV6-CB14	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	410	1.20%	360	0.27%	1.47%
INV6-CB15	17	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	415	1.21%	440	0.31%	1.52%
INV6-CB16	18	LONGI LR4-72HBD-435M	435	2 X #10 CU + #6 CU GND	2 X 600 KCMIL AL + #1 AL GND	2	4"	430	1.25%	290	0.22%	1.47%

- NOTES:
- CODE REQUIRED AND INDUSTRY STANDARD AA-8000 ALUMINUM ALLOY CONDUCTORS REQUIRE NO MORE MAINTENANCE THAN COPPER PER NFPA 70B, "RECOMMENDED PRACTICE FOR ELECTRICAL EQUIPMENT MAINTENANCE". THIS STANDARD DOES NOT DIFFERENTIATE BETWEEN AA-8000 AND COPPER WIRE.
  - MODERN ALUMINUM CONDUCTORS DO NOT REACT ANY DIFFERENTLY THAN COPPER IN MECHANICAL CONNECTION, THEY HAVE THE SAME SUGGESTED MAINTENANCE CYCLE.
  - ALL DC CONDUCTORS SHALL BE 2000V RATED PV WIRE.

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**



Stephen A. Bray  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657



1890 ROUTE 24, SUITE 200  
WALL, NJ 07719  
(732) 385-5633  
kmbdg.com

DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

DRAWN BY:  
**V. PISSAREVSKI**

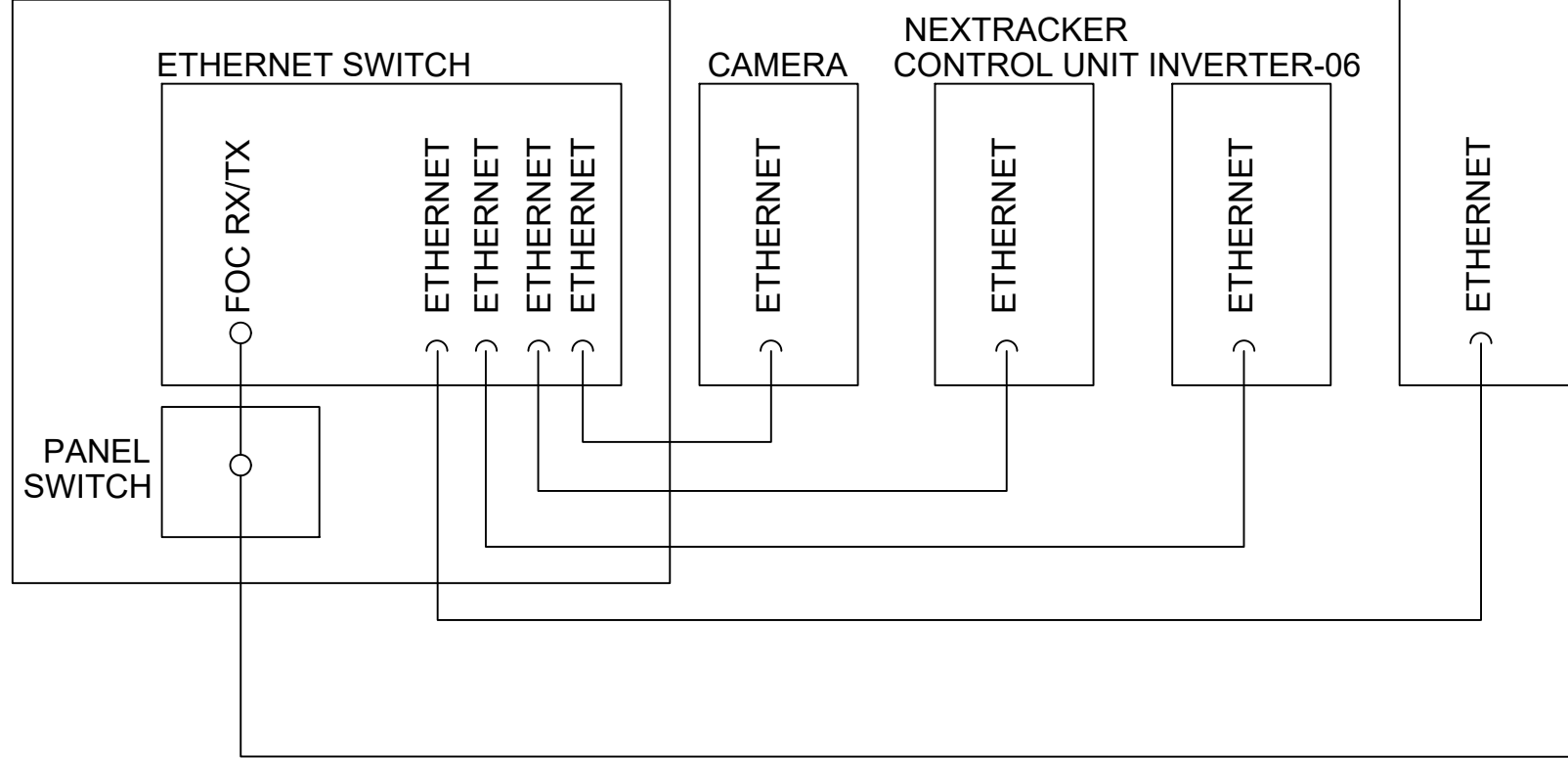
CHECKED BY:  
**R. VUDI**

TITLE:  
**CONDUCTOR SCHEDULE**

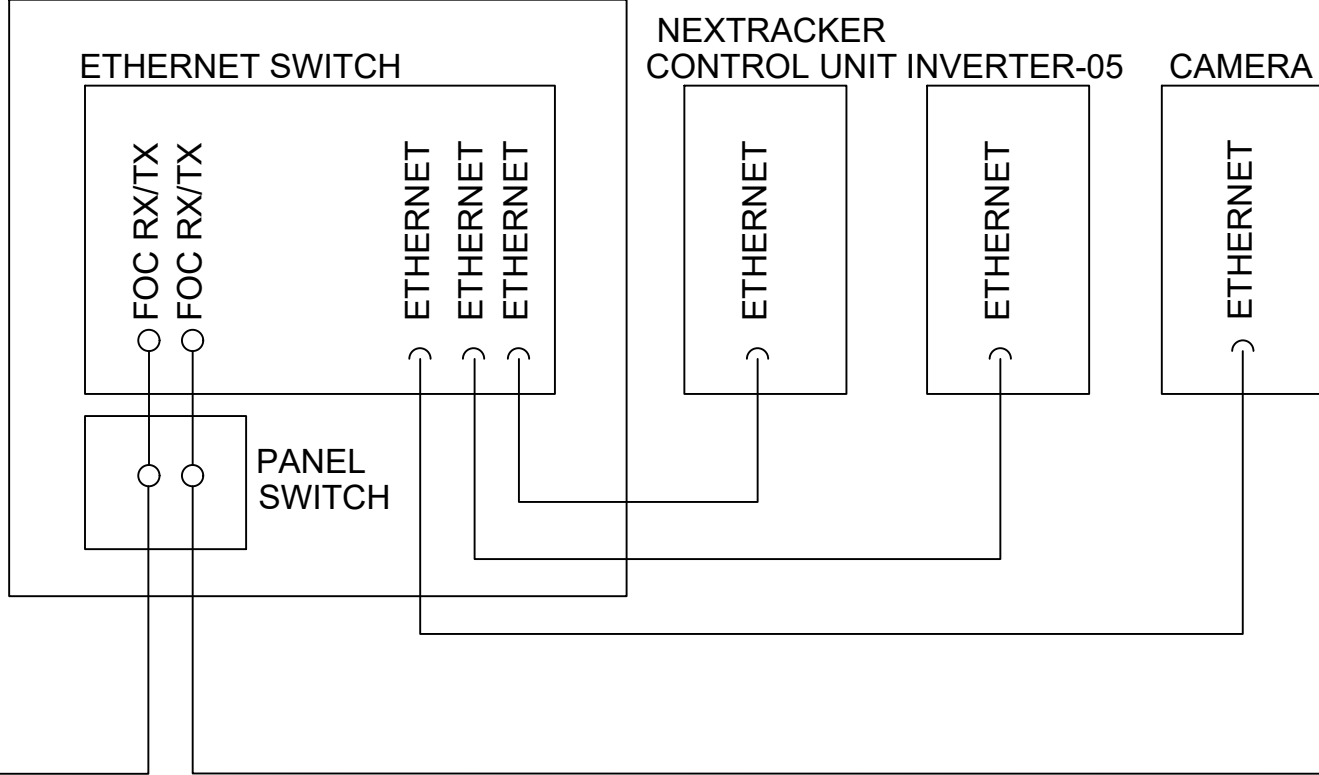
SHEET:  
**E-452**



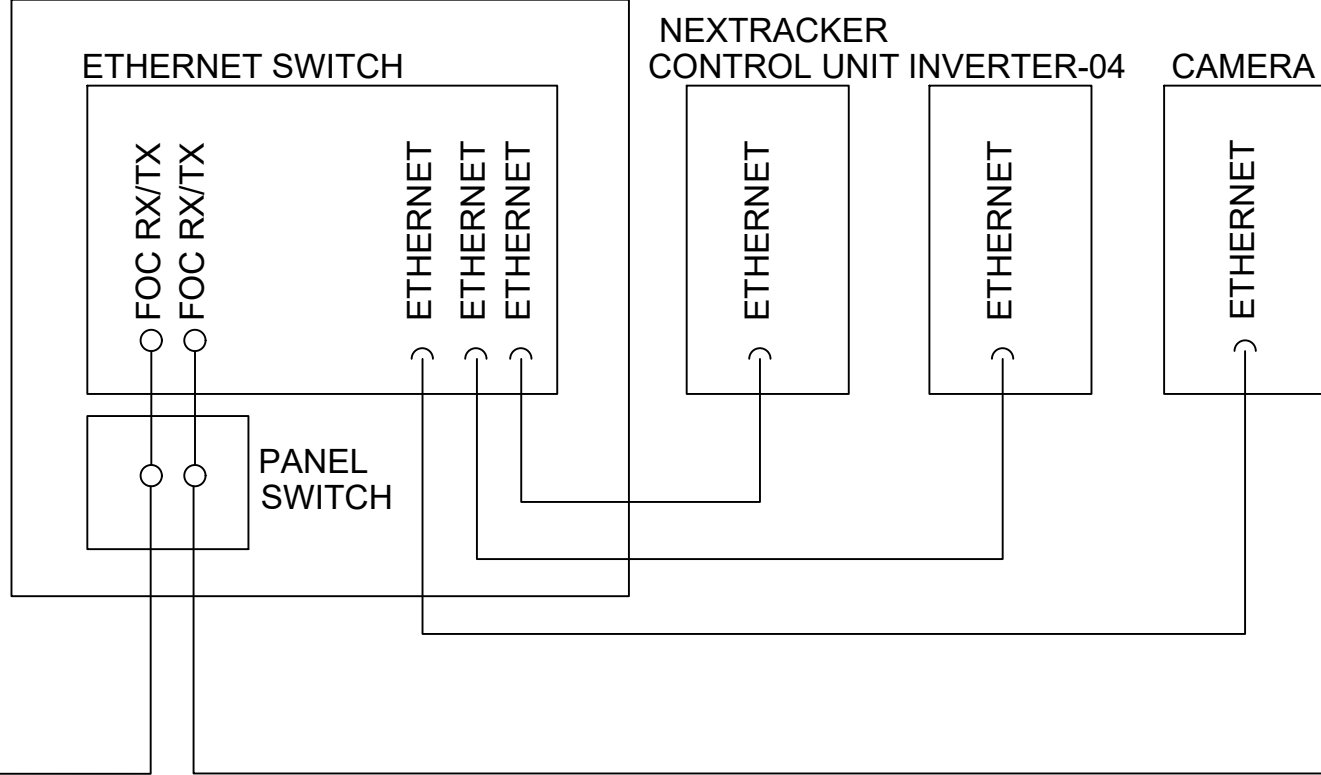
DAS ENCLOSURE 06



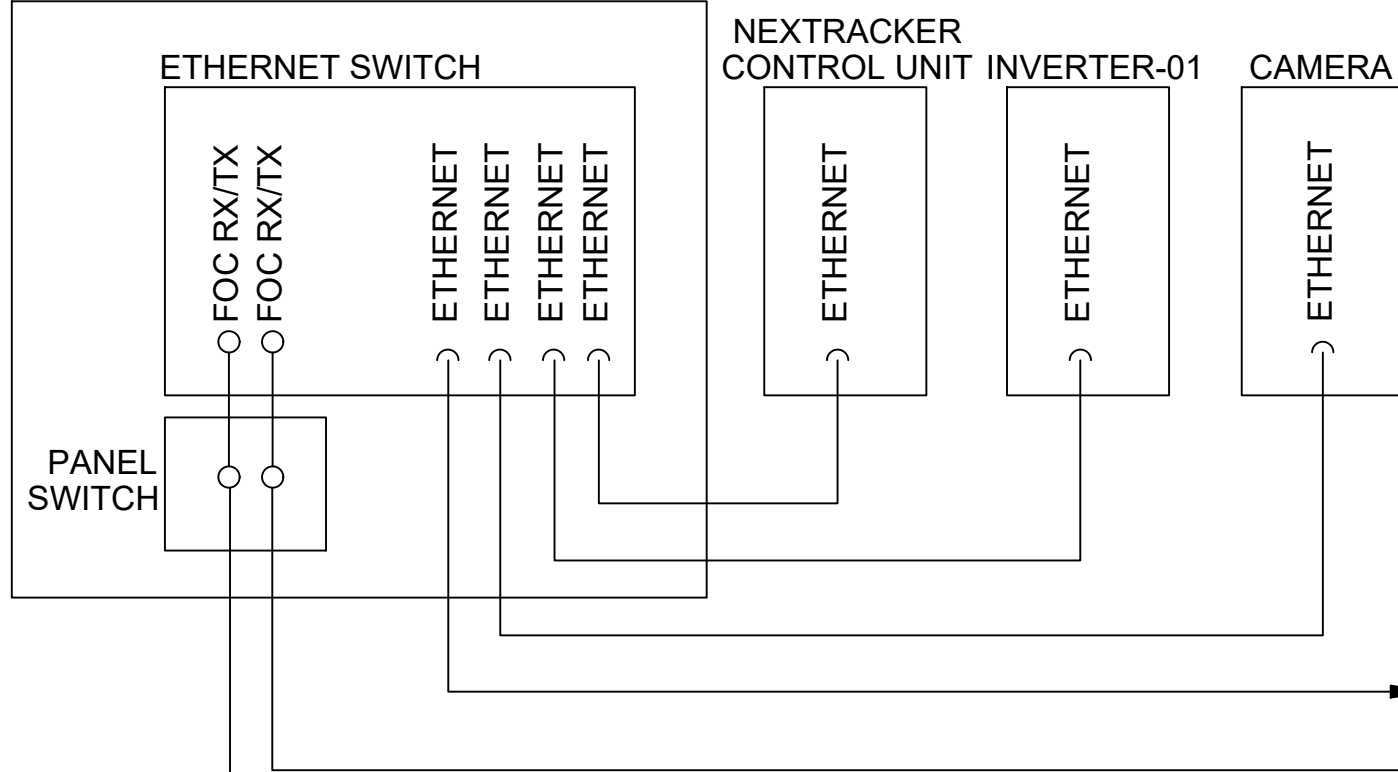
DAS ENCLOSURE 05



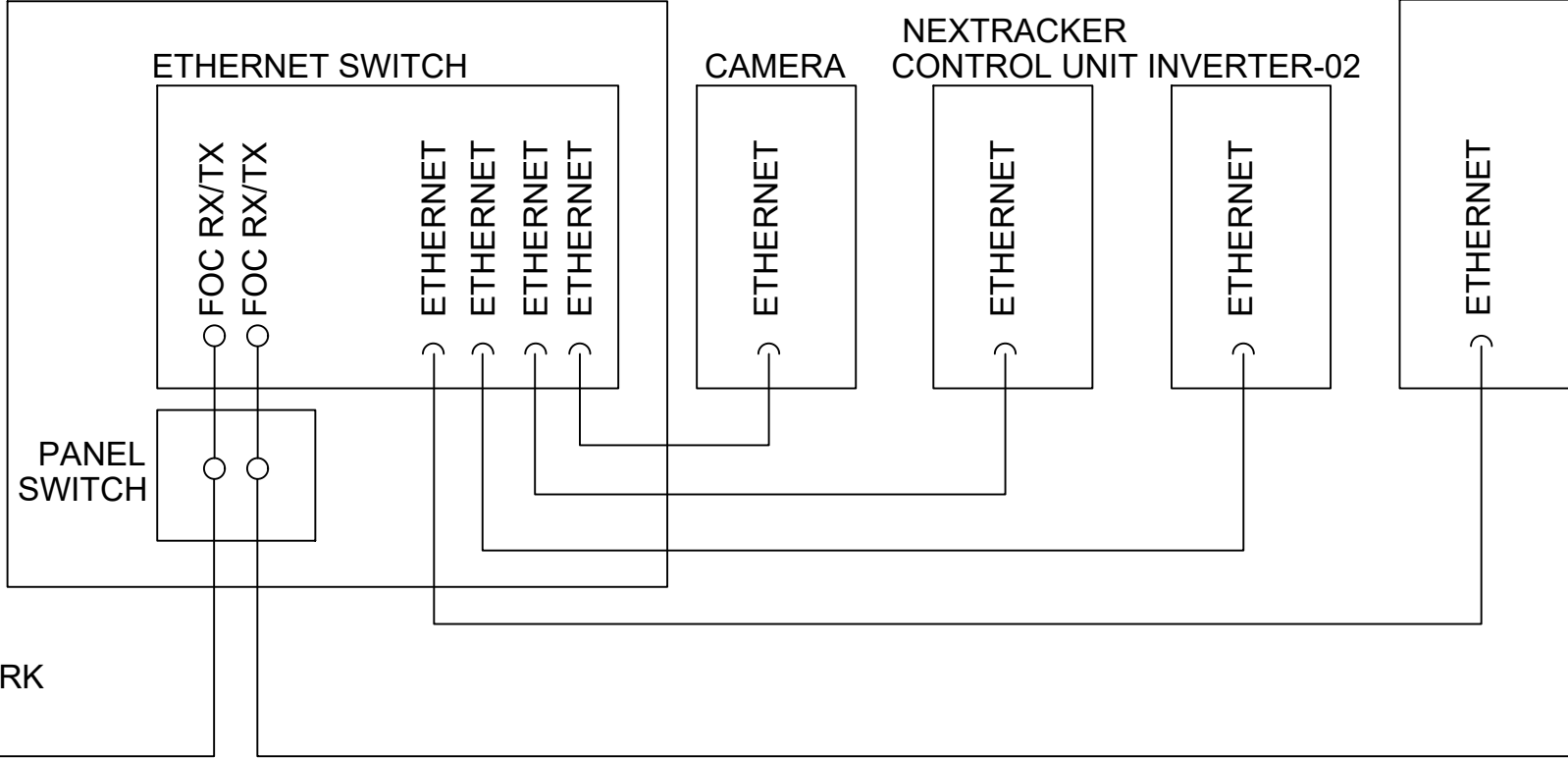
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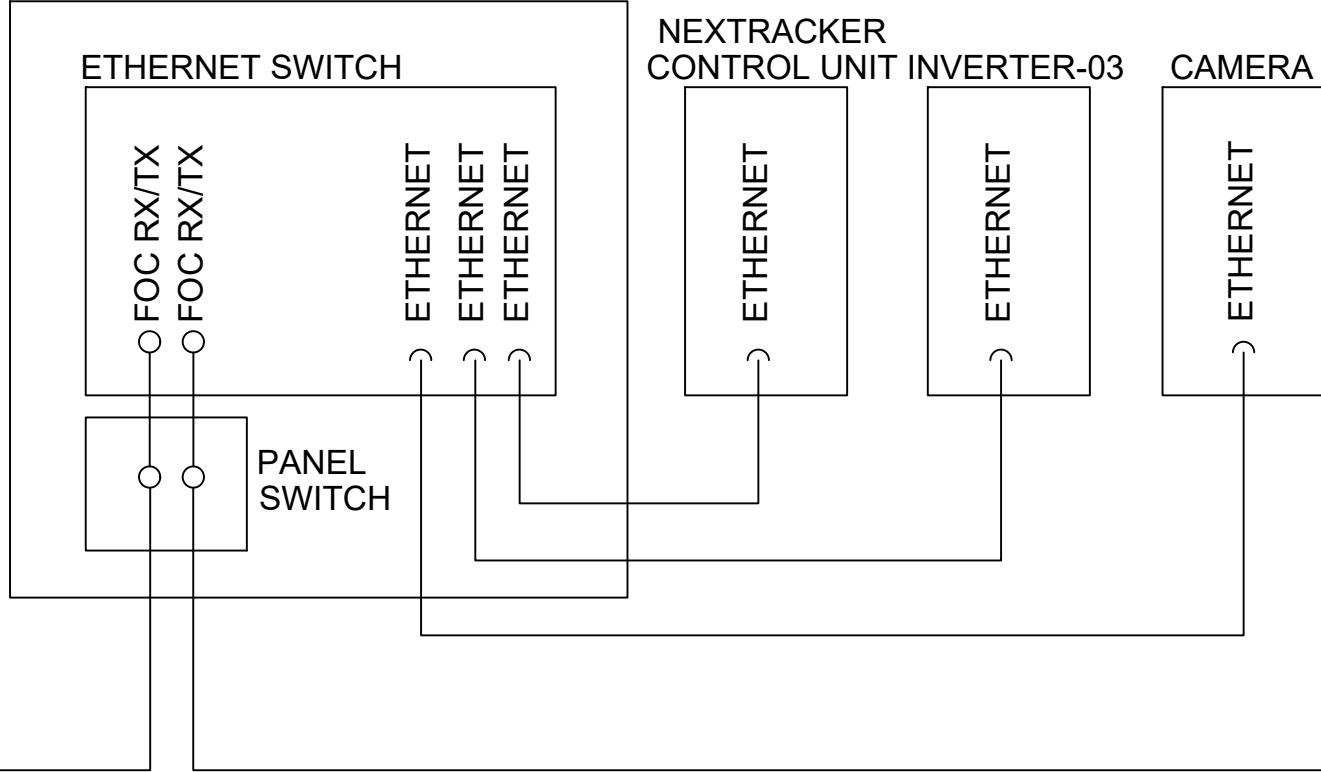
DAS ENCLOSURE 01



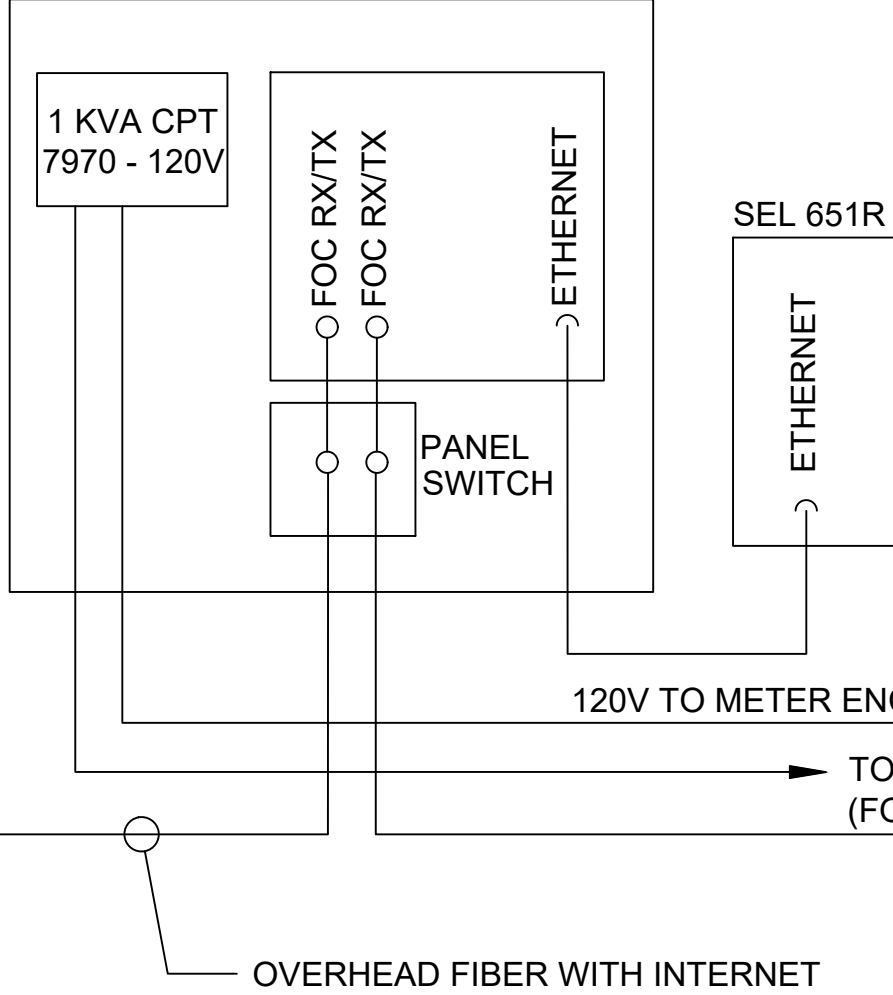
DAS ENCLOSURE 02



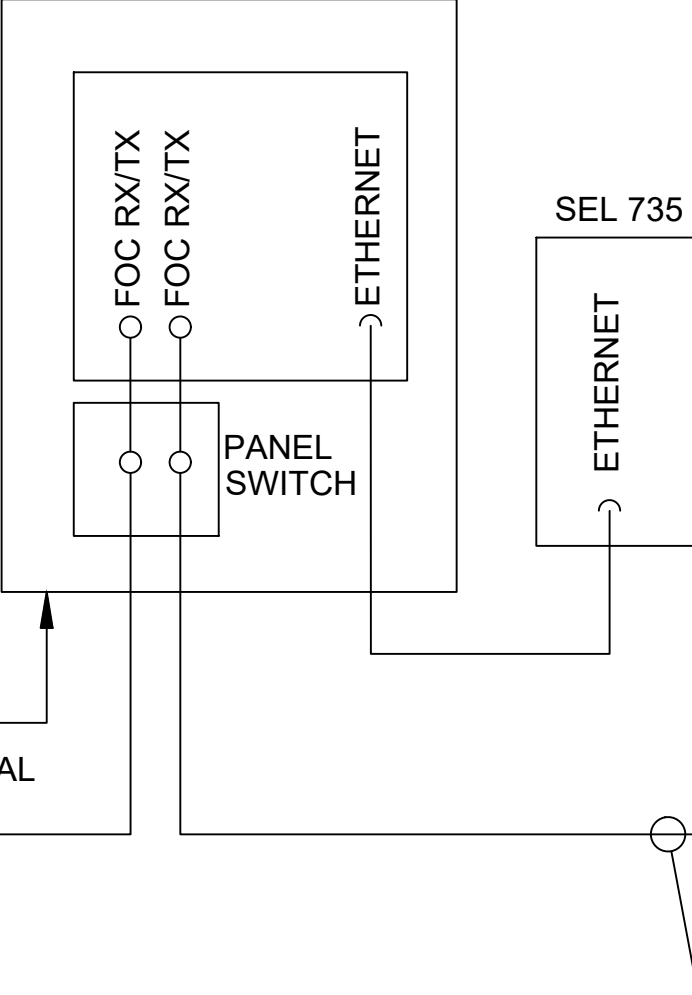
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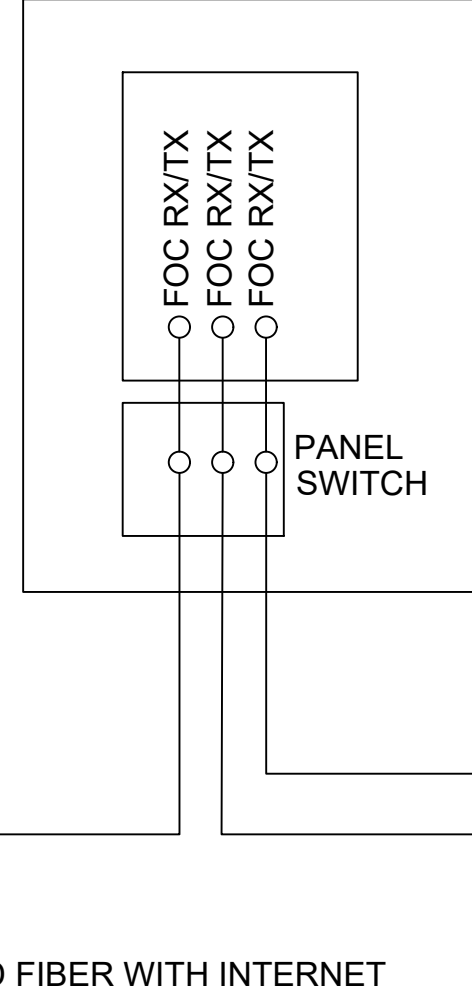
RECLOSER ENCLOSURE



METER ENCLOSURE



COMMUNICATIONS PEDESTAL



- NOTES:
1. REFER TO SCADA VENDOR DRAWINGS FOR DETAILS.
  2. CONTRACTOR TO CHECK POSSIBILITY OF LAND INTERNET INSTEAD OF CELLULAR INTERNET.

REV	DESCRIPTION	DATE
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PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

STEPHEN A. BRAY  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

**KMB**  
DESIGN GROUP  
kmbdg.com

1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 385-5633

FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

DRAWN BY:  
**V. PISSAREVSKI**

CHECKED BY:  
**R. VUDI**

TITLE:  
**COMMUNICATION  
NETWORK DIAGRAM**

SHEET:  
**E-500**



NOTES:

THE FOLLOWING CONDUITS ARE DETAILED IN THE PAD. IF ANY NEED TO BE ADDED, PLEASE CONTACT THE ENGINEER. ALL UNDERGROUND CONDUIT IS PVC SCH 40 UNLESS NOTED OTHERWISE. ALL ABOVE GRADE AC CONDUIT SHALL BE PVC SCH 80 UNLESS NOTED OTHERWISE.

COMMUNICATION CONDUITS

- QTY 2 - 1" PVC SCH 40 CONDUIT FOR WEATHER SENSORS LOCATED IN THE ARRAY TO THE WEATHER STATION. 1- FOR PYRANOMETER/ALBEDOMETER. 1- FOR BACK OF MODULE TEMPERATURE SENSOR.
- QTY 3 - 1" PVC SCH 40 CONDUIT FROM DAS ENCLOSURE. 1- TO INVERTER. 1- TO CAMERA. 1-TRACKER CONTROL UNIT.
- QTY 2 - 2" PVC SCH 40 CONDUIT FROM DAS ENCLOSURE 1- INCOMING.1- OUTGOING

LV AC CONDUITS (REFER TO E-400 & 401 FOR SIZING.)

- QTY 3 - 1" PVC SCH 40 CONDUIT FROM INVERTER. 1- TO GFCI RECEPTACLE. 1- DAS ENCLOSURE. 1- TRACKER CONTROL UNIT.
- 3 FLEXIBLE BUS BARS FOR INVERTER THROAT CONNECTION TO THE TRANSFORMER. REFER TO PROLEC GE THROAT INSTALLATION INSTRUCTION FOR METHOD OF CONNECTING INVERTER BUSBARS TO TRANSFORMER LV BUSHING.

DC CONDUITS

- QTY 32 OR 30 - 4" PVC SCH 40 CONDUIT FROM COMBINER BOXES IN ARRAY TO INVERTER. REFER TO CONDUCTOR SCHEDULE ON E-450 , E-451 & E-452 FOR CONDUIT AT EACH INVERTER. REFER TO INVERTER INSTALLATION MANUAL TO BALANCE THE MPPT INPUT TERMINALS.
- QTY 1 - 1" PVC SCH 40 CONDUIT 24VDC FROM TRANSFORMER ALARM CONTACTS TO DAS ENCLOSURE.

MV AC CONDUITS

- QTY 2 - 5" PVC SCH 40 CONDUIT AT TRANSFORMER . 1-INCOMING. 1-OUTGOING

GEC

- ALL GEC CONDUCTORS SHALL BE #4/0 TINNED COPPER CONDUCTOR IN 2" PVC SCH 40. THIS SHALL SPLICE INTO THE GROUND RING. SPLICE SHALL BE EXOTHERMICALLY WELDED TO THE GROUND RING ALONG WITH EGC CONDUCTORS.

EQUIPMENT LIST ON EACH PAD:

- 1x 2750KVA 13.8KV-480V STEP UP TRANSFORMER
- 1x SG2500U 2500kW SUNGROW INVERTER
- 1x DAS MONITORING ENCLOSURE
- 1x UPS ENCLOSURE
- 1x GFCI RECEPTACLE
- 1x CAMERA
- 1x NEXTRACKER NETWORK CONTROL UNIT

REV	DESCRIPTION	DATE
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**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

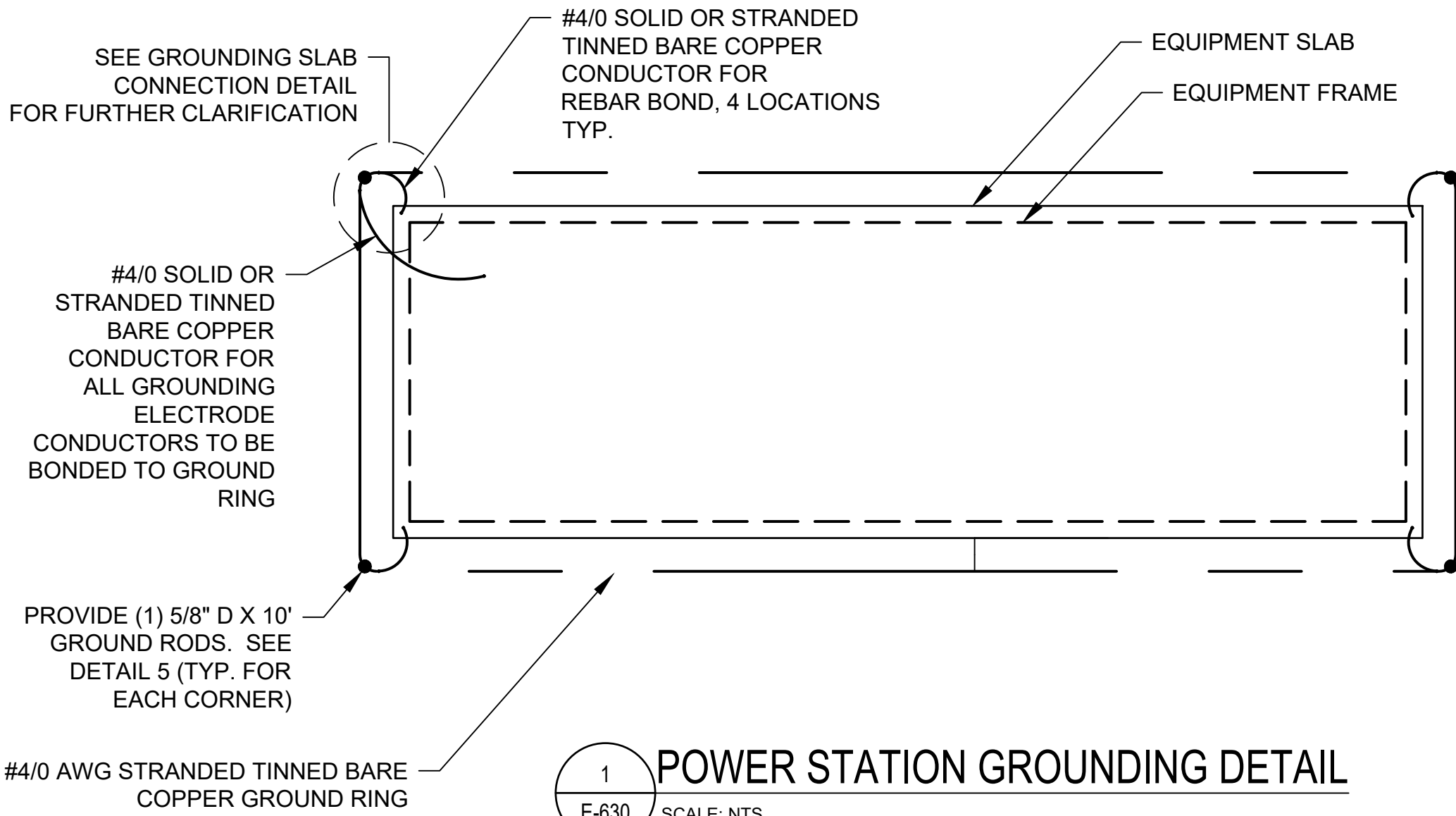
SEAL:  C.T. CERTIFICATE OF REGISTRATION: PEC 0001173  	 KMB DESIGN GROUP kmbdgg.com 1890 ROUTE 24, SUITE 200 WALL, NJ 07719 (732) 395-5633 FOR ALL QUESTIONS, PLEASE CONTACT STEVE FOX - PROJECT MANAGER
DATE: <b>03/09/2020</b>	PROJECT #: <b>2000500</b>
DRAWN BY: <b>V. PISSAREVSKI</b>	CHECKED BY: <b>R. VUDI</b>

TITLE:  
**DETAILS-EQUIPMENT PAD**

SHEET:  
**E-600**

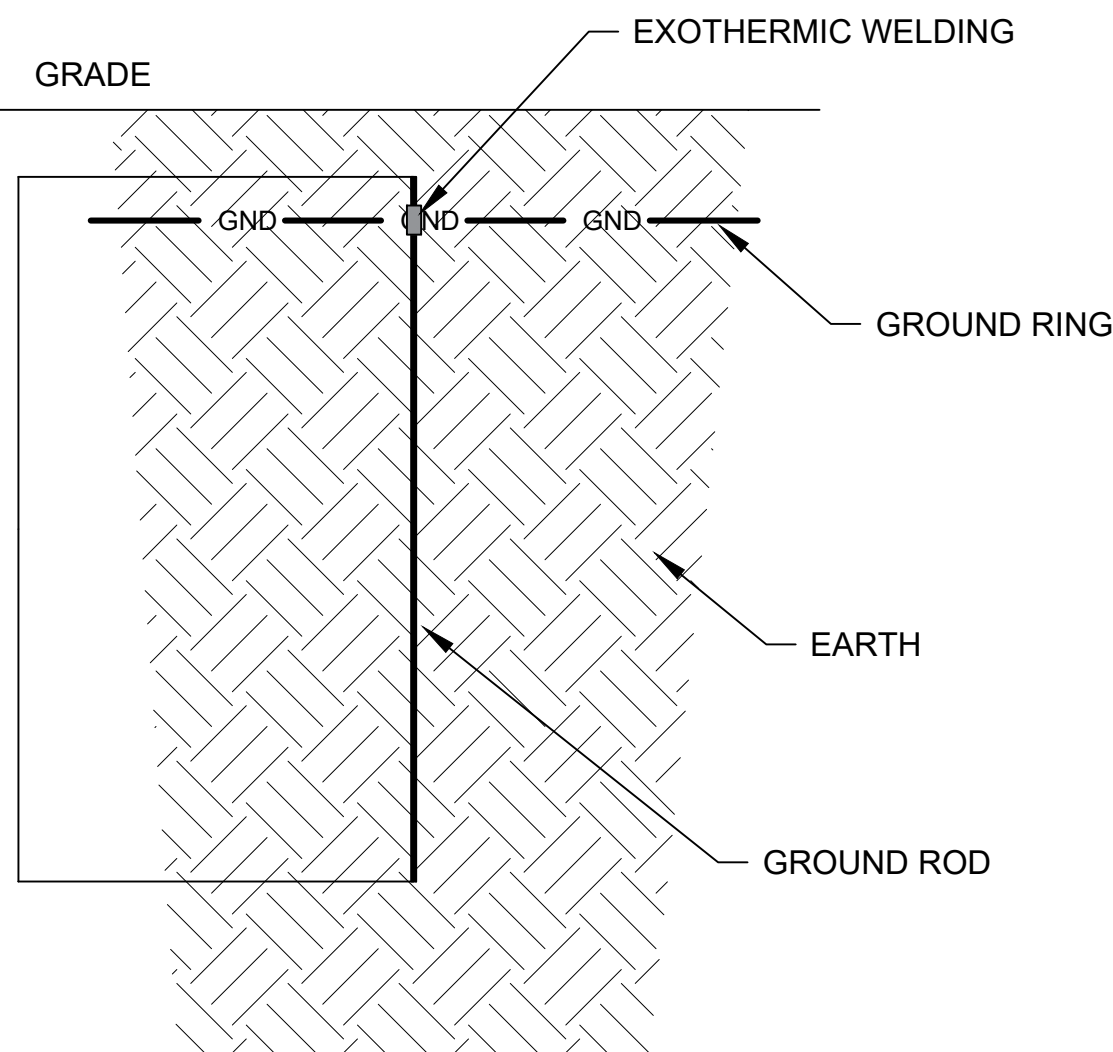
CONTRACTOR TO VERIFY EQUIPMENT DIMENSIONS, 6' WORKING CLEARANCE & REQUIRED SPACE TO OPEN ALL INVERTER DOORS PRIOR TO POURING THE PAD. SEE EQUIPMENT SHOP DRAWINGS FOR MORE INFORMATION.



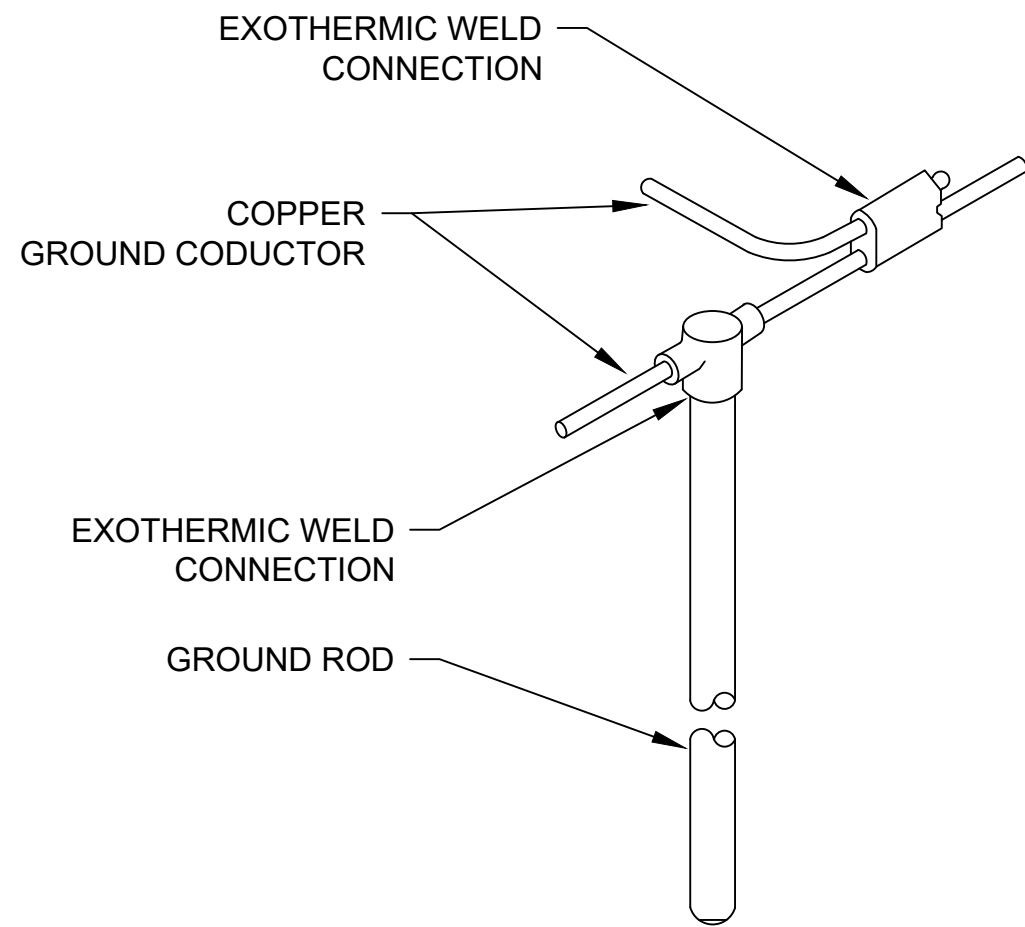


NOTES:

1. GROUNDING RESISTANCE IS TO BE AS FOLLOWS: AROUND THE SWITCHGEAR AND EQUIPMENT PADS TO BE LESS THAN 5 OHMS.
2. IF GROUNDING RESISTANCE VALUES CANNOT BE OBTAIN, INSTALL ADDITIONAL GROUNDING ELECTRODES AND RE-TEST.



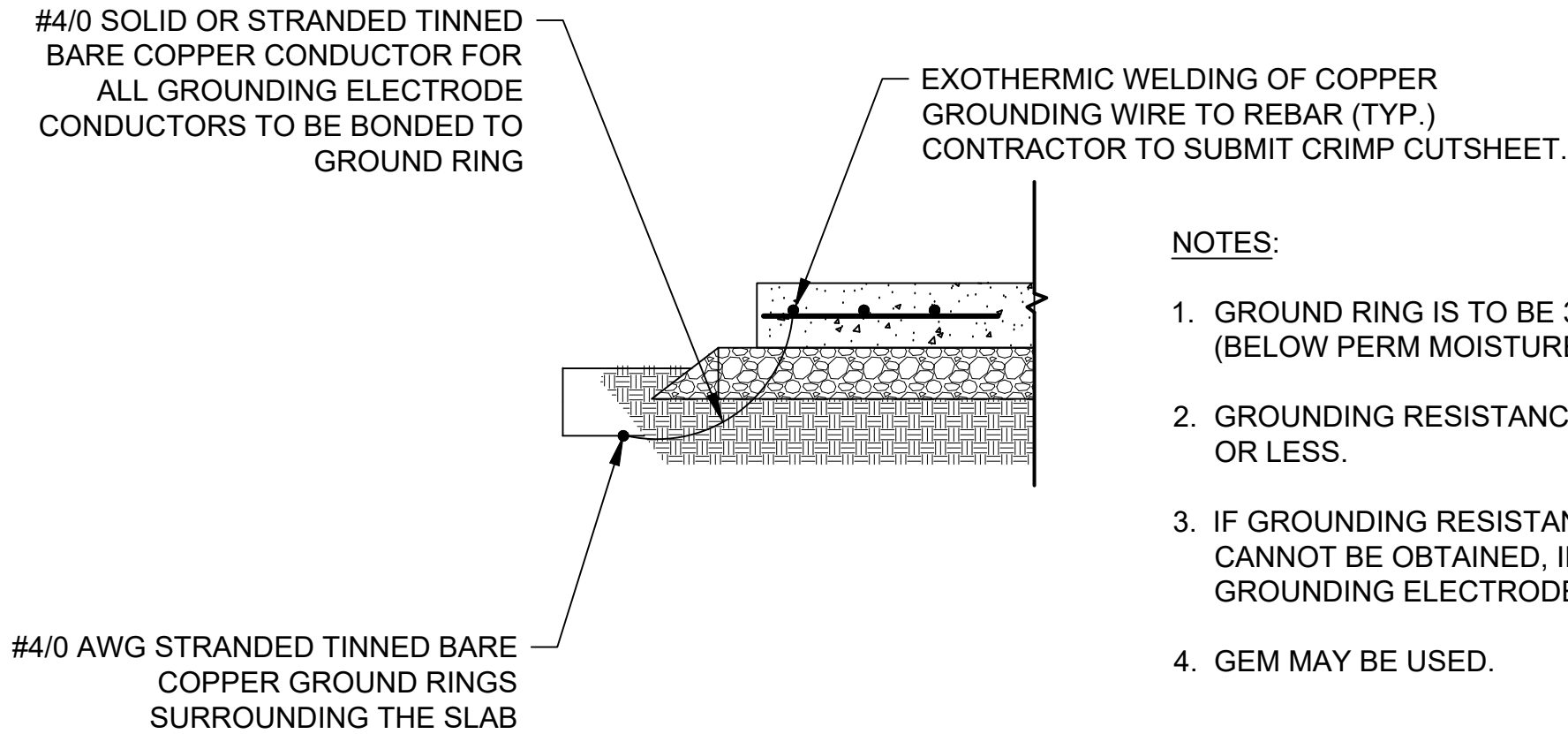
**3 GROUND ROD INSTALLATION**  
SCALE: NTS



**5 GROUND ROD DETAIL**  
SCALE: NTS

NOTES:

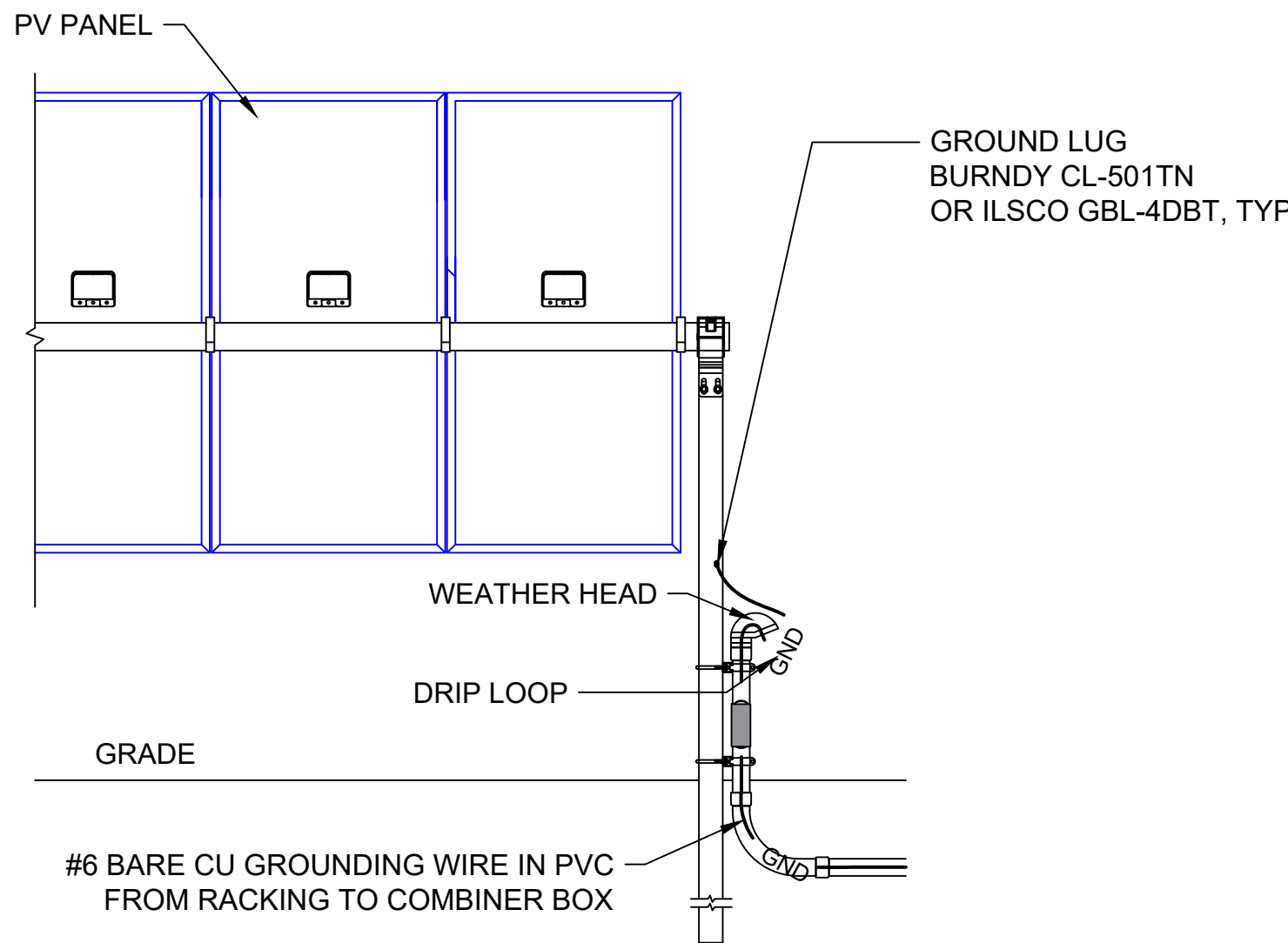
1. GROUNDING RESISTANCE IS TO BE 5 OHMS OR LESS.
2. IF GROUNDING RESISTANCE VALUES CANNOT BE OBTAINED, INSTALL ADDITIONAL GROUNDING ELECTRODES AND RE-TEST.
3. GEM MAY BE USED.
4. ONE TESTING WELL TO BE INSTALLED.



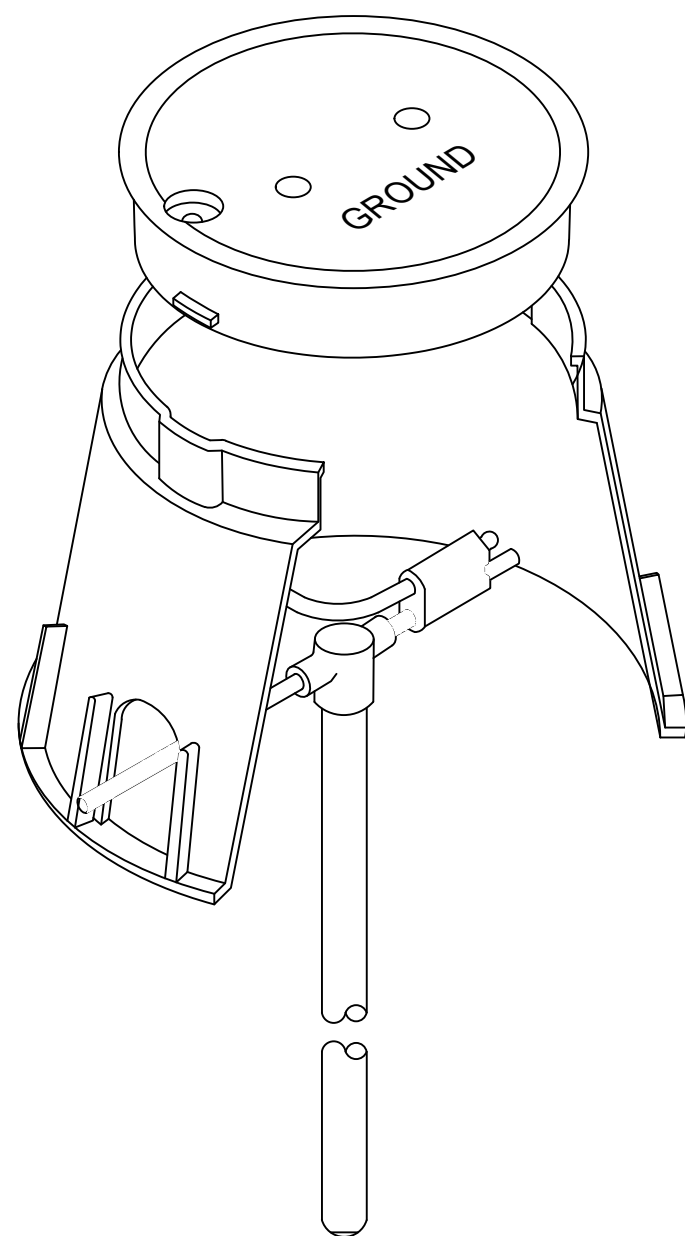
NOTES:

1. GROUND RING IS TO BE 30" BELOW GRADE (BELOW PERM MOISTURE LEVEL).
2. GROUNDING RESISTANCE IS TO BE 5 OHMS OR LESS.
3. IF GROUNDING RESISTANCE VALUES CANNOT BE OBTAINED, INSTALL ADDITIONAL GROUNDING ELECTRODES AND RE-TEST.
4. GEM MAY BE USED.

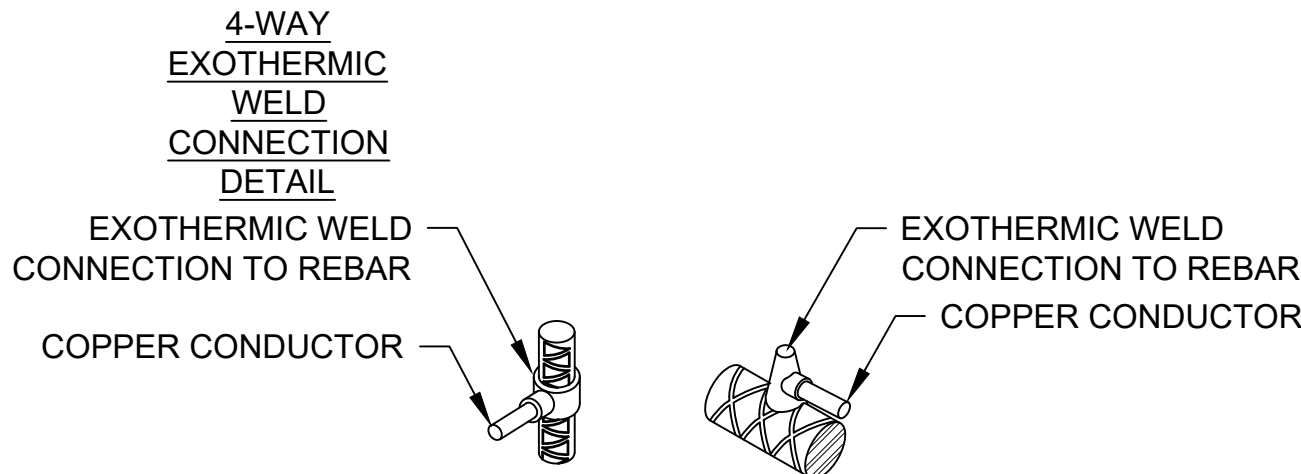
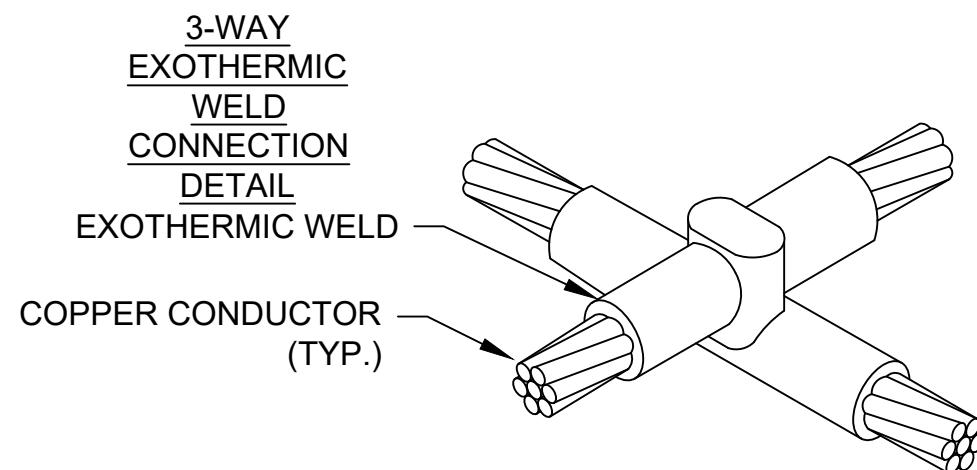
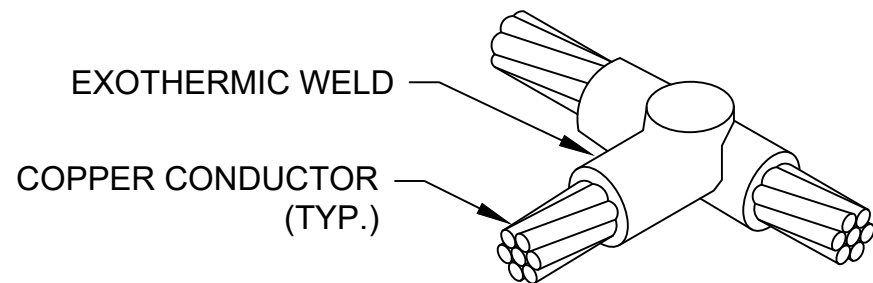
**2 EQUIPMENT PAD GROUNDING SLAB CONNECTION DETAIL**  
SCALE: NTS



**4 MODULE AND RACK GROUNDING**  
SCALE: NTS



**7 GROUND TEST WELL**  
SCALE: NTS



NOTE:

1. REBAR SHALL BE INSTALLED IN A MINIMUM OF ONE CONTINUOUS 20FT LENGTH PER NEC 250.52(A)(3).
- GROUND WIRE TO REBAR EXOTHERMIC WELD CONNECTION DETAIL

**6 EXOTHERMIC WELD CONNECTIONS**  
SCALE: NTS

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
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-	-	-

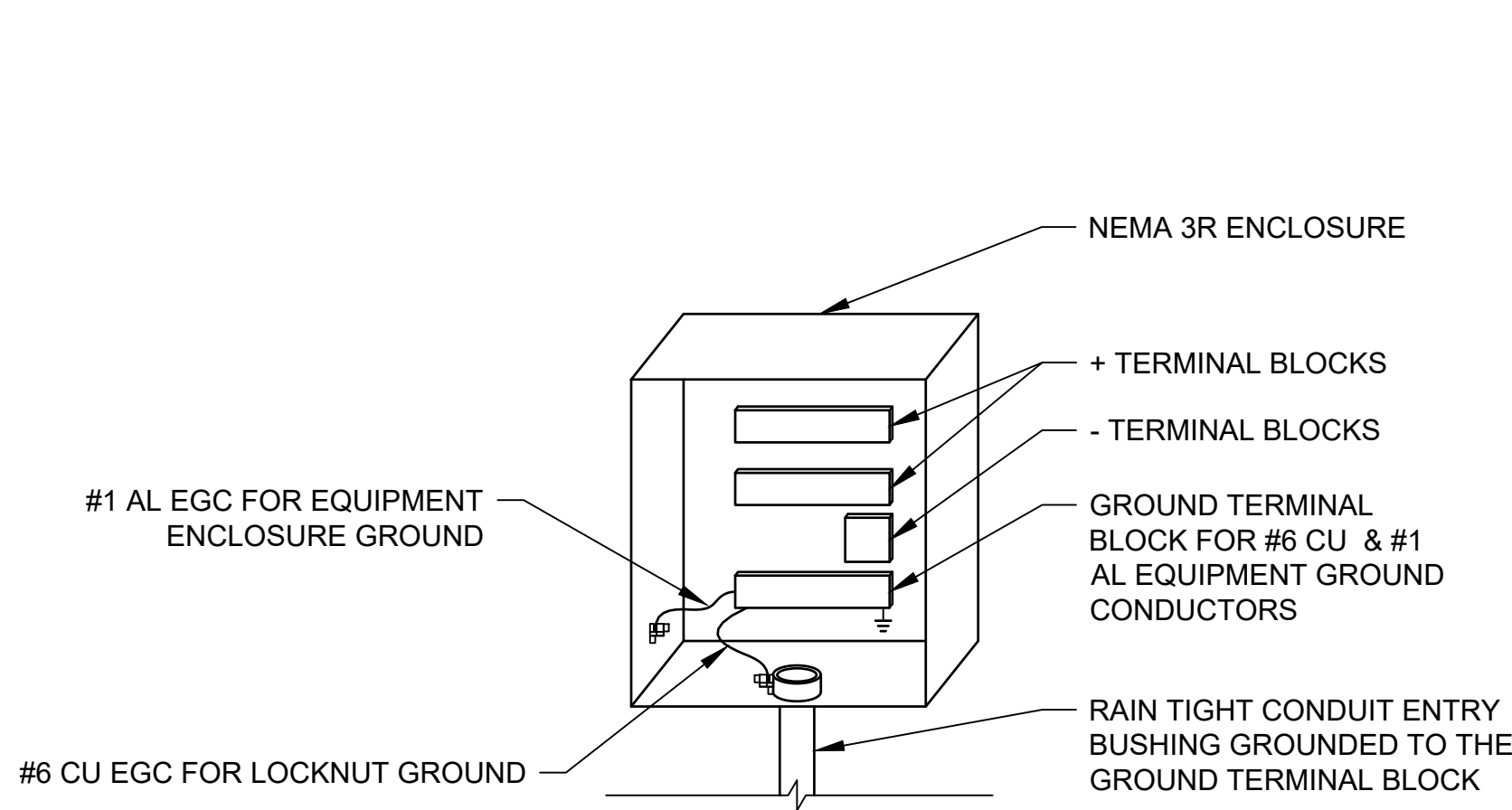
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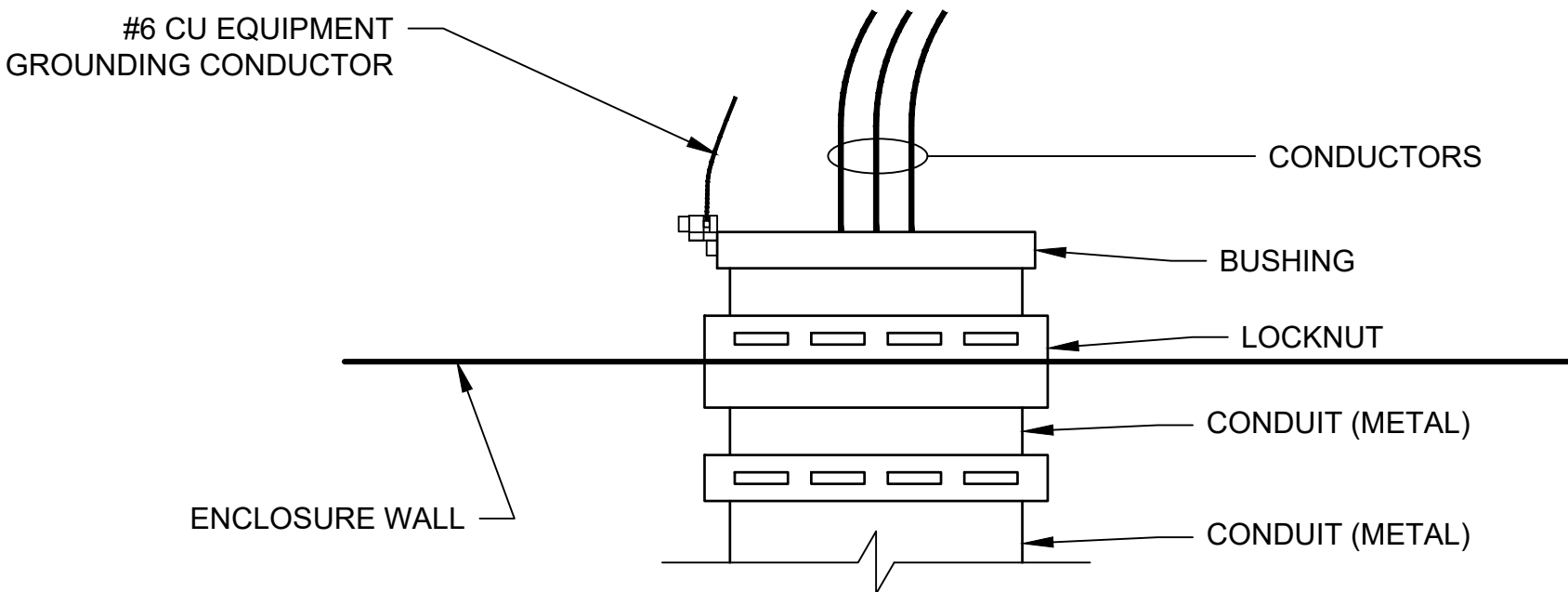


PROJECT NAME: <b>NORTH STONINGTON</b>	
PROJECT ADDRESS: <b>ELLA WHEELER RD, NORTH STONINGTON, CT 06359 41°25'9.71"N, 71°50'4.83"W</b>	
SEAL: 	 KMB DESIGN GROUP kmbdg.com 1800 ROUTE 14, SUITE 200 WALL, NJ 07719 (732) 385-5633 FOR ALL QUESTIONS, PLEASE CONTACT STEVE FOX - PROJECT MANAGER
DATE: <b>03/09/2020</b>	PROJECT #: <b>2000500</b>
<b>Stephen A. Bray</b> PROFESSIONAL ENGINEER CT LICENSE: 26657	DRAWN BY: <b>V. PISSAREVSKI</b> CHECKED BY: <b>R. VUDI</b>
TITLE: <b>DETAILS-GROUNDING SHEET 1</b>	
SHEET: <b>E-630</b>	

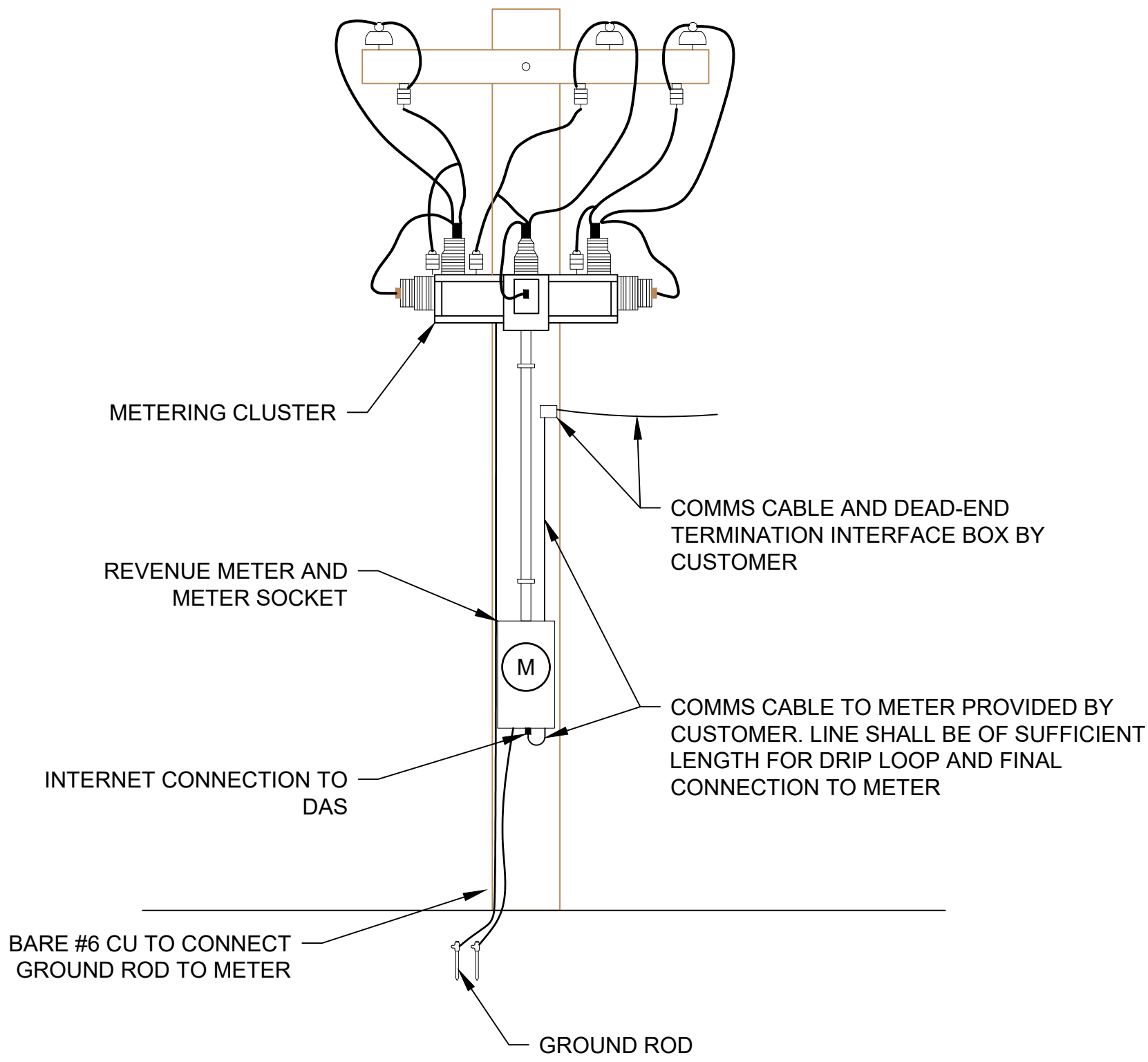




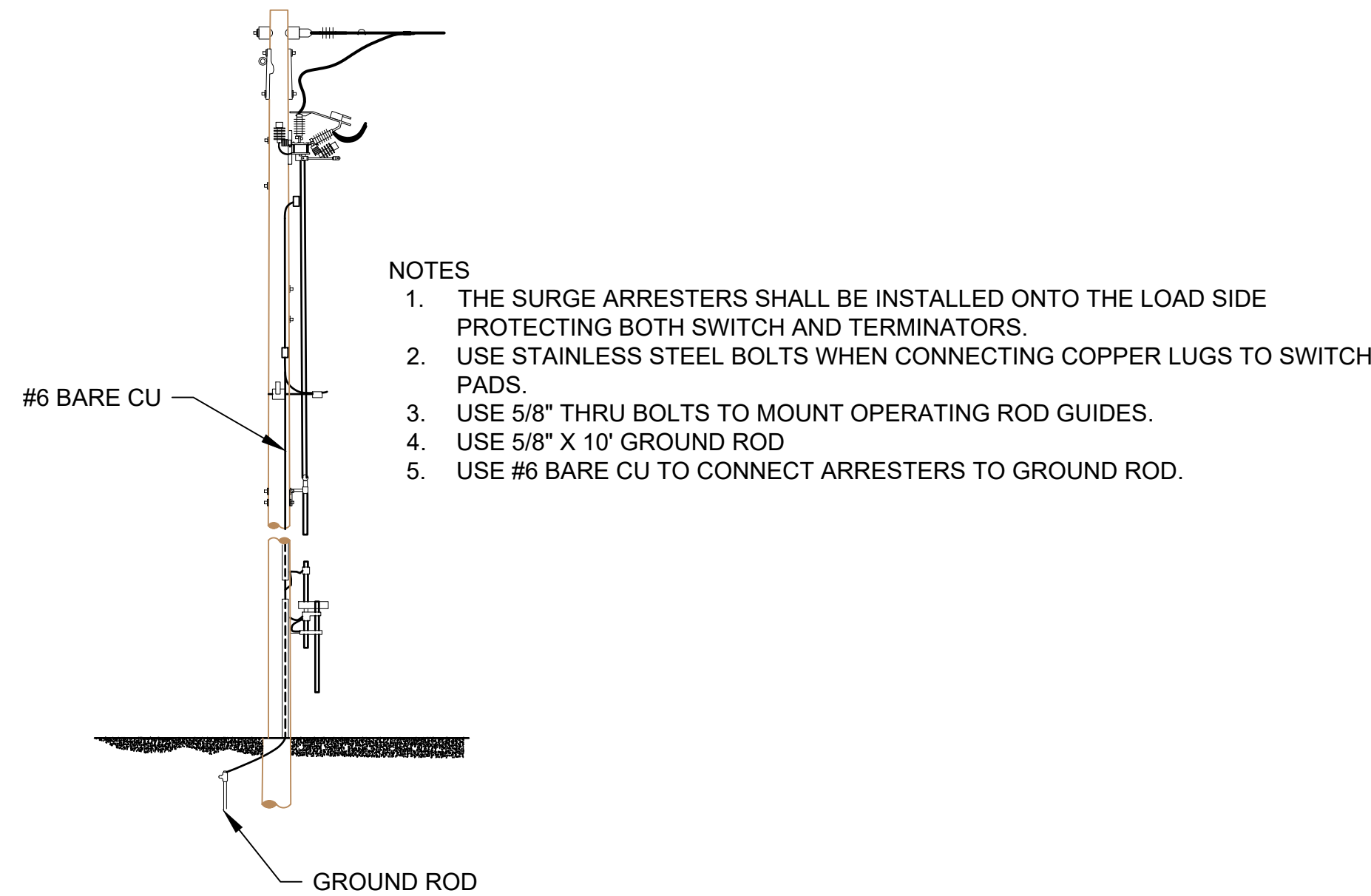
4 TYPICAL EQUIPMENT GROUNDING DETAIL  
E-631 SCALE: NTS



5 TYPICAL CONDUIT GROUNDING DETAIL  
E-631 SCALE: NTS

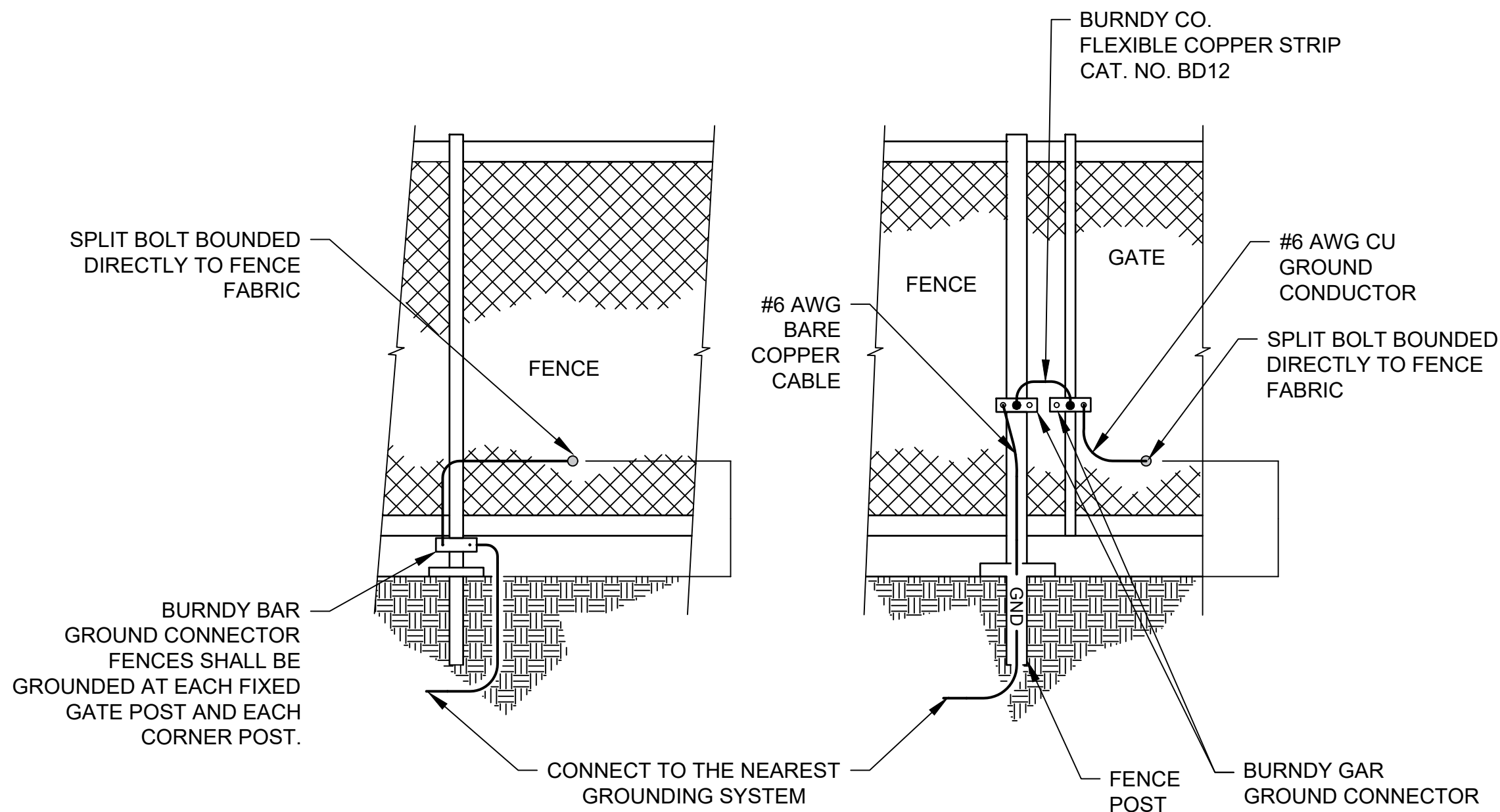


2 METER GROUNDING  
E-631 SCALE: NTS



3 GOAB POLE GROUNDING  
E-631 SCALE: NTS

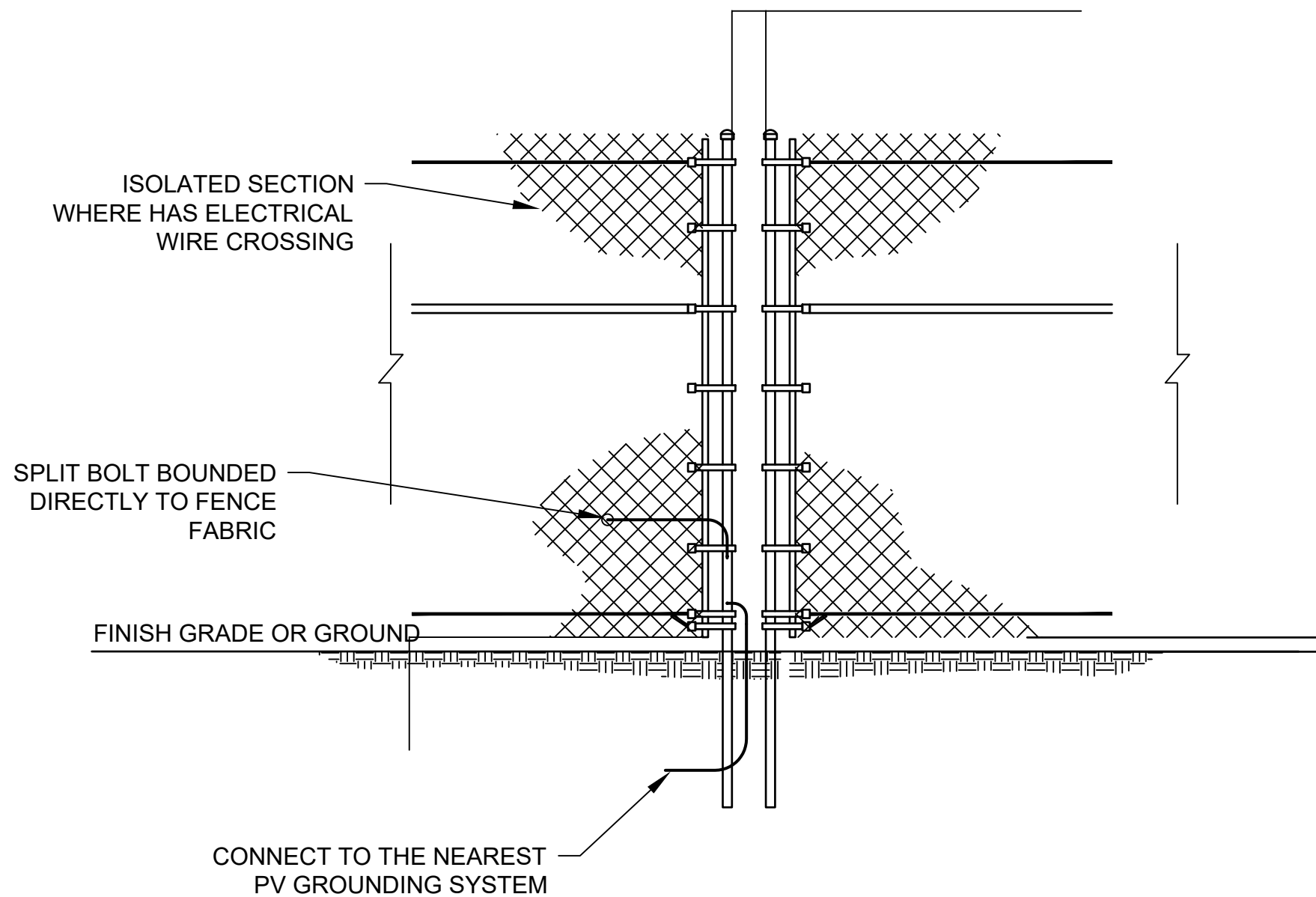
ON HOLD. WAITING ON CONFIRMATION FROM AHJ



NOTES:

1. FENCE GROUNDING BE GROUNDED WHEREVER THE FENCE CRSSSES UNDERGROUND OR OVERHEAD POWER LINES. FENCE SHALL BE GROUNDED AT A MIN. 20' ON EITHER SIDE OF THE POWER LINE.

6 FENCE GROUNDING DETAIL  
E-631 SCALE: NTS



7 ISOLATED FENCE GROUNDING DETAIL  
E-631 SCALE: NTS

REV	DESCRIPTION	DATE
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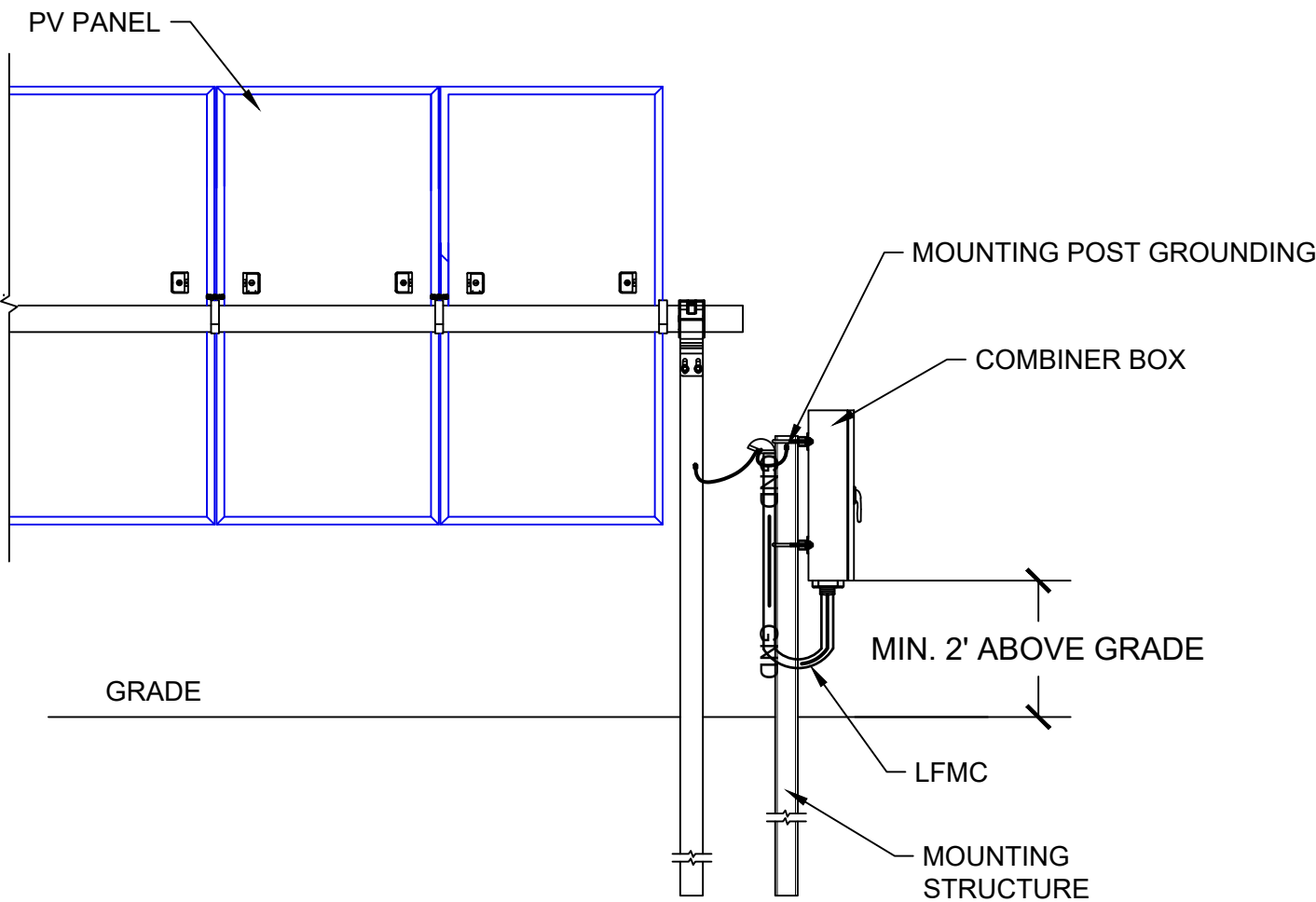
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SEAL:  C.T. CERTIFICATE OF REGISTRATION: PEC.0001173	 KMB DESIGN GROUP kmbdesign.com 1800 ROUTE 14, SUITE 200 WALL, NJ 07719 (732) 395-9433 FOR ALL QUESTIONS, PLEASE CONTACT STEVE FOX - PROJECT MANAGER
DATE: <b>03/09/2020</b>	PROJECT #: <b>2000500</b>
STEPHEN A. BRAY PROFESSIONAL ENGINEER CT LICENSE: 28657	DRAWN BY: <b>V. PISSAREVSKI</b> CHECKED BY: <b>R. VUDI</b>
TITLE: <b>DETAILS-GROUNDING SHEET 2</b>	
SHEET: <b>E-631</b>	

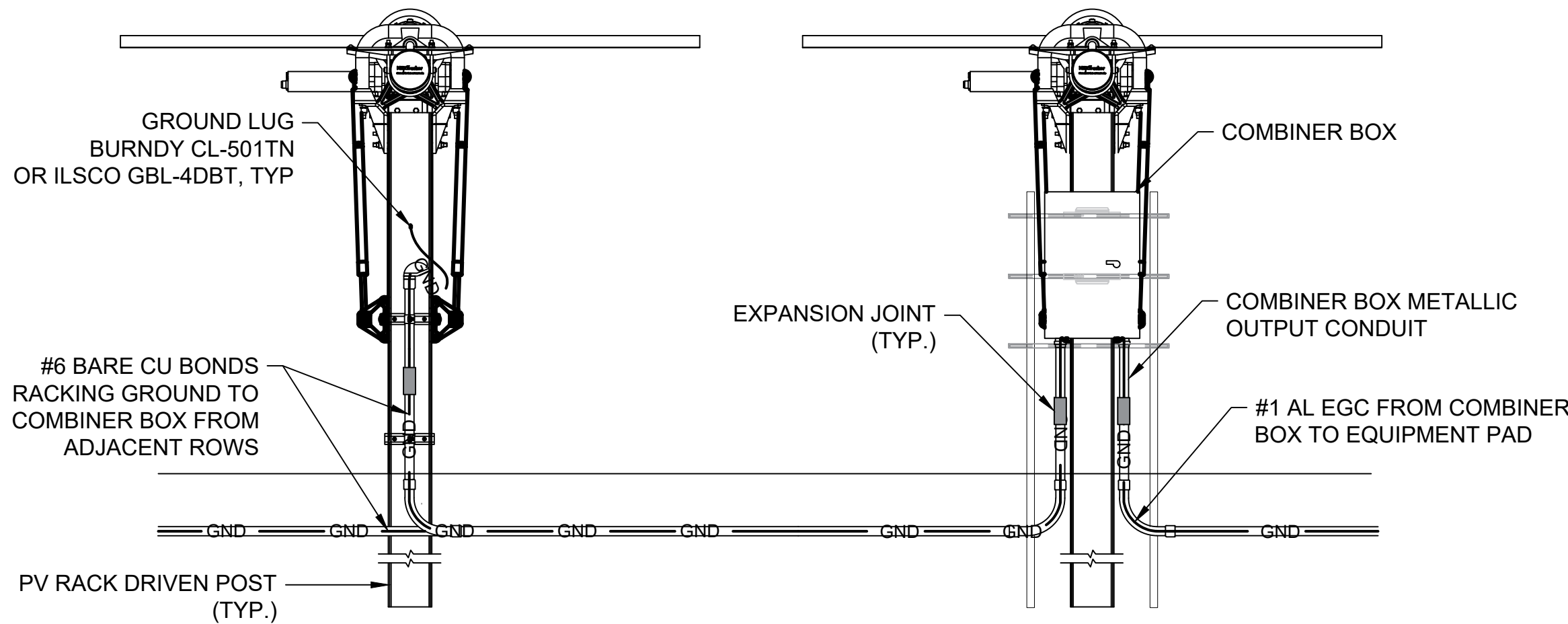


TYP 1



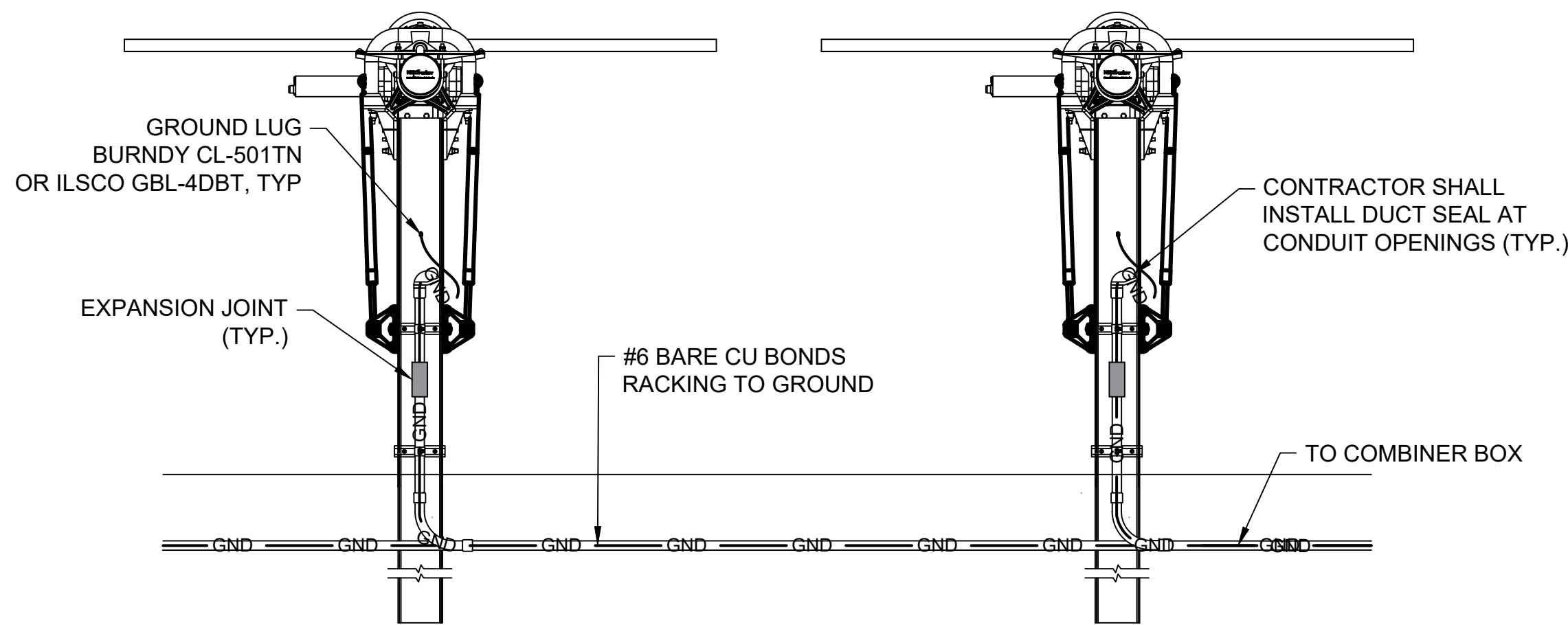
1 RACKING TO COMBINER BOX GROUNDING  
E-632 SCALE = 1:25

TYP 1



2 COMBINER BOX OUTPUT GROUNDING  
E-632 SCALE = 1:25

TYP 1

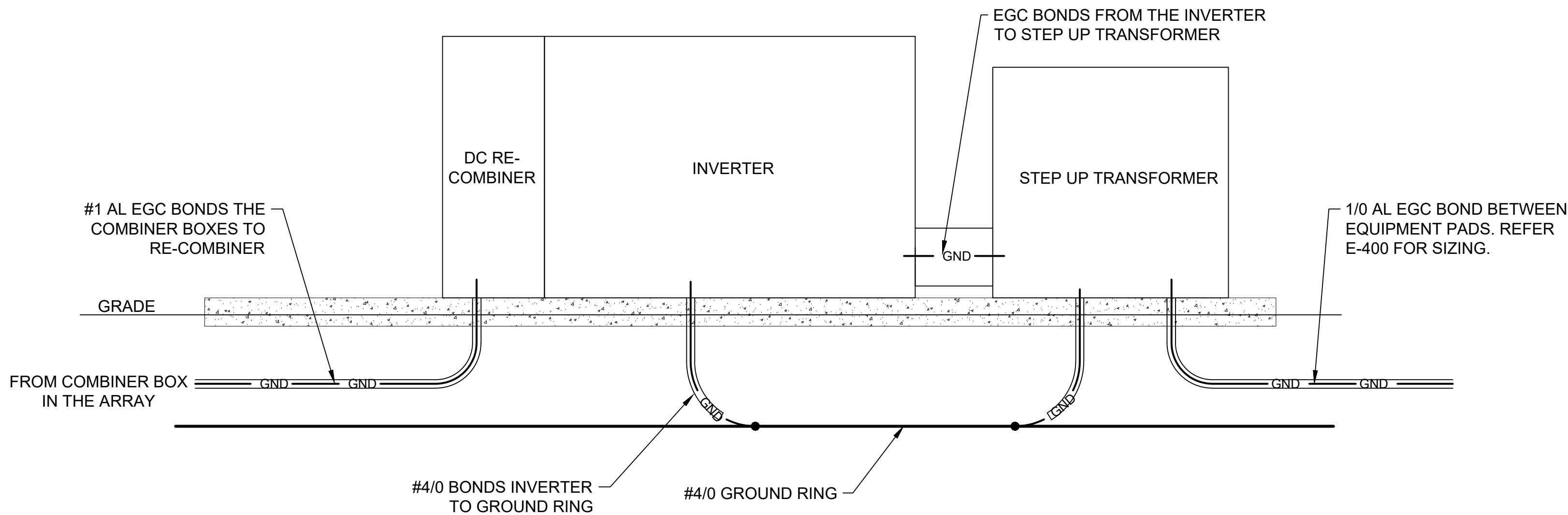


NOTES:

1. #6 BARE CU BONDING JUMPERS TO BOND TABLE TO TABLE ARE RUN WITH STRING JUMPER CONDUITS.
2. DRAWING IS REPRESENTATIVE OF GROUNDING; CONTRACTOR MAY INSTALL GROUND LUGS ON ANY OF THE RAILS.
3. SUPPORT THE #6 GROUND CONDUCTOR TO THE RACKING STRUCTURE. IF UNSUPPORTED, NEED TO USE #4 CU.
4. REFER TO STRUCTURAL DRAWINGS FOR DIMENSIONS AND ADDITIONAL DETAIL.
5. STRING JUMPER CONDUITS SHALL BE MIN. OF 18" BELOW GRADE.

3 RACK TO RACK GROUNDING  
E-632 SCALE = 1:25

CENTRAL INV



4 EQUIPMENT PAD GROUNDING  
E-632 SCALE = 1:25

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1999 Harrison St, Ste 830  
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C.T. CERTIFICATE OF REGISTRATION: PEC 0001173




DATE: **03/09/2020**

PROJECT #: **2000500**

DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**



FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

TITLE: **DETAILS-GROUNDING SHEET 3**

SHEET: **E-632**



7

6

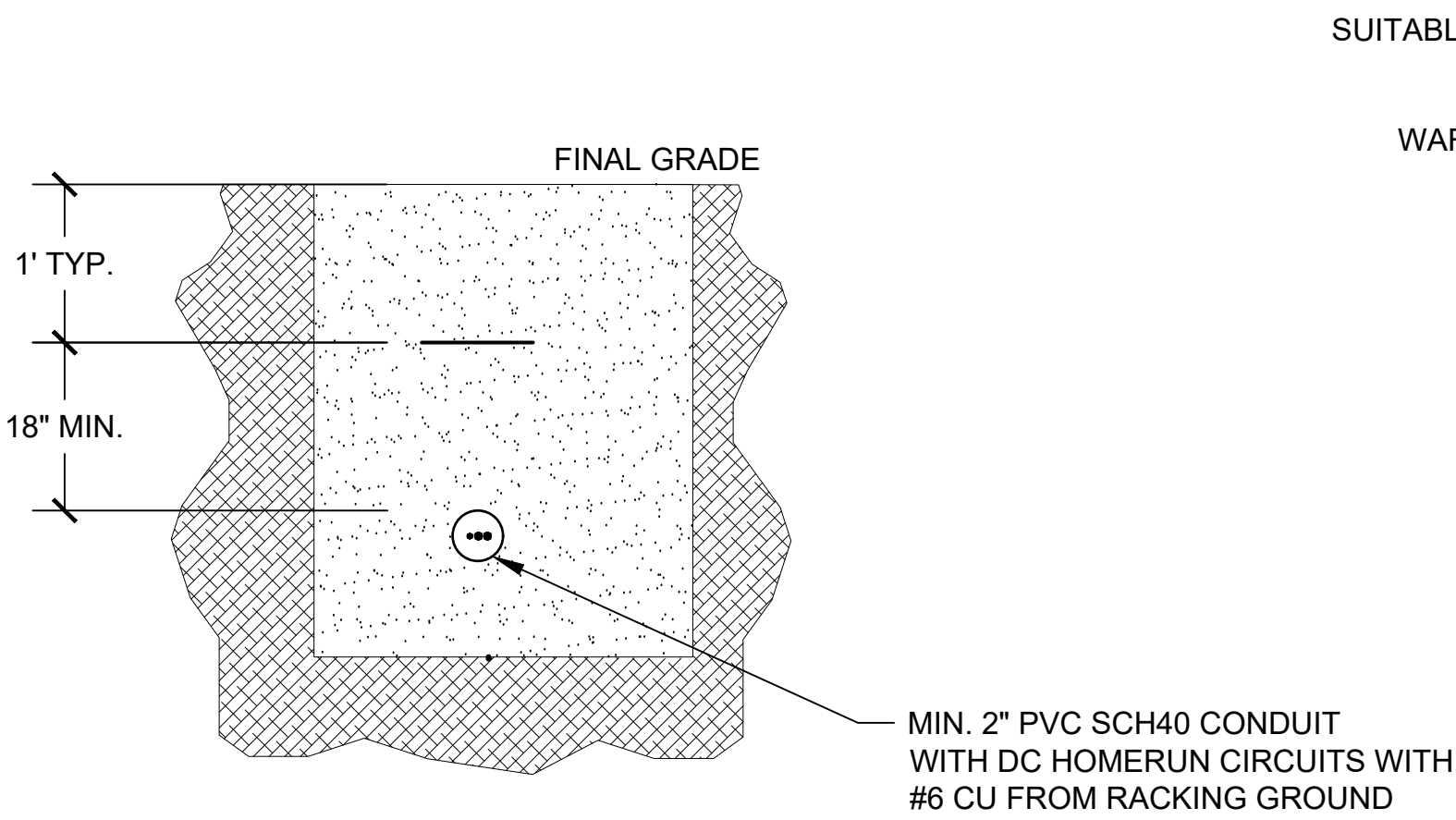
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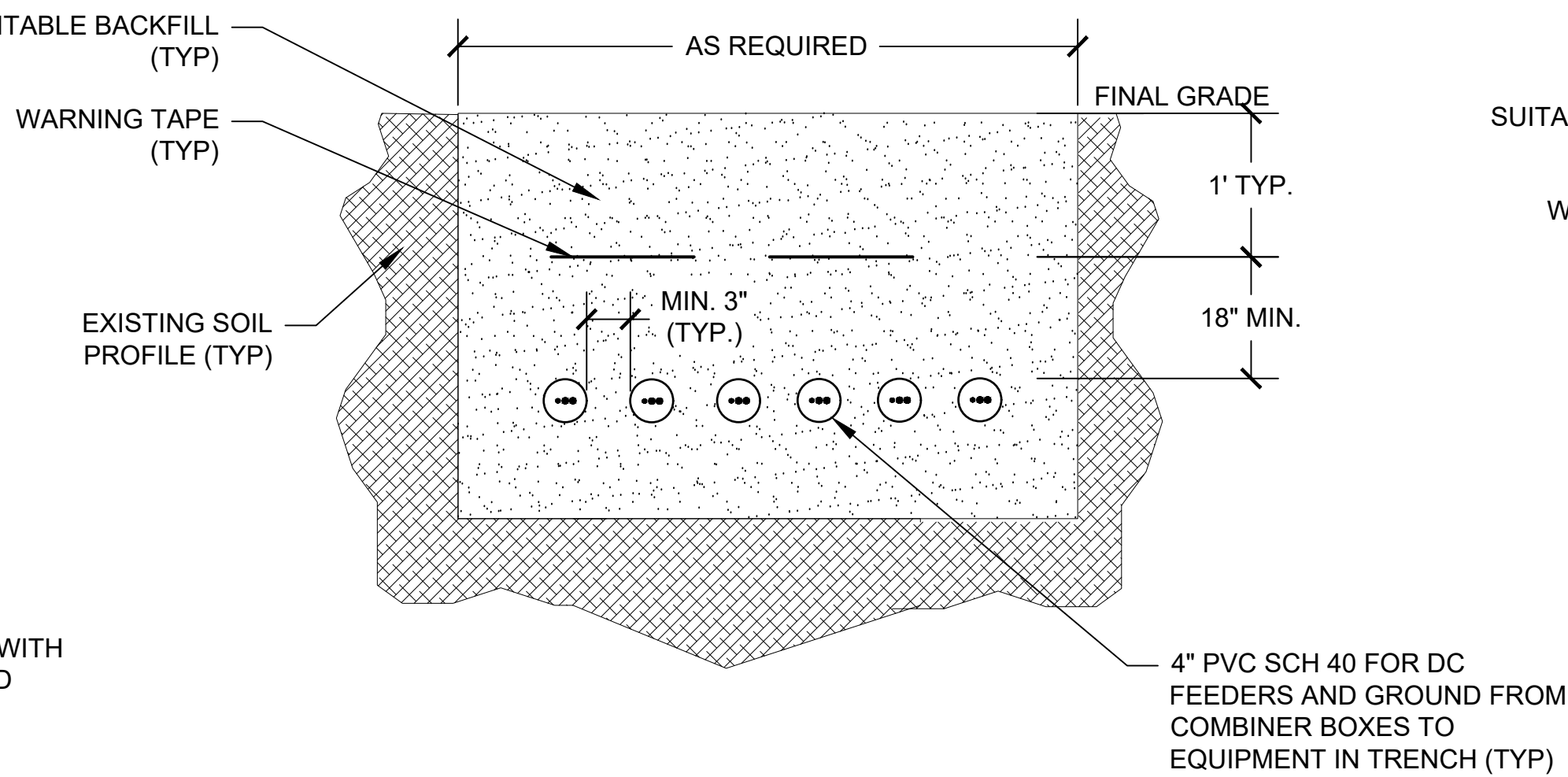
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2

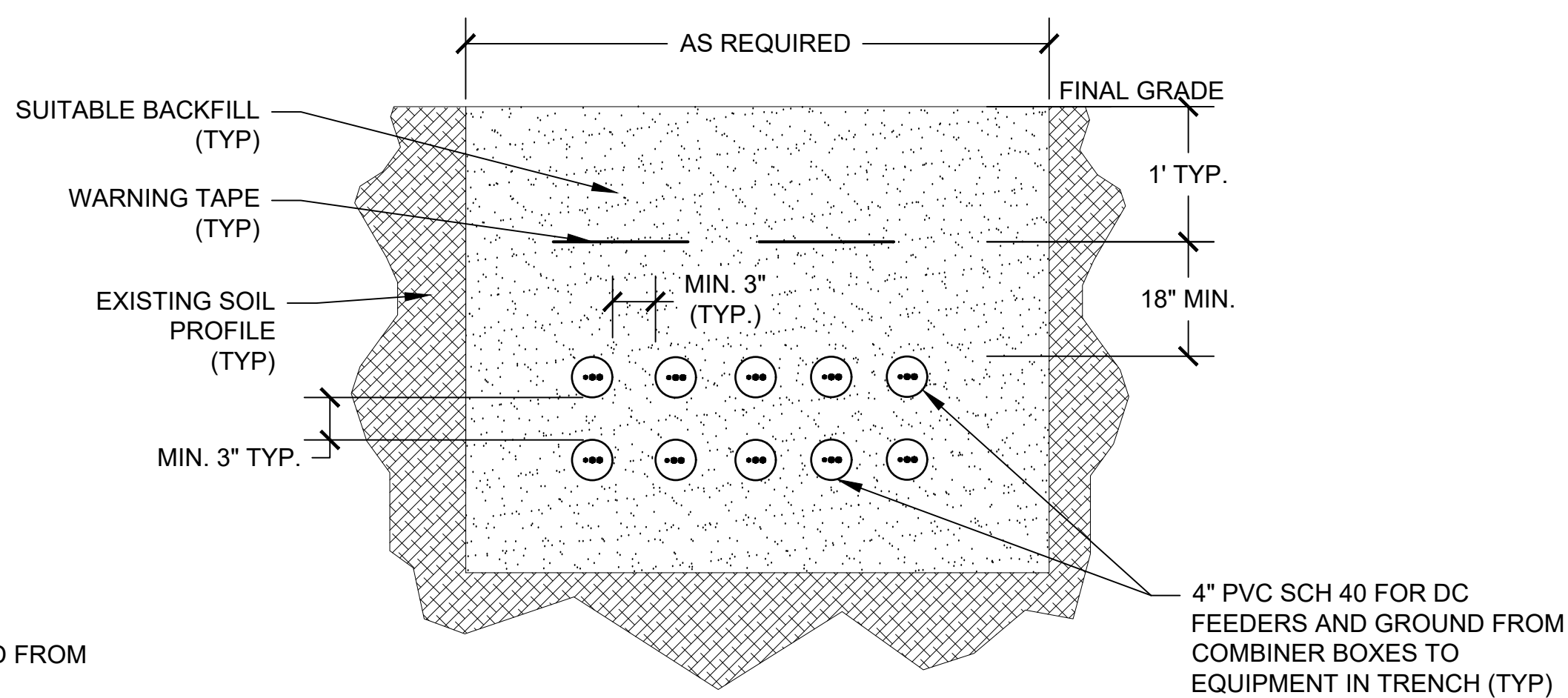
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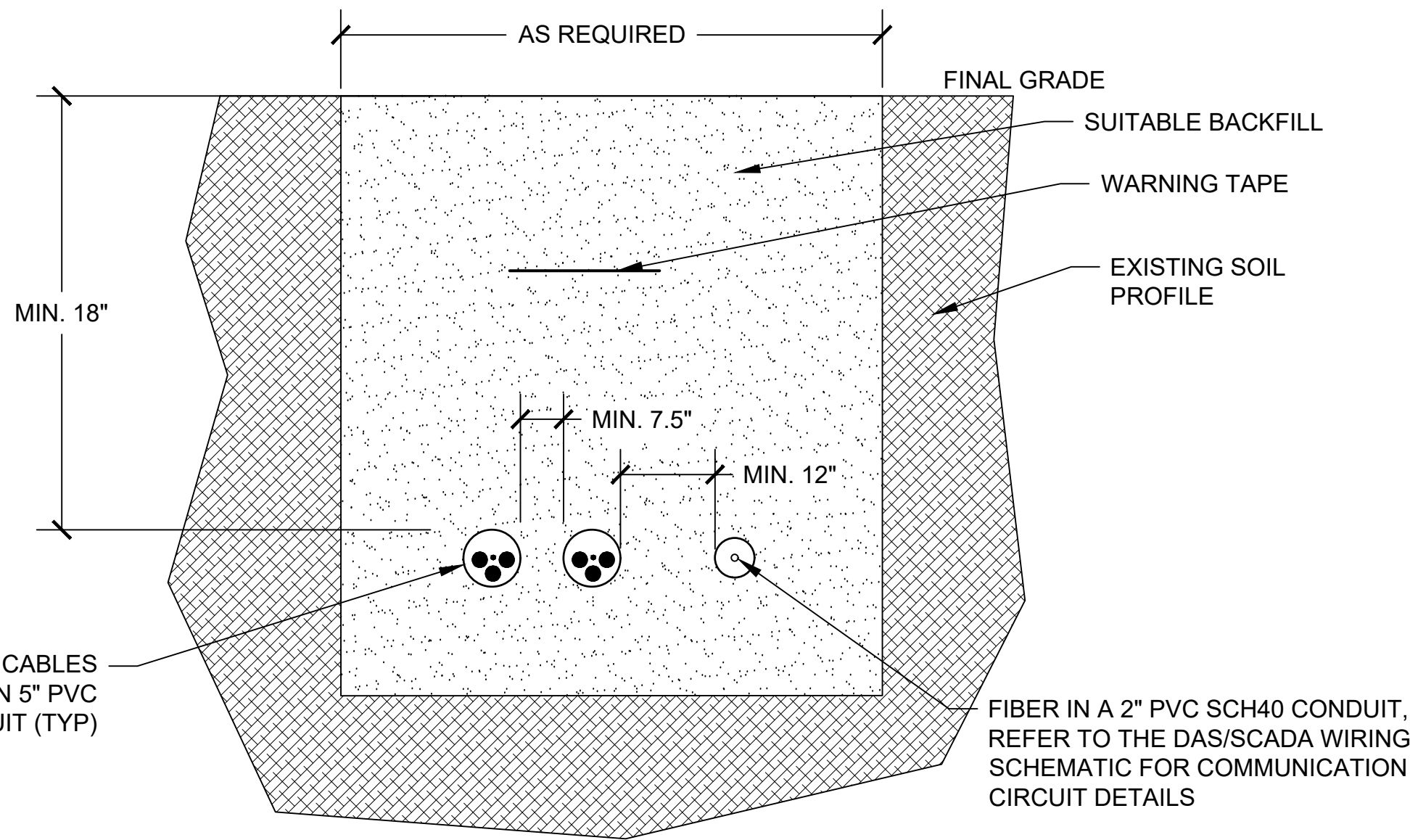
1 DC HOMERUNS ROW TO ROW JUMPER TRENCH DETAILS  
E-650 SCALE: NTS



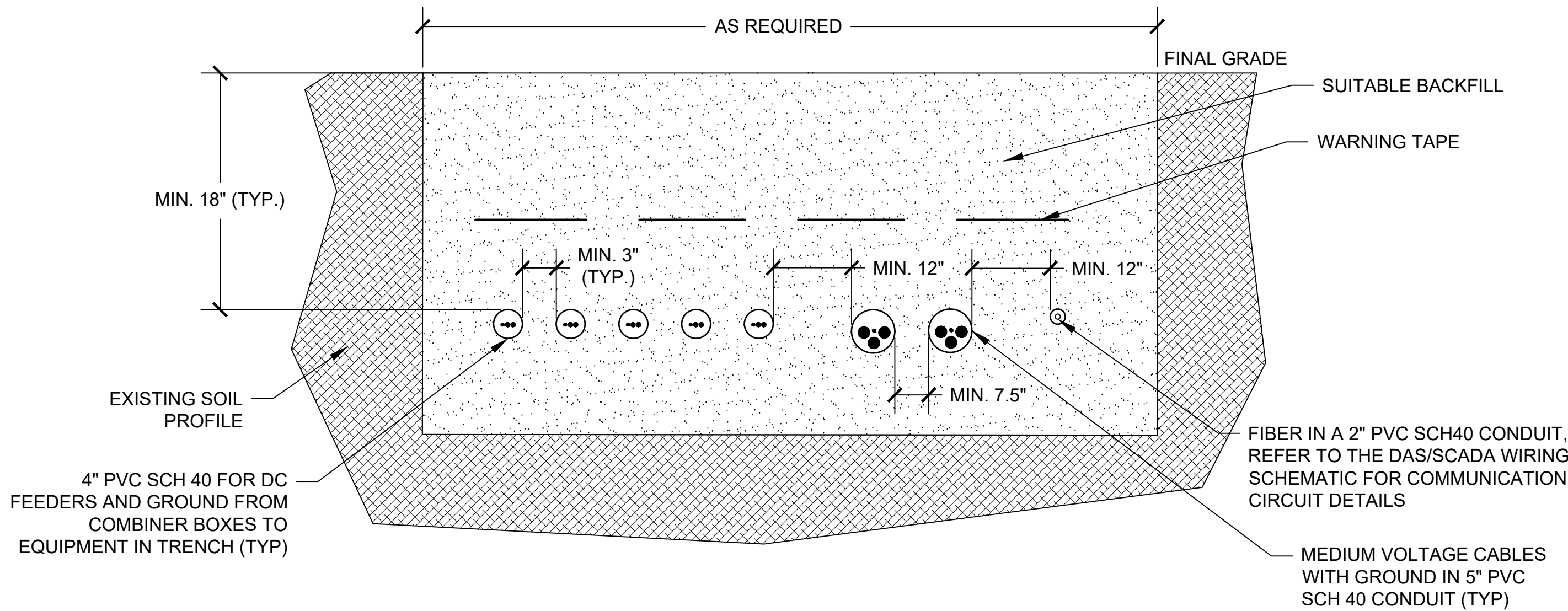
2 DC FEEDER CIRCUITS TRENCH DETAILS(SINGLE LAYER)  
E-650 SCALE: NTS



3 DC FEEDER CIRCUITS TRENCH DETAILS (TWO LAYERS)  
E-650 SCALE: NTS



4 MEDIUM VOLTAGE CONDUCTORS WITH COMMUNICATION CABLES TRENCH DETAILS  
E-650 SCALE: NTS



5 DC & MEDIUM VOLTAGE CONDUCTORS WITH COMMUNICATION CABLES TRENCH DETAILS  
E-650 SCALE: NTS

NOTES:

1. ALL CONDUITS TO BE BURIED AT A MINIMUM OF 18".
2. DC , AC AND COMMUNICATION CABLES TO BE A MINIMUM OF 12" FROM EACH OTHER.
3. IF MAXIMUM BURIAL DEPTH TO TOP OF THE ELECTRICAL DUCT IS MORE THEN 30" AMPACITY DERATION SHALL BE APPLIED PER 310.60(C)(2)(b)
4. WARNING TAPE TO BE METALLIC WITH THE PHRASE "CAUTION: BURIED ELECTRICAL LINES"
5. BACKFILL TO BE FREE FROM ANY ROCKS OR OTHER DELETERIOUS OBJECTS THAT ARE 3/4" IN DIAMETER OR GREATER.
6. ELECTRICIANS TO PROVIDE MATCHING FITTINGS AND EXPANSION COUPLINGS BY THE SAME MANUFACTURER AS THE CONDUIT.
7. CONDUIT SPACING MAY BE REVISED BASED ON SOIL RESISTIVITY RESULTS FOR THIS SITE. ALL SPACING IS BASED ON RHO VALUE OF 90.
8. DC HOMEUN ROW JUMPER CONDUITS TO BE SIZED BASED ON NUMBER OF STRINGS AND SIZE OF PV WIRE AND VERIFIED BY THE ENGINEER.

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATEDLAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
0	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:  
**NORTH STONINGTON**

PROJECT ADDRESS:  
**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657

**KMB**  
DESIGN GROUP  
kmbdg.com

1800 ROUTE 24, SUITE 200  
WALL, NJ 07719  
(732) 385-5633

FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

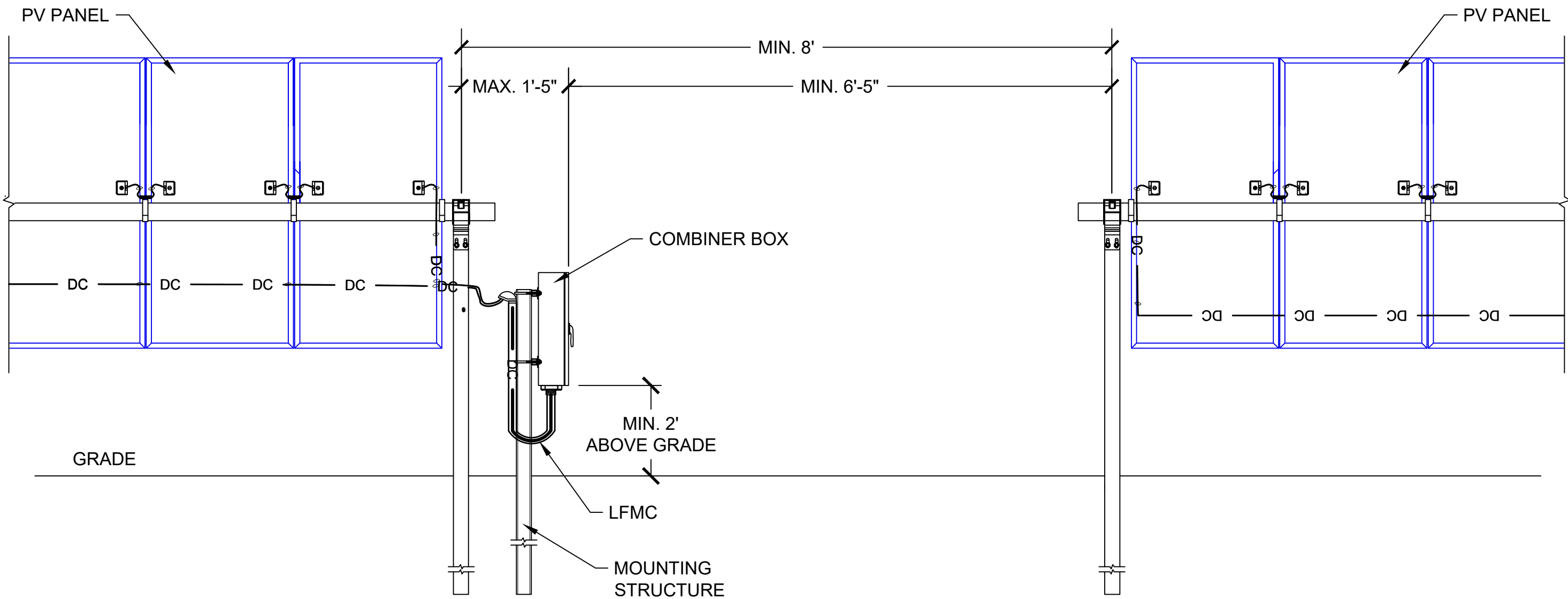
DRAWN BY:  
**V. PISSAREVSKI**

CHECKED BY:  
**R. VUDI**

TITLE:  
**DETAILS-TRENCH & CONDUIT**

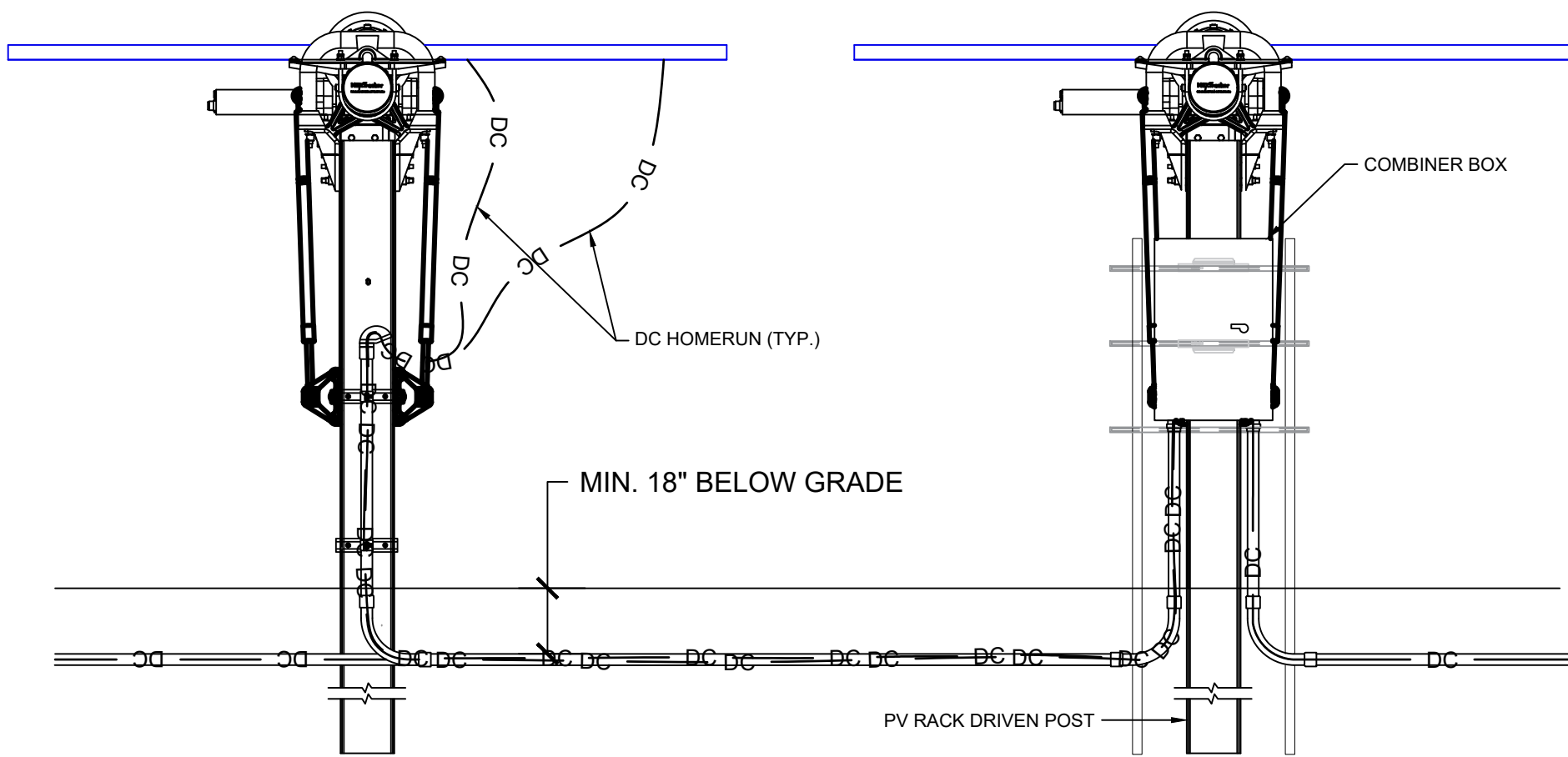
SHEET:  
**E-650**





- NOTE:
1. DISTANCE BETWEEN COMBINER BOX AND END POST WILL BE UPDATED BASED ON NEXTRACKER DRAWINGS.
  2. DC HOMERUNS TO BE SUPPORTED EVERY 12".

1  
E-680  
DC CONDUCTORS WIRE MANAGEMENT DETAIL  
SCALE: NTS





- NOTE:
1. DC HOMERUNS TO BE SUPPORTED EVERY 12".

2  
E-680  
ROW TO ROW JUMPING DETAIL  
SCALE: NTS

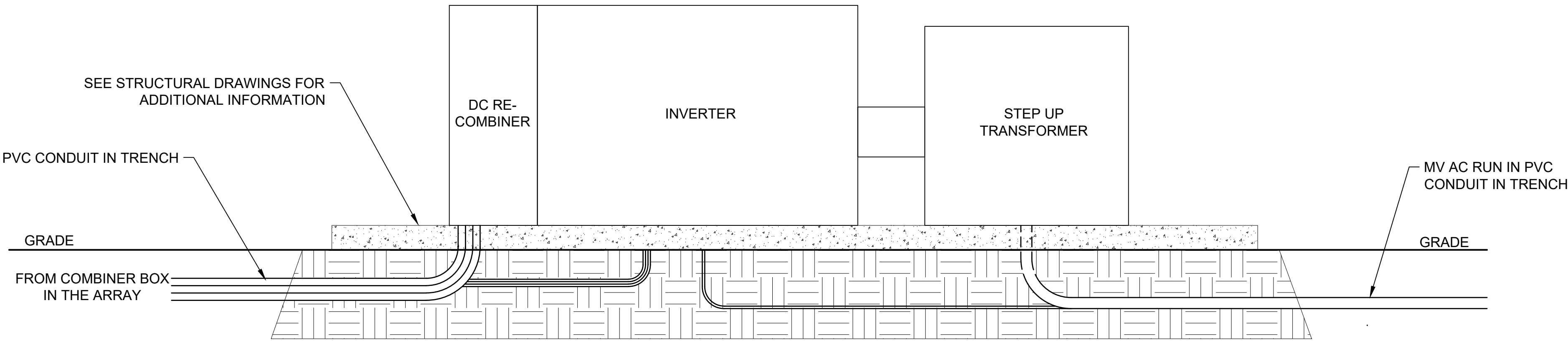
REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
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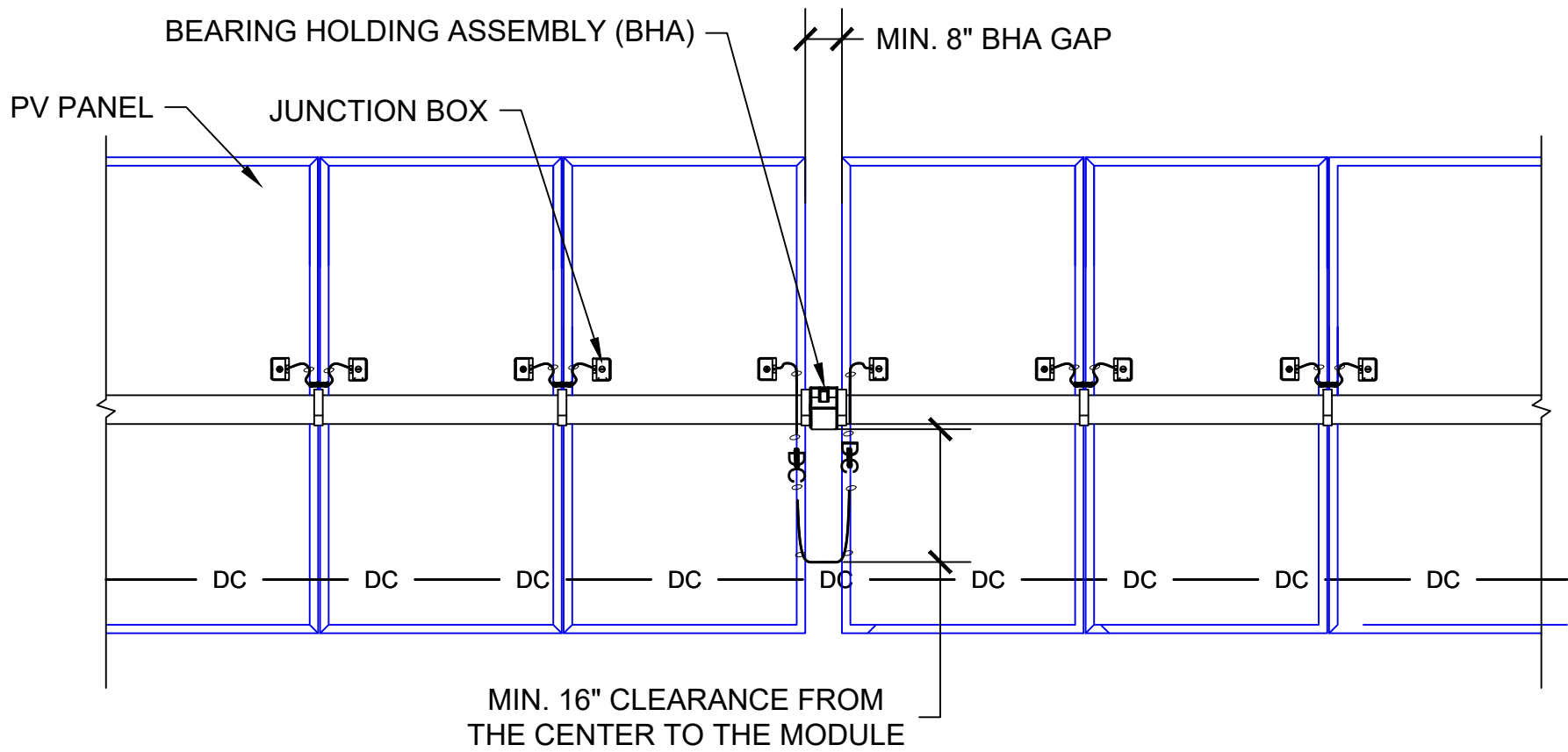


PROJECT NAME: <b>NORTH STONINGTON</b>	
PROJECT ADDRESS: <b>ELLA WHEELER RD, NORTH STONINGTON, CT 06359 41°25'9.71"N, 71°50'4.83"W</b>	
SEAL:  C.T. CERTIFICATE OF REGISTRATION: PEC 0001173	 1800 ROUTE 14, SUITE 200 WALL, NJ 07719 (732) 395-5633 FOR ALL QUESTIONS, PLEASE CONTACT STEVE FOX - PROJECT MANAGER
DATE: <b>03/09/2020</b>	PROJECT #: <b>2000500</b>
DRAWN BY: <b>V. PISSAREVSKI</b>	CHECKED BY: <b>R. VUDI</b>
TITLE: <b>MISC. DETAILS SHEET 1</b>	
SHEET: <b>E-680</b>	





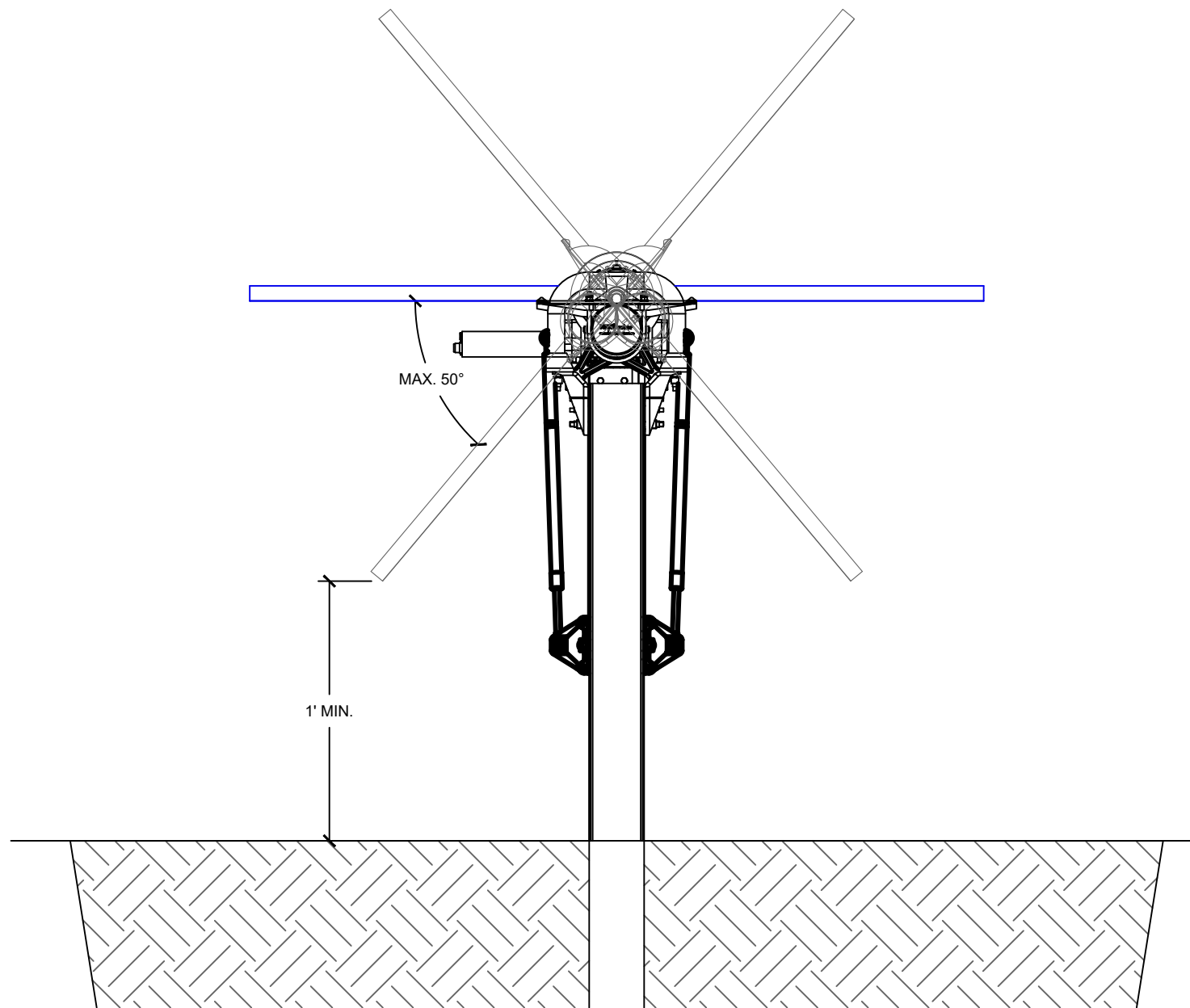
1 EQUIPMENT PAD WIRING MANAGEMENT  
E-681 SCALE: NTS



2 MODULE WIRING MANAGEMENT  
E-681 SCALE: NTS

NOTE:

- PANEL HOME RUNS WIRES SHOULD BE ROUTED ALONG RACKING AND INSIDE CONDUIT AT THE EARLIEST AVAILABILITY
- FOLLOW THE NEXTRACKER INSTALLATION MANUAL
- MODULE WIRING IS BASED ON NEXTRACKER RECOMMENDED WIRE SCHEMATIC FOR BIFACIAL MODULE TO MINIMIZE REAR-SIDE OBSTRUCTION.
- CABLES SHOULD BE SECURED TO BACK OF PANEL FRAME HOLES WITH ACME WILEY CABLE CLIPS OR APPROVED EQUIVALENT AT INTERVALS THAT DO NOT EXCEED 4.5' AND WITHIN 12" OF EACH BOX, CABINET, CONDUIT BODY OR OTHER TERMINATION.
- ALLOW BENDING RADIUS OF AT LEAST 8X THE DIAMETER OF THE CABLE (2.4" TYP. FOR #12 PV WIRE)



3 TYPICAL MODULE RACKING SIDE VIEW  
E-681 SCALE: NTS

REV	DESCRIPTION	DATE
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0	ISSUE FOR PERMIT SET	5/28/20
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ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

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**NORTH STONINGTON**


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**ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W**

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173



**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657



1800 ROUTE 14, SUITE 200  
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(732) 385-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: **03/09/2020**

PROJECT #: **2000500**

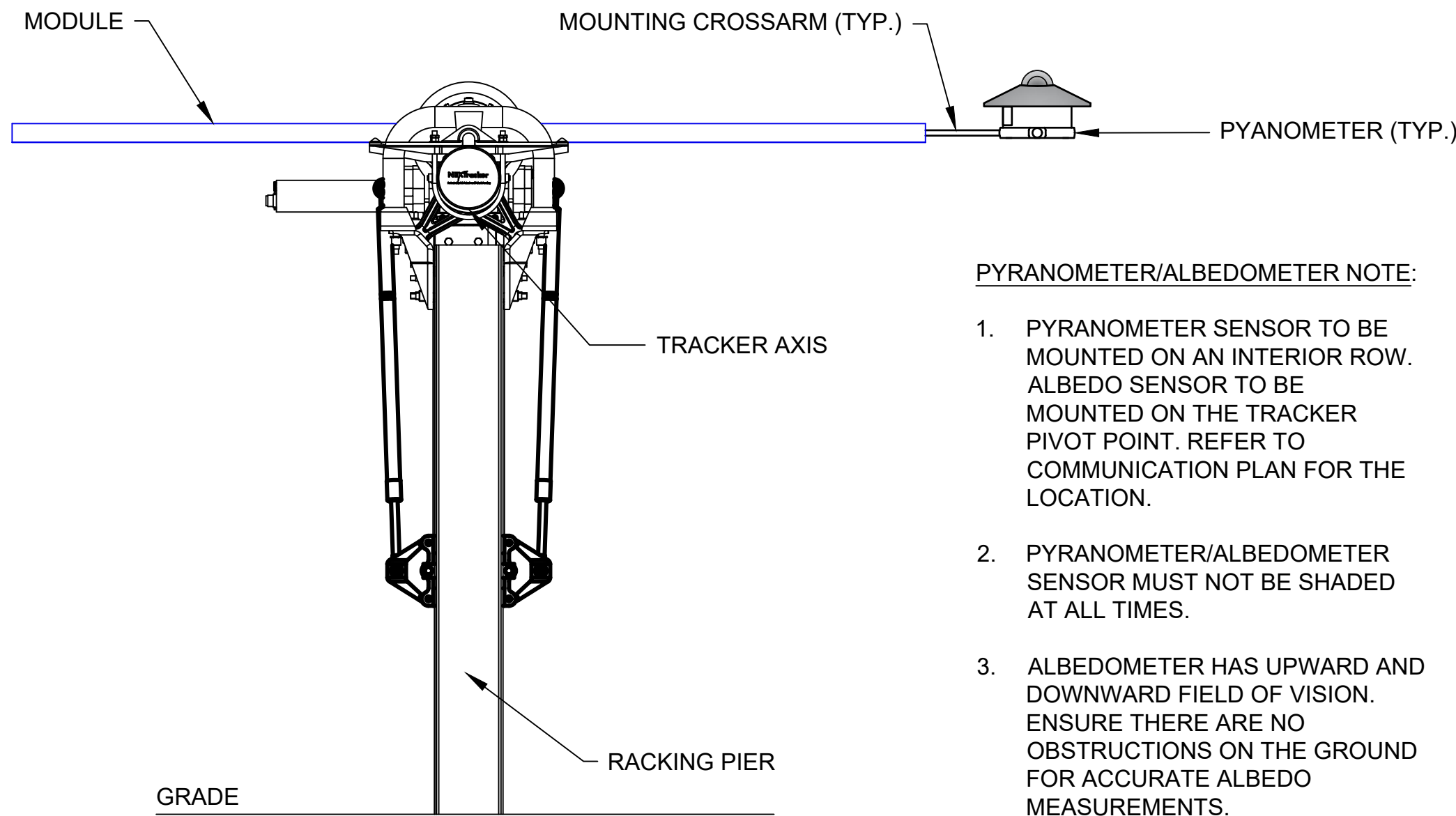
DRAWN BY: **V. PISSAREVSKI**

CHECKED BY: **R. VUDI**

TITLE:  
**MISC. DETAILS  
SHEET 2**

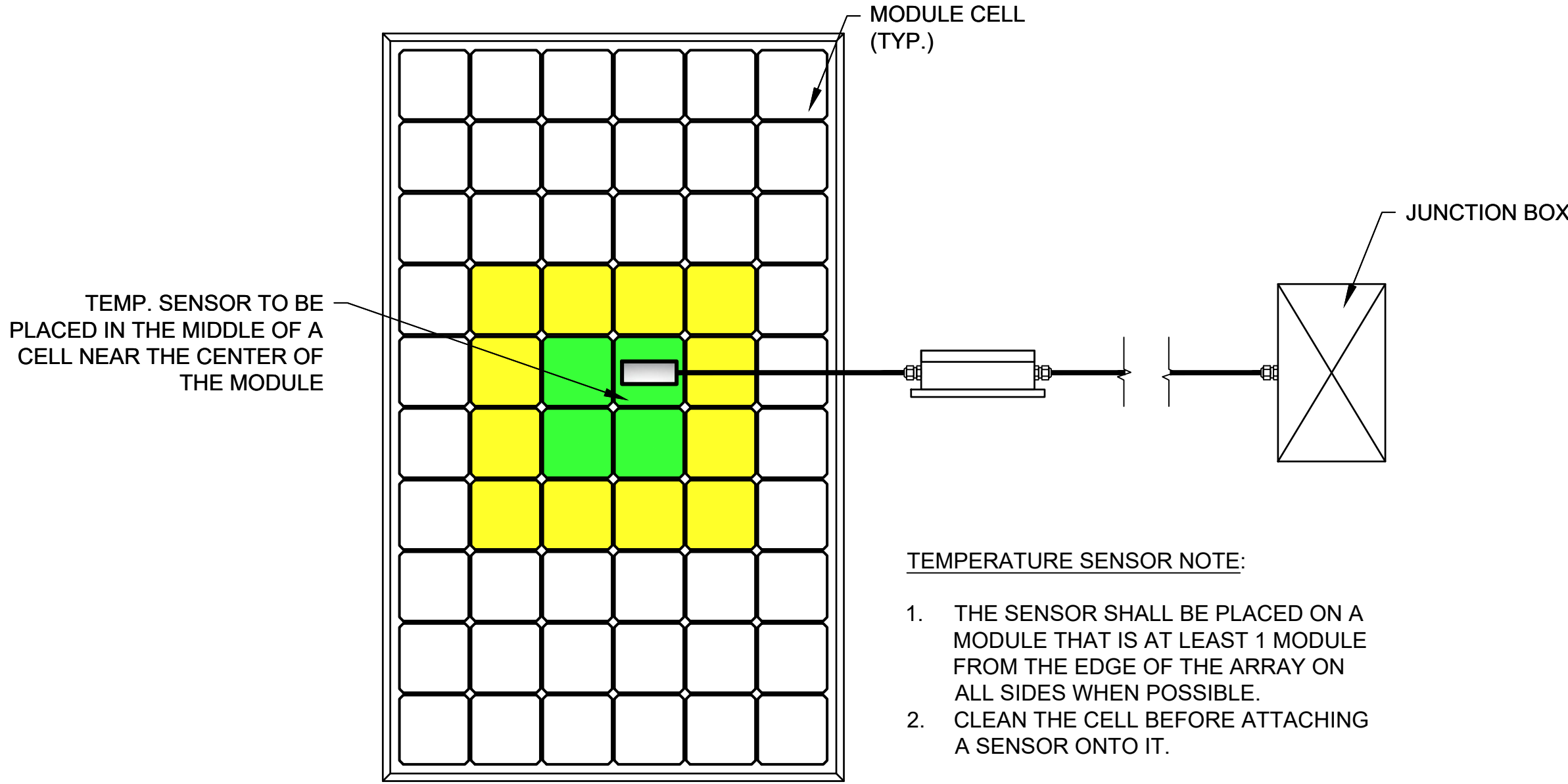
SHEET:  
**E-681**





PYRANOMETER/ALBEDOMETER NOTE:

1. PYRANOMETER SENSOR TO BE MOUNTED ON AN INTERIOR ROW. ALBEDO SENSOR TO BE MOUNTED ON THE TRACKER PIVOT POINT. REFER TO COMMUNICATION PLAN FOR THE LOCATION.
2. PYRANOMETER/ALBEDOMETER SENSOR MUST NOT BE SHADED AT ALL TIMES.
3. ALBEDOMETER HAS UPWARD AND DOWNWARD FIELD OF VISION. ENSURE THERE ARE NO OBSTRUCTIONS ON THE GROUND FOR ACCURATE ALBEDO MEASUREMENTS.

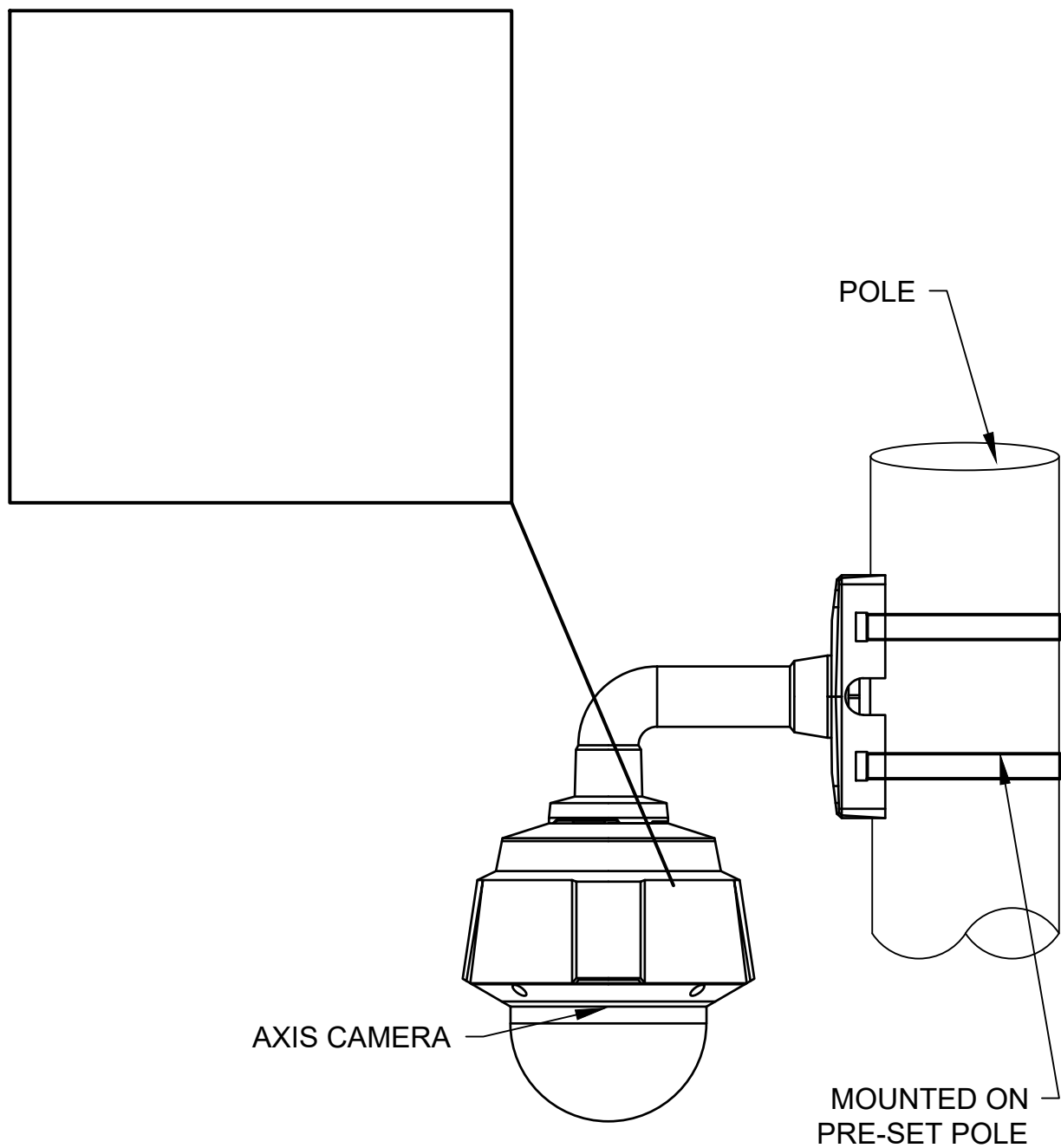


TEMPERATURE SENSOR NOTE:

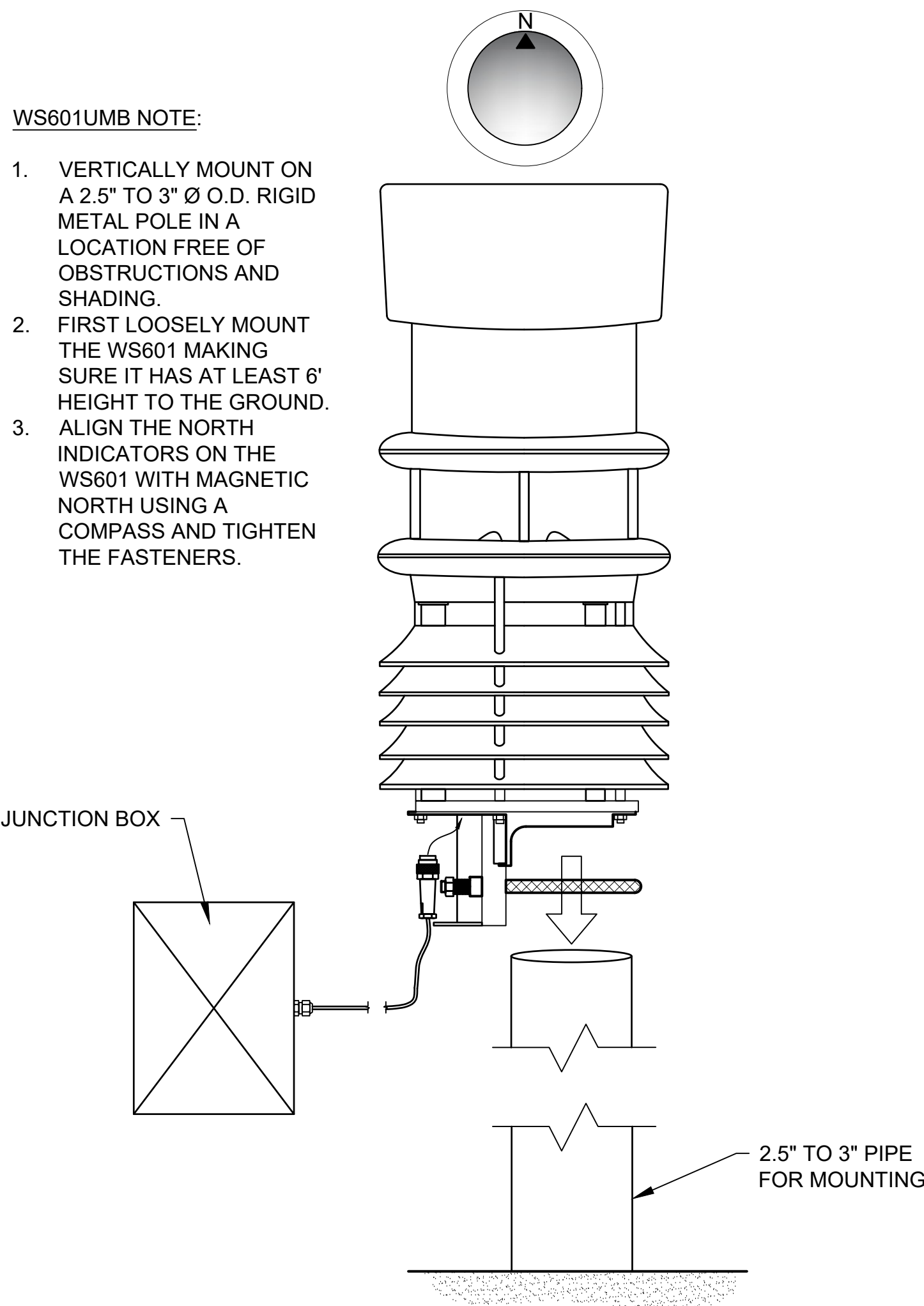
1. THE SENSOR SHALL BE PLACED ON A MODULE THAT IS AT LEAST 1 MODULE FROM THE EDGE OF THE ARRAY ON ALL SIDES WHEN POSSIBLE.
2. CLEAN THE CELL BEFORE ATTACHING A SENSOR ONTO IT.

1 PYRANOMETER/ALBEDOMETER INSTALLATION  
E-682

2 MODULE TEMPERATURE SENSOR INSTALLATION  
E-682



3 AXIS CAMERA INSTALLATION  
E-682



WS601UMB NOTE:

1. VERTICALLY MOUNT ON A 2.5" TO 3" Ø O.D. RIGID METAL POLE IN A LOCATION FREE OF OBSTRUCTIONS AND SHADING.
2. FIRST LOOSELY MOUNT THE WS601 MAKING SURE IT HAS AT LEAST 6' HEIGHT TO THE GROUND.
3. ALIGN THE NORTH INDICATORS ON THE WS601 WITH MAGNETIC NORTH USING A COMPASS AND TIGHTEN THE FASTENERS.

5 LUFFT WS601USM INSTALLATION  
#####

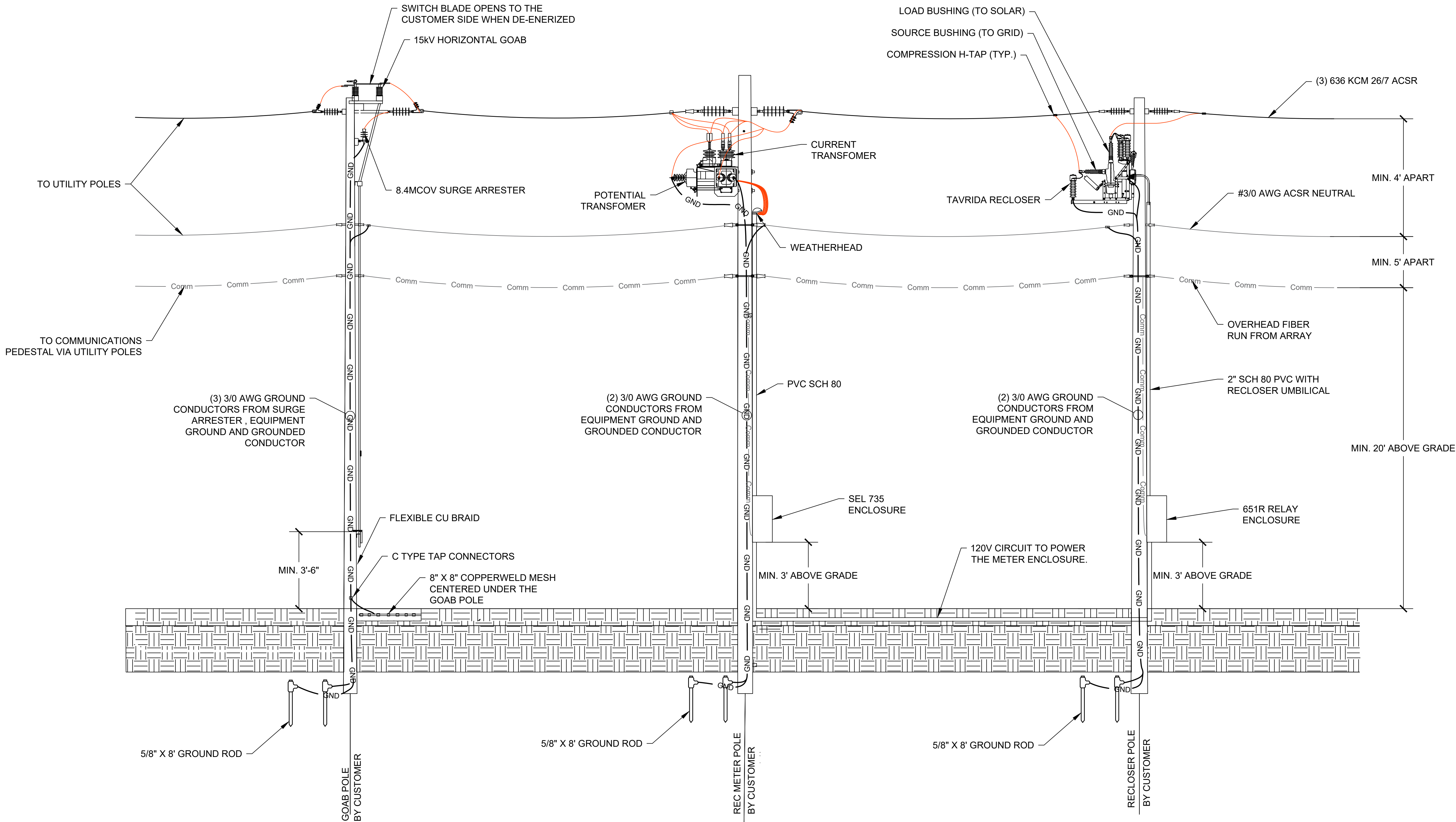
REV	DESCRIPTION	DATE
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PROJECT NAME: <b>NORTH STONINGTON</b>	
PROJECT ADDRESS: <b>ELLA WHEELER RD, NORTH STONINGTON, CT 06359 41°25'9.71"N, 71°50'4.83"W</b>	
SEAL: 	 KMB DESIGN GROUP kmbdg.com 1800 ROUTE 14, SUITE 200 WALL, NJ 07719 (732) 385-5633 FOR ALL QUESTIONS, PLEASE CONTACT STEVE FOX - PROJECT MANAGER
DATE: <b>03/09/2020</b>	PROJECT #: <b>2000500</b>
DRAWN BY: <b>V. PISSAREVSKI</b>	CHECKED BY: <b>R. VUDI</b>
TITLE: <b>MISC. DETAILS SHEET 3</b>	
SHEET: <b>E-682</b>	





REV	DESCRIPTION	DATE
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1800 ROUTE 14, SUITE 200  
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FOR ALL QUESTIONS, PLEASE CONTACT  
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DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

DRAWN BY:  
**V. PISSAREVSKI**

CHECKED BY:  
**R. VUDI**

TITLE:  
**MISC. DETAILS  
SHEET 4**

SHEET:  
**E-683**

1 OVERHEAD POLE SPAN - SIDE ELEVATION DETAIL  
E-683



7

6

5

4

3

2

1

A	B	C	D	E	F	G	H	I	J																																																
<div><div><div><div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .75 (BLACK)</div><div>1/2" TYP.</div><div>4" X 6" LABEL</div><div>ORANGE BACKGROUND</div><div>110-LABELS TOTAL</div></div><div><div><div>! WARNING</div><div>DO NOT OPEN, REMOVE OR REPLACE FUSES UNDER LOAD</div></div></div></div><div><div>TEXT: ARIAL NARROW FONT HEIGHT: .25 (BLACK) TYPICAL UNLESS OTHERWISE SPECIFIED</div><div>WHITE BACKGROUND</div><div>1/2" TYP.</div></div><div>TO BE POSTED AT ALL COMBINER BOXES AND ALL OTHER FUSED LOCATIONS</div></div><div><div><div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .75 (BLACK)</div><div>1/2" TYP.</div><div>4" X 6" LABEL</div><div>ORANGE BACKGROUND</div><div>95-LABELS TOTAL</div></div><div><div><div>! WARNING</div><div>SHOCK HAZARD COMBINER BOX MAY BE FED FROM OTHER SOURCES</div></div></div></div><div><div>TEXT: ARIAL NARROW FONT HEIGHT: .25 (BLACK) TYPICAL UNLESS OTHERWISE SPECIFIED</div><div>WHITE BACKGROUND (REFLECTIVE PER IFC 605.11.1.1)</div><div>1/2" TYP.</div></div><div>TO BE POSTED AT ALL COMBINER BOXES</div></div><div><div><div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .90 (WHITE) TYP.</div><div>1/2" TYP.</div><div>4" X 6" LABEL</div><div>BLUE BACKGROUND</div><div>6-LABELS TOTAL</div></div><div><div><div>NOTICE</div><div>PHOTOVOLTAIC AC DISCONNECT VOLTAGE = 550Vac CURRENT = 2886A</div></div></div></div><div><div>TEXT: ARIAL NARROW FONT HEIGHT: .25 (BLACK) TYPICAL UNLESS OTHERWISE SPECIFIED</div><div>WHITE BACKGROUND (REFLECTIVE PER IFC 605.11.1.1)</div><div>1/2" TYP.</div></div><div>TO BE POSTED AT THE INVERTERS AC DISCONNECT</div></div><div><div><div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .90 (BLACK) TYP.</div><div>4" X 6" LABEL (ORANGE BACKGROUND)</div><div>X-LABELS TOTAL</div></div><div><div><div>! WARNING</div><div>ARC FLASH AND SHOCK HAZARD APPROPRIATE PPE REQUIRED</div><div><table><tr><td>?? IN</td><td>FLASH HAZARD BOUNDARY</td><td>AVAILABLE</td></tr><tr><td>?? CAL/CM^2</td><td>FLASH HAZARD AT ?? IN</td><td>FAULT</td></tr><tr><td></td><td>REFER TO NFPA 70E-2018 TABLE 130.5(G)</td><td>CURRENT</td></tr><tr><td>?? VAC</td><td>SHOCK HAZARD WHEN COVER IS REMOVED</td><td>??</td></tr><tr><td>?? IN</td><td>LIMITED APPROACH</td><td>KA</td></tr><tr><td>?? IN</td><td>RESTRICTED APPROACH - CLASS 00 VOLTAGE GLOVES</td><td></td></tr></table></div><div>DETERMINED USING IEEE 1584 METHOD</div></div></div></div><div>TO BE POSTED AT AC &amp; DC SIDES OF INVERTERS, TRANSFORMERS, PANELS, DISCONNECTS, &amp; SWITCHGEAR. WAITING FOR ARC FLASH &amp; SHOCK HAZARD ANALYSIS</div></div><div><div><div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .90 (WHITE) TYP.</div><div>1/2" TYP.</div><div>4" X 6" LABEL</div><div>BLUE BACKGROUND</div><div>2-LABELS TOTAL</div></div><div><div><div>NOTICE</div><div>PHOTOVOLTAIC ELECTRIC SYSTEM DISCONNECT</div></div></div></div><div><div>TEXT: ARIAL NARROW FONT HEIGHT: .25 (BLACK) TYPICAL UNLESS OTHERWISE SPECIFIED</div><div>WHITE BACKGROUND (REFLECTIVE PER IFC 605.11.1.1)</div><div>1/2" TYP.</div></div><div>TO BE POSTED AT MAIN SERVICE DISCONNECT PER NEC 690.13(B)</div></div><div><div><div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .90 (WHITE) TYP.</div><div>1/2" TYP.</div><div>4" X 6" LABEL</div><div>BLUE BACKGROUND</div><div>15-LABELS TOTAL</div></div><div><div><div>NOTICE</div><div>THIS EQUIPMENT IS OWNED AND OPERATED BY (COMPANY NAME), IN-CASE OF EMERGENCY CALL 911 AND XXX-XXX-XXXX</div></div></div></div><div><div>TEXT: ARIAL NARROW FONT HEIGHT: .25 (BLACK) TYPICAL UNLESS OTHERWISE SPECIFIED</div><div>WHITE BACKGROUND</div><div>1/2" TYP.</div></div><div>TO BE POSTED AT MV SWITCHGEAR, TRANSFORMERS AND MAIN COMMUNICATION ENCLOSURES AND GATES</div></div><div><div><div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .90 (BLACK) TYP.</div><div>4" X 6" LABEL</div><div>6-LABELS TOTAL</div></div><div><div><div>! CAUTION</div><div>UNGROUND SYSTEM OPERATING - 13,800VOLTS BETWEEN CONDUCTORS</div></div></div></div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .90 (BLACK) TYP.</div><div>(YELLOW BACKGROUND)</div><div>8-LABELS TOTAL</div><div>WHITE BACKGROUND</div></div><div>TO BE POSTED AT EACH MEDIUM VOLTAGE TRANSFORMER PER NEC 250.21(C)</div></div><div><div><div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .90 (BLACK) TYP.</div><div>4" X 6" LABEL</div><div>6-LABELS TOTAL</div></div><div><div><div>! CAUTION</div><div>UNGROUND SYSTEM OPERATING - 550VOLTS BETWEEN CONDUCTORS</div></div></div></div><div><div>TEXT: ARIAL NARROW BOLD FONT HEIGHT: .90 (BLACK) TYP.</div><div>(YELLOW BACKGROUND)</div><div>8-LABELS TOTAL</div><div>WHITE BACKGROUND</div></div><div>TO BE POSTED AT AC SIDE OF EACH INVERTER PER NEC 250.21(C)</div></div></div></div><div><div><div>REVISION</div><div>DESCRIPTION</div><div>DATE</div></div><table><tr><td>1</td><td>INITIAL 10% SET SUBMISSION</td><td>01/10/20</td></tr><tr><td>2</td><td>UPDATED LAYOUT PER SITING PLAN</td><td>03/05/20</td></tr><tr><td>3</td><td>UPDATED LAYOUT WITH LONGI 435</td><td>03/30/20</td></tr><tr><td>D</td><td>UPDATED LAYOUT WITH 33% GCR</td><td>04/06/20</td></tr><tr><td>E</td><td>UPDATED LAYOUT PER COMMENTS</td><td>4/12/20</td></tr><tr><td>F</td><td>60% DESIGN SET</td><td>4/16/20</td></tr><tr><td>G</td><td>RE-SUBMITTED 60% DESIGN SET</td><td>5/10/20</td></tr><tr><td>H</td><td>90% DESIGN SET</td><td>5/18/20</td></tr><tr><td>I</td><td>ISSUE FOR PERMIT SET</td><td>5/28/20</td></tr><tr><td>-</td><td>-</td><td>-</td></tr></table><div>CONFIDENTIAL: THE INFORMATION DEPICTED ON THIS DOCUMENT IS PROPRIETARY AND THE SOLE PROPERTY OF ENERPARC, INC. ANY USE OR DISCLOSURE OF THIS INFORMATION IS EXPRESSLY PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF ENERPARC, INC.</div><div><div>ENERPARC</div><div>ENERPARC INC. 1999 Harrison St, Ste 830 Oakland, CA 94612, USA</div></div><div>PROJECT NAME: NORTH STONINGTON</div><div>PROJECT ADDRESS: ELLA WHEELER RD, NORTH STONINGTON, CT 06359 41°25'9.71"N, 71°50'4.83"W</div><div><div>SEAL: C.T. CERTIFICATE OF REGISTRATION: PEC 0001173  Stephen A. Bray PROFESSIONAL ENGINEER CT LICENSE: 26657</div><div> 1800 ROUTE 14, SUITE 200 WALL, NJ 07719 (732) 385-9433 FOR ALL QUESTIONS, PLEASE CONTACT STEVE FOX - PROJECT MANAGER</div></div><div>DATE: 03/09/2020</div><div>PROJECT #: 2000500</div><div>DRAWN BY: V. PISSAREVSKI</div><div>CHECKED BY: R. VUDI</div><div>TITLE: WARNING LABELS SHEET 1</div><div>SHEET: E-700</div></div></div></div></div></div></div></div></div>										?? IN	FLASH HAZARD BOUNDARY	AVAILABLE	?? CAL/CM^2	FLASH HAZARD AT ?? IN	FAULT		REFER TO NFPA 70E-2018 TABLE 130.5(G)	CURRENT	?? VAC	SHOCK HAZARD WHEN COVER IS REMOVED	??	?? IN	LIMITED APPROACH	KA	?? IN	RESTRICTED APPROACH - CLASS 00 VOLTAGE GLOVES		1	INITIAL 10% SET SUBMISSION	01/10/20	2	UPDATED LAYOUT PER SITING PLAN	03/05/20	3	UPDATED LAYOUT WITH LONGI 435	03/30/20	D	UPDATED LAYOUT WITH 33% GCR	04/06/20	E	UPDATED LAYOUT PER COMMENTS	4/12/20	F	60% DESIGN SET	4/16/20	G	RE-SUBMITTED 60% DESIGN SET	5/10/20	H	90% DESIGN SET	5/18/20	I	ISSUE FOR PERMIT SET	5/28/20	-	-	-
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-	-	-																																																							



6" X 6" LABEL

6-LABELS TOTAL

(WHITE BACKGROUND)

TEXT: ARIAL NARROW FONT  
HEIGHT: .25  
(BLACK)  
TYPICAL UNLESS OTHERWISE SPECIFIED

MEDIUM VOLTAGE  
TRANSFORMER  
X

2750KVA  
PRIMARY VOLTAGE = 13.8KV  
SECONDARY VOLTAGE = 550V

TO BE POSTED AT THE TRANSFORMERS. X TO BE REPLACED WITH TRANSFORMER NUMBER.

6" X 6" LABEL

6-LABELS TOTAL

(WHITE BACKGROUND)

TEXT: ARIAL NARROW FONT  
HEIGHT: .25  
(BLACK)  
TYPICAL UNLESS OTHERWISE SPECIFIED

PV INVERTER  
INV YY

2500kW

OPERATING VOLTAGE = 550Vac  
OPERATING CURRENT = 2886Aac

TO BE POSTED AT INVERTERS YY TO BE REPLACED WITH INVERTER NUMBER

4" X 6" LABEL

2-LABELS TOTAL

(WHITE BACKGROUND)

TEXT: ARIAL NARROW FONT  
(BLACK)  
TYPICAL UNLESS OTHERWISE SPECIFIED

METEOROLOGICAL  
STATION

TO BE POSTED AT THE WEATHER STATION CABINETS

4" X 6" LABEL

6-LABELS TOTAL

(WHITE BACKGROUND)

TEXT: ARIAL NARROW FONT  
(BLACK)  
TYPICAL UNLESS OTHERWISE SPECIFIED

DATA ACQUISITION  
CABINET

TO BE POSTED AT THE DAS CABINETS

4" X 6" LABEL

1-LABELS TOTAL

(WHITE BACKGROUND)

TEXT: ARIAL NARROW FONT  
HEIGHT: .25  
(BLACK)  
TYPICAL UNLESS OTHERWISE SPECIFIED

GROUNDING  
TRANSFORMER

300KVA  
PRIMARY VOLTAGE = 13.8KV  
SECONDARY VOLTAGE = 480V

TO BE POSTED ON GROUNDING TRANSFORMER

4" X 6" LABEL

1-LABELS TOTAL

(WHITE BACKGROUND)

TEXT: ARIAL NARROW FONT  
HEIGHT: .25  
(BLACK)  
TYPICAL UNLESS OTHERWISE SPECIFIED

SECTIONALIZING  
CABINET

1200 A  
PRIMARY VOLTAGE = 13.8 KV  
COMBINES FEEDERS FROM  
INVERTERS 1,2,3 & INVERTERS  
4,5,6

TO BE POSTED ON GROUNDING TRANSFORMER

4" X 6" LABEL

WHITE BACKGROUND  
(REFLECTIVE PER IFC 605.11.1.1)

! DANGER

HIGH VOLTAGE.  
KEEP AWAY.

AUTHORIZED PERSONNEL ONLY.

TO BE POSTED AT GATES.

REV

DESCRIPTION

DATE

A

INITIAL 10% SET SUBMISSION

01/10/20

B

UPDATED LAYOUT PER SITING PLAN

03/05/20

C

UPDATED LAYOUT WITH LONGI 435

03/30/20

D

UPDATED LAYOUT WITH 33% GCR

04/06/20

E

UPDATED LAYOUT PER COMMENTS

4/12/20

F

60% DESIGN SET

4/16/20

G

RE-SUBMITTED 60% DESIGN SET

5/10/20

H

90% DESIGN SET

5/18/20

I

ISSUE FOR PERMIT SET

5/28/20

-

-

-

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ENERPARC

ENERPARC INC.  
1999 Harrison St, Ste 830  
Oakland, CA 94612, USA

PROJECT NAME:  
NORTH STONINGTON

PROJECT ADDRESS:  
ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W

SEAL:

C.T. CERTIFICATE OF REGISTRATION: PEC 0001173

STEPHEN A. BRAY

PROFESSIONAL ENGINEER

CT LICENSE: 26657

6/4/20

KMB

DESIGN GROUP

1800 ROUTE 14, SUITE 200  
WALL, NJ 07719  
(732) 385-5633  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE:  
03/09/2020

PROJECT #:  
2000500

DRAWN BY:  
V. PISSAREVSKI

CHECKED BY:  
R. VUDI

TITLE:  
WARNING LABELS  
SHEET 2

SHEET:  
E-701

PLOT DATE: Thursday, June 04, 2020



7

6

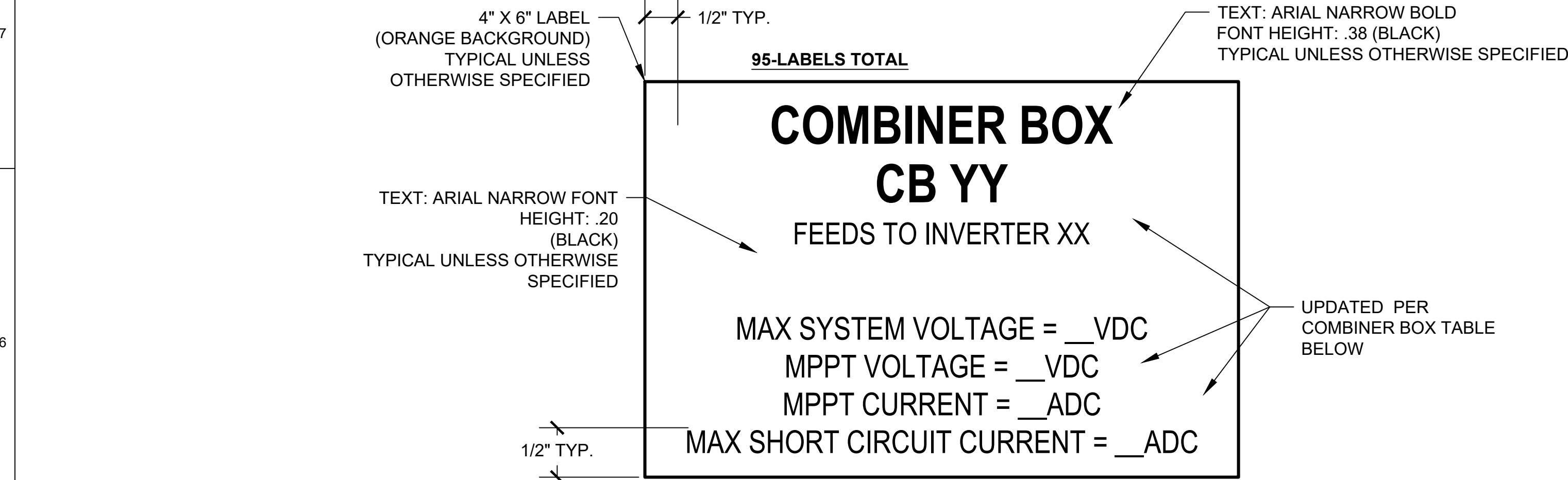
5

4

3

2

1



TO BE POSTED AT THE COMBINER BOXES PER NEC 690.53  
XX TO BE REPLACED BY CENTRAL INVERTER NUMBER  
YY TO BE REPLACED BY COMBINER BOX NUMBER

INVERTER (XX)	CB# (YY)	MAX SYSTEM VOLTAGE	MAX POWER POINT VOLTAGE	MAX POWER POINT CURRENT	MAX SHORT CIRCUIT CURRENT
2	1	1500	1117	237	252
	2	1500	1117	237	252
	3	1500	1117	237	252
	4	1500	1117	237	252
	5	1500	1117	237	252
	6	1500	1117	237	252
	7	1500	1117	237	252
	8	1500	1117	224	238
	9	1500	1117	237	252
	10	1500	1117	237	252
	11	1500	1117	237	252
	12	1500	1117	237	252
	13	1500	1117	237	252
	14	1500	1117	237	252
	15	1500	1117	224	238
	16	1500	1117	237	252

INVERTER (XX)	CB# (YY)	MAX SYSTEM VOLTAGE	MAX POWER POINT VOLTAGE	MAX POWER POINT CURRENT	MAX SHORT CIRCUIT CURRENT
3	1	1500	1117	237	252
	2	1500	1117	237	252
	3	1500	1117	237	252
	4	1500	1117	237	252
	5	1500	1117	237	252
	6	1500	1117	237	252
	7	1500	1117	237	252
	8	1500	1117	237	252
	9	1500	1117	237	252
	10	1500	1117	237	252
	11	1500	1117	237	252
	12	1500	1117	237	252
	13	1500	1117	237	252
	14	1500	1117	237	252
	15	1500	1117	237	252

INVERTER (XX)	CB# (YY)	MAX SYSTEM VOLTAGE	MAX POWER POINT VOLTAGE	MAX POWER POINT CURRENT	MAX SHORT CIRCUIT CURRENT
1	1	1500	1117	237	252
	2	1500	1117	224	238
	3	1500	1117	237	252
	4	1500	1117	237	252
	5	1500	1117	237	252
	6	1500	1117	237	252
	7	1500	1117	237	252
	8	1500	1117	237	252
	9	1500	1117	237	252
	10	1500	1117	237	252
	11	1500	1117	237	252
	12	1500	1117	237	252
	13	1500	1117	237	252
	14	1500	1117	237	252
	15	1500	1117	224	238
	16	1500	1117	237	252

INVERTER (XX)	CB# (YY)	MAX SYSTEM VOLTAGE	MAX POWER POINT VOLTAGE	MAX POWER POINT CURRENT	MAX SHORT CIRCUIT CURRENT
4	1	1500	1117	237	252
	2	1500	1117	237	252
	3	1500	1117	237	252
	4	1500	1117	237	252
	5	1500	1117	224	238
	6	1500	1117	237	252
	7	1500	1117	237	252
	8	1500	1117	237	252
	9	1500	1117	237	252
	10	1500	1117	224	238
	11	1500	1117	237	252
	12	1500	1117	237	252
	13	1500	1117	237	252
	14	1500	1117	237	252
	15	1500	1117	224	238
	16	1500	1117	224	238

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-	-	-

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SEAL:

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(732) 385-9433  
FOR ALL QUESTIONS, PLEASE CONTACT  
STEVE FOX - PROJECT MANAGER

DATE: 03/09/2020

PROJECT #: 2000500

DRAWN BY: V. PISSAREVSKI

CHECKED BY: R. VUDI

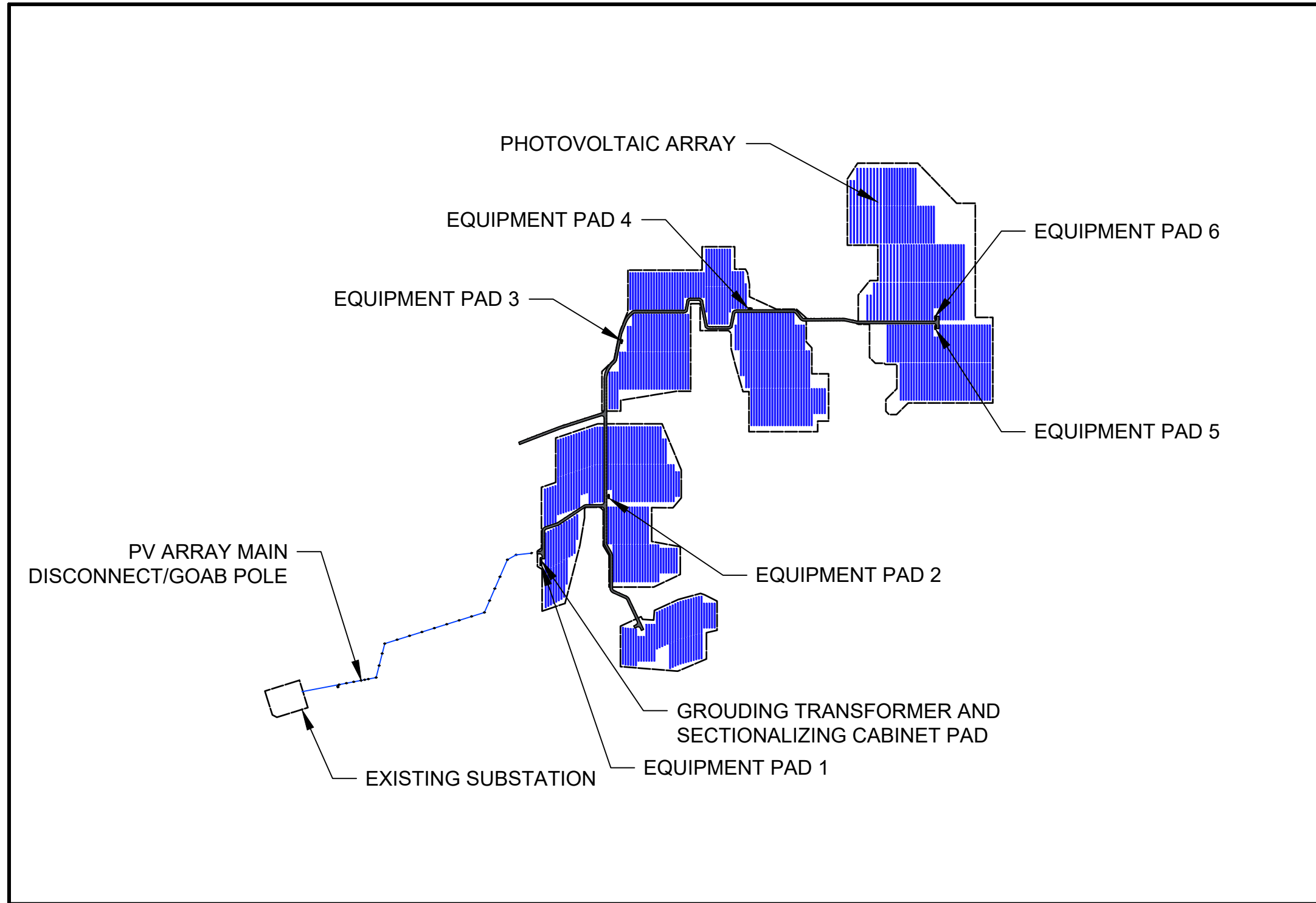
TITLE: WARNING LABELS SHEET 3

SHEET: E-702



INVERTER (XX)	CB# (YY)	MAX SYSTEM VOLTAGE	MAX POWER POINT VOLTAGE	MAX POWER POINT CURRENT	MAX SHORT CIRCUIT CURRENT
5	1	1500	1117	237	252
	2	1500	1117	237	252
	3	1500	1117	237	252
	4	1500	1117	237	252
	5	1500	1117	237	252
	6	1500	1117	237	252
	7	1500	1117	237	252
	8	1500	1117	224	238
	9	1500	1117	237	252
	10	1500	1117	237	252
	11	1500	1117	237	252
	12	1500	1117	237	252
	13	1500	1117	237	252
	14	1500	1117	237	252
	15	1500	1117	237	252
	16	1500	1117	237	252

INVERTER (XX)	CB# (YY)	MAX SYSTEM VOLTAGE	MAX POWER POINT VOLTAGE	MAX POWER POINT CURRENT	MAX SHORT CIRCUIT CURRENT
6	1	1500	1117	237	252
	2	1500	1117	237	252
	3	1500	1117	237	252
	4	1500	1117	237	252
	5	1500	1117	237	252
	6	1500	1117	237	252
	7	1500	1117	237	252
	8	1500	1117	237	252
	9	1500	1117	237	252
	10	1500	1117	237	252
	11	1500	1117	237	252
	12	1500	1117	237	252
	13	1500	1117	237	252
	14	1500	1117	237	252
	15	1500	1117	224	238
	16	1500	1117	237	252



TO BE POSTED AT INVERTERS ,  
TRANSFORMERS, SECTIONALIZING CABINET  
AND ANY DISCONNECT ON SITE  
PER NEC 705.10 & NEC 690.56(B)

REV	DESCRIPTION	DATE
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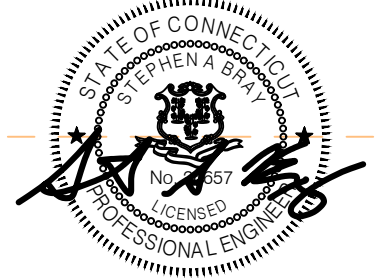
ENERPARC INC.  
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**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
CT LICENSE: 26657 6/4/20



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DATE:  
**03/09/2020**

PROJECT #:  
**2000500**

DRAWN BY:  
**V. PISSAREVSKI**

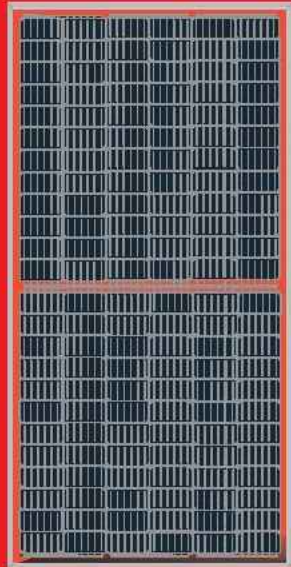
CHECKED BY:  
**R. VUDI**

TITLE:  
**WARNING LABELS  
SHEET 4**

SHEET:  
**E-703**



## REFERENCE MODULE SPECIFICATION SHEET

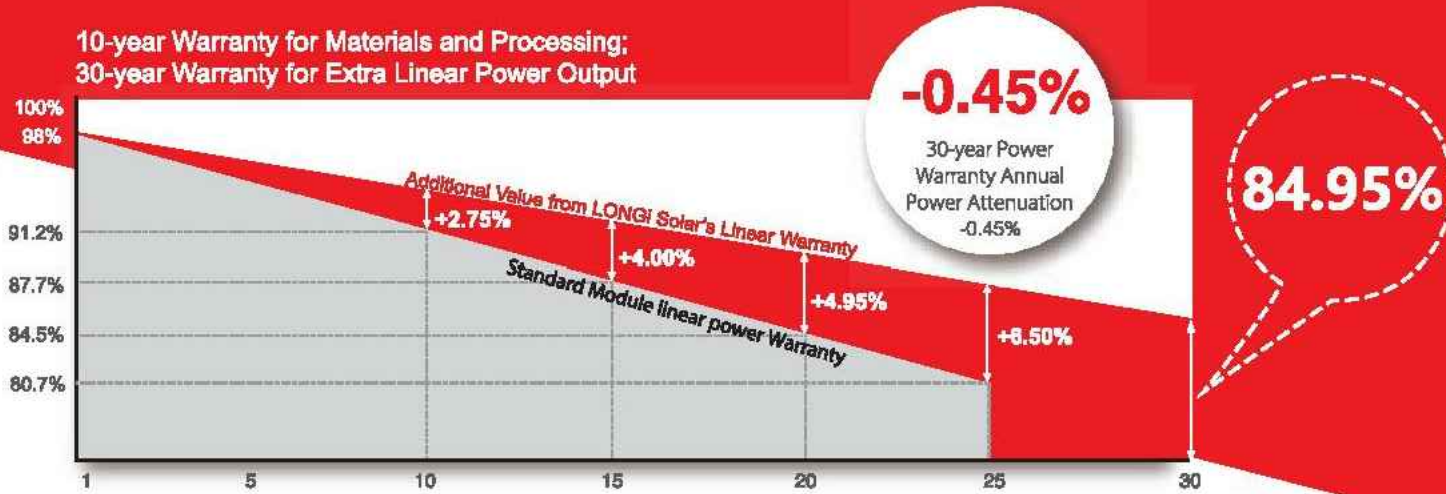


# LR4-72HBD 415~435M

**High Efficiency  
Low LID Bifacial PERC with  
Half-cut Technology**

HI-MO4

**10-year Warranty for Materials and Processing;  
30-year Warranty for Extra Linear Power Output**




**-0.45%**  
30-year Power  
Warranty Annual  
Power Attenuation  
-0.45%

**84.95%**

**Comprehensive System and Product Certifications**

- IEC 61215, IEC 61730, UL 7203
- ISO 9001:2008: ISO Quality Management System
- ISO 14001:2004: ISO Environment Management System
- ISO 26264: Guidelines for module design qualification and type approval
- GB 54451-18001: 2007 Occupational Health and Safety



\* Specifications subject to technical changes and tests. LONGI Solar reserves the right of interpretation.

**Front side performance equivalent to conventional low LID mono PERC:**

- High module conversion efficiency (up to 19.4%)
- Better energy yield with excellent low irradiance performance and temperature coefficient
- First year power degradation <2%

**Bifacial technology** enables additional energy harvesting from rear side (up to 25%)

**Glass/glass lamination** ensures 30 year product lifetime, with annual power degradation <0.45%, 1500V compatible to reduce BOS cost.

**Solid PID resistance** ensured by solar cell process optimization and careful module BOM selection

**Reduced resistive loss** with lower operating current

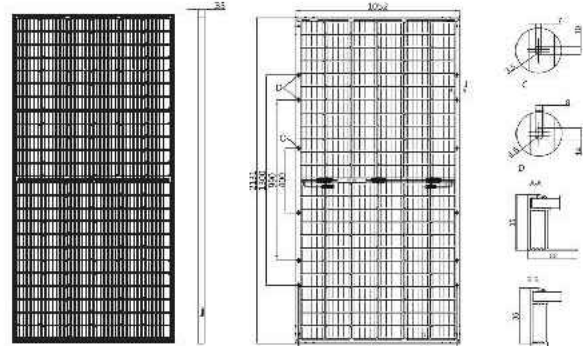
**Higher energy yield** with lower operating temperature

**Reduced hot spot risk** with optimized electrical design and lower operating current

# LR4-72HBD 415~435M

HI-MO4

**Design (mm)**



**Mechanical Parameters**

- Cell Orientation: 144 (6x6)
- Junction Area: 198, three diodes
- Output Cable: 4mm<sup>2</sup>, 300mm in length, length can be customized
- Glass: Dual glass, 2.0mm tempered glass
- Frame: Anodized aluminum alloy frame
- Weight: 25.5kg
- Dimensions: 2131x1305x35mm
- Packaging: 30pcs per pallet, 150pcs per 20'GP, 600pcs per 40'HC

**Operating Parameters**

- Operational Temperature: -40°C ~ +85°C
- Power Output Tolerance: 0 ~ +5 W
- Voc and Isc Tolerance: ±3%
- Maximum System Voltage: DC1500V (IEC/UL)
- Maximum Series Fuse Rating: 20A
- Nominal Operating Cell Temperature: 45±2°C
- Safety Class: Class II
- Fire Rating: UL type 3
- Bifaciality: Glassing 70%

**Electrical Characteristics**

Model Number	LR4-72HBD-415M		LR4-72HBD-420M		LR4-72HBD-425M		LR4-72HBD-430M		LR4-72HBD-435M	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Testing Condition										
Maximum Power (Pmax/W)	415	308.6	420	312.3	425	316.0	430	319.7	435	323.5
Open Circuit Voltage (Voc/V)	49.0	45.6	49.2	45.8	49.4	46.0	49.6	46.2	49.8	46.4
Short Circuit Current (Isc/A)	10.89	8.82	10.96	8.87	11.02	8.93	11.09	8.98	11.16	9.04
Voltage at Maximum Power (Vmp/V)	40.6	37.7	40.8	37.9	41.0	38.1	41.2	38.2	41.4	38.4
Current at Maximum Power (Imp/A)	10.23	8.19	10.30	8.25	10.37	8.30	10.44	8.36	10.51	8.42
Module Efficiency(%)	18.5		18.7		19.0		19.2		19.4	

STC (Standard Testing Conditions): Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C, Spectra at AM1.5  
 NOCT (Nominal Operating Cell Temperature): Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Spectra at AM1.5, Wind at 1m/s

Electrical characteristics with different rear side power gain (reference to 425W front)

Pmax /W	Voc/V	Isc /A	Vmp/V	Imp /A	Pmax gain
446	51.58	11.58	41.0	10.58	
468	49.4	12.13	41.0	11.40	10%
489	49.5	12.68	41.1	11.92	15%
510	49.5	13.23	41.1	12.44	20%
531	49.5	13.78	41.1	12.96	25%

**Temperature Ratings ( STC )**

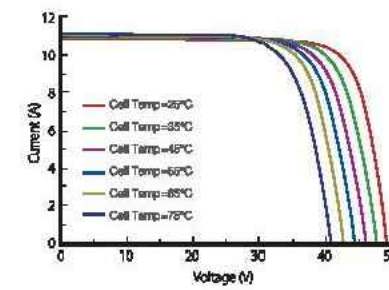
- Temperature Coefficient of  $\eta$ : -0.060%/°C
- Temperature Coefficient of Voc: -0.300%/°C
- Temperature Coefficient of Pmax: -0.370%/°C

**Mechanical Loading**

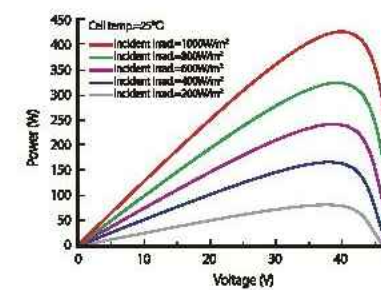
- Front Side Maximum Static Loading: 5400Pa
- Rear Side Maximum Static Loading: 2400Pa
- Hailstone Test: 25mm Hailstone at the speed of 23m/s

**I-V Curve**

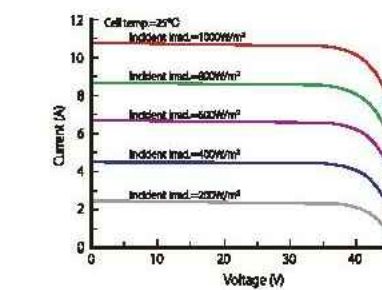
Current-Voltage Curve (LR4-72HBD-425M)




Power-Voltage Curve (LR4-72HBD-425M)




Current-Voltage Curve (LR4-72HBD-425M)





Room 801, Tower 3, Lujiazui Financial Plaza, No.826 Century Avenue, Pudong Shanghai, 200120, China  
 Tel: +86-21-80162606 Email: module@longi-solar.com Facebook: www.facebook.com/LONGI Solar

Note: Due to continuous technical innovation, R&D and improvement, technical data above mentioned may be of modification accordingly. LONGI Solar have the sole right to make such modification at anytime without further notice; Demanding party shall request for the latest datasheet for such a contract need, and make it a consulting and binding part of lawful documentation duly signed by both parties.



Room 801, Tower 3, Lujiazui Financial Plaza, No.8

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
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<p>DATE: 03/09/2020</p> <p>PROJECT #: 2000500</p> <p>DRAWN BY: V. PISSAREVSKI</p> <p>CHECKED BY: R. VUDI</p>	

TITLE:	SPECIFICATION SHEET MODULE
--------	-------------------------------

SHEET:	E-800
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## REFERENCE INVERTER SPECIFICATION SHEET

SUNGROW

SG2500U

Turnkey Station for North America 1500 Vdc System

High Yield

- Advanced three-level technology, max. efficiency 98.8%, CEC efficiency 98.5 %
- Effective cooling, 1:1 overload capacity, no derating up to 122 °F
- Max. DC/AC ratio more than 1.5

Saved Investment

- Low transportation and installation cost due to 10-foot container design
- 1500V DC system, low system cost
- Integrated LV auxiliary power supply

Easy O&M

- Integrated current and voltage monitoring function for online analysis and fast trouble shooting
- Modular design, easy for maintenance
- Convenient external LCD

Grid Support

- Complies with UL 1741, UL 1741 SA, IEEE 1547, Rule 21 and NEC 2014/2017
- Grid support including L-HVRT, L-HFRT, power ramp rate control, active and reactive power support

Circuit Diagram

Efficiency Curve

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Input [DC]	SG2500U
Max. PV input voltage	1500V
Min. PV input voltage / Startup input voltage	800 V / 840 V
MPP voltage range for nominal power	800 ~ 1300 V
No. of independent MPP inputs	1
No. of DC inputs	18 ~ 21
Max. PV input current	3600 A
Max. DC short-circuit current	4600 A
PV array configuration	Negative grounding
Output [AC]	
AC output power	2780 kVA @ 48 °C (113 °F) / 2500 kVA @ 50 °C (122 °F)
Max. AC output current	2880 A
Nominal AC voltage	550 V
AC voltage range	484 - 605 V
Nominal grid frequency / Grid frequency range	60 Hz / 55 ~ 65 Hz
THD	< 3 % (at nominal power)
DC current injection	< 0.5 % in
Power factor at nominal power / Adjustable power factor	> 0.99 / 0.8 leading ~ 0.8 lagging
Feed-in phases / Connection phases	3 / 3
Efficiency	
Max. efficiency / CEC efficiency	98.8 % / 98.5 %
Protection	
DC input protection	Load break switch + fuse
AC output protection	Circuit breaker
Overvoltage protection	DC Type II / AC Type II
Grid monitoring / Ground fault monitoring	Yes / Yes
Insulation monitoring	Optional
Night SVG function	Optional
Overheat protection	Yes
General Data	
Dimensions (W*H*D)	2591*2895*2438 mm 117.8"*114.0"*96.0"
Weight	8.9 T 19211.9 lb
Isolation method	Transformerless
Degree of protection	NEMA 3R
Auxiliary power supply	120 Vac, 5 kVA / Optional: 480 Vac, 30 kVA
Operating ambient temperature range	-30 to 60 °C (> 80 °C derating) -32 to 140 °F (> 122 °F derating)
Allowable relative humidity range (non-condensing)	0 ~ 95 %
Cooling method	Temperature controlled forced air cooling
Max. operating altitude	4000 m (> 2000 m derating) 13123 ft (> 8581 ft derating)
Display	Touch screen
Communication	Standard: RS485, Ethernet; Optional: optical fiber
Compliance	UL 1741, IEEE 1547, UL1741 SA, NEC 2014/2017
Grid support	Night SVG function (optional), L-HVRT, L-HFRT, active & reactive power control and power ramp rate control, Volt-var, Frequency-watt

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15

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41°25'9.71"N, 71°50'4.83"W

<p>SEAL:</p> <p>C.T. CERTIFICATE OF REGISTRATION: REC-0001173</p>  <p>Stephen A. Bray PROFESSIONAL ENGINEER CT LICENSE: 26857</p>	 <p>1800 ROUTE 34, SUITE 209 WALL, NJ 07719 (732) 389-9433</p> <p>FOR ALL QUESTIONS, PLEASE CONTACT STEVE@KMB - PROJECT MANAGER.</p>
<p>DATE: 03/09/2020</p> <p>PROJECT #:</p> <p>2000500</p> <p>DRAWN BY:</p> <p>V. PISSAREVSKI</p> <p>CHECKED BY:</p> <p>R. VUDI</p>	<p>4/20/20</p>

TITLE:	SPECIFICATION SHEET INVERTER
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SHEET: E-801



## REFERENCE TRACKER SPECIFICATION SHEET

**NEXTracker**  
A Flex Company

# MECHANICAL SYSTEMS OVERVIEW

## COMPONENT DATA SHEET

With over 5GW of solar trackers delivered on five continents, NEXTracker's NX Horizon™ is the world's leading single-axis tracker. The NX Horizon is a self-powered, decentralized tracking system where each row is independent of one another – an industry first. Prior to this pioneering innovation, single-axis trackers included a drive shaft connecting each row, which impeded overall operations and maintenance of solar power plants. For NX Horizon, each row is driven by a brushless DC motor coupled to a slew gear. Power for the motor is provided by our patent-pending Self-Powered Controller (SPC) and a dedicated VP module.

### BRUSHLESS DC MOTOR SPECIFICATIONS

#### MECHANICAL

Protection Class	IP 65
Isolation Class	EN62114 (120C)
Certification	UL 1004-1
Operating Temperature	-40°C to 85°C
Motor Type	Brushless
Weight	1.7kg
Relative Humidity	0-95%

#### POWER RATINGS

Nominal Voltage	24 V DC
Motor Continuous Current (85C)	< 6.25 A
No load Current at 24VDC (85C)	< 1 A
Max Power at Rated Torque	150 W

#### OUTPUT

Rated Gear Output Torque (1 hr. continuous)	150 N-m
--	---------

### BRUSHLESS MOTOR

### SLEW GEAR SPECIFICATIONS

#### MECHANICAL

Protection Class	IP 55 per IEC60529
Ambient Temp. Range	-40C to 60C
Housing Material	Ductile Iron
Rotation Range	±65°
Weight	77.5kg

#### LOAD RATINGS

Normal Output Torque, min	± 2000 N-m
High Output Torque, min	± 5000 N-m

### SLEW GEAR

The NX Horizon slew gear is a single stage, worm gear speed reducer. The slew gear is designed to adjust the tracker tilt position to follow the sun each day, as well as hold the tracker position fixed during periods of wind stow. The brushless motor is directly coupled to the input worm shaft of the slew gear, with the tracker torque tubes permanently connected to the output collars. The slew gear is sealed and requires no scheduled maintenance for the life of the product.

**NX Horizon Solar Tracker**  
UL 2703 & 3703 Certified

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6200 Paseo Padre Parkway | Fremont, CA 94555 | USA | +1 510 270 2500 | nexttracker.com

Illustrations are examples only. Actual product may vary.  
Document Number: PDM-000106 Revision:

REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
C	UPDATED LAYOUT WITH LONGI 435	03/30/20
D	UPDATED LAYOUT WITH 33% GCR	04/06/20
E	UPDATED LAYOUT PER COMMENTS	4/12/20
F	60% DESIGN SET	4/16/20
G	RE-SUBMITTED 60% DESIGN SET	5/10/20
H	90% DESIGN SET	5/18/20
O	ISSUE FOR PERMIT SET	5/28/20
-	-	-

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PROJECT NAME:
---------------

NORTH STONINGTON

PROJECT ADDRESS:
------------------

ELLA WHEELER RD,  
NORTH STONINGTON, CT 06359  
41°25'9.71"N, 71°50'4.83"W

SEAL:	
-------	---



STATE OF CONNECTICUT  
STEPHEN A. BRAY  
No. 357  
LICENSED  
PROFESSIONAL ENGINEER

DATE: 03/09/2020

PROJECT #:	2000500
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<b>Stephen A. Bray</b> PROFESSIONAL ENGINEER CT LICENSE: 26657      6/4/20	20000000
	DRAWN BY: <b>V. PISSAREVSKI</b>

CHECKED BY:  
R. VUDI

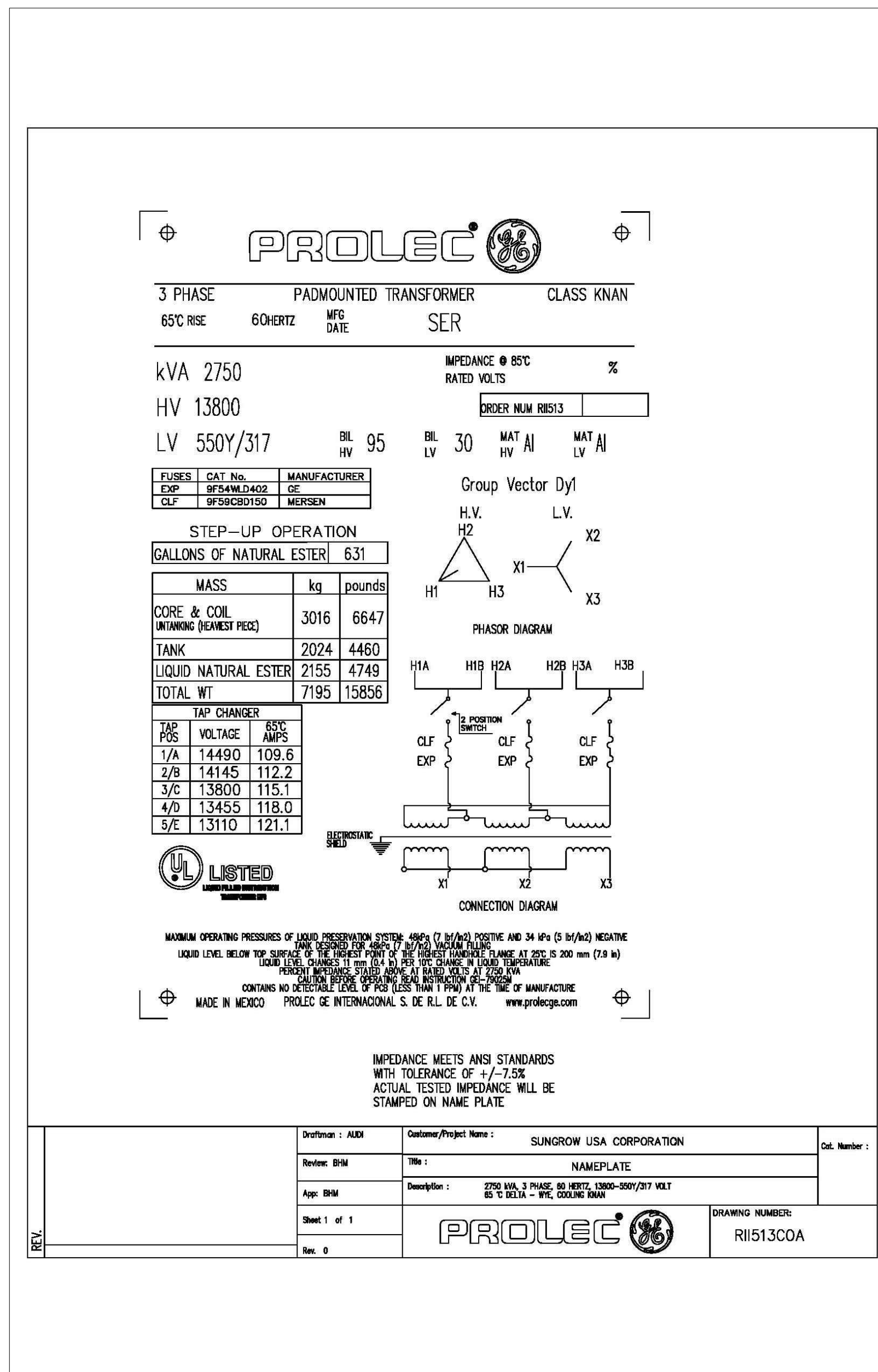
TITLE:	SPECIFICATION SHEET TRACKER
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SHEET: \_\_\_\_\_

E-802



## REFERENCE TRANSFORMER NAMEPLATE READING





REV	DESCRIPTION	DATE
A	INITIAL 10% SET SUBMISSION	01/10/20
B	UPDATED LAYOUT PER SITING PLAN	03/05/20
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PROJECT NAME:
NORTH STONINGTON
PROJECT ADDRESS:
ELLA WHEELER RD, NORTH STONINGTON, CT 06359 41°25'9.71"N, 71°50'4.83"W

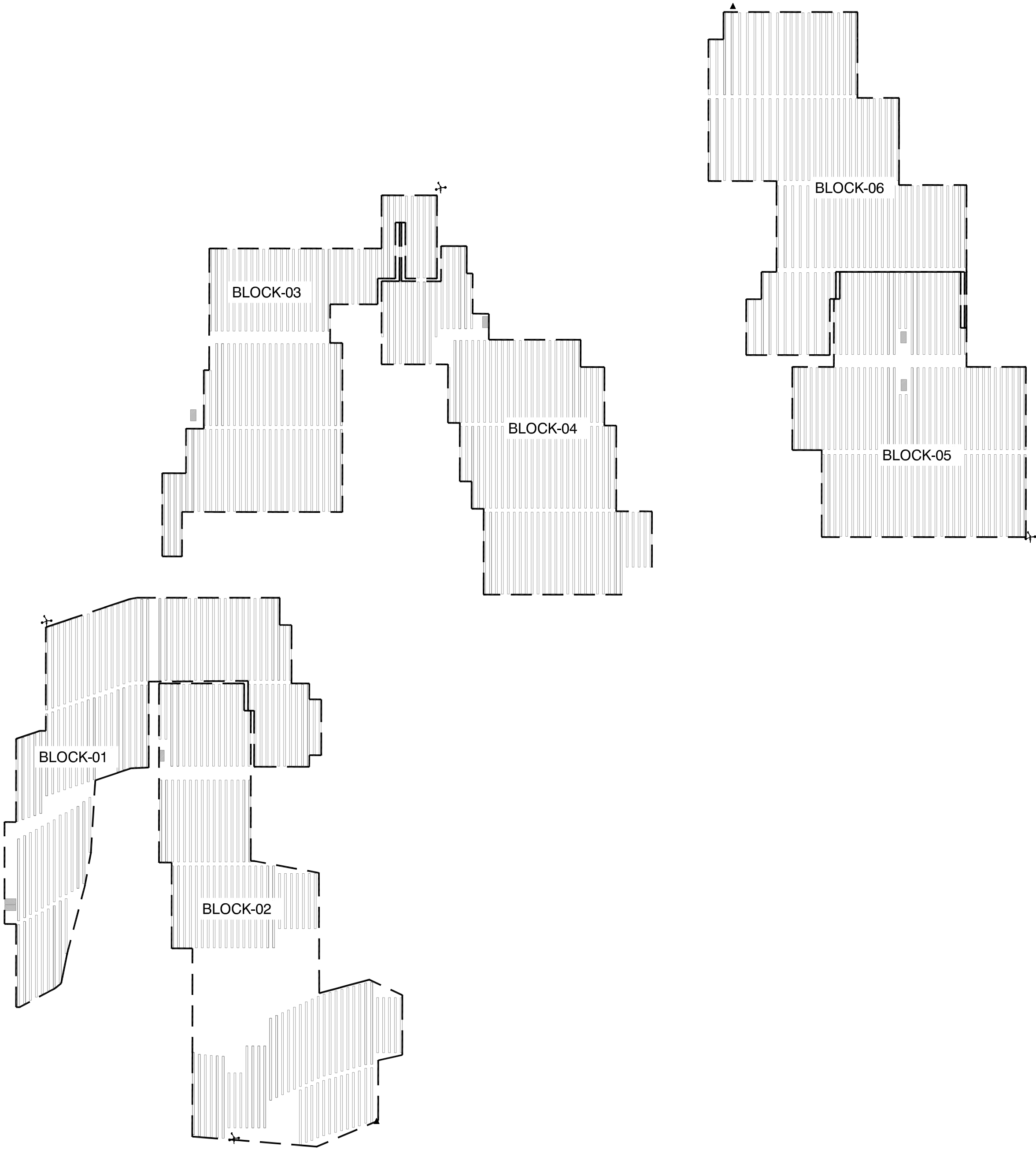
<p>SEAL:</p> <p>C.T. CERTIFICATE OF REGISTRATION: PEC-0001173</p>  <p>Stephen A. Bray PROFESSIONAL ENGINEER</p> <p>CT REGISTRATION: 28667</p>	 <p><b>KMB</b> DESIGN GROUP kmbdg.com</p> <p>1800 ROUTE 1A, SUITE 209 WALL, NJ 07719 (732) 380-9632 (732) 380-9633</p> <p>FOR ALL QUOTATIONS, PLEASE CONTACT STEVE FOX - PROJECT MANAGER</p>
<p>DATE: 03/09/2020</p> <p>PROJECT #: 2000500</p> <p>DRAWN BY: V. PISSAREVSKI</p> <p>CHECKED BY: R. VUDI</p>	<p>DATE: 03/09/2020</p> <p>PROJECT #: 2000500</p> <p>DRAWN BY: V. PISSAREVSKI</p> <p>CHECKED BY: R. VUDI</p>

TITLE:	SPECIFICATION SHEET TRANSFORMER
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SHEET: E-803



510063 -CS ENERGY-NORTH STONINGTON  
NEXTRACKER - NX 100



SHEET INDEX		
SHEET NO.		DESCRIPTION
S-001		TITLE SHEET
SITE PLAN		
S-101		SITE PLAN
S-102		CONSTRUCTION NOTES
PIER PLAN & TORQUE TUBE PLAN		
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S-202	S-302	BLOCK-2
S-203	S-303	BLOCK-3
S-204	S-304	BLOCK-4
S-205	S-305	BLOCK-5
S-206	S-306	BLOCK-6
MECHANICAL SET		
S-401		TYPICAL 81 MODULE TRACKER - EXT
S-402		TYPICAL 81 MODULE TRACKER - EDGE
S-403		TYPICAL 81 MODULE TRACKER - INT
S-404		TYPICAL 54 MODULE TRACKER - EXT
S-405		TYPICAL 54 MODULE TRACKER - EDGE
S-501		PIER TOLERANCES
S-601		BHA & DAMPER DETAILS
S-701		WEATHER STATION DETAILS
NCU PLAN		
S-901		NCU PLAN



A Flex Company

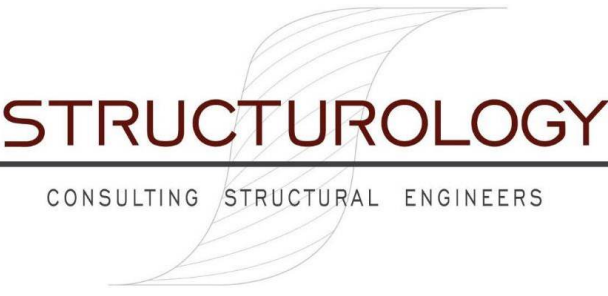
NEXTracker Inc.

6200 Paseo Padre Parkway

Fremont, CA 94555

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SEAL



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CS ENERGY  
NORTH STONINGTON

CT, NORTH AMERICA  
US

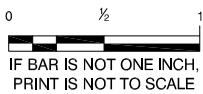
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510063

SITE ID:  
001035

SHEET TITLE:  
TITLE SHEET

NO.	REVISION	DATE	INIT.
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1	LAYOUT UPDATED	05/18/2020	OL
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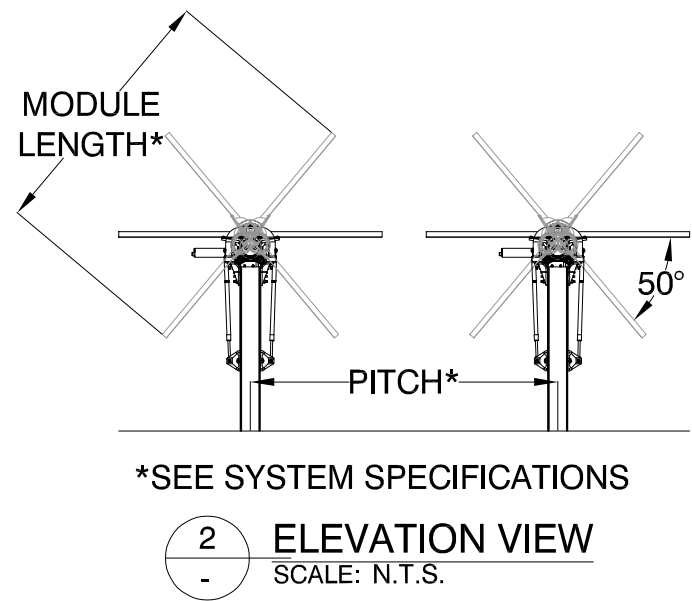
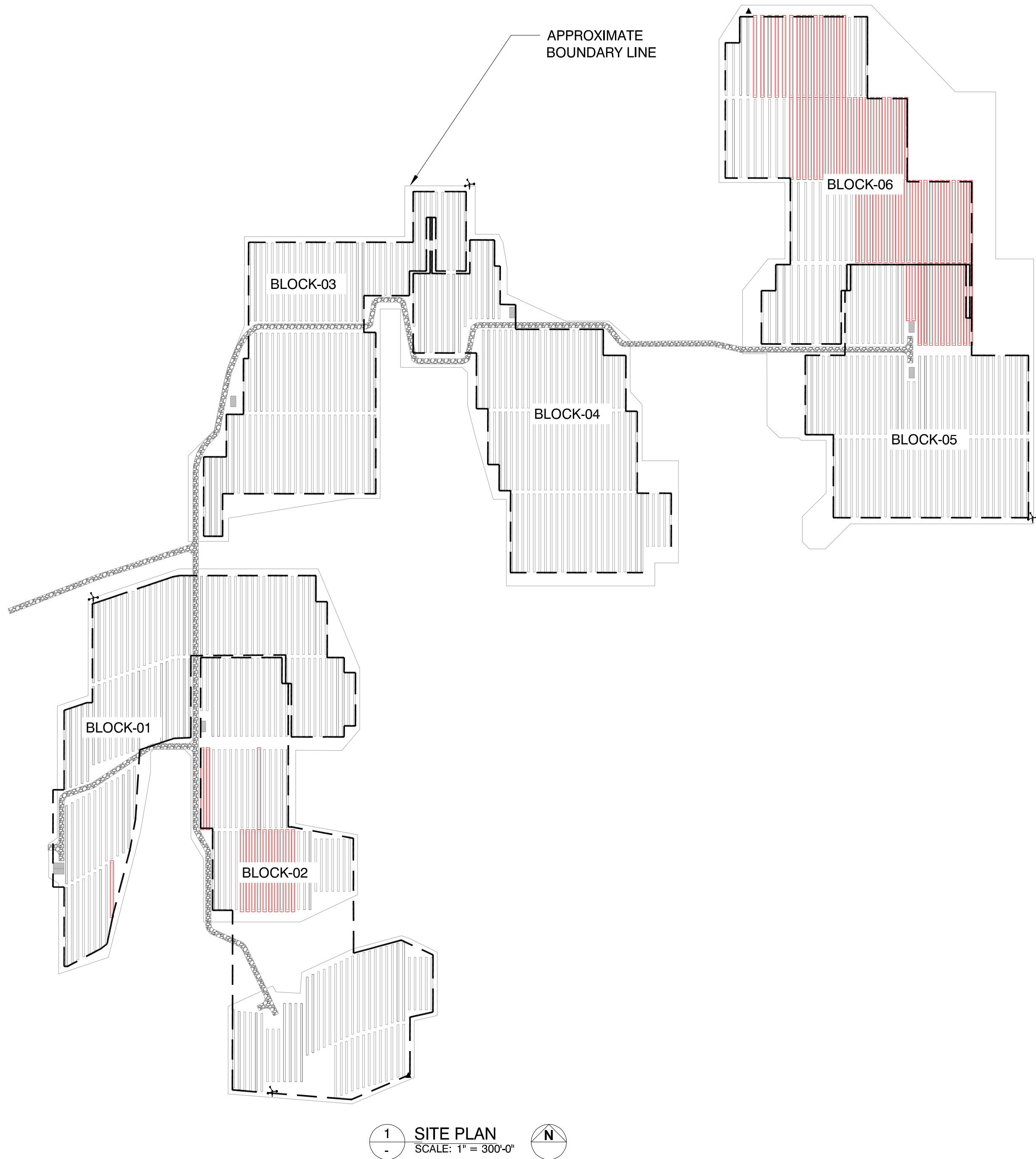
SITE DETAILS	
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	S-001





NOTE:

- MAXIMUM GALVANIZATION COATING OF G90 (OR EQUIVALENT)
- MAXIMUM UNIFORM GROUND SLOPE OF 6.1% IN N-S DIRECTION, UP TO 15% APPROVAL FROM NEXTRACKER
- FOR MAXIMUM GROUND UNDULATIONS TOLERANCE PLEASE REFER PDM-000031.
- FLOOD DEPTHS ARE ASSUMED TO BE SIX INCHES OR LESS THROUGHOUT THE SITE AND PIERS SHOULD NOT FALL IN STREAM LINES. IN CASE POST LOCATION EXHIBITING SCOUR OVER 6", SOIL SURROUNDING THE POST SHALL BE RECOMPACTED TO ORIGINAL GROUND LEVEL COMPACTION AT 90% ASTM D1557, OPTIMUM MOISTURE CONTENT +4% OR AS ALTERNATE, POUR LEAN CONCRETE F'C=500 PSI UP TO GRADE TO FILL VOID CREATED BY SCOUR.
- LIQUEFIABLE SOIL IS NOT ACCOUNTED IN THIS CONSTRUCTION SET.
- TRACKER TO HAVE A MAXIMUM 5'-6" (1.68m) PIER HEIGHT,
- IN CASE THE NATIVE SOIL IS DISTURBED OR FILLED IN ANY WAY, IT WILL NEED BE MOISTENED AND COMPACTED AS PER THE FOLLOWING NOTES, NO ADDITIONAL COMPACTION REQUIRED ON CUT SECTION OF NATIVE SOIL OR UNDISTURBED NATIVE SOIL UNLESS AN OBVIOUS SOFT SPOT IS DETECTED DURING INSTALLATION OF THE PILE (PILE DRIVEN IN IN LESS THAN 10 SECOND)
  - ENGINEERING FILL SHALL BE PLACED IN UNIFORM LAYERS NOT EXCEEDING 8 INCHES IN THICKNESS AND SHALL BE PREPARED IN ACCORDANCE WITH PROJECT GEOTECHNICAL REPORT.
  - AREA DISTURBED DURING CLEARING/DEMOLITION AND AREA RECEIVING FILL IN THE SOLAR FIELD SHOULD BE MOISTENED TO OPTIMUM MOISTURE CONTENT AND COMPACT IN LIFTS NOT TO EXCEED 8" (20 CM) IN EACH LIFT.
  - FOR DISTURBED SOIL COMPACTION OF THE SOLAR FIELD FOR DRIVEN POST FOUNDATION SHALL BE IN CONFORMANCE OF THE GEOTECHNICAL REPORT RECOMMENDATIONS. IF COMPACTION LEVEL IS NOT SPECIFIED IN THE GEOTECH REPORT AND COMPACTION OF NATIVE SOIL IS NOT PRE-DETERMINED, SOLAR FIELD SHALL BE COMPACTED TO 90% ASTM D1557 MODIFIED PROCTOR MINIMUM.
- TRACKER NOMENCLATURE ARE AS FOLLOWS:  
EXT, INT, EPNS, EPN, EPS ARE EXTERIOR, INTERIOR, EXTERIOR PIER NORTH (AND) SOUTH, EXTERIOR PIER NORTH, AND EXTERIOR PIER SOUTH TRACKERS RESPECTIVELY.
- NEXTRACKER MAKES NO REPRESENTATION OF SOIL CONDITIONS OR PILE DRIVABILITY CONDITIONS OUTSIDE OF THE SPECIFIC LOCATIONS TESTED IN THE GEOTECH REPORT AND PILE LOAD TEST OR PERFORMANCE OF DIFFERENT PILE DRIVING EQUIPMENT. CONSTRUCTION MEANS AND METHODS INCLUDING BUT NOT LIMITED PILE DRIVING EQUIPMENT SELECTION IS THE RESPONSIBILITY OF THE CUSTOMER. NEXTRACKER RECOGNIZES THAT VARYING RESULTS MAY BE REALIZED WITH VARYING, EQUIPMENT, OPERATORS VARIABLE SOIL.



Bill of Materials		
QTY	NAME	PART NO:
112	NX 100 81 module, 13 pier, Exterior Row	NXH - 2.4.9.4
10	NX 100 81 module, 13 pier, Exterior Row HIGH-SLOPE	
249	NX 100 81 module, 13 pier, Edge Row	NXH - 2.4.9.4
47	NX 100 81 module, 13 pier, Edge Row HIGH-SLOPE	
78	NX 100 81 module, 13 pier, Interior Row	NXH - 2.4.9.4
23	NX 100 81 module, 13 pier, Interior Row HIGH-SLOPE	
31	NX 100 54 module, 09 pier, Exterior Row	NXH - 2.4.9.4
1	NX 100 54 module, 09 pier, Exterior Row HIGH-SLOPE	
38	NX 100 54 module, 09 pier, Edge Row	NXH - 2.4.9.4
2	NX 100 54 module, 09 pier, Edge Row HIGH-SLOPE	
12	SPT Network Control Unit, 120VAC, 1 Phase	2.2.0.005
4	SPT Weather Station, Ultrasonic Wind Sensor (Mounting Kit Incl.)	2.2.0.001
2	SPT Weather Station, Ultrasonic Snow Sensor (Mounting Kit Incl.)	2.2.0.003
1	NX DATAHUB	20860
1412	Heavy Array Pier (HAP)	
4692	Standard Array Pier (SAP)	
308	Heavy Array Pier, Edge (HAPE)	
392	Standard Array Pier, Edge (SAPE)	
154	Heavy Motor Pier (HMP)	
443	Standard Motor Pier (SMP)	
	437 SMP (Trackers)	
	6 SMP (Weather Stations)	

SYSTEM SPECIFICATIONS			
TOTAL MODULES	45927	MODULES PER STRING	27
DC	19.978 MW	NUMBER OF STRINGS	1701
MODULE CAPACITY	435 W	MODULE MODEL	LR4-72HBD-435M
MODULE(S) LENGTH	6.992 FT	MODULE NAME	LONGI SOLAR
MODULE(S) WIDTH	3.452 FT	MODULE TYPE	WIDE+
PITCH-1	21.184 FT	GROUND COVER RATIO (GCR-1)%	33.01
PITCH-2	26.991 FT	GROUND COVER RATIO (GCR-2)%	25.90

NEXTRACKER DETAILS		
TYPES	81 MOD	54 MOD
EXTERIOR	112	31
EXTERIOR-HS	10	1
INTERIOR	78	0
INTERIOR-HS	23	0
EPNS	31	22
EPNS-HS	3	0
EPN	105	4
EPN-HS	33	0
EPS	113	12
EPS-HS	11	2
TOTAL	519	72
GRAND TOTAL	591	

A Flex Company

NEXTracker Inc.

6200 Paseo Padre Parkway

Fremont, CA 94555

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STRUCTUROLOGY

CONSULTING STRUCTURAL ENGINEERS

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ITEMS ONLY.

CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

SITE PLAN

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

SITE DETAILS

LATITUDE

41.419684

LONGITUDE

-71.833032

SNOW LOAD

30 PSF

WIND LOAD

119 MPH ASCE 7-16

STOW STRAT.

50 STOW - 22MPH

NEXTRACKER

NX 100 2.4.9.4

81 TRACKER

6-6-7-7-7-6-M-6-8-8-8-6-6

54 TRACKER

6-6-6-M-6-8-8-8-6

DATE

05/18/2020

DRAWN BY

AA

CHECKED BY

LEE

SHEET NO.:

S-101

0 3/4 1

IF DIM IS NOT ONE INCH

PRINT IS NOT TO SCALE



GENERAL NOTES:

1. CONSTRUCTION SET SHALL BE USED TOGETHER WITH PROJECT STRUCTURAL, CIVIL AND ELECTRICAL DRAWINGS.

STRUCTURAL STEEL NOTES:

1. DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL AND MISCELLANEOUS STEEL CONFORM TO THE BUILDING CODE AND LOCAL JURISDICTIONS.
2. GALVANIZATION COATING FOR TRACKER STRUCTURE COMPONENTS SHALL CONFORM TO FOLLOWING UNLESS SPECIFIED OTHERWISE:
- a. ALL POSTS- ASTM A123
- b. TORQUE TUBE, MODULE RAILS - ASTM A653 G90
- c. BHA, BRACKETS, AND MOUNTS - ASTM A123
3. AREA DAMAGED DURING HANDLING OR INSTALLATION SHALL BE REMEDIATED BY APPLYING TOUCH-UP GALVANIZING PAINT OR SPRAY PER ASTM A780.
4. ALL WELDING SHALL CONFORM TO BUILDING CODE AND LOCAL JURISDICTIONS OR AMERICAN WELDING SOCIETY (AWS) D1.1 "STRUCTURAL WELDING CODE - STEEL," WHICHEVER IS MORE STRINGENT. ALL WELDING ELECTRODES SHALL BE E70 SERIES.

POST INSTALLATION NOTES:

1. SURVEYING IS NOT IN NEXTRACKER'S SCOPE OF WORK. ALL POSTS SHALL BE TIED TO PROJECT SURVEY CONTROL. TOP OF POST ELEVATION DETERMINATION IS NOT IN NEXTRACKER'S SCOPE OF WORK.
2. ALL POSTS SHALL BE STAKED AND LOCATED BY SURVEYOR PRIOR TO POST DRIVING OPERATION.
3. ALL POST SHALL BE INSTALLED WITHIN VERTICAL UNDULATION TOLERANCE, SEE NEXTRACKER INSTALLATION MANUAL FOR VERTICAL AND HORIZONTAL ALIGNMENT TOLERANCE.
4. ALL TRACKER POSTS SHALL BE DRIVEN AT THE SPECIFIED LOCATIONS IN ONE SINGLE SLOPE PLANE, FOLLOWING GRADE N-S SLOPE MAXIMUM 6.1% FOR STANDARD TRACKER OR 15% FOR HIGH SLOPE TRACKER. TRACKERS INSTALLED OVER A MAXIMUM OF 6.1% MUST HAVE APPROVAL FROM NEXTRACKER PROJECT ENGINEERING.
5. ADJUSTMENT FOR POST SPACINGS MUST BE MADE TO ACCOUNT FOR HIGH SLOPE AREAS. TRACKER DIMENSIONS PROVIDED IN CONSTRUCTION SET ARE ACTUAL TRACKER DIMENSIONS. PROJECTED HORIZONTAL DIMENSIONS OF TRACKER NEED TO BE CALCULATED FOR ACCURATE POST SPACING. IT IS THE RESPONSIBILITY OF CONTRACTOR TO CALCULATE EXACT POST SPACING THAT ACCOUNTS FOR TORQUE TUBE SLOPE.
6. NEXTRACKER DOES NOT STIPULATE MAXIMUM SLOPE IN E-W DIRECTION. HOWEVER, HIGH E-W SLOPE DIRECTION MAY AFFECT ENERGY PRODUCTION. CIVIL ENGINEERING IS NOT IN NEXTRACKER SCOPE OF WORK. CUSTOMER SHALL HIRE CIVIL ENGINEER TO ANALYZE GROUND CONDITIONS, SITE GRADING, POST CONSTRUCTION DRAINAGE AND OTHER CIVIL RELATED WORKS PER NEXTRACKER SITE SLOPE GUIDELINES.
7. TRACKER MOTOR POST RESIST FORCES IN N-S DIRECTION. FOR PROJECTS IN HIGH SEISMIC OR IN HIGH SLOPE AREA, BUSHING MAY NEED TO BE INSTALLED TO DISTRIBUTE LATERAL FORCES TO ADJACENT POSTS.
8. ALL POST DRIVEN IN THE WRONG LOCATION OR OUT OF TOLERANCE SHALL BE REMOVED AND REDRIVEN INTO CORRECT LOCATION. VOID IN GROUND FROM POST REMOVAL SHALL BE FILLED WITH EITHER 500 PSI CONCRETE SLURRY, OR NATIVE SOIL AND APPROVED IMPORT FILLED MATERIAL, COMPACTED TO 90% ASTM D1557 AT OPTIMUM MOISTURE CONTENT +4% AT NO MORE THAN 8" (200MM) LIFTS.
9. POST SHALL BE INSTALLED AFTER GRADING AND EROSION CONTROL IS IN PLACE.
10. UNDERGROUND UTILITIES OR STRUCTURES SHALL BE SURVEYED BEFORE POST INSTALLATION.
11. FLOOD DEPTHS ARE ASSUMED TO BE SIX INCHES OR LESS THROUGHOUT THE SITE UNLESS POSTS ARE SPECIFICALLY DESIGNED FOR HIGHER FLOOD DEPTHS OTHERWISE; NO PIERS SHALL BE INSTALLED IN STREAM OR WASH AREA SUBJECT TO FUTURE EROSION.
12. LOW-VELOCITY SHEET FLOW AND SCOUR DEPTHS ARE ASSUMED TO BE SIX INCHES OR LESS THROUGHOUT THE SITE UNLESS SPECIFIED OTHERWISE.
13. MINIMUM POST HEIGHT IS CALCULATED FOR A MODULE CLEARANCE OF 12INCHES FOR PANEL TILT AT 50 DEGREES. IF FLOOD DEPTH EXCEEDS 6 INCHES OR AHJ REQUIREMENT IS DIFFERENT THAN NEXTRACKER'S ASSUMPTION, THE MINIMUM POST HEIGHT WILL NEED TO BE REVISED. IT IS THE RESPONSIBILITY OF CUSTOMER TO VALIDATE ADEQUATE CLEARANCE BETWEEN FLOOD LEVEL AND EDGE OF MODULE.
14. IN CASE OF POST LOCATION EXHIBITING SCOUR OVER 6", SOIL SURROUNDING THE POST SHALL BE RECOMPACTED TO ORIGINAL GROUND LEVEL COMPACTION AT 90% ASTM D1557, OPTIMUM MOISTURE CONTENT +4% OR AS ALTERNATE, POUR LEAN CONCRETE FC=500 PSI UP TO GRADE TO FILL VOID CREATED BY SCOUR.
15. IN CASE THE NATIVE SOIL IS DISTURBED OR FILLED IN ANY WAY, IT WILL NEED TO BE MOISTENED AND COMPACTED AS PER THE FOLLOWING NOTES, NO ADDITIONAL COMPACTION REQUIRED ON CUT SECTION OF NATIVE SOIL OR UNDISTURBED NATIVE SOIL UNLESS AN OBVIOUS SOFT SPOT IS DETECTED DURING INSTALLATION OF THE PILE (PILE DRIVEN IN IN LESS THAN 10 SECOND).
- a. ENGINEERING FILL SHALL BE PLACED IN UNIFORM LAYERS NOT EXCEEDING 8 INCHES IN THICKNESS AND SHALL BE PREPARED IN ACCORDANCE WITH PROJECT GEOTECHNICAL REPORT.
- b. AREA DISTURBED DURING CLEARING/DEMOLITION AND AREA RECEIVING FILL IN THE SOLAR FIELD SHOULD BE MOISTENED TO OPTIMUM MOISTURE CONTENT AND COMPACT IN LIFTS NOT TO EXCEED 8" (20 CM) IN EACH LIFT.
- c. EDGE DISTANCE OF MAIN ELECTRICAL TRENCH TO CENTERLINE OF LAST POST IS 3'-0 (1.0M) MINIMUM. EXCAVATION DEPTH OF LATERAL TRENCH TO MAIN ELECTRICAL TRENCH IS SHALL NOT EXCEED 2'-6 (.75M) MAXIMUM. PRECAUTION SHOULD BE MADE NOT TO UNDERMINE THE LAST POST BY MAINTAIN A 45 DEGREE EXCAVATION SLOPE ADJACENT TO POST.
17. POSTS DESIGN IS BASED ON RESULT OF PILE LOAD TEST AND DRIVABILITY TEST DONE AT TIME OF SITE INVESTIGATION. PRE-DRILL LOCATION DURING CONSTRUCTION MAY VARY FROM LOCATION SHOWN ON PLAN. DETERMINATION OF PRE-DRILLING LOCATION IS THE RESPONSIBILITY OF THE CONTRACTOR. NEXTRACKER DOES NOT TAKE RESPONSIBILITY FOR ANY DEVIATION OF PRE-DRILLED LOCATION FROM PLAN THAT MAY ARISE ON SITE.
18. PRE-DRILLED HOLES MAY BE REQUIRED IF DRIVEN PILES MEETING REFUSAL OR PILE HEAD DAMAGE. IF DIAMETER OF PRE-DRILLED DIAMETER IS NOT PRE-DETERMINED DURING PILE LOAD TESTING, ADDITIONAL PILE LOAD TESTING WILL BE REQUIRED AND REVIEWED BY ENGINEER OF RECORD DURING CONSTRUCTION TO QUALIFY PRE-DRILL HOLE.
19. MINIMUM PRE DRILLED HOLE IS SUGGESTED TO BE 4" (100 MM). MAXIMUM PRE DRILLED HOLE SHALL NOT EXCEED 5.5" (140"). ALL HOLES SHALL BE FILLED WITH SOIL REMOVED AND NO ROCKS OVER 1/2" DIAMETER.
20. ANY PRE DRILLED HOLE 6" OR LARGER SHALL BE FILLED WITH CONCRETE SLURRY WITH MINIMUM STRENGTH FC=500 PSI OR APPROVED EQUAL. NO ADDITIONAL PROOF LOAD TEST IS REQUIRED.
21. UNDER ANY CIRCUMSTANCE, DEPTH OF PRE-DRILLED HOLE SHALL NOT EXCEED THE MINIMUM EMBEDMENT DEPTH.
22. FOUNDATIONS THAT DO NOT MEET THE DESIGN MINIMUM EMBEDMENT DEPTH SHALL BE PROOF LOAD TESTED FOR ACCEPTANCE BY FOUNDATION ENGINEER OF RECORD. NEXTRACKER DO NOT TAKE ANY WARRANTY FOR FAULTY CONSTRUCTION OR FOUNDATIONS BUILT OUTSIDE THE TOLERANCES PROVIDED IN CONSTRUCTION DRAWING SET.
23. NEXTRACKER MAKES NO REPRESENTATION OF SOIL CONDITIONS OR PILE DRIVABILITY CONDITIONS OUTSIDE OF THE SPECIFIC LOCATIONS TESTED IN THE GEOTECH REPORT AND PILE LOAD TEST OR PERFORMANCE OF DIFFERENT PILE DRIVING EQUIPMENT. CONSTRUCTION MEANS AND METHODS INCLUDING BUT NOT LIMITED PILE DRIVING EQUIPMENT SELECTION IS THE RESPONSIBILITY OF THE CUSTOMER. NEXTRACKER RECOGNIZES THAT VARYING RESULTS MAY BE REALIZED WITH VARYING, EQUIPMENT, OPERATORS VARIABLE SOIL.

TRUE CAPTURE NOTES:

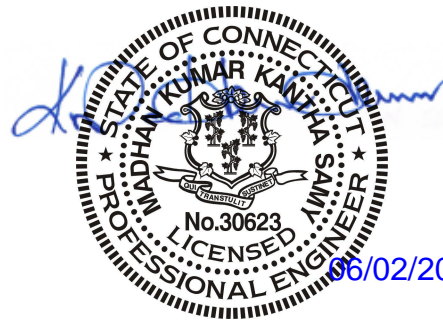
1. TRUECAPTURE BENEFIT ESTIMATE BASED ON PRELIMINARY ASSESSMENT OF REGIONAL WEATHER CONDITIONS AND SITE TERRAIN TO PROVIDE A BUDGETARY QUOTE. FINAL SITE ESTIMATE WILL BE PROVIDED UPON CUSTOMER REQUEST. ADDITIONAL SUPPORTING DOCUMENTS AND FEASIBILITY FEE MAY BE REQUIRED. TRUCAPTURE BENEFIT ESTIMATED REQUIRES A PURCHASE OF A TRUECAPTURE LICENSE.



NEXTracker Inc.  
6200 Paseo Padre Parkway  
Fremont, CA 94555

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LLC FOR CONFORMANCE OF STRUCTURAL  
ITEMS ONLY.

CS ENERGY  
NORTH STONINGTON  
CT, NORTH AMERICA  
US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

CONSTRUCTION  
NOTES

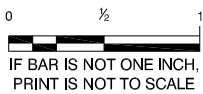
NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
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SITE DETAILS

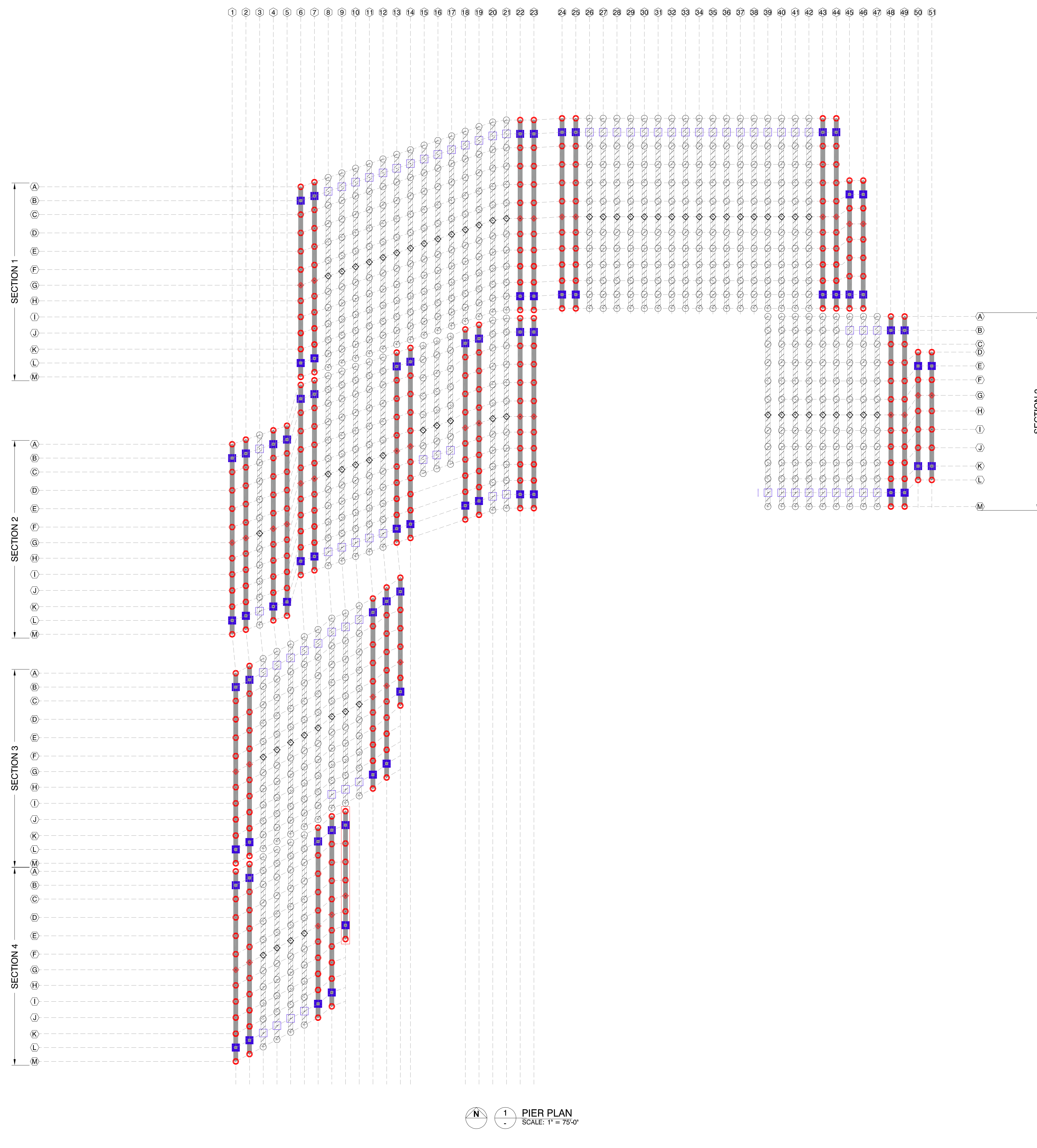
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE

SHEET NO.:

S-102





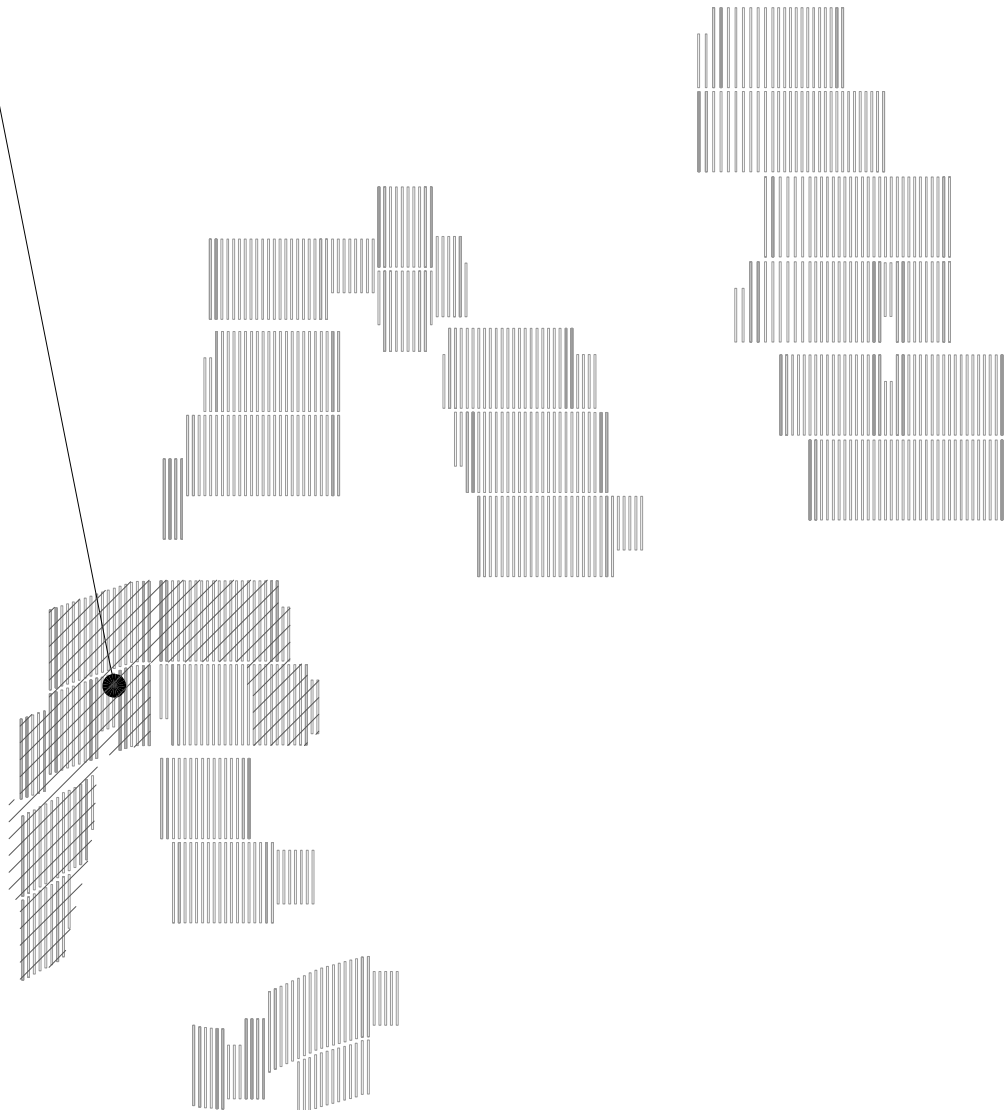


N  
1  
PIER PLAN  
SCALE: 1" = 75'-0"

TRACKER LEGEND	
TRACKER SYMBOL	TRACKER TYPE
	EXTERIOR
	EDGE
	INT


PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
LABEL	LABEL TYPE
	PIER LABEL
	TRACKER ROW
	HIGH SLOPE TRACKER

BLOCK 01,  
THIS SHEET



2  
-  
SITE KEY  
SCALE: N.T.S.





A Flex Company

NEXTracker Inc.

6200 Paseo Padre Parkway

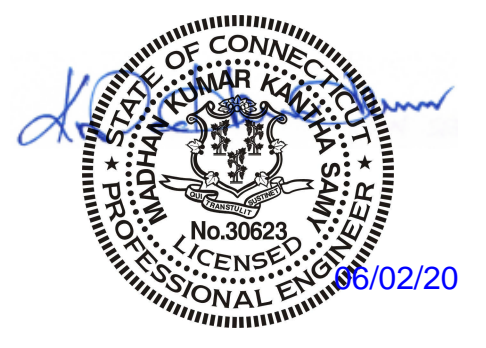
Fremont, CA 94555

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CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

PIER PLAN

BLOCK - 01

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
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8			

SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4-9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE

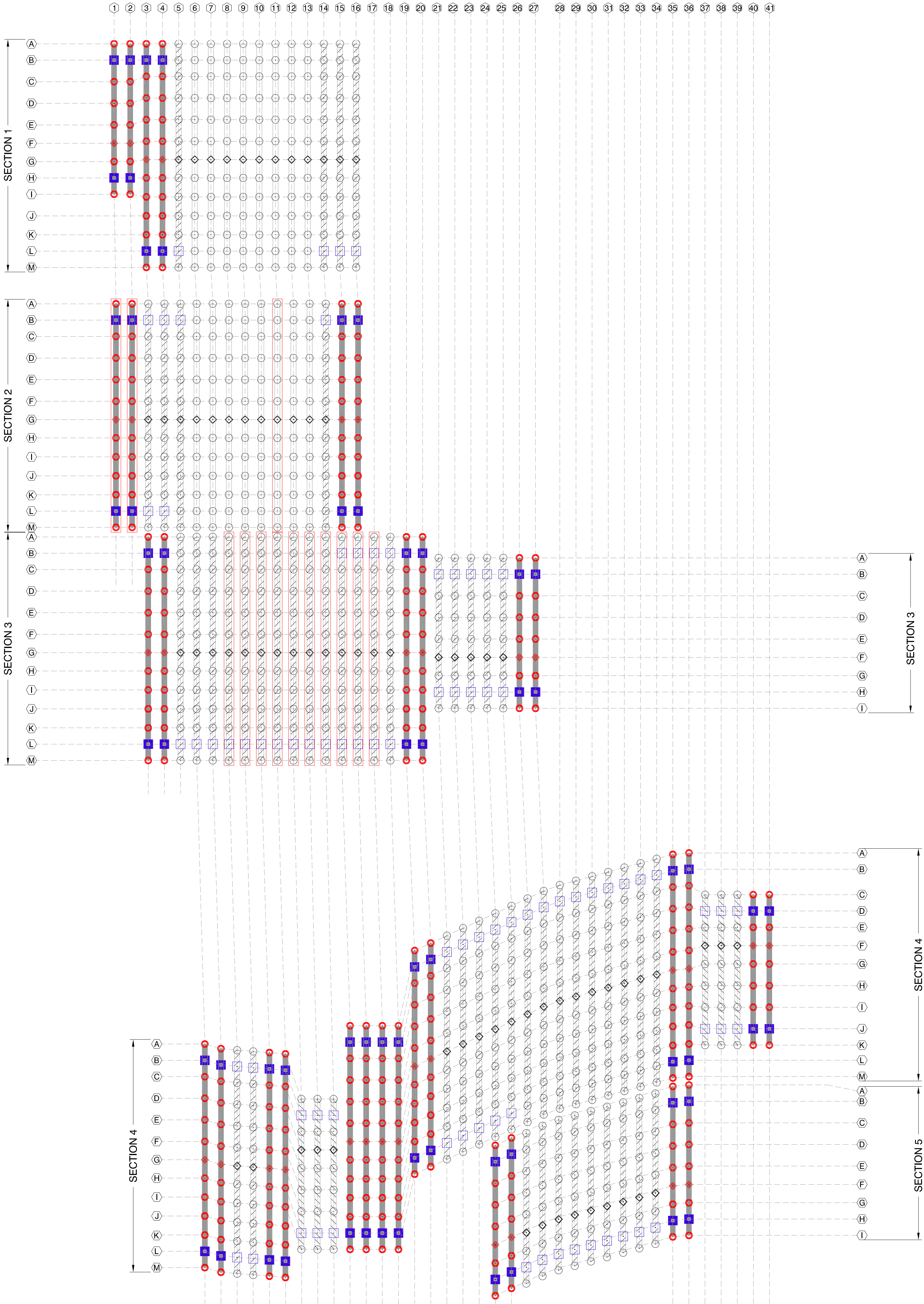
SHEET NO.:

S-201

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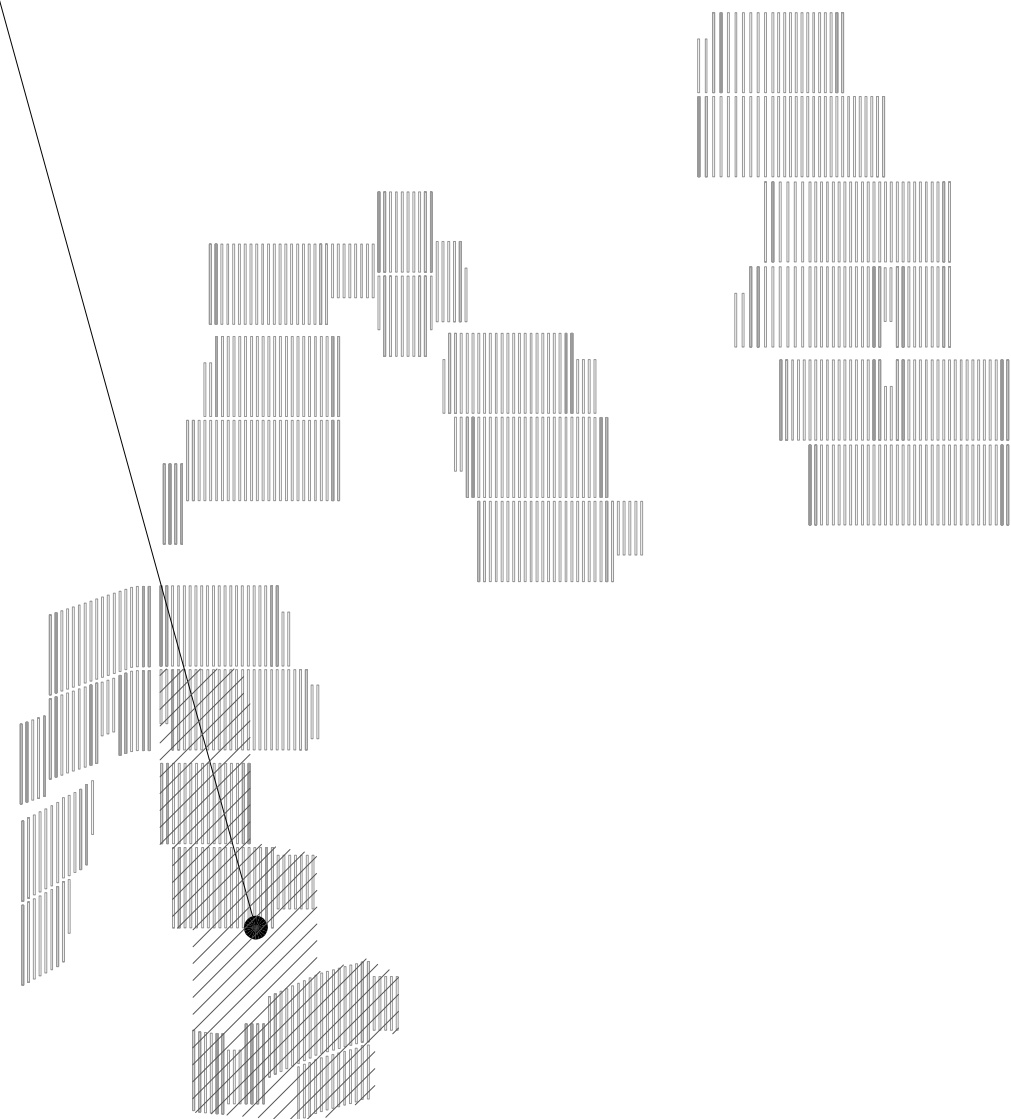





TRACKER LEGEND	
TRACKER SYMBOL	TRACKER TYPE
	EXTERIOR
	EDGE
	INT

PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
LABEL	
	PIER LABEL
	TRACKER ROW
	HIGH SLOPE TRACKER

BLOCK 02,  
THIS SHEET





A Flex Company

NEXTracker Inc.

6200 Paseo Padre Parkway

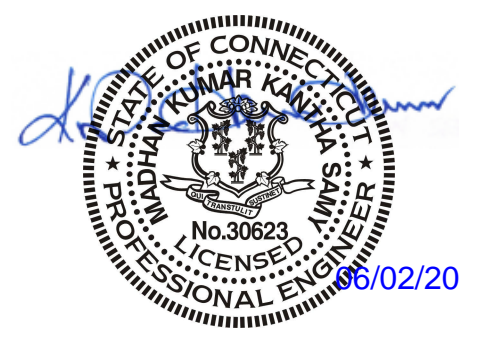
Fremont, CA 94555

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CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

PIER PLAN

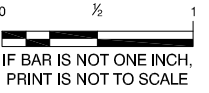
BLOCK - 02

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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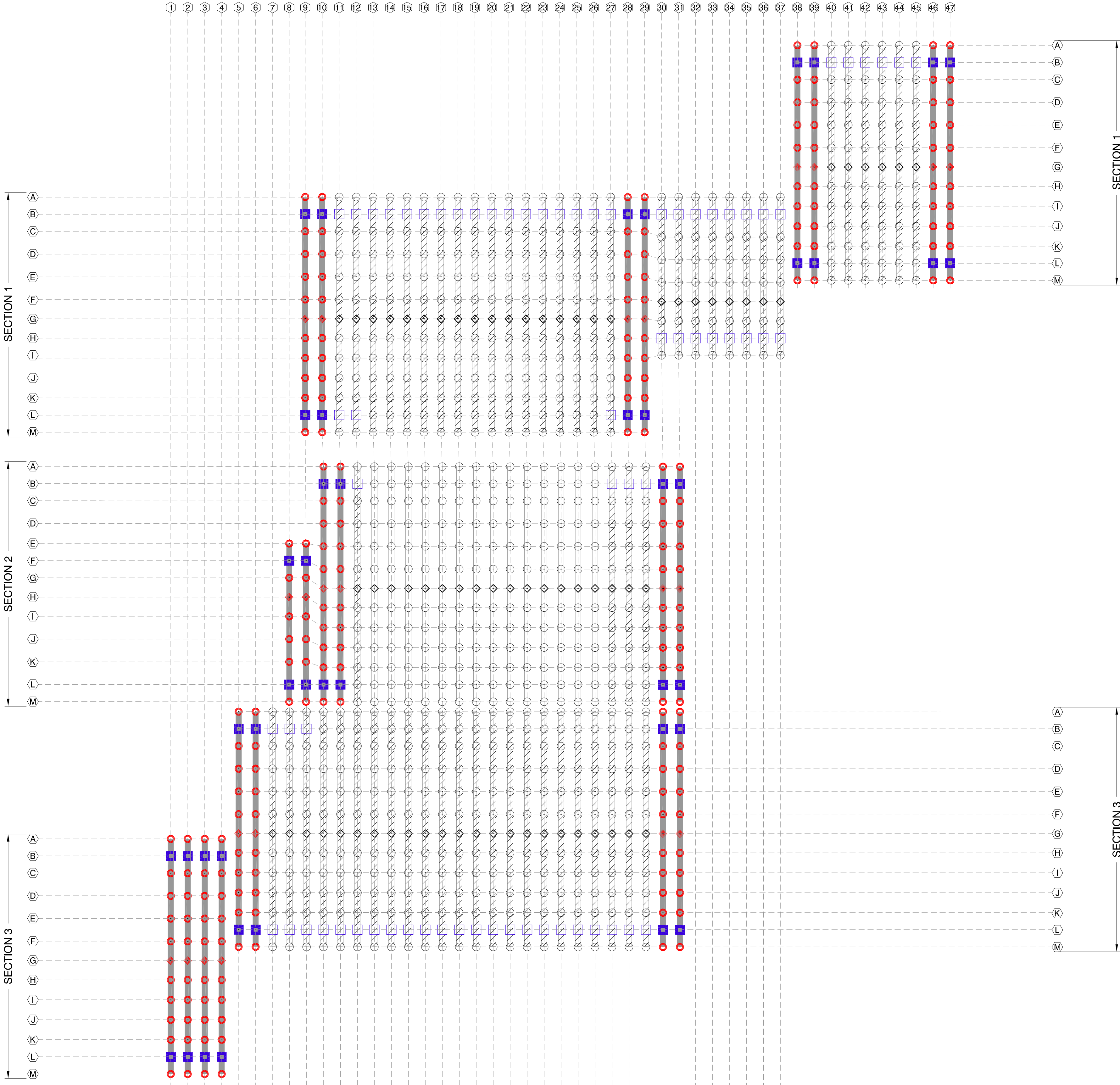
SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

S-202



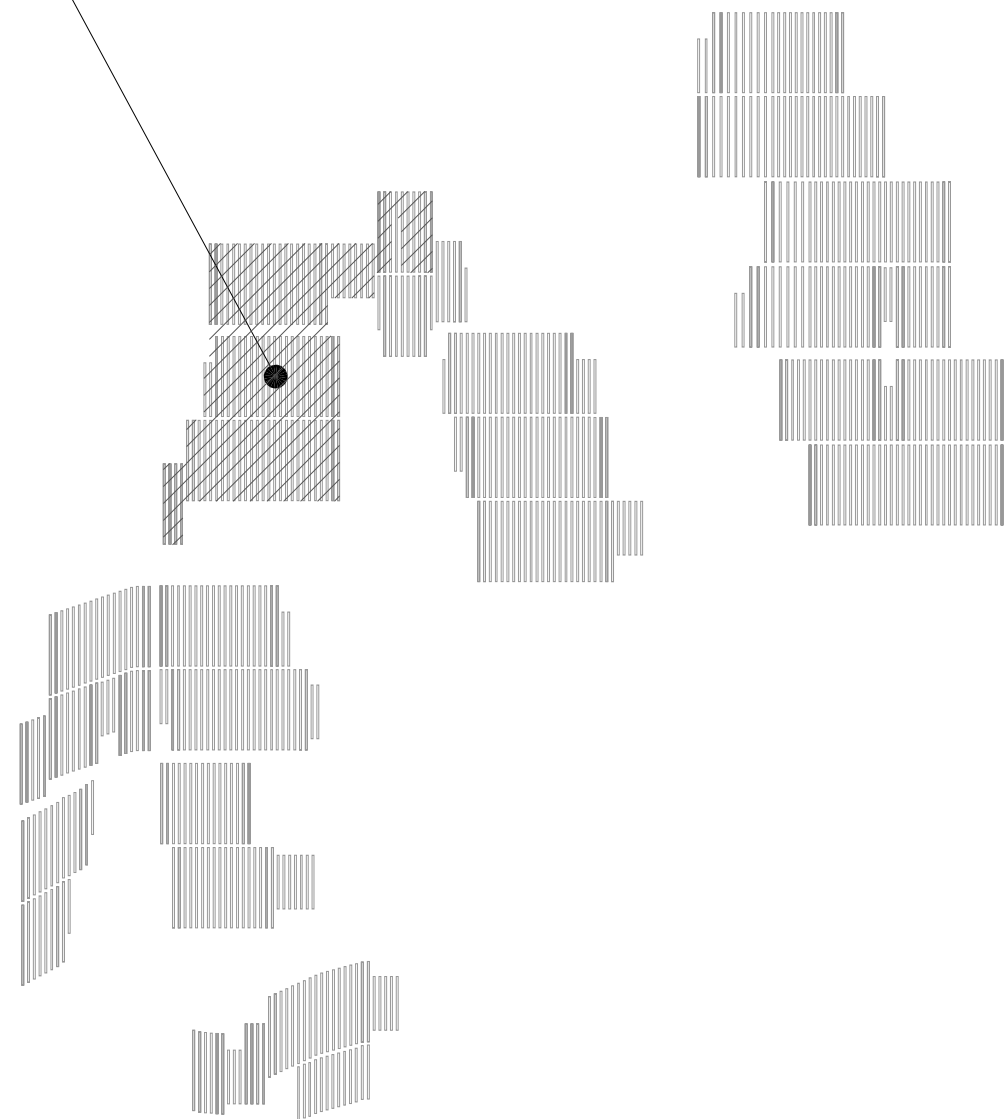





TRACKER LEGEND	
TRACKER SYMBOL	TRACKER TYPE
	EXTERIOR
	EDGE
	INT

PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
LABEL	LABEL TYPE
	PIER LABEL
	TRACKER ROW
	HIGH SLOPE TRACKER

BLOCK 03,  
THIS SHEET





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CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

PIER PLAN

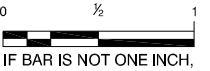
BLOCK - 03

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

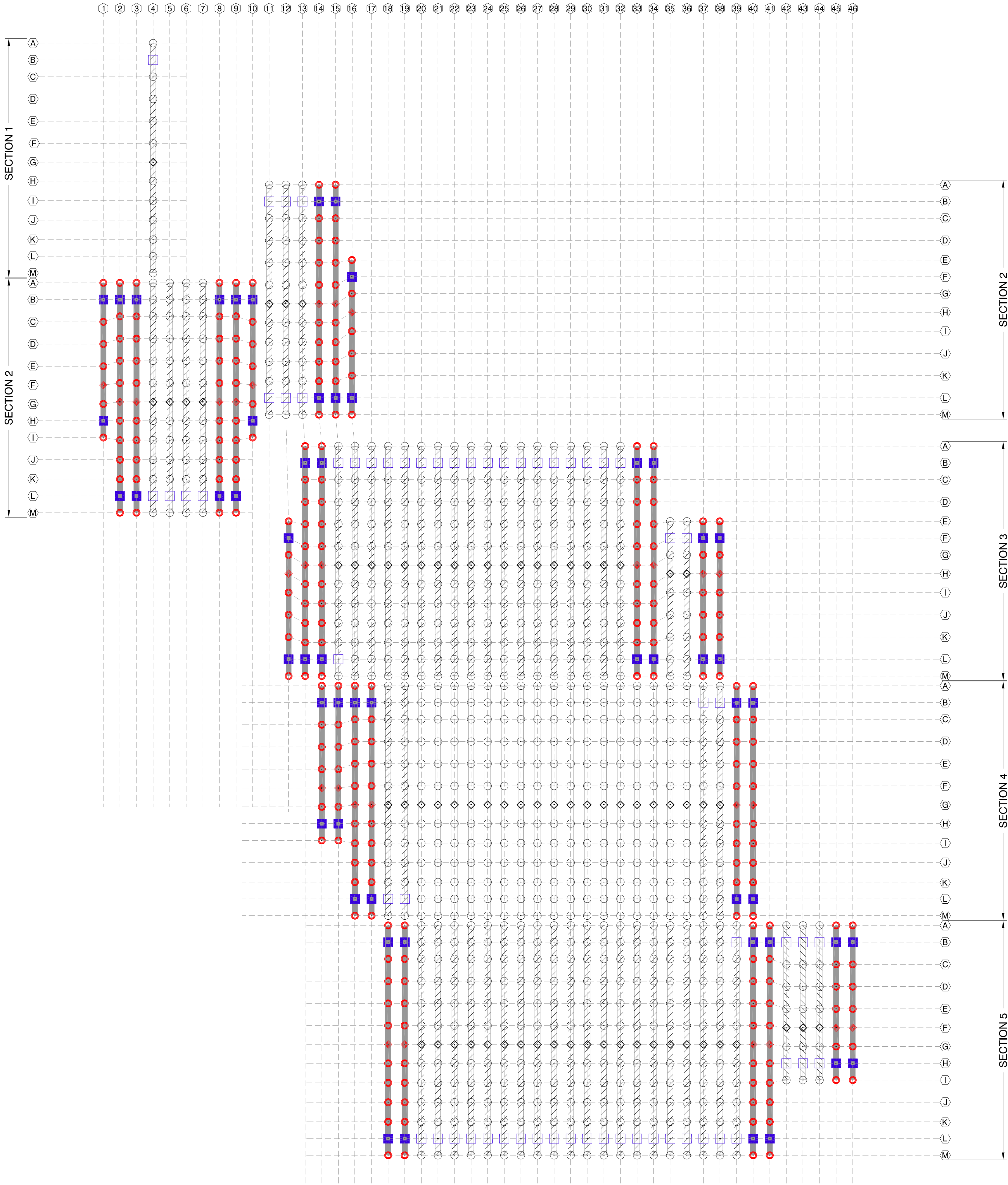
S-203



IF BAR IS NOT ONE INCH

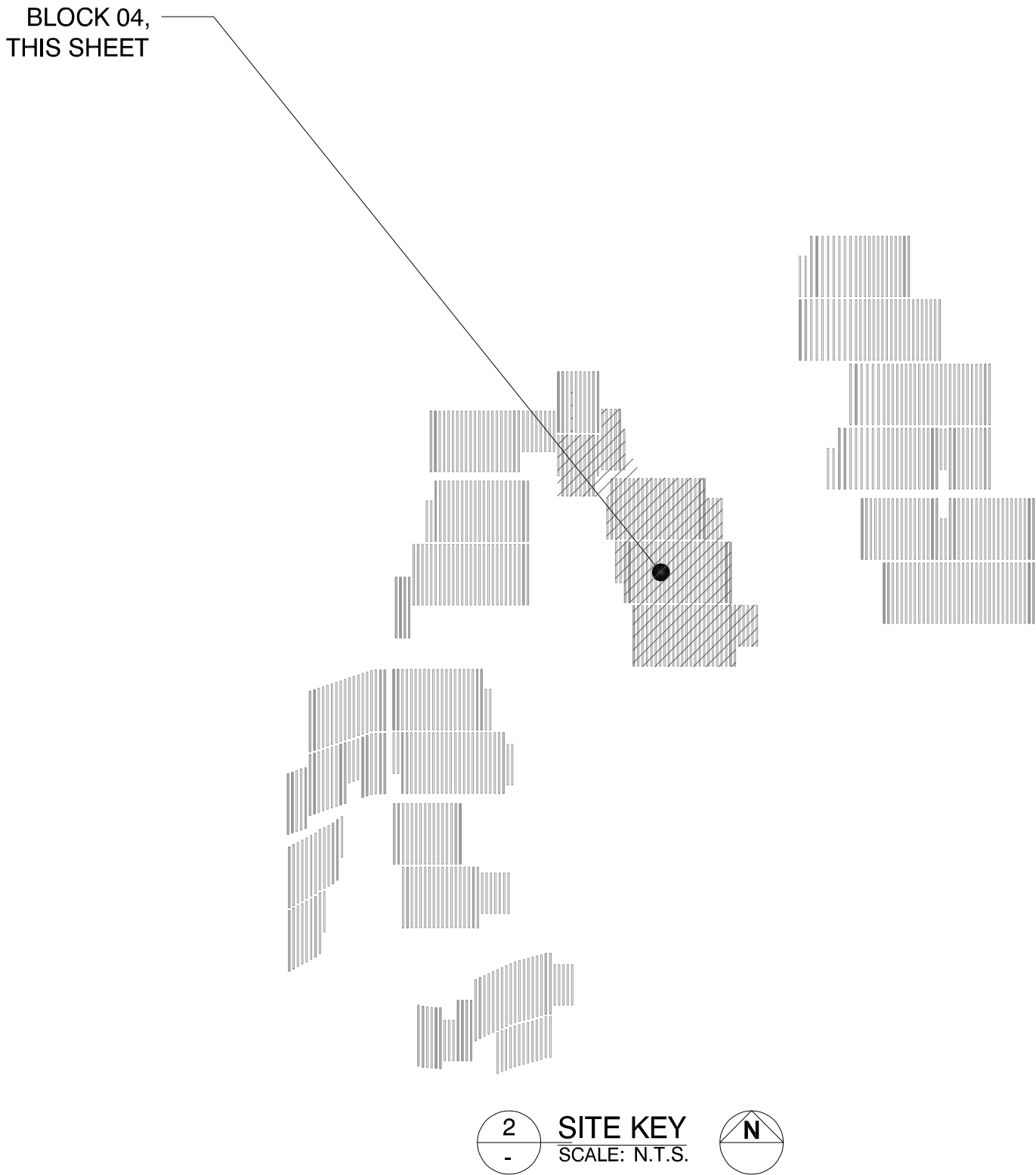
PRINT IS NOT TO SCALE





TRACKER LEGEND	
TRACKER SYMBOL	TRACKER TYPE
	EXTERIOR
	EDGE
	INT

PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
LABEL	LABEL TYPE
	PIER LABEL
	TRACKER ROW
	HIGH SLOPE TRACKER



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CS ENERGY  
NORTH STONINGTON

CT, NORTH AMERICA  
US

PROJECT NUMBER:  
**510063**

SITE ID:  
**001035**

SHEET TITLE:  
**PIER PLAN  
BLOCK - 04**

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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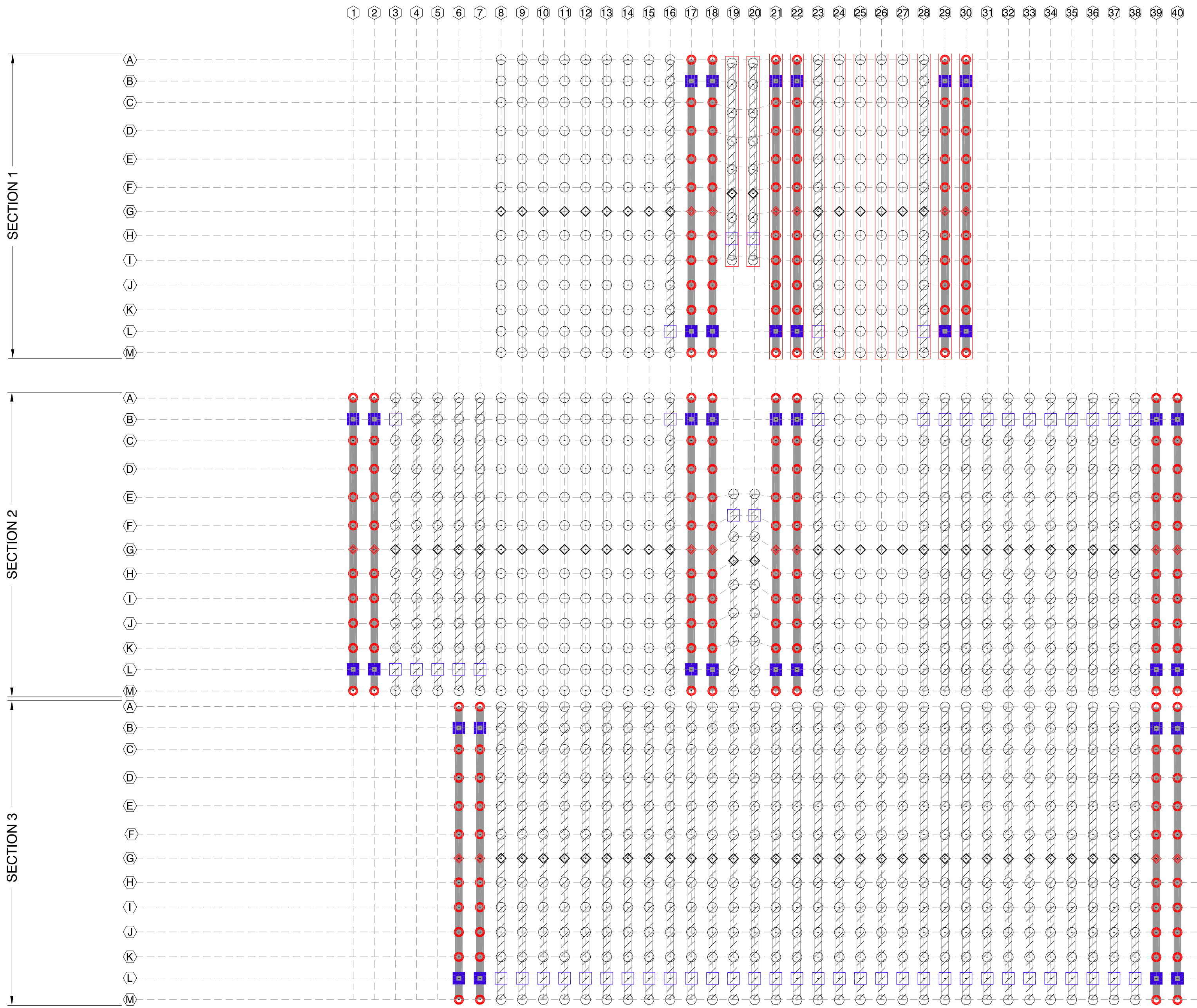
**SITE DETAILS**

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

**S-204**

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IF BAR IS NOT ONE INCH  
PRINT IS NOT TO SCALE



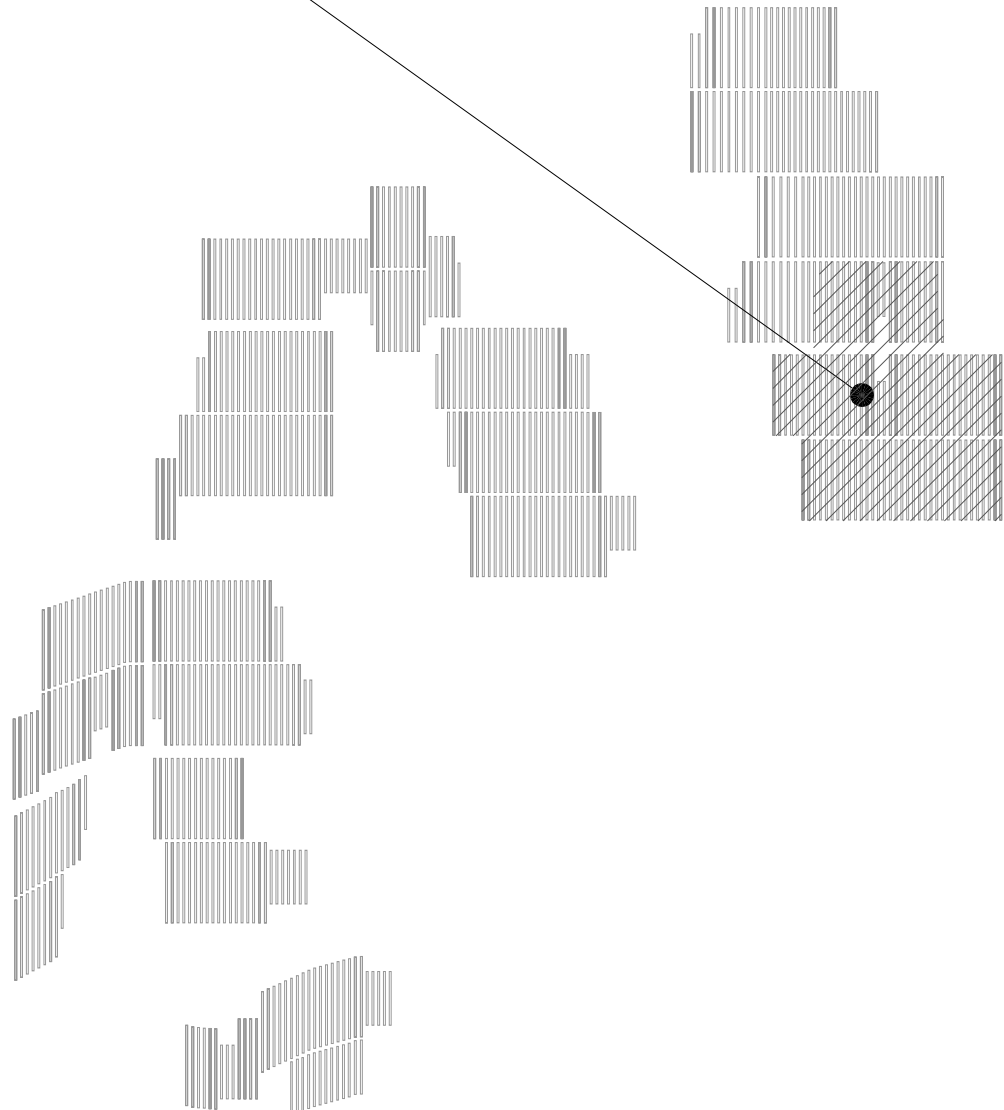


1 PIER PLAN  
SCALE: 1" = 75'-0"


TRACKER LEGEND	
TRACKER SYMBOL	TRACKER TYPE
	EXTERIOR
	EDGE
	INT

PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
LABEL	LABEL TYPE
	PIER LABEL
	TRACKER ROW
	HIGH SLOPE TRACKER

BLOCK 05,  
THIS SHEET



2 SITE KEY  
SCALE: N.T.S.



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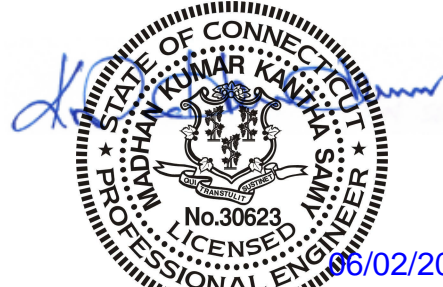
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6200 Paseo Padre Parkway

Fremont, CA 94555

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NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:  
510063

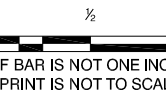
SITE ID:  
001035

SHEET TITLE:  
PIER PLAN  
BLOCK - 05

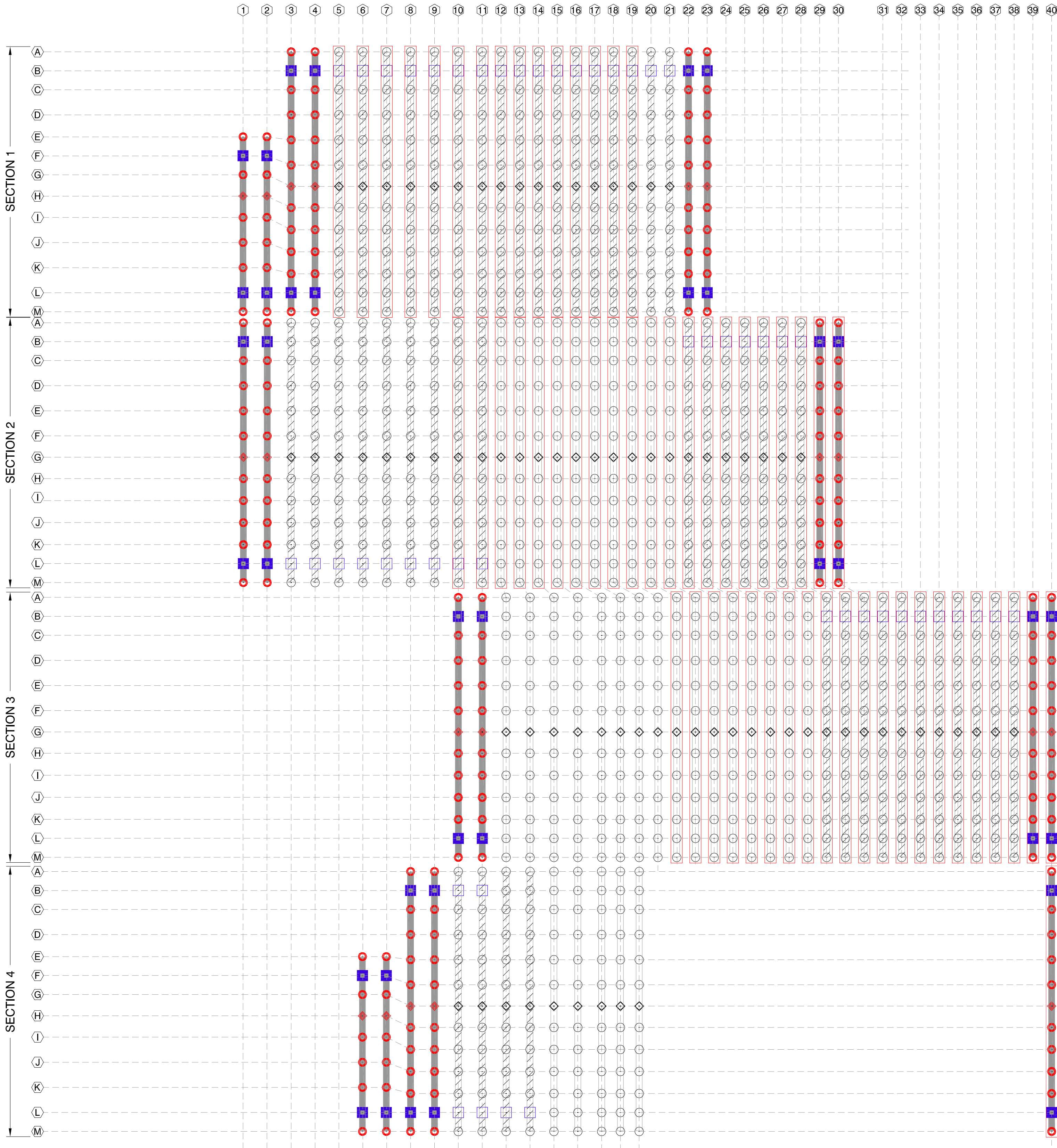
NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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SITE DETAILS	
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4-9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

S-205



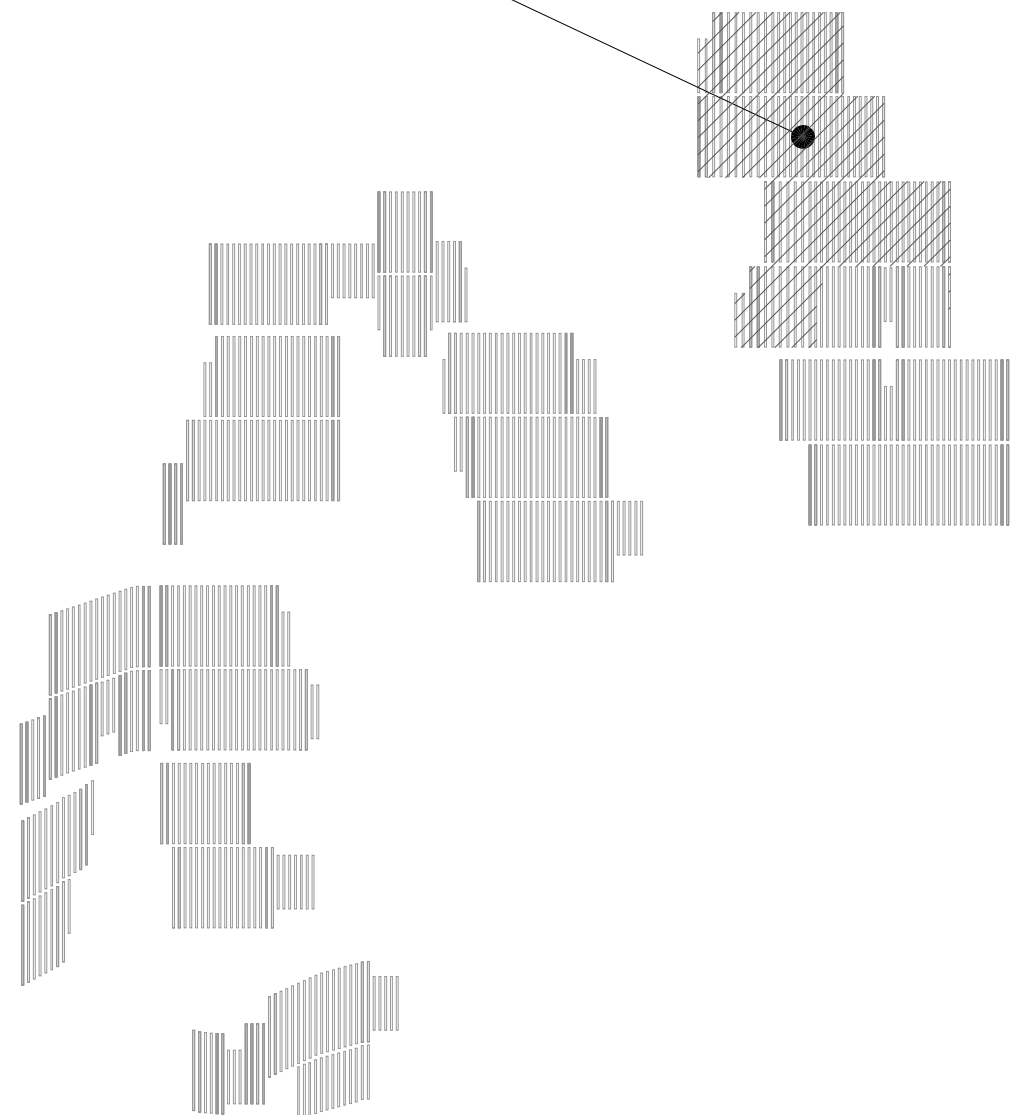




TRACKER LEGEND	
TRACKER SYMBOL	TRACKER TYPE
	EXTERIOR
	EDGE
	INT

PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
LABEL	LABEL TYPE
	PIER LABEL
	TRACKER ROW
	HIGH SLOPE TRACKER

BLOCK 06,  
THIS SHEET



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**NORTH STONINGTON**

CT, NORTH AMERICA  
US

PROJECT NUMBER:  
**510063**

SITE ID:  
**001035**

SHEET TITLE:  
**PIER PLAN  
BLOCK - 06**

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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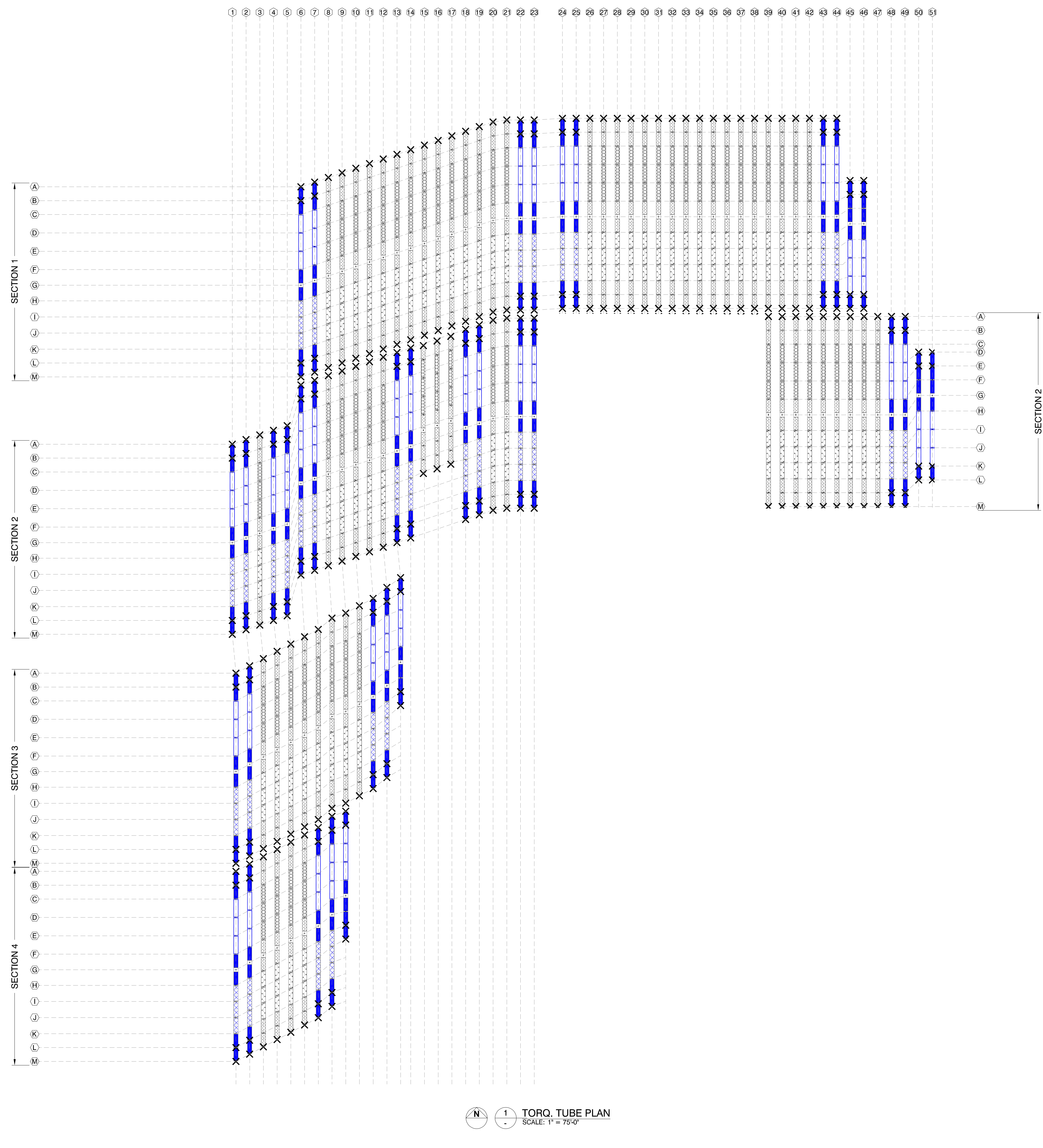
SITE DETAILS	
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	<b>S-206</b>

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PRINT IS NOT TO SCALE

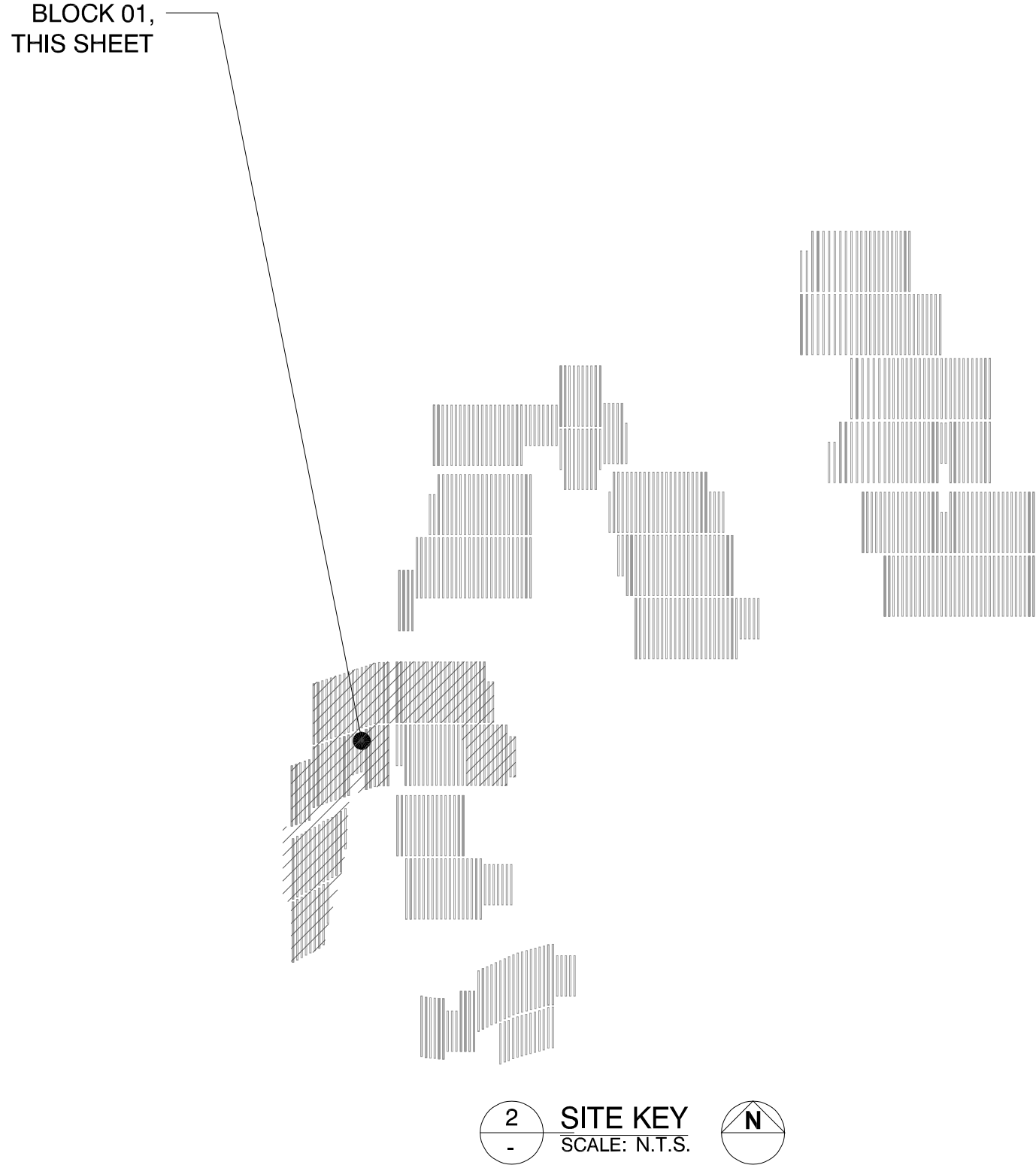







TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4





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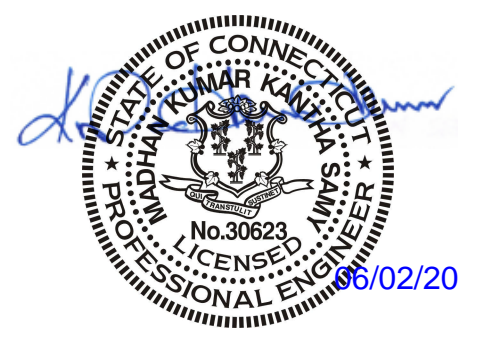
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Fremont, CA 94555

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06/02/20

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NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

TORQ. TUBE PLAN

BLOCK - 01

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE

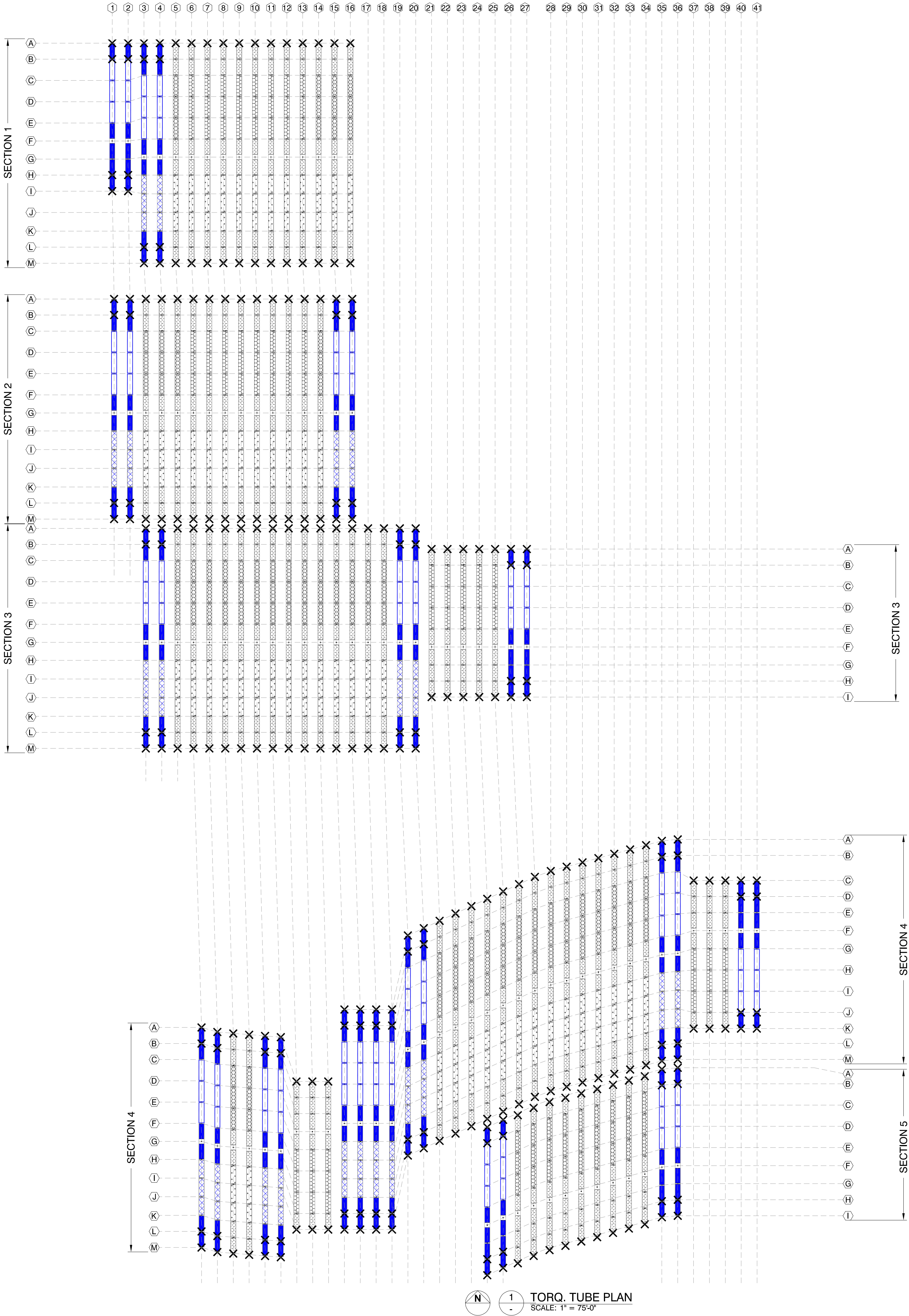
SHEET NO.:

S-301

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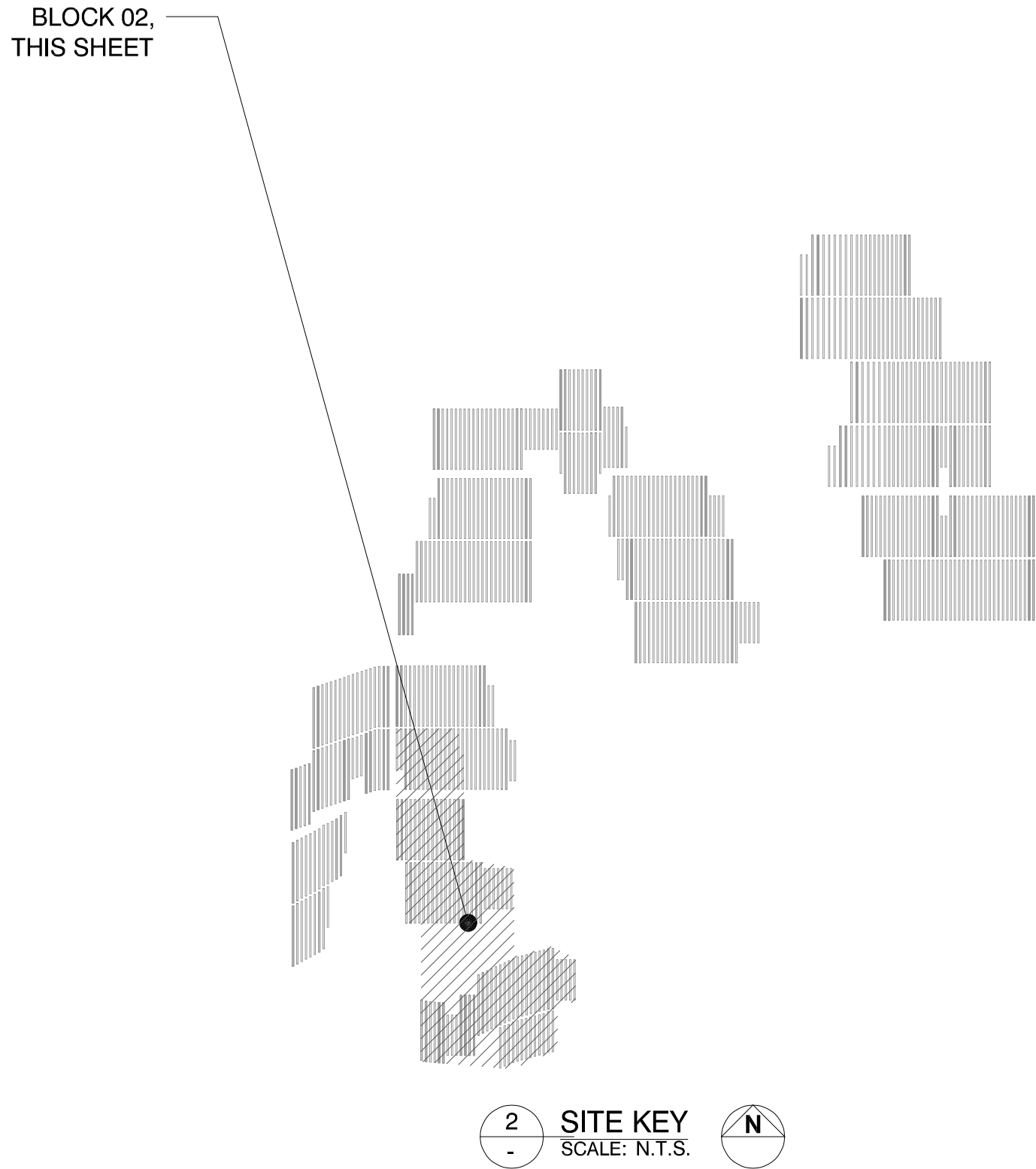
IF BAR IS NOT ONE INCH, PRINT IS NOT TO SCALE





TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4



1 TORQ. TUBE PLAN  
SCALE: 1" = 75'-0"

A Flex Company

NEXTracker Inc.

6200 Paseo Padre Parkway

Fremont, CA 94555

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CONSULTING STRUCTURAL ENGINEERS

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OTHERS AND SEALED BY STRUCTUROLOGY

LLC FOR CONFORMANCE OF STRUCTURAL

ITEMS ONLY.

CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

TORQ. TUBE PLAN

BLOCK - 02

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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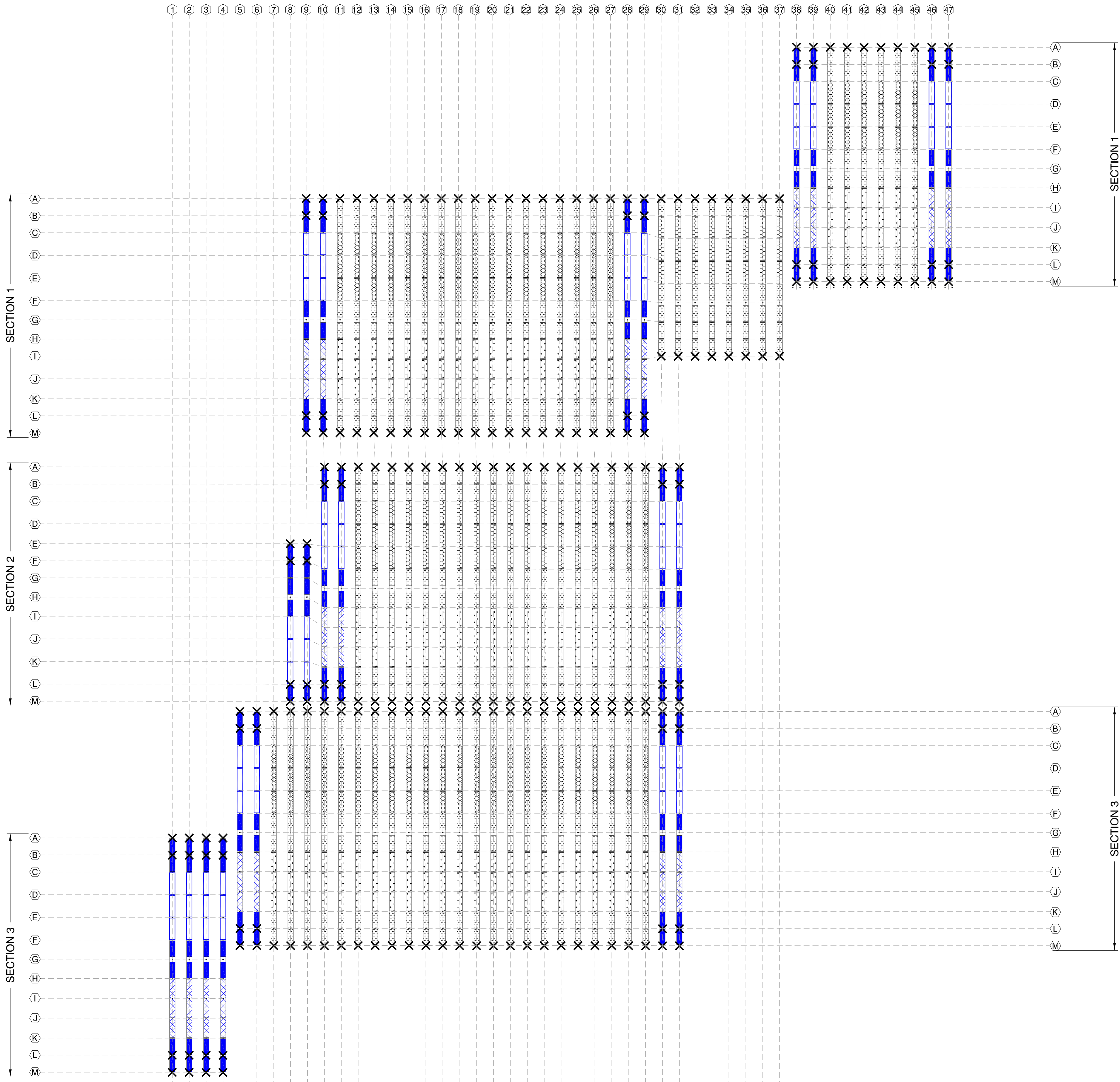
SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE

S-302

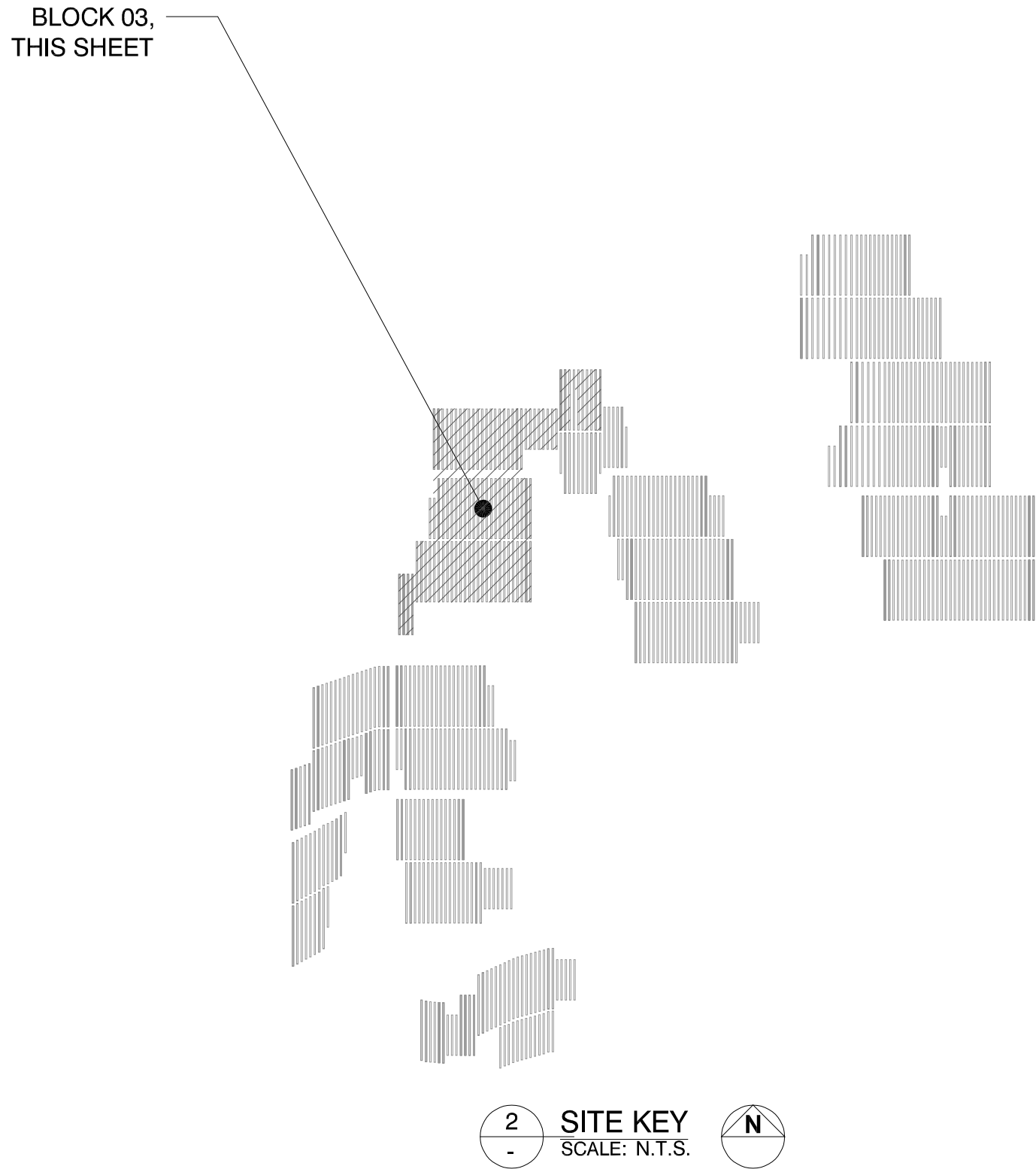
IF BAR IS NOT ONE INCH  
PRINT IS NOT TO SCALE






TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4





A Flex Company

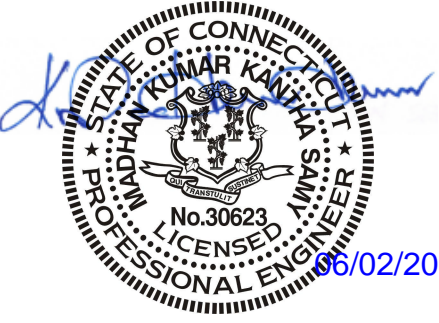
NEXTracker Inc.

6200 Paseo Padre Parkway

Fremont, CA 94555

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CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

TORQ. TUBE PLAN

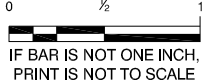
BLOCK - 03

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

SITE DETAILS

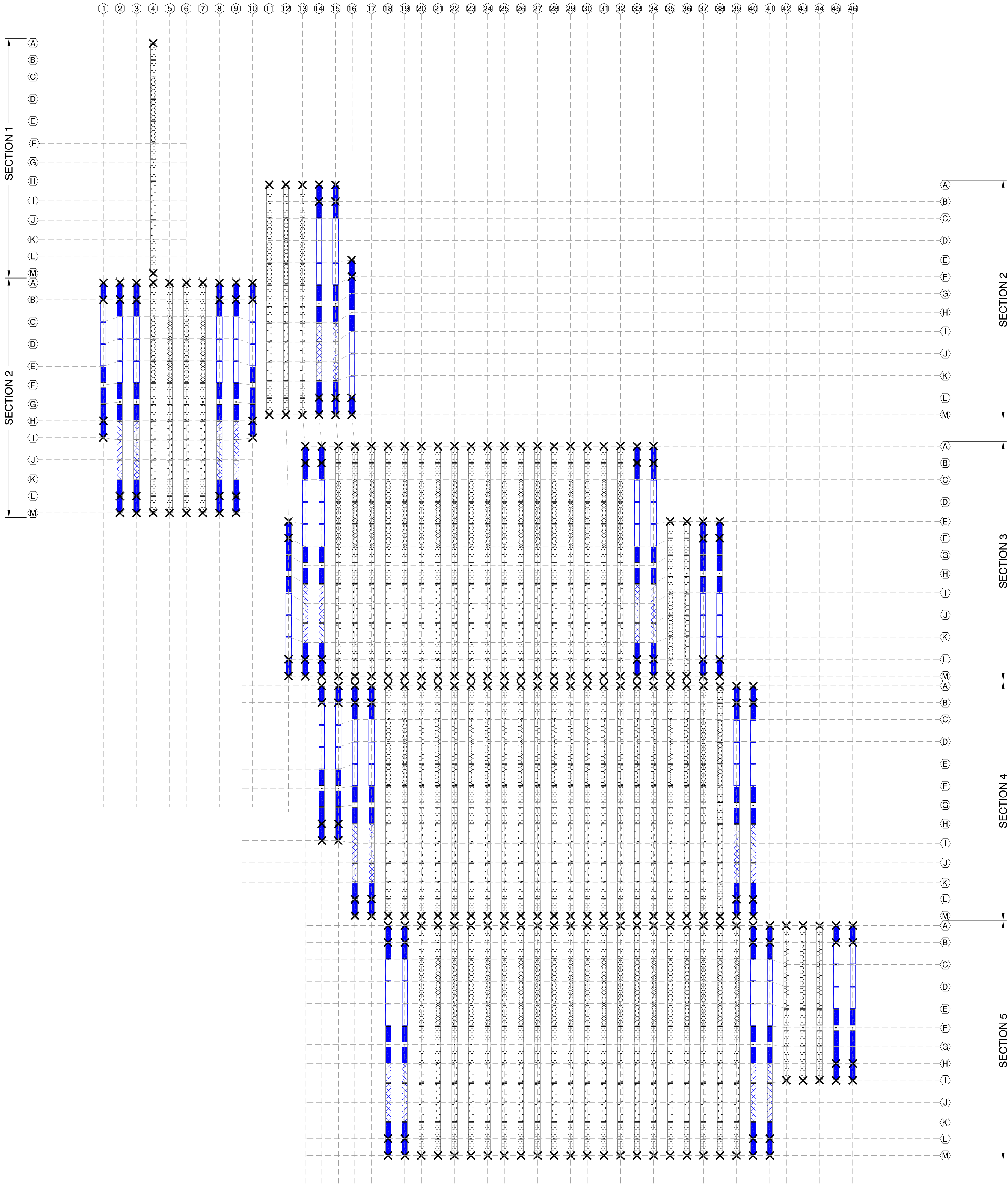
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4-9.4
81 TRACKER	6-6-7-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

S-303


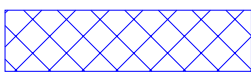

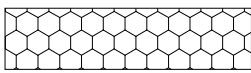
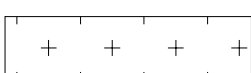




IF BAR IS NOT ONE INCH, PRINT IS NOT TO SCALE

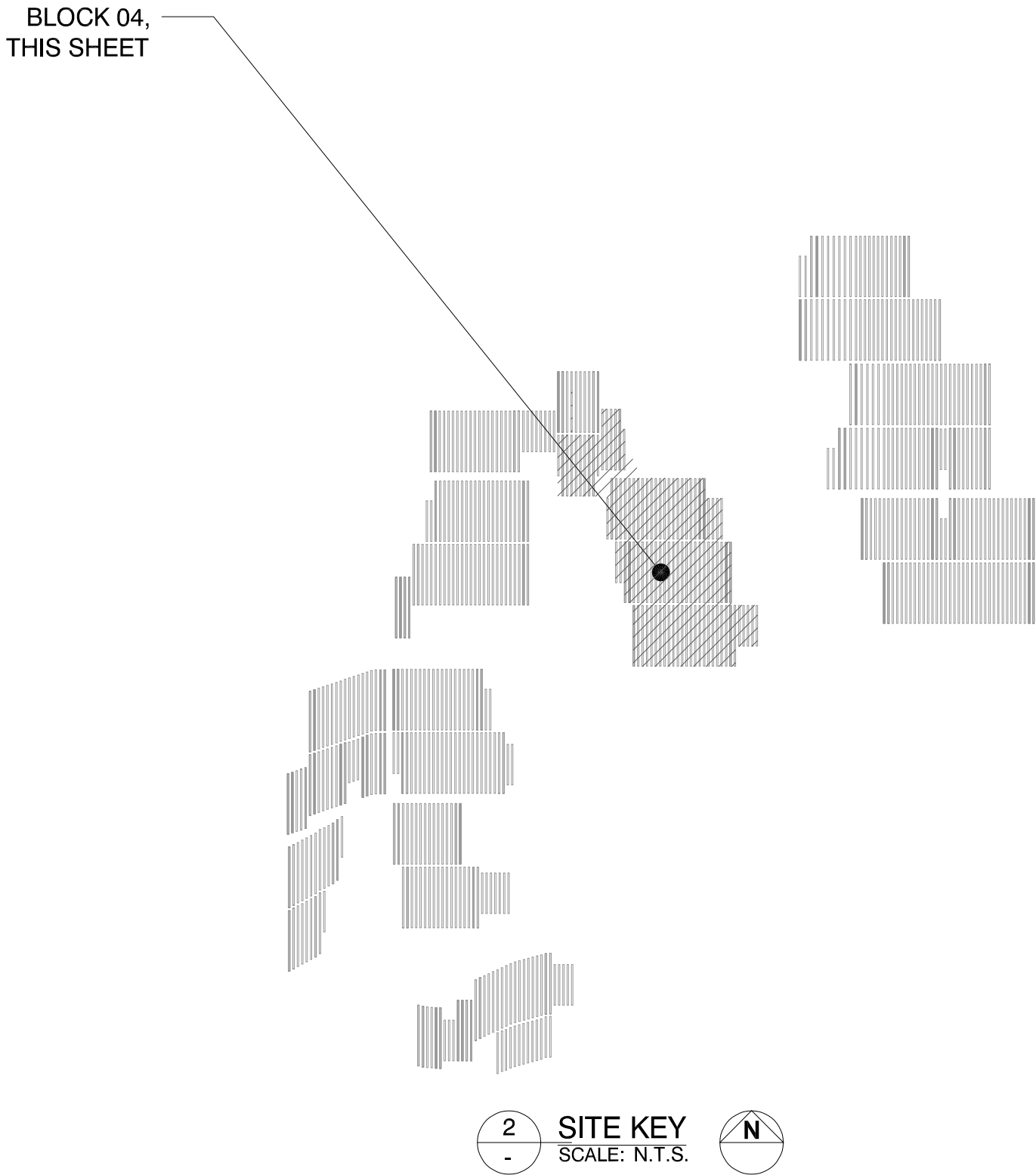





 **1**  
TORQ. TUBE PLAN  
SCALE: 1" = 75'-0"

TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4



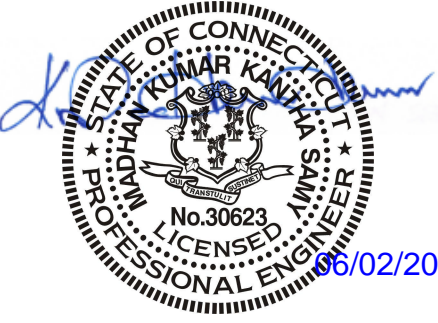


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Fremont, CA 94555

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**CS ENERGY**  
NORTH STONINGTON

CT, NORTH AMERICA  
US

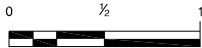
PROJECT NUMBER:  
**510063**

SITE ID:  
**001035**

SHEET TITLE:  
**TORQ. TUBE PLAN  
BLOCK - 04**

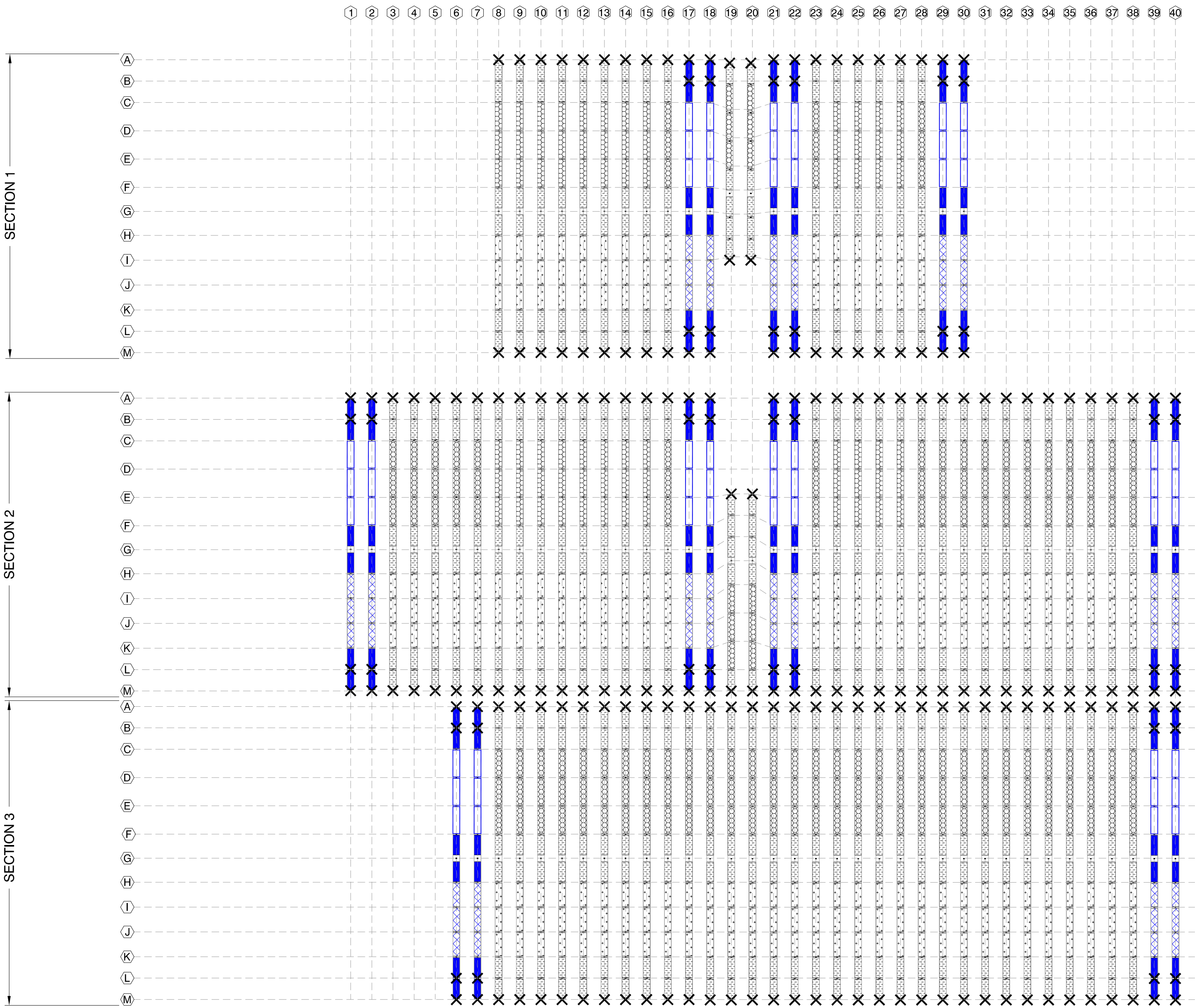
NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

SITE DETAILS	
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4-9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	<b>S-304</b>


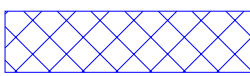

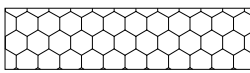
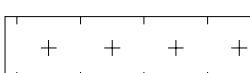




IF BAR IS NOT ONE INCH,  
PRINT IS NOT TO SCALE

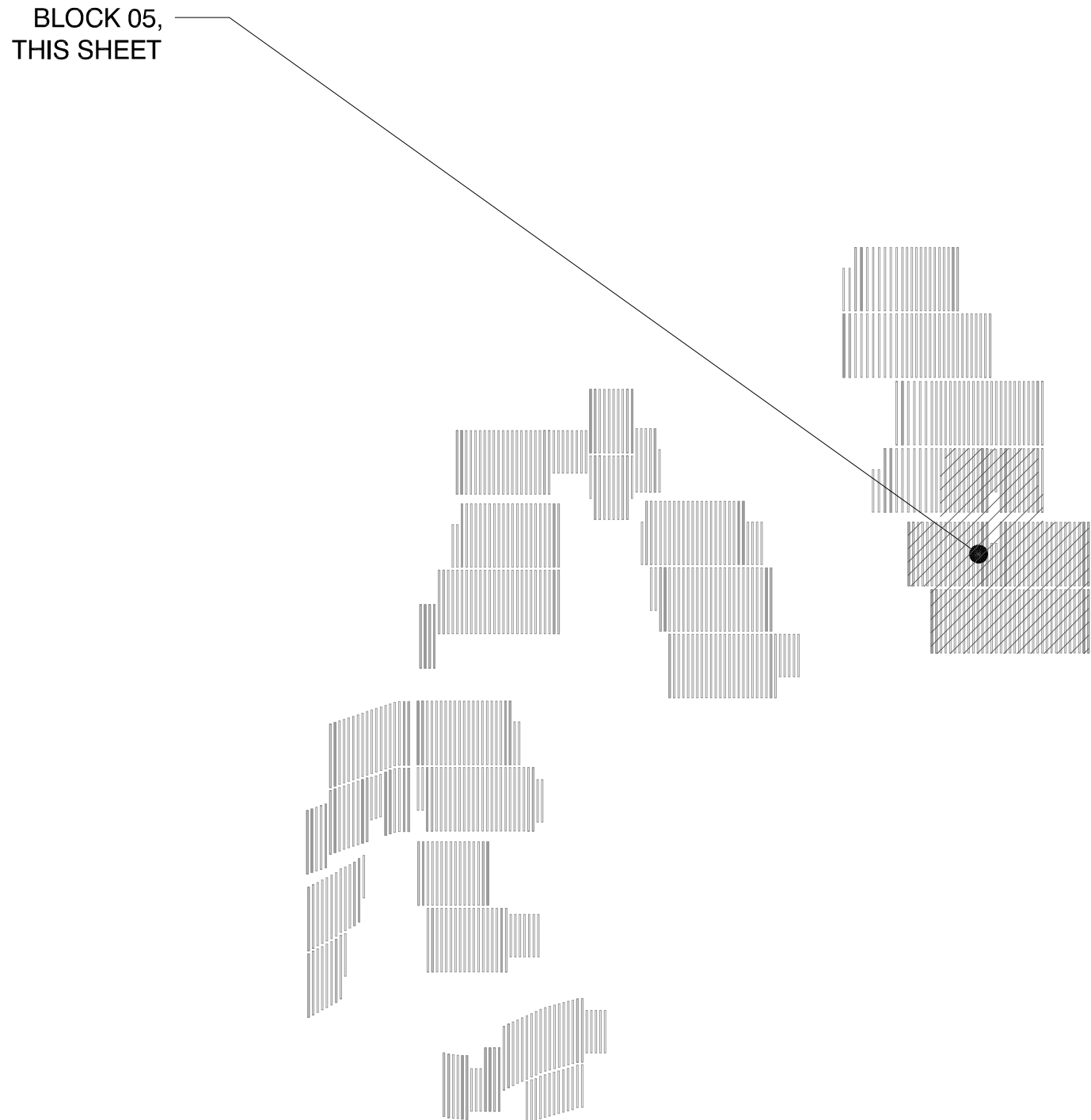




 **1** TORQ. TUBE PLAN  
SCALE: 1" = 75'-0"


TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4



**2** SITE KEY  
SCALE: N.T.S.





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06/02/20

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CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

TORQ. TUBE PLAN

BLOCK - 05

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4-9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

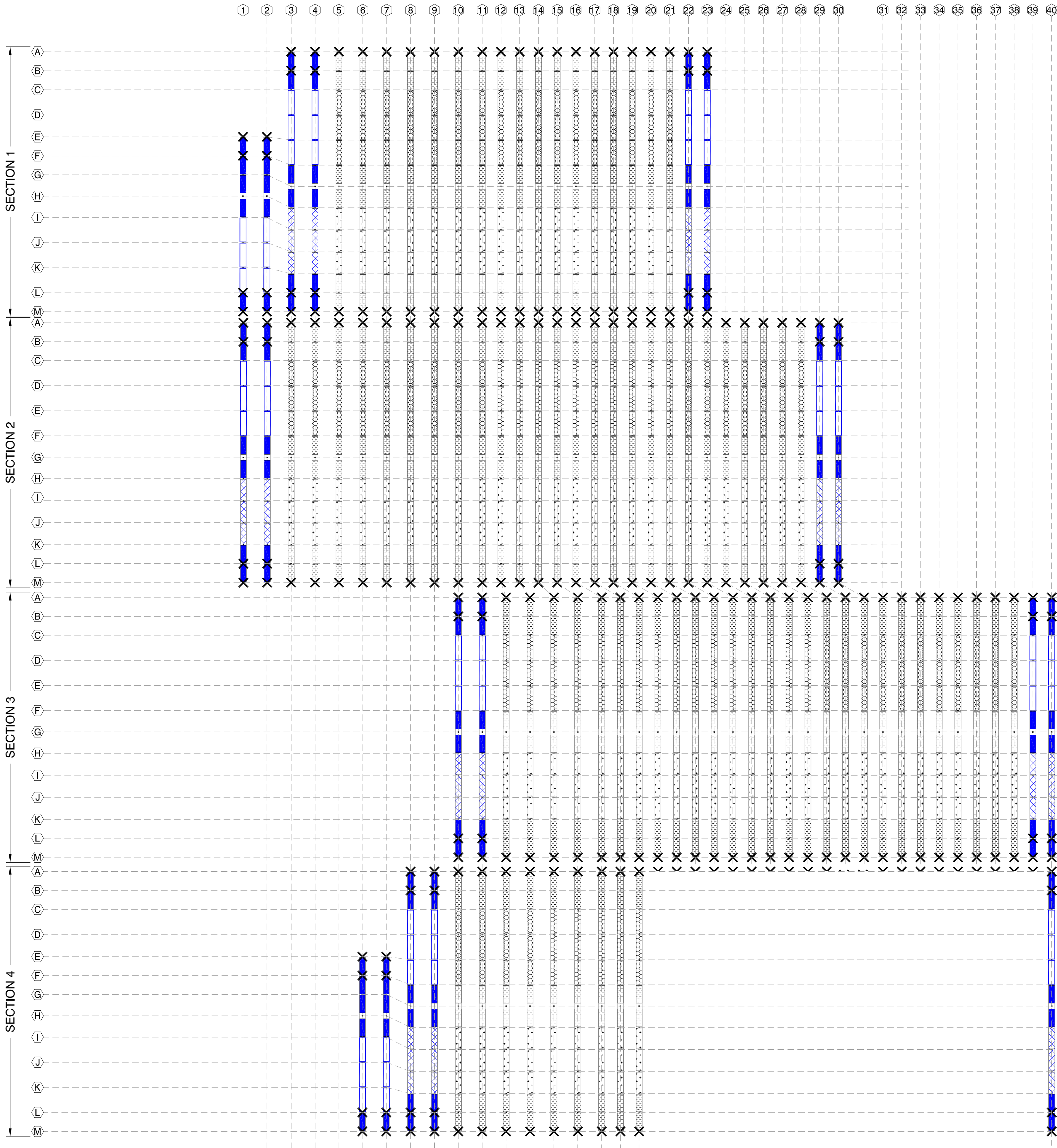
S-305

0 30 1


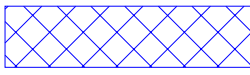


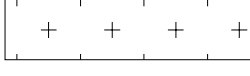

IF BAR IS NOT ONE INCH


PRINT IS NOT TO SCALE

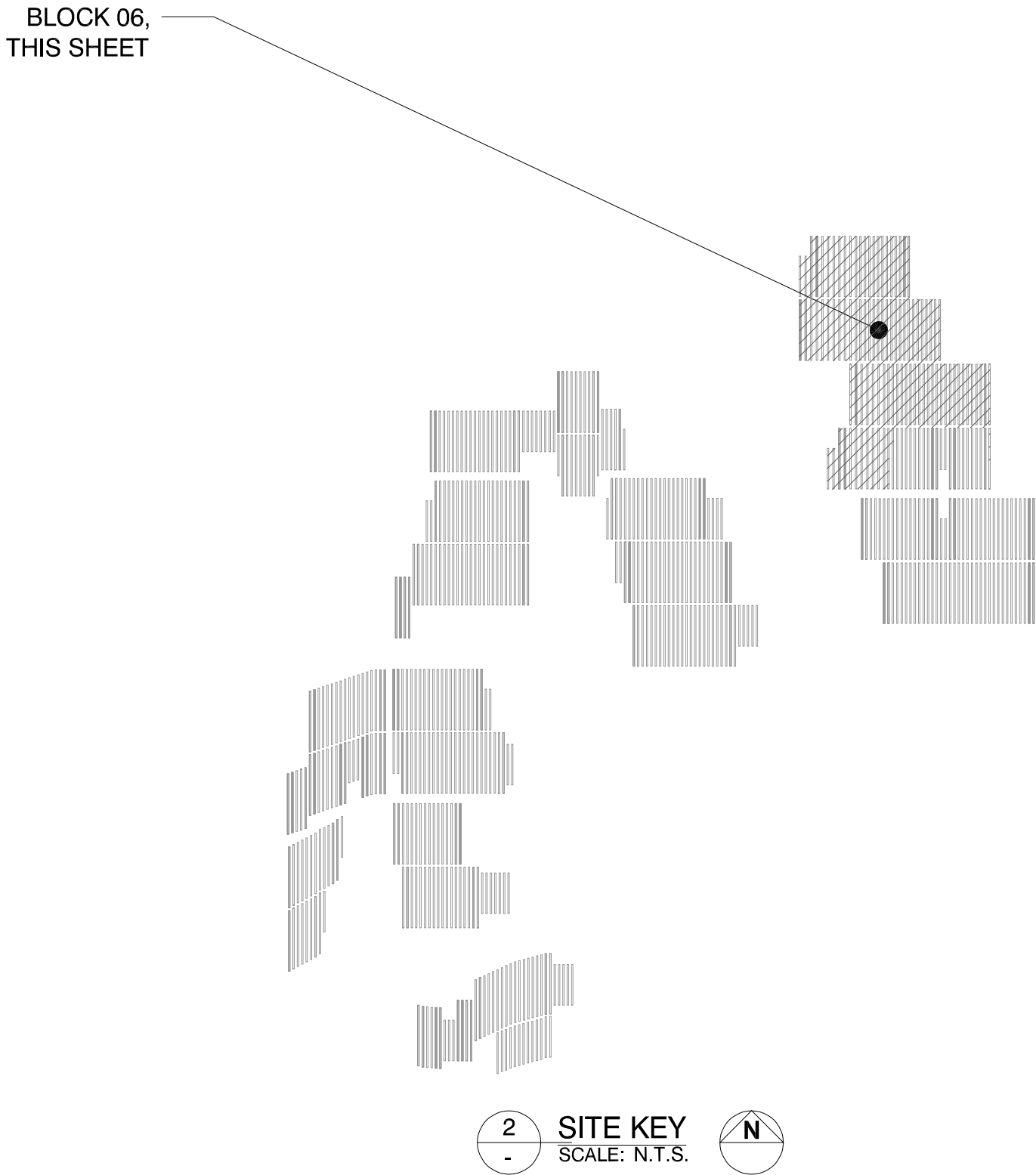





  **TORQ. TUBE PLAN**  
SCALE: 1" = 75'-0"

TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET
	DOUBLE DAMPER	S-601
		DETAIL 4






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**CS ENERGY**  
NORTH STONINGTON

CT, NORTH AMERICA  
US

PROJECT NUMBER:  
**510063**

SITE ID:  
**001035**

SHEET TITLE:  
**TORQ. TUBE PLAN  
BLOCK - 06**

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
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6			
7			
8			

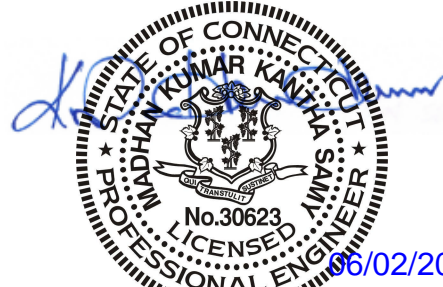
SITE DETAILS	
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE

SHEET NO.:  
**S-306**

0 3/4 1 1/2  
IF BAR IS NOT ONE INCH  
PRINT IS NOT TO SCALE



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NORTH STONINGTON  
CT, NORTH AMERICA  
US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

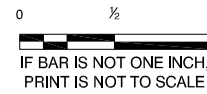
81 MODULE  
EXT TRACKER

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

S-401



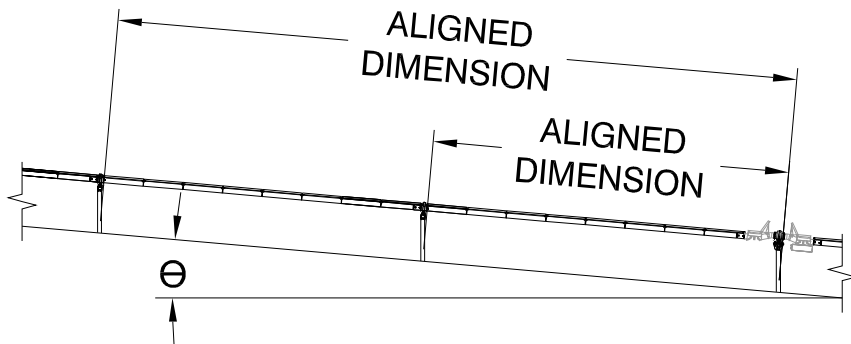
PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
	HIGH SLOPE TRACKER

TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

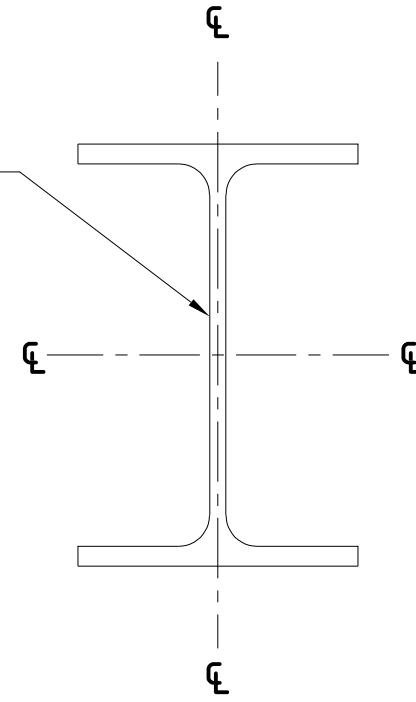
DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET
	DOUBLE DAMPER	S-601 DETAIL 4

NOTE :

- 1) DETAILS ON THIS SHEET APPLY TO TRACKERS INDICATED ON THE SHEET TITLE ONLY. PIER PLAN INDICATES TRACKER LOCATIONS.
- 2) DETAILS 5-8 ARE TYPICAL AND APPLY TO ALL APPLICABLE LOCATIONS ON TRACKER.
- 3) PIER DISTANCES APPLY TO CENTER OF WEB, SEE DETAIL 9 FOR CENTER OF WEB LOCATION.
- 4) NEXTRACKER RECOMMENDS TO RUN A STRING LINE ON SLOPES >3% IN EFFORTS TO ENSURE PROPER PIER PLACEMENT

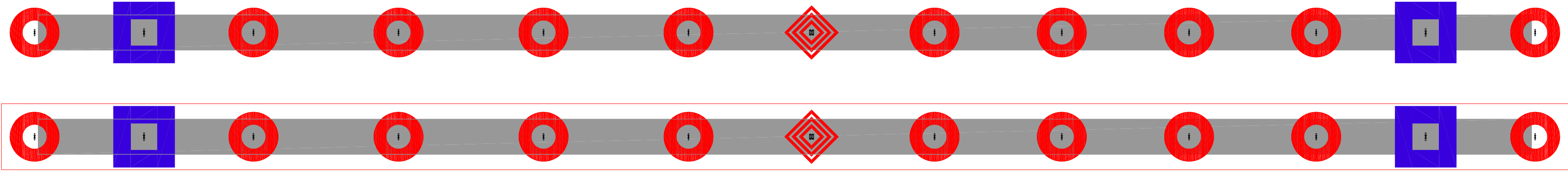


S-30X, DETAIL 3 DIMENSIONS FOR BAY AND TRACKER LENGTHS ARE TAKEN FROM CENTER OF BEAMS. SEE FOUNDATION DRAWING FOR IDENTIFICATION OF PIER TYPES.

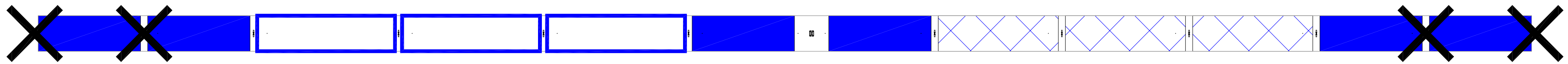


NOTE : FOR ALL EXTERIOR ROWS, WASHERS MUST BE ADDED BETWEEN HEAD OF M12 PIN AND BHA HOOP.

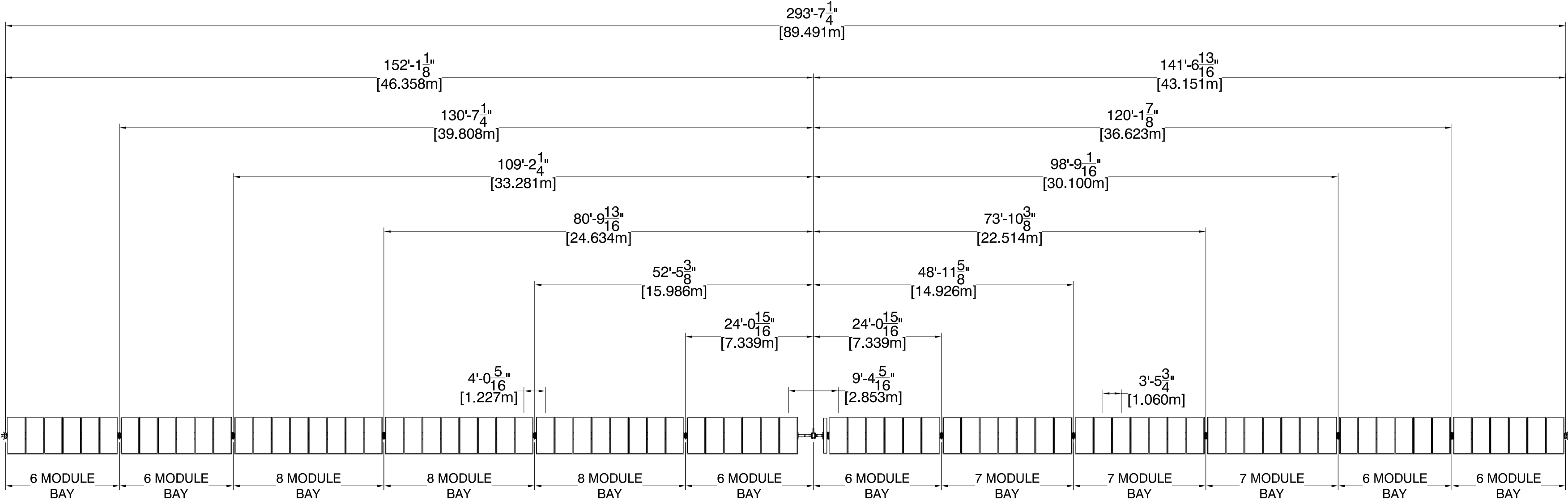
HEAVY BEARING HOUSING ASSEMBLY CAN BE IDENTIFIED BY THE FIVE TOGGLES



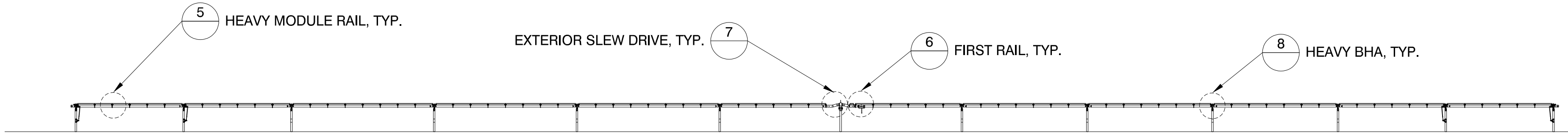
1 PIER PLAN  
SCALE: N.T.S.



2 TORQUE TUBE AND DAMPER PLAN  
SCALE: N.T.S.

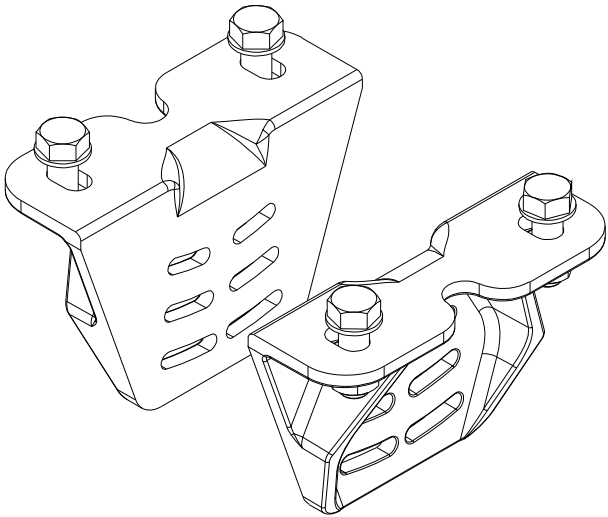


3 PIER SPACING  
SCALE: N.T.S.

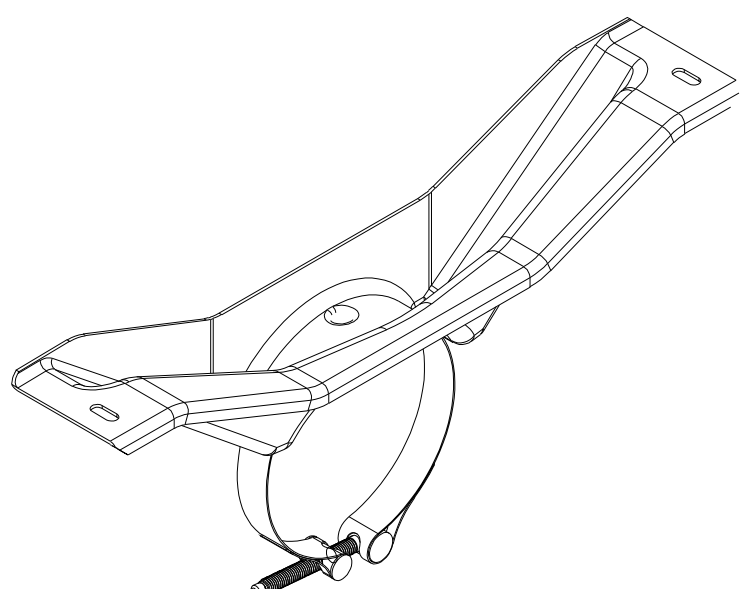
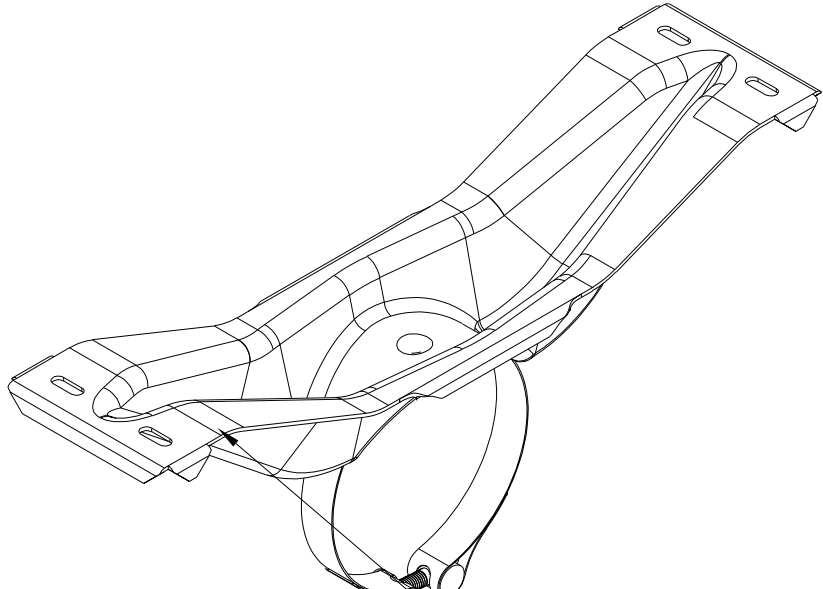
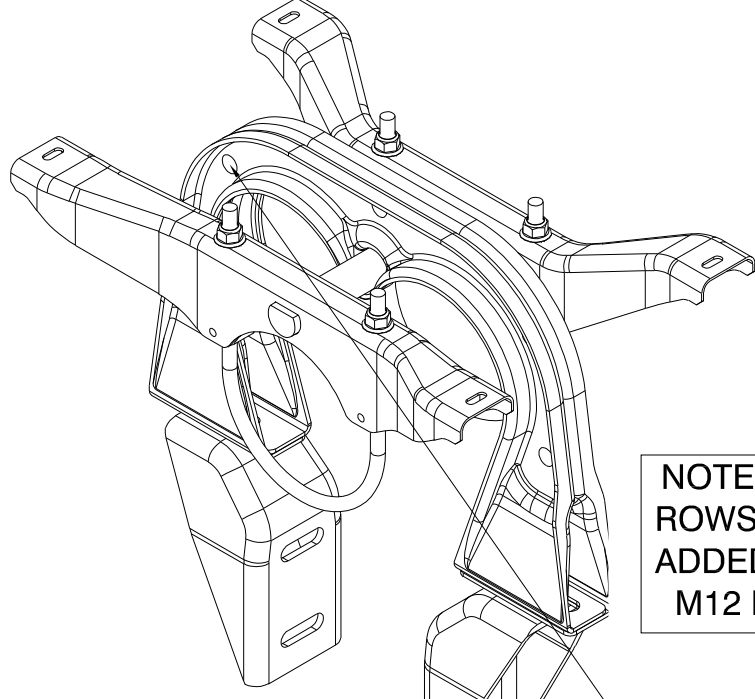
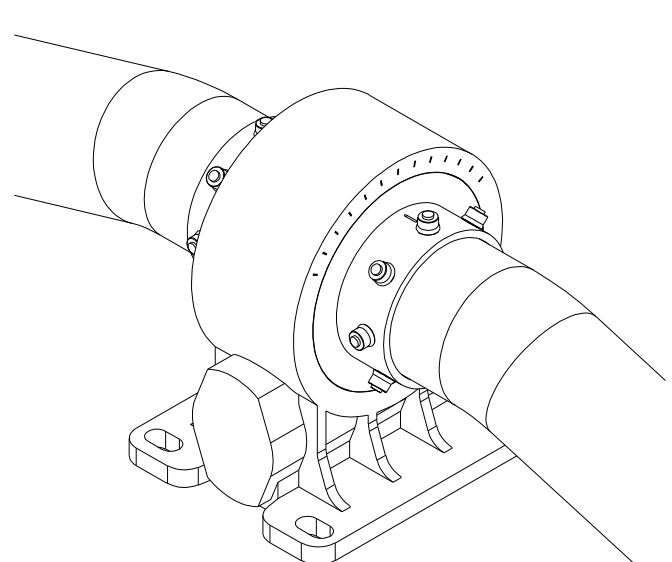


4 TRACKER ELEVATION  
SCALE: N.T.S.

NOTE : EXTERIOR SLEW GEAR MOUNT VISUAL IDENTIFIER: CURVED RIBBING.



NOTE : EXTERIOR SLEW DRIVE VISUAL IDENTIFIER: TORQUE TUBE ADAPTOR IS INSIDE THE SLEW COLLAR.



5 HEAVY MODULE RAIL, TYP.  
SCALE: N.T.S.

6 FIRST RAIL, TYP.  
SCALE: N.T.S.

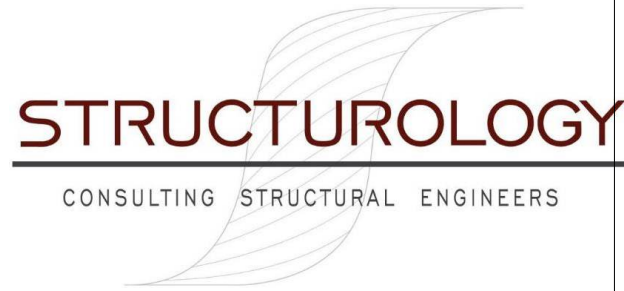
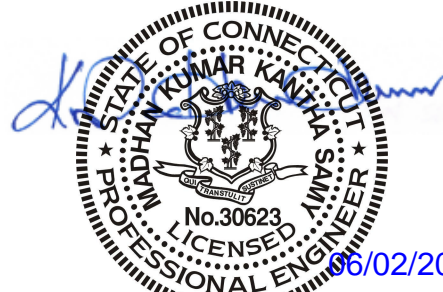
7 EXTERIOR SLEW DRIVE, TYP.  
SCALE: N.T.S.

8 HEAVY BHA, TYP.  
SCALE: N.T.S.

9 CENTER OF WEB  
SCALE: N.T.S.



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CS ENERGY  
NORTH STONINGTON

CT, NORTH AMERICA  
US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

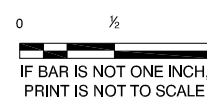
81 MODULE  
EDGE TRACKER

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

S-402



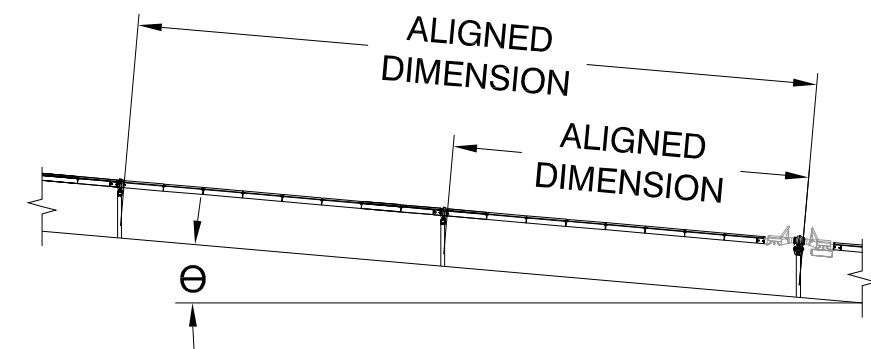
PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
	HIGH SLOPE TRACKER

TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

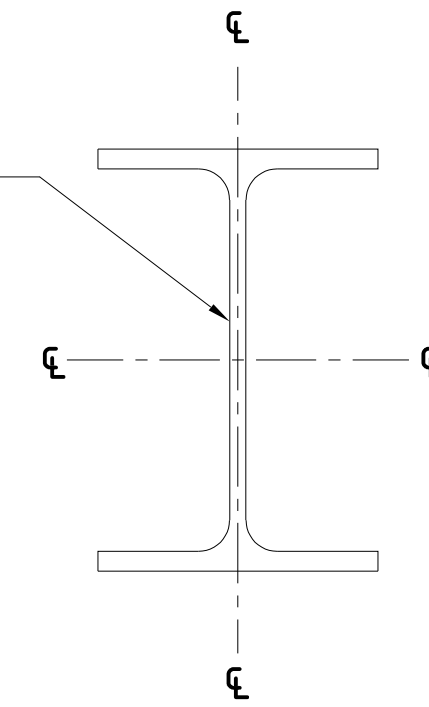
DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4

NOTE :

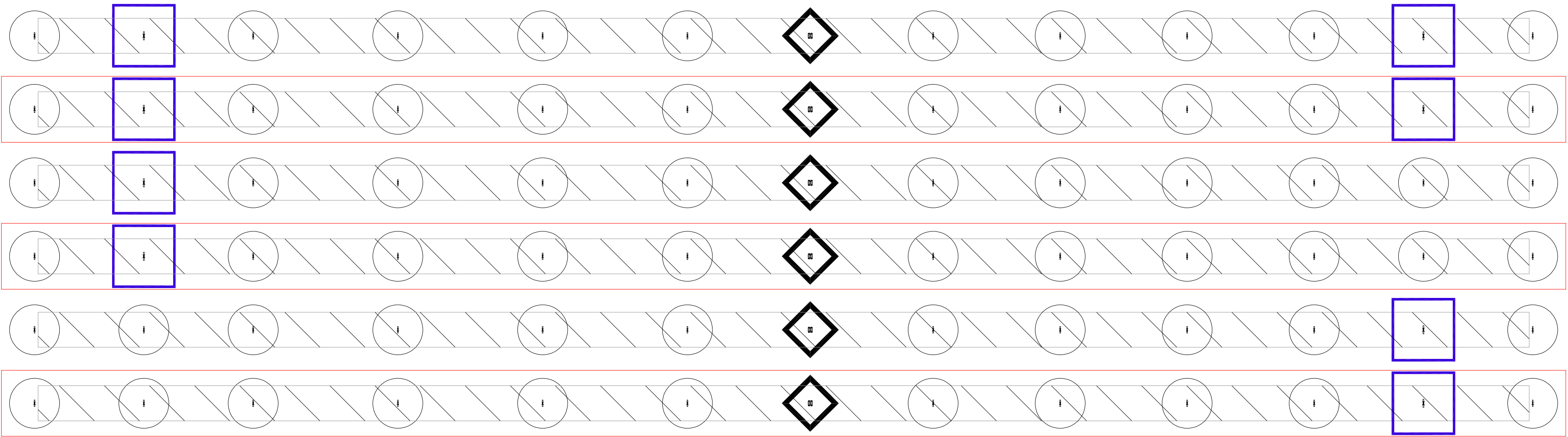
- DETAILS ON THIS SHEET APPLY TO TRACKERS INDICATED ON THE SHEET TITLE ONLY. PIER PLAN INDICATES TRACKER LOCATIONS.
- DETAILS 5-8 ARE TYPICAL AND APPLY TO ALL APPLICABLE LOCATIONS ON TRACKER.
- PIER DISTANCES APPLY TO CENTER OF WEB, SEE DETAIL 9 FOR CENTER OF WEB LOCATION.
- NEXTRACKER RECOMMENDS TO RUN A STRING LINE ON SLOPES >3% IN EFFORTS TO ENSURE PROPER PIER PLACEMENT



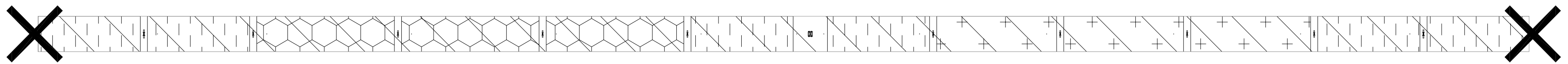
S-30X, DETAIL 3 DIMENSIONS FOR BAY AND TRACKER LENGTHS ARE TAKEN FROM CENTER OF BEAMS. SEE FOUNDATION DRAWING FOR IDENTIFICATION OF PIER TYPES.



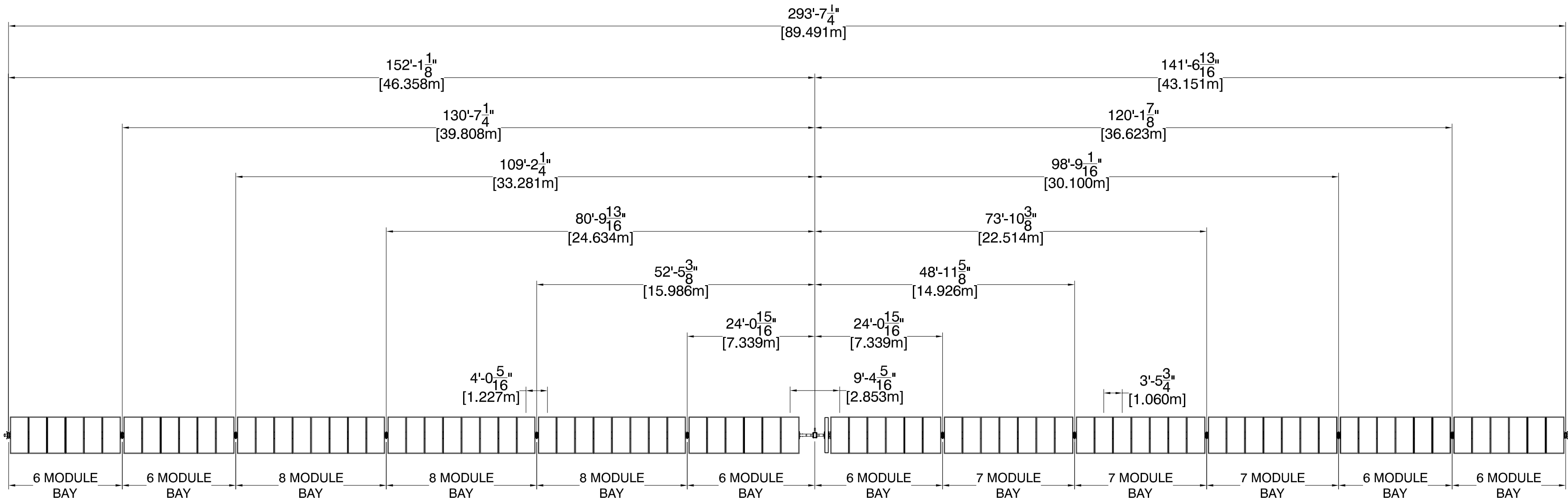
9 CENTER OF WEB  
SCALE: N.T.S.



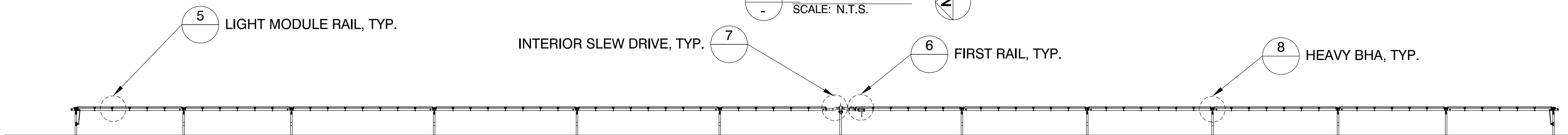
1 PIER PLAN  
SCALE: N.T.S.



2 TORQUE TUBE AND DAMPER PLAN  
SCALE: N.T.S.

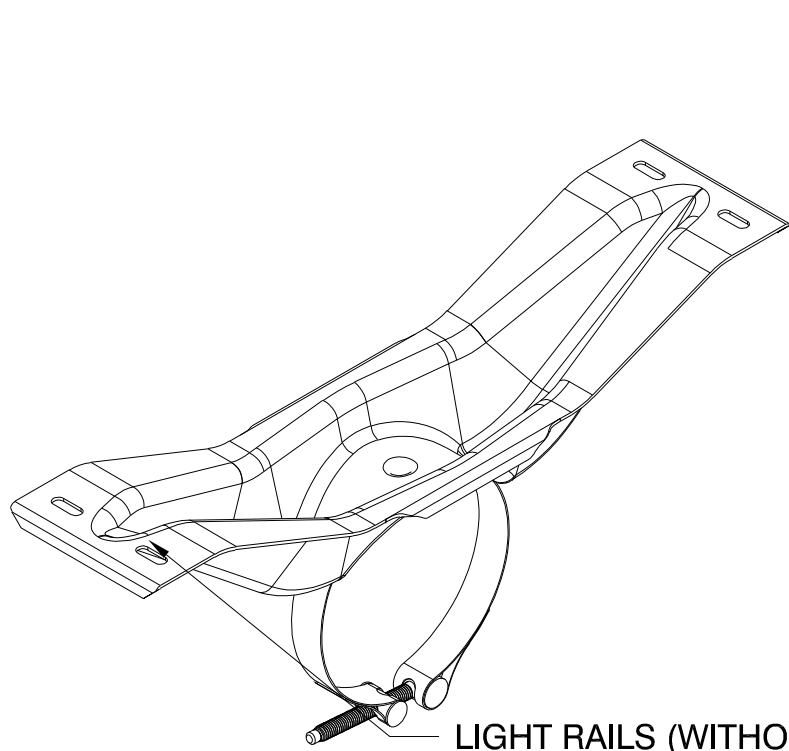


3 PIER SPACING  
SCALE: N.T.S.

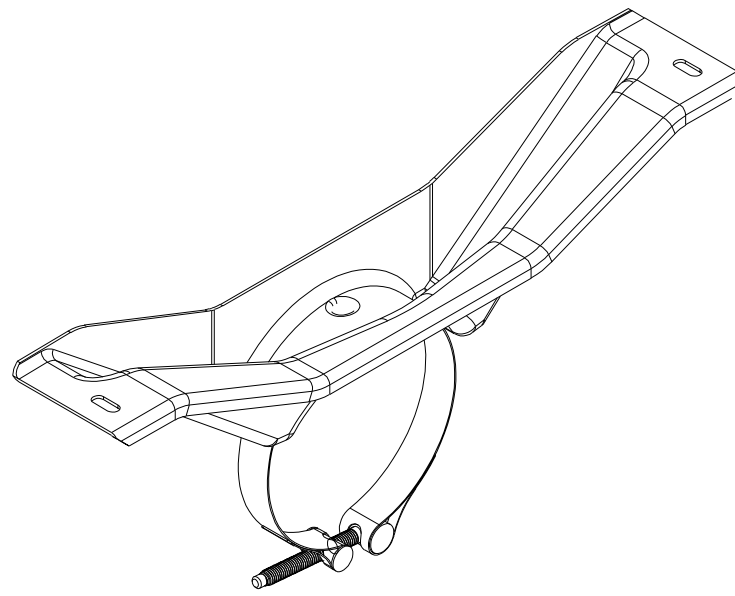


4 TRACKER ELEVATION  
SCALE: N.T.S.

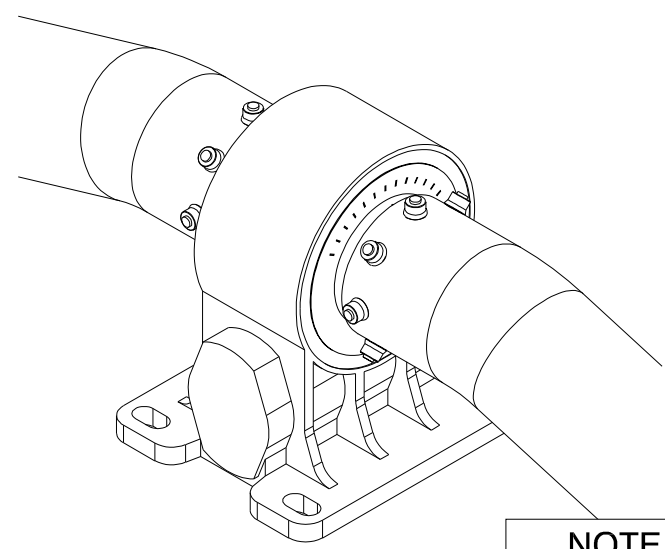
NOTE : INTERIOR SLEW  
GEAR MOUNT VISUAL  
IDENTIFIER: STRAIGHT  
EDGES.



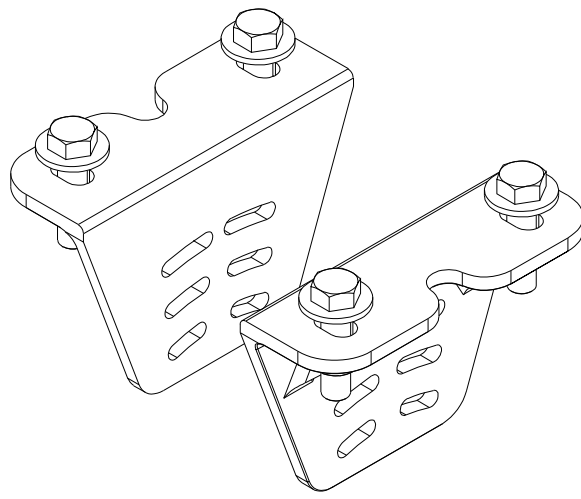
LIGHT RAILS (WITHOUT TABS) TO  
BE USED ON INTERIOR AND EDGE  
TRACKERS ONLY



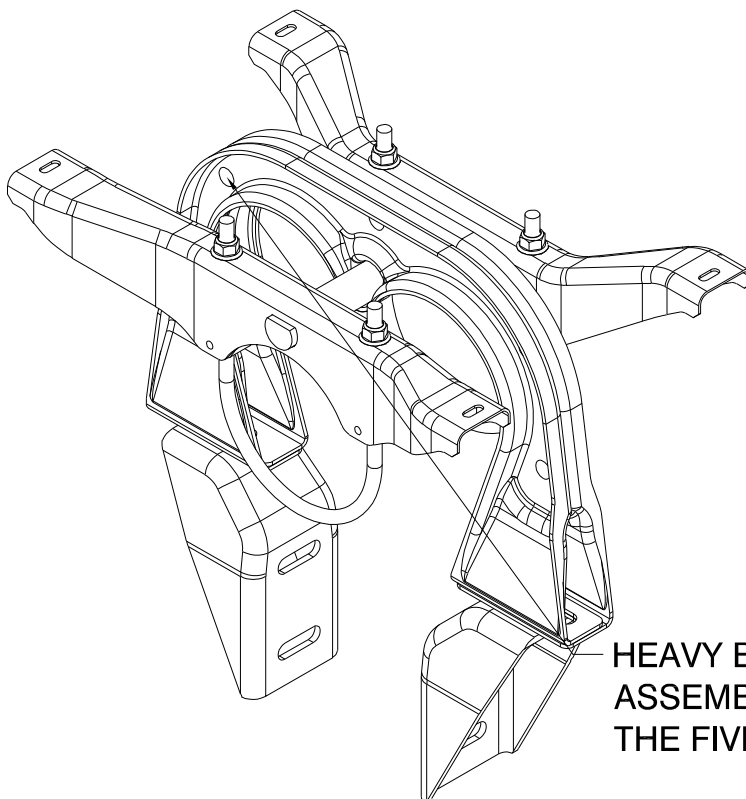
6 FIRST RAIL, TYP.  
SCALE: N.T.S.



7 INTERIOR SLEW DRIVE, TYP.  
SCALE: N.T.S.



NOTE : INTERIOR SLEW  
DRIVE VISUAL IDENTIFIER:  
TORQUE TUBE ADAPTOR IS  
OUTSIDE THE SLEW COLLAR.

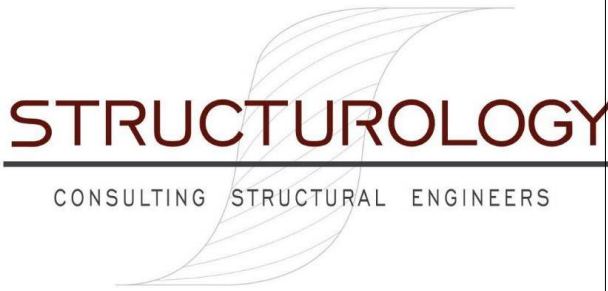
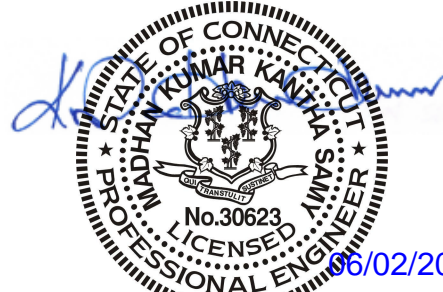


HEAVY BEARING HOUSING  
ASSEMBLY CAN BE IDENTIFIED BY  
THE FIVE TOGGLES

8 HEAVY BHA, TYP.  
SCALE: N.T.S.



SEAL



THESE PLANS HAVE BEEN PREPARED BY  
OTHERS AND SEALED BY STRUCTUROLOGY  
LLC FOR CONFORMANCE OF STRUCTURAL  
ITEMS ONLY.

CS ENERGY  
NORTH STONINGTON

CT, NORTH AMERICA  
US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

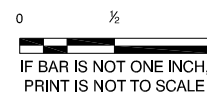
81 MODULE  
INT TRACKER

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

S-403



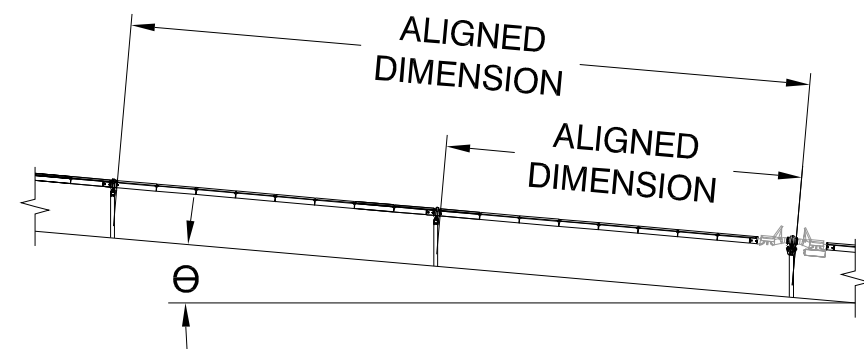
PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
	HIGH SLOPE TRACKER

TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

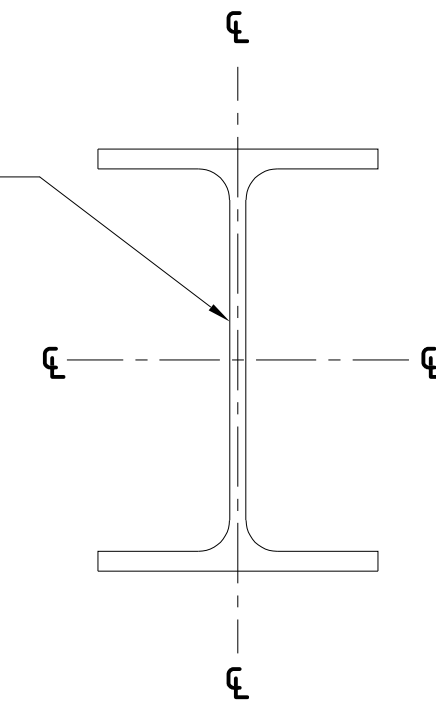
DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4

NOTE :

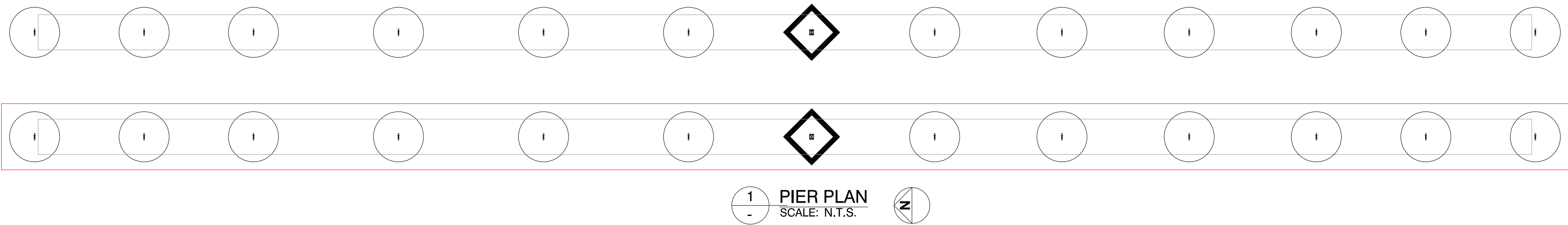
- 1) DETAILS ON THIS SHEET APPLY TO TRACKERS INDICATED ON THE SHEET TITLE ONLY. PIER PLAN INDICATES TRACKER LOCATIONS.
- 2) DETAILS 5-8 ARE TYPICAL AND APPLY TO ALL APPLICABLE LOCATIONS ON TRACKER.
- 3) PIER DISTANCES APPLY TO CENTER OF WEB, SEE DETAIL 9 FOR CENTER OF WEB LOCATION.
- 4) NEXTRACKER RECOMMENDS TO RUN A STRING LINE ON SLOPES >3% IN EFFORTS TO ENSURE PROPER PIER PLACEMENT



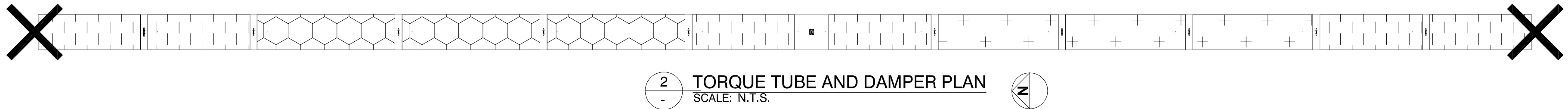
S-30X, DETAIL 3 DIMENSIONS FOR BAY AND TRACKER LENGTHS ARE TAKEN FROM CENTER OF BEAMS. SEE FOUNDATION DRAWING FOR IDENTIFICATION OF PIER TYPES.



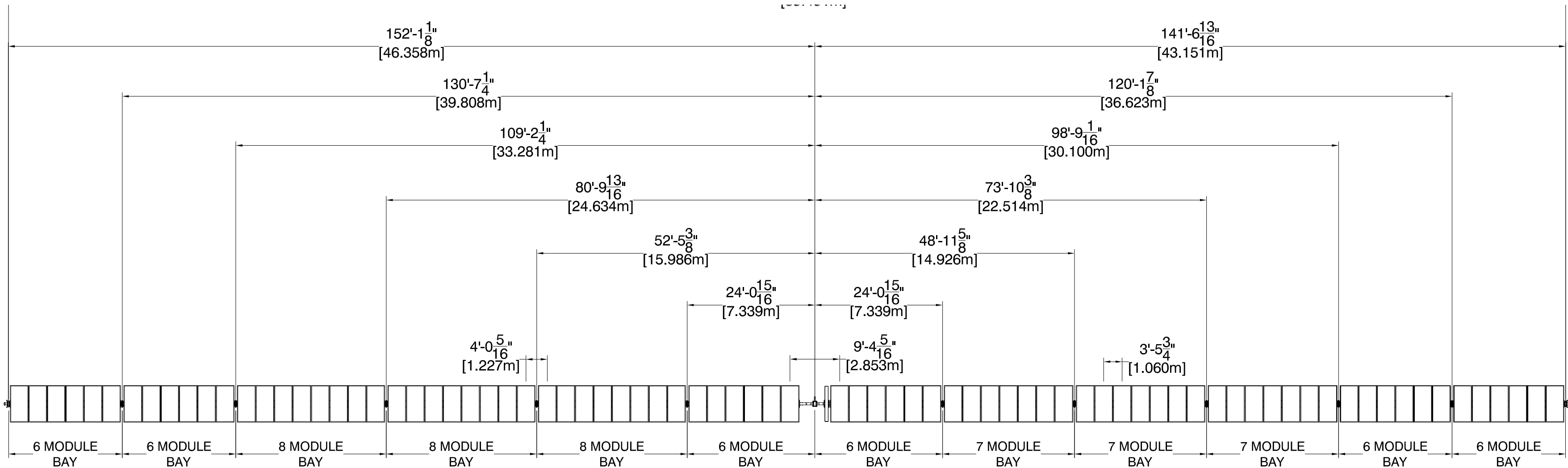
9 CENTER OF WEB  
SCALE: N.T.S.



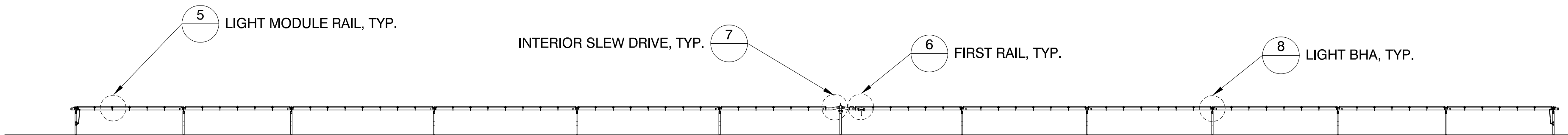
1 PIER PLAN  
SCALE: N.T.S.



2 TORQUE TUBE AND DAMPER PLAN  
SCALE: N.T.S.

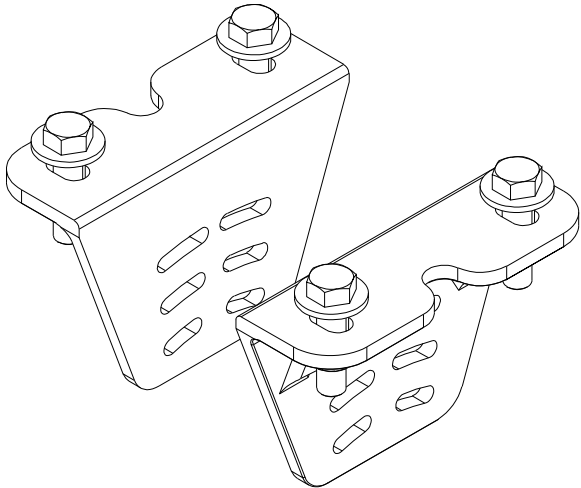


3 PIER SPACING  
SCALE: N.T.S.

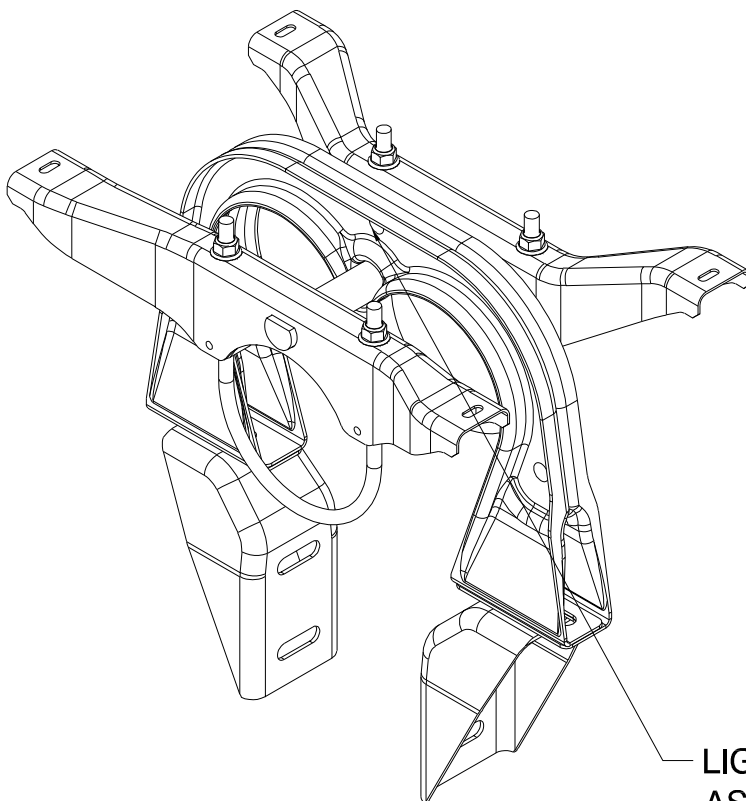
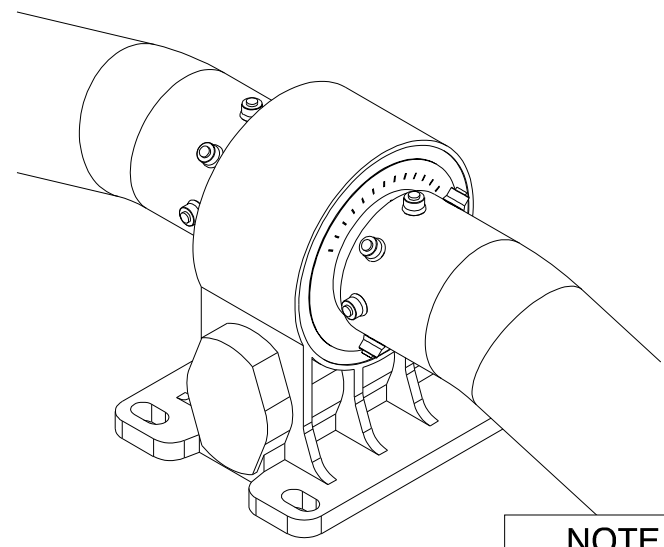


4 TRACKER ELEVATION  
SCALE: N.T.S.

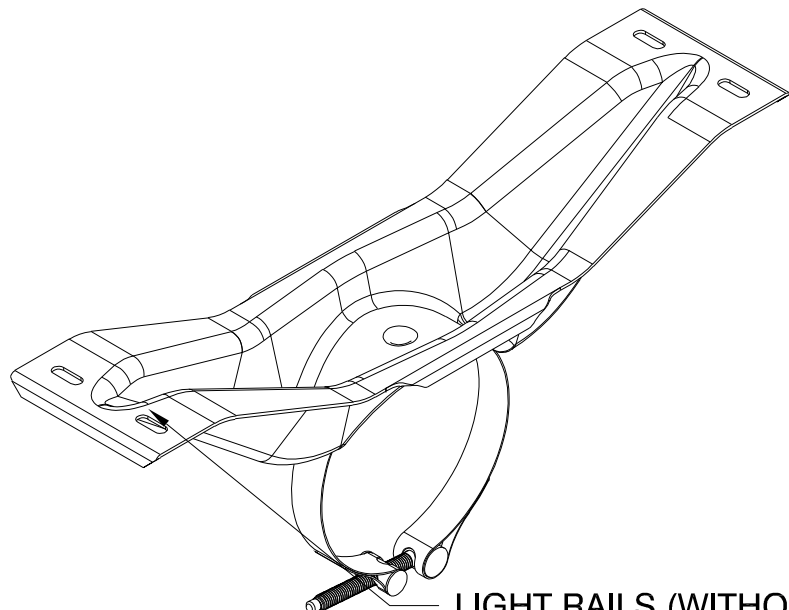
NOTE : INTERIOR SLEW  
GEAR MOUNT VISUAL  
IDENTIFIER: STRAIGHT  
EDGES.



NOTE : INTERIOR SLEW  
DRIVE VISUAL IDENTIFIER:  
TORQUE TUBE ADAPTOR IS  
OUTSIDE THE SLEW COLLAR.

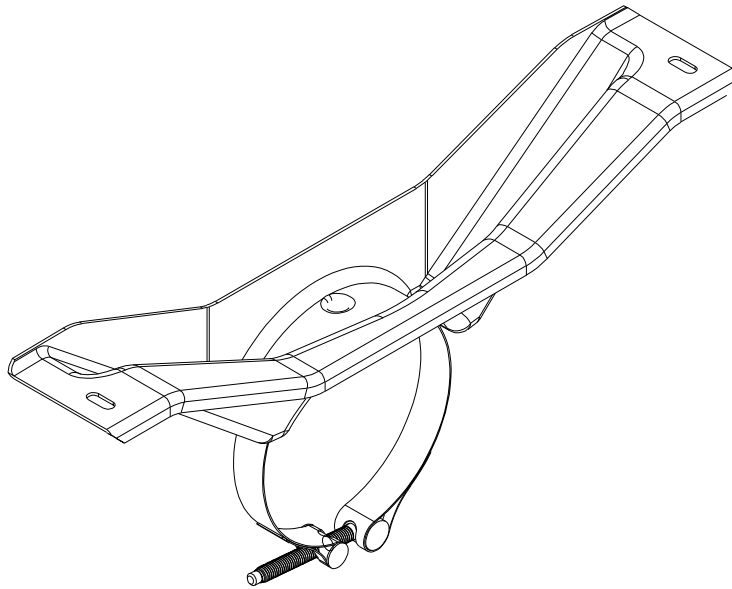


LIGHT BEARING HOUSING  
ASSEMBLY CAN BE IDENTIFIED BY  
THE THREE TOGGLES



LIGHT RAILS (WITHOUT TABS) TO  
BE USED ON INTERIOR AND EDGE  
TRACKERS ONLY

5 LIGHT MODULE RAIL, TYP.  
SCALE: N.T.S.

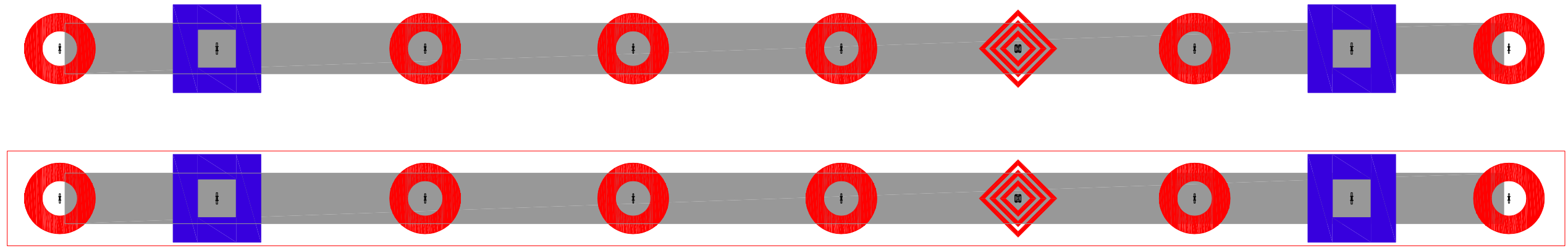


6 FIRST RAIL, TYP.  
SCALE: N.T.S.

7 INTERIOR SLEW DRIVE, TYP.  
SCALE: N.T.S.

8 LIGHT BHA, TYP.  
SCALE: N.T.S.

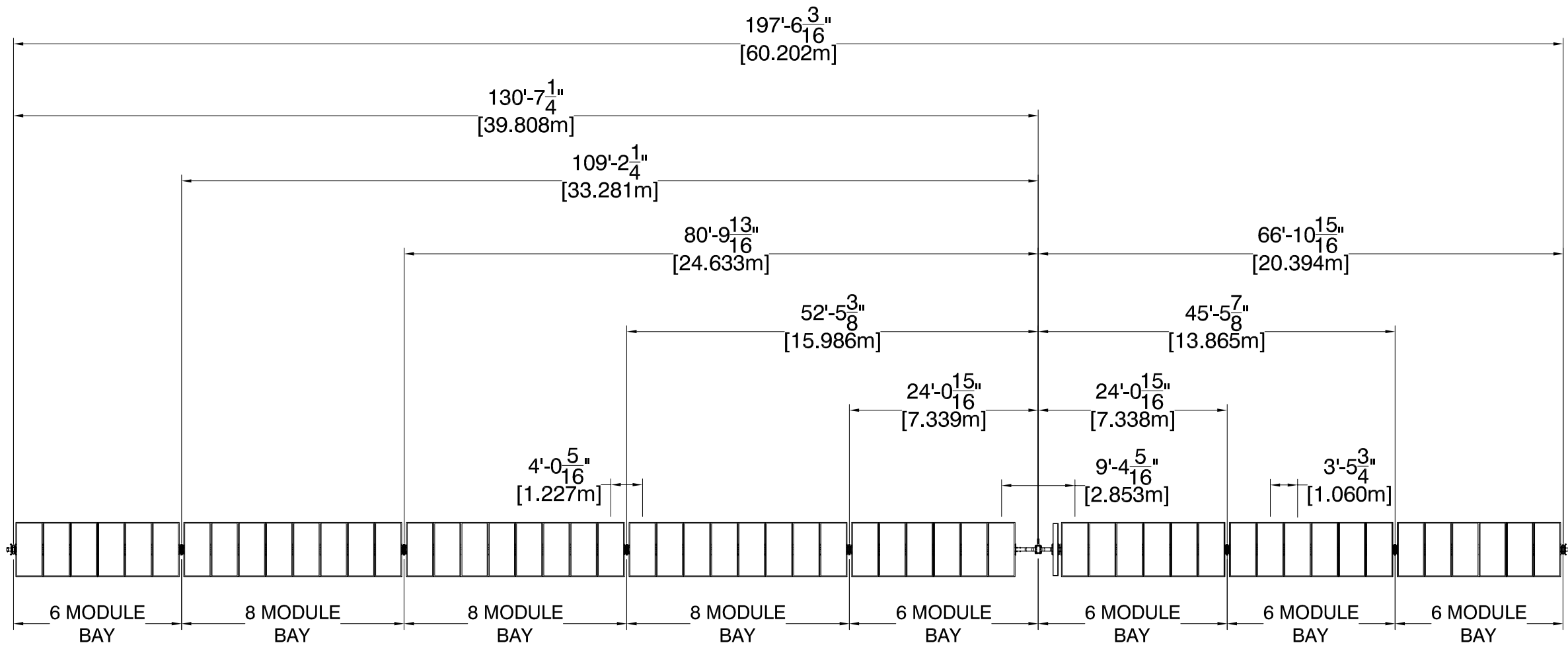




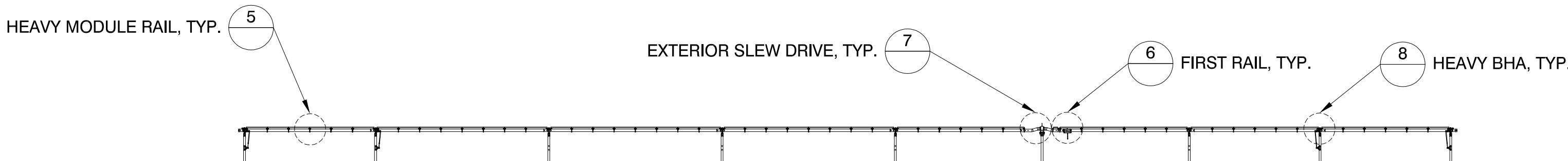
1 PIER PLAN  
SCALE: N.T.S.



2 TORQUE TUBE AND DAMPER PLAN  
SCALE: N.T.S.

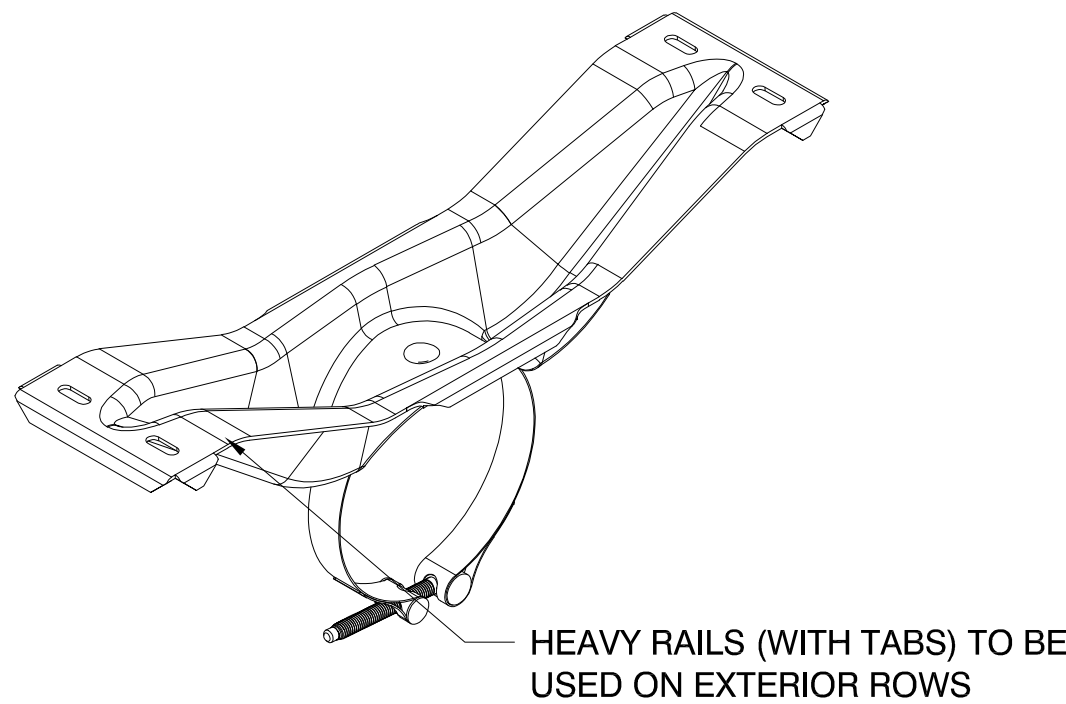


3 PIER SPACING  
SCALE: N.T.S.

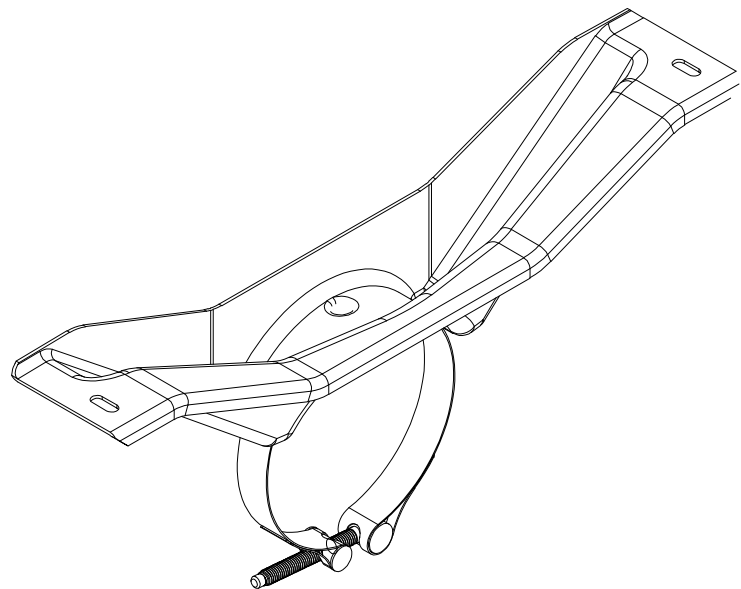


4 TRACKER ELEVATION  
SCALE: N.T.S.

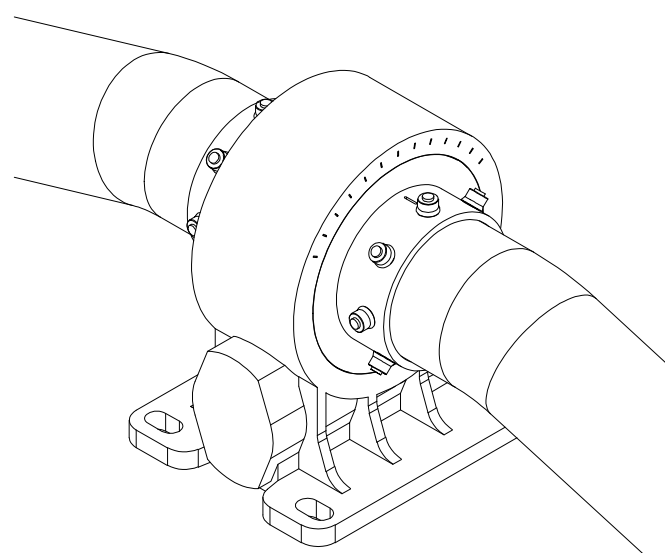
NOTE : EXTERIOR SLEW  
GEAR MOUNT VISUAL  
IDENTIFIER: CURVED  
RIBBING.



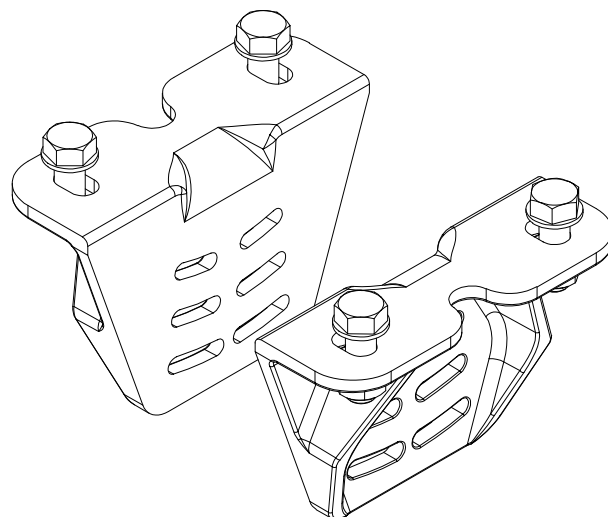
5 HEAVY MODULE RAIL, TYP.  
SCALE: N.T.S.



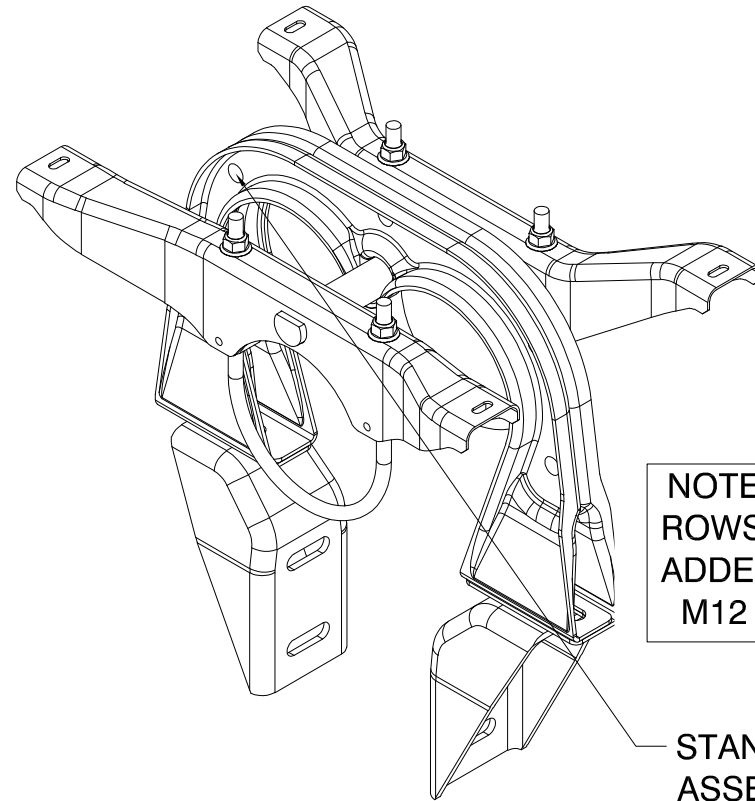
6 FIRST RAIL, TYP.  
SCALE: N.T.S.



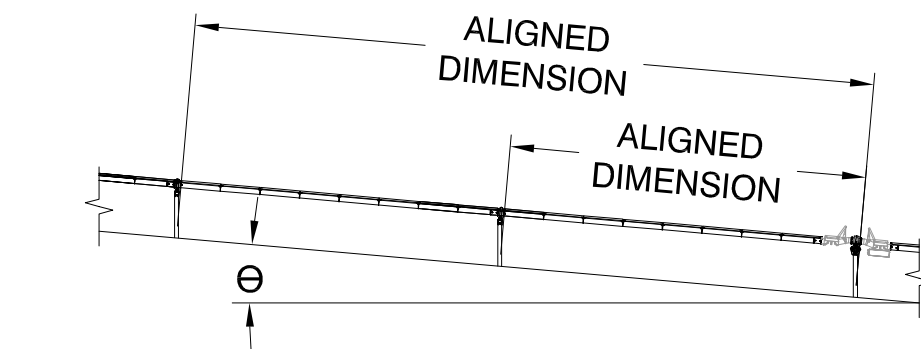
7 EXTERIOR SLEW DRIVE, TYP.  
SCALE: N.T.S.



NOTE : EXTERIOR SLEW  
DRIVE VISUAL IDENTIFIER:  
TORQUE TUBE ADAPTOR IS  
INSIDE THE SLEW COLLAR.



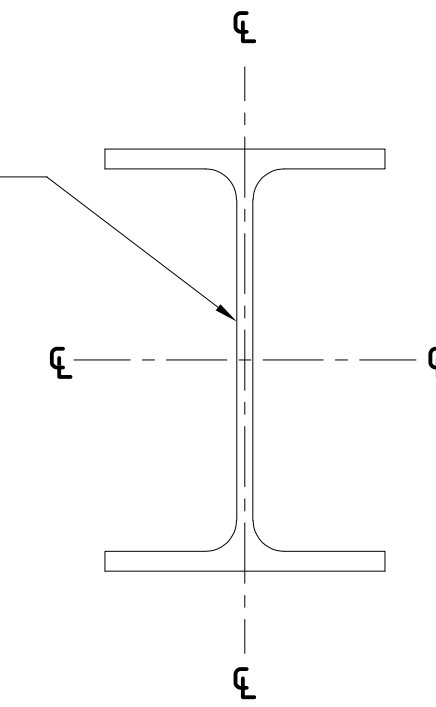
8 HEAVY BHA, TYP.  
SCALE: N.T.S.



S-30X, DETAIL 3 DIMENSIONS FOR  
BAY AND TRACKER LENGTHS ARE  
TAKEN FROM CENTER OF BEAMS.  
SEE FOUNDATION DRAWING FOR  
IDENTIFICATION OF PIER TYPES.

NOTE : FOR ALL EXTERIOR  
ROWS, WASHERS MUST BE  
ADDED BETWEEN HEAD OF  
M12 PIN AND BHA HOOP.

STANDARD BEARING HOUSING  
ASSEMBLY CAN BE IDENTIFIED BY  
THE FIVE TOGGLES



9 CENTER OF WEB  
SCALE: N.T.S.

PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
	HIGH SLOPE TRACKER

TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4

NOTE :

- 1) DETAILS ON THIS SHEET APPLY TO TRACKERS INDICATED ON THE SHEET TITLE ONLY. PIER PLAN INDICATES TRACKER LOCATIONS.
- 2) DETAILS 5-8 ARE TYPICAL AND APPLY TO ALL APPLICABLE LOCATIONS ON TRACKER.
- 3) PIER DISTANCES APPLY TO CENTER OF WEB, SEE DETAIL 9 FOR CENTER OF WEB LOCATION.
- 4) NEXTRACKER RECOMMENDS TO RUN A STRING LINE ON SLOPES >3% IN EFFORTS TO ENSURE PROPER PIER PLACEMENT

**NEXTracker.**  
A Flex Company

**NEXTracker Inc.**  
6200 Paseo Padre Parkway  
Fremont, CA 94555

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**SEAL**

**STRUCTUROLOGY**  
CONSULTING STRUCTURAL ENGINEERS

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OTHERS AND SEALED BY STRUCTUROLOGY  
LLC FOR CONFORMANCE OF STRUCTURAL  
ITEMS ONLY.

**CS ENERGY**  
NORTH STONINGTON

**CT, NORTH AMERICA**  
US

PROJECT NUMBER:  
**510063**

SITE ID:  
**001035**

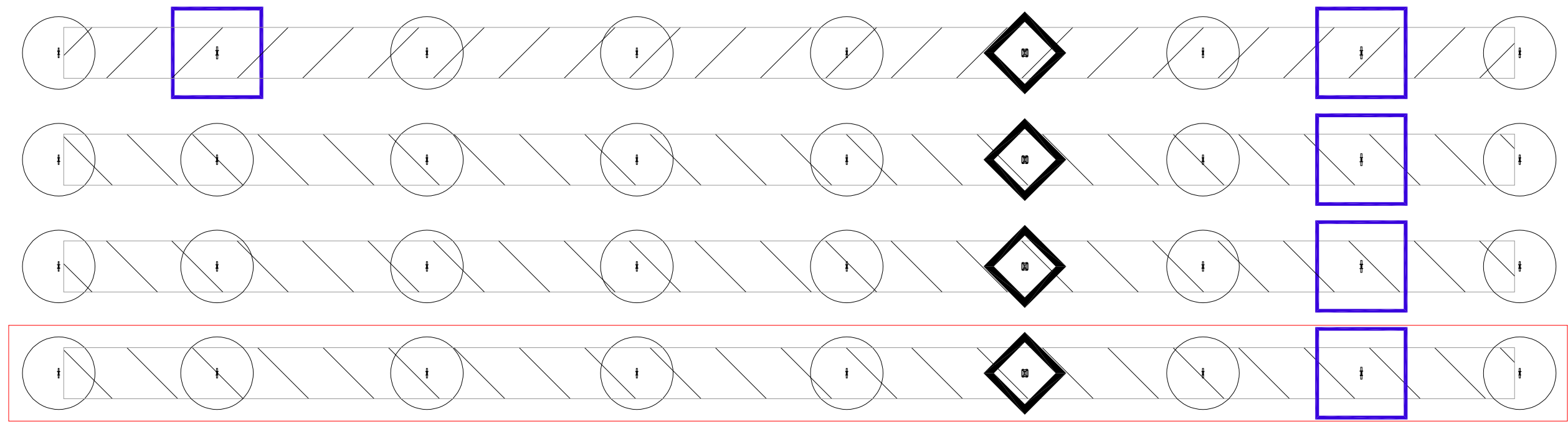
SHEET TITLE:  
**54 MODULE  
EXT TRACKER**

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

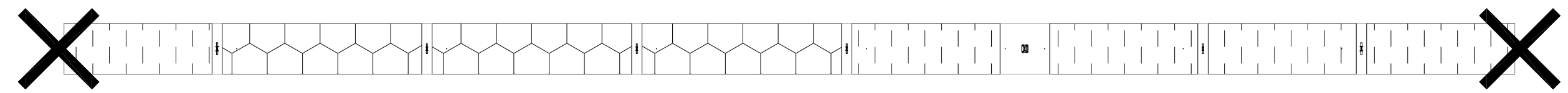
SITE DETAILS	
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

**S-404**

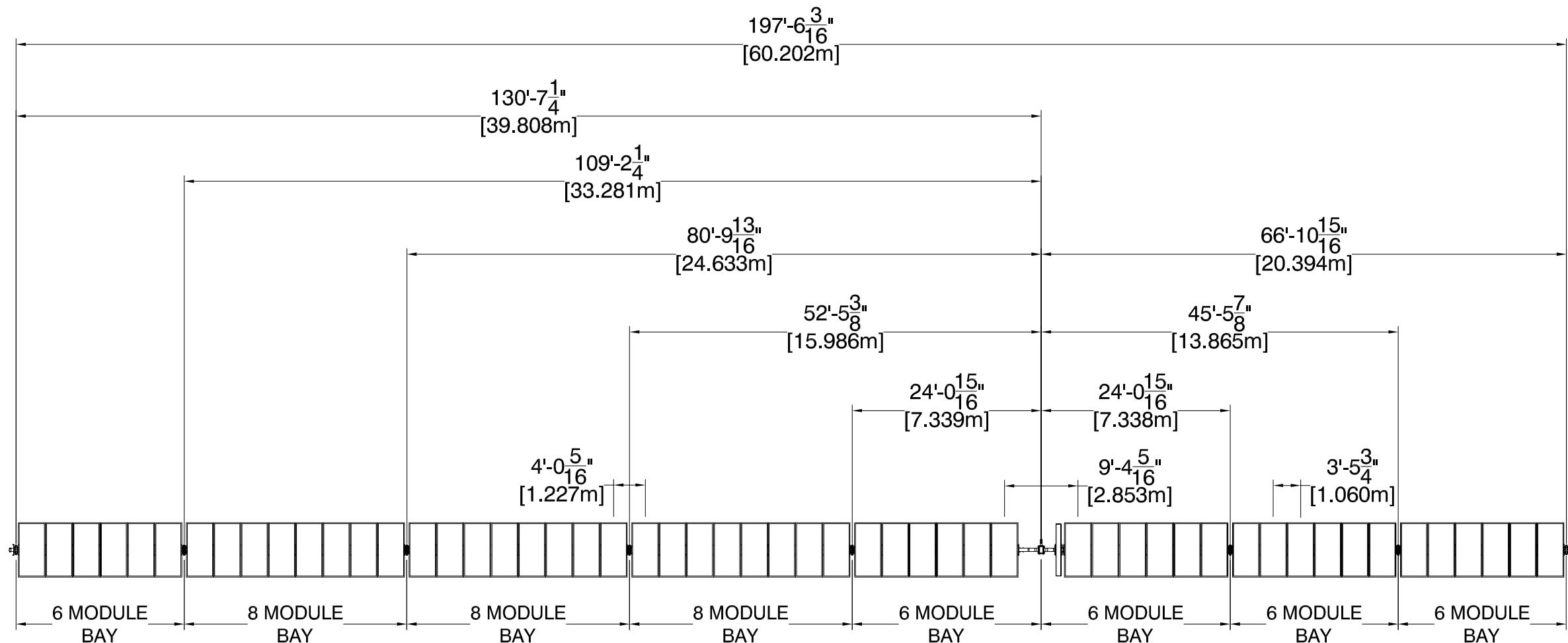




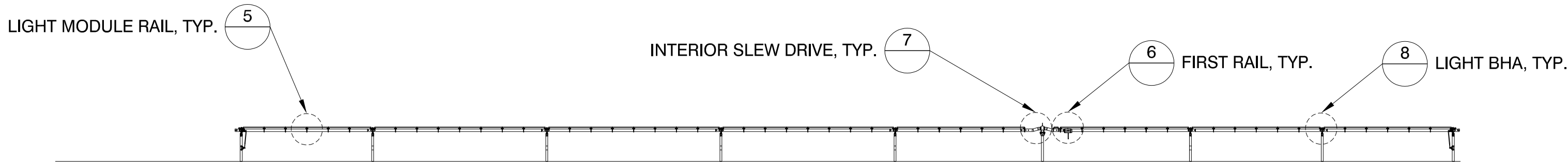
1 PIER PLAN  
SCALE: N.T.S.



2 TORQUE TUBE AND DAMPER PLAN  
SCALE: N.T.S.

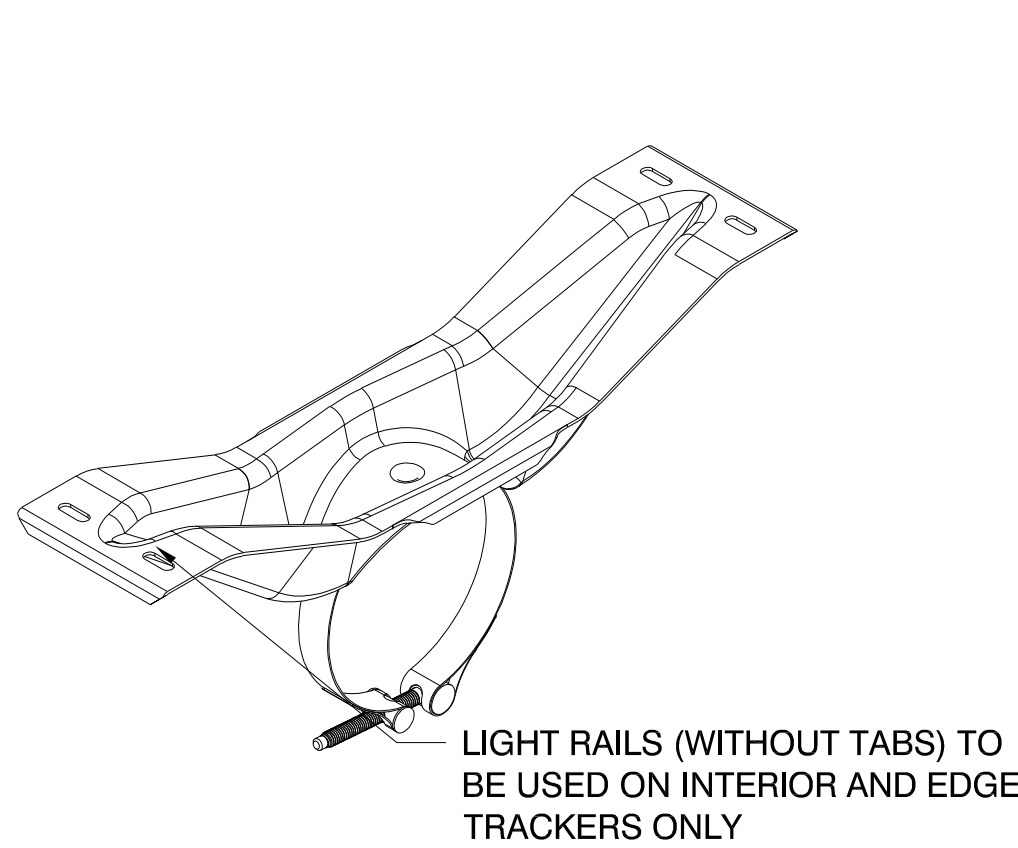


3 PIER SPACING  
SCALE: N.T.S.

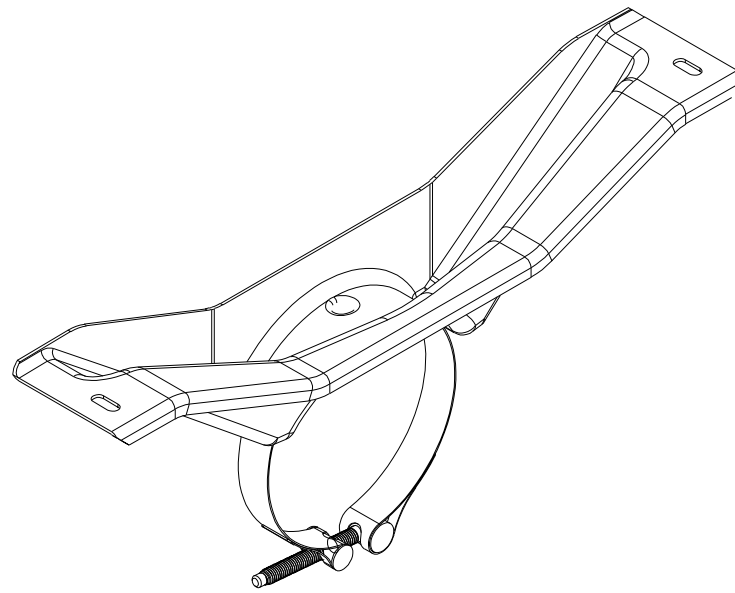


4 TRACKER ELEVATION  
SCALE: N.T.S.

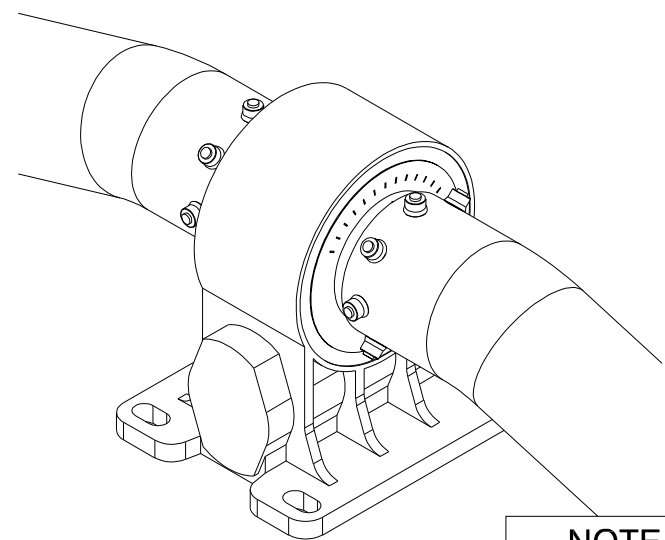
NOTE : INTERIOR SLEW  
GEAR MOUNT VISUAL  
IDENTIFIER: STRAIGHT  
EDGES.



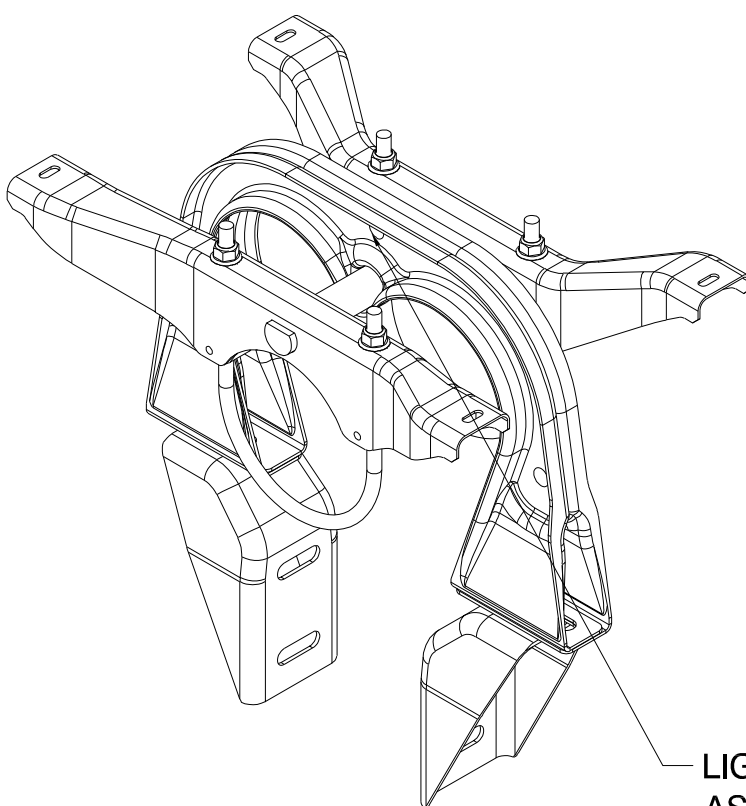
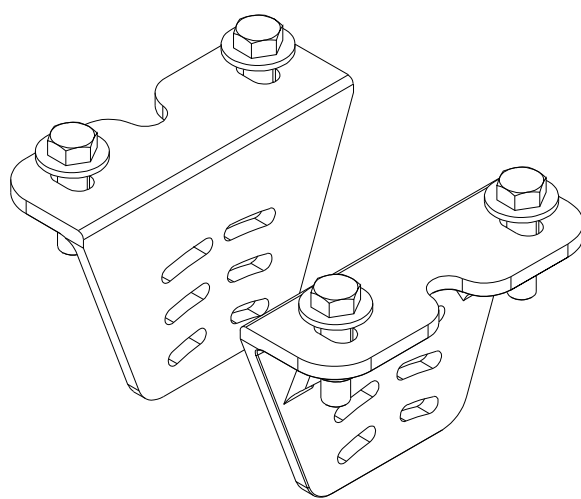
5 LIGHT MODULE RAIL, TYP.  
SCALE: N.T.S.



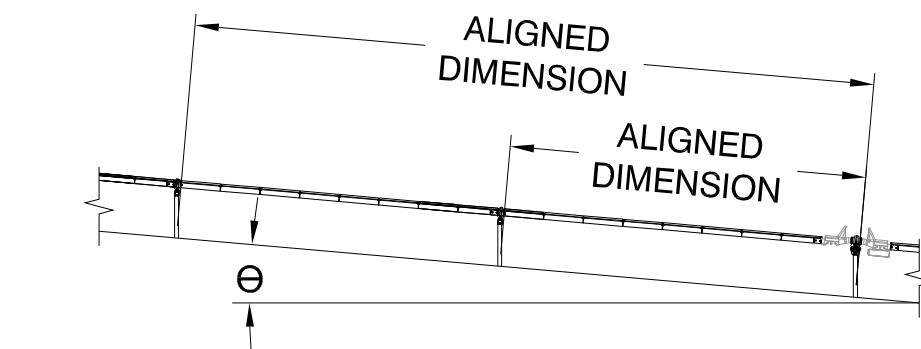
6 FIRST RAIL, TYP.  
SCALE: N.T.S.



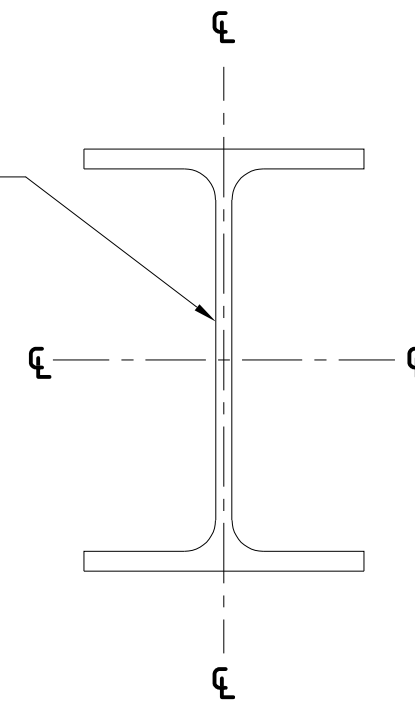
7 INTERIOR SLEW DRIVE, TYP.  
SCALE: N.T.S.



8 LIGHT BHA, TYP.  
SCALE: N.T.S.



S-30X, DETAIL 3 DIMENSIONS FOR  
BAY AND TRACKER LENGTHS ARE  
TAKEN FROM CENTER OF BEAMS.  
SEE FOUNDATION DRAWING FOR  
IDENTIFICATION OF PIER TYPES.



9 CENTER OF WEB  
SCALE: N.T.S.

PIER LEGEND	
SYMBOL	PIER TYPE
	HEAVY ARRAY PIER
	STANDARD ARRAY PIER
	HEAVY ARRAY PIER, EDGE
	STANDARD ARRAY PIER, EDGE
	HEAVY MOTOR PIER
	STANDARD MOTOR PIER
	HIGH SLOPE TRACKER

TORQUE TUBE LEGEND			
HATCH	PART #	COLOR	TORQUE TUBE TYPE
	43128	BLUE	9.14m 4mm 67ksi
	43137		8.08m 4mm 67ksi
	43146		7.02m 4mm 67ksi
	43020	GALV	9.14m 3mm 60ksi
	43133		8.08m 3mm 60ksi
	43142		7.02m 3mm 60ksi

DAMPER LEGEND		
SYMBOL	DAMPER TYPE	SEE SHEET S-601
	DOUBLE DAMPER	DETAIL 4

NOTE :

- 1) DETAILS ON THIS SHEET APPLY TO TRACKERS INDICATED ON THE SHEET TITLE ONLY. PIER PLAN INDICATES TRACKER LOCATIONS.
- 2) DETAILS 5-8 ARE TYPICAL AND APPLY TO ALL APPLICABLE LOCATIONS ON TRACKER.
- 3) PIER DISTANCES APPLY TO CENTER OF WEB, SEE DETAIL 9 FOR CENTER OF WEB LOCATION.
- 4) NEXTRACKER RECOMMENDS TO RUN A STRING LINE ON SLOPES >3% IN EFFORTS TO ENSURE PROPER PIER PLACEMENT

NEXTracker

A Flex Company

NEXTracker Inc.

6200 Paseo Padre Parkway

Fremont, CA 94555

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SEAL

STATE OF CONNECTICUT

REGISTERED PROFESSIONAL ENGINEER

No. 30623

06/02/20

STRUCTUROLOGY

CONSULTING STRUCTURAL ENGINEERS

THESE PLANS HAVE BEEN PREPARED BY  
OTHERS AND SEALED BY STRUCTUROLOGY  
LLC FOR CONFORMANCE OF STRUCTURAL  
ITEMS ONLY.

CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

PROJECT NUMBER:

510063

SITE ID:

001035

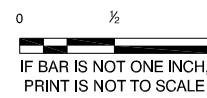
SHEET TITLE:

54 MODULE  
EDGE TRACKER

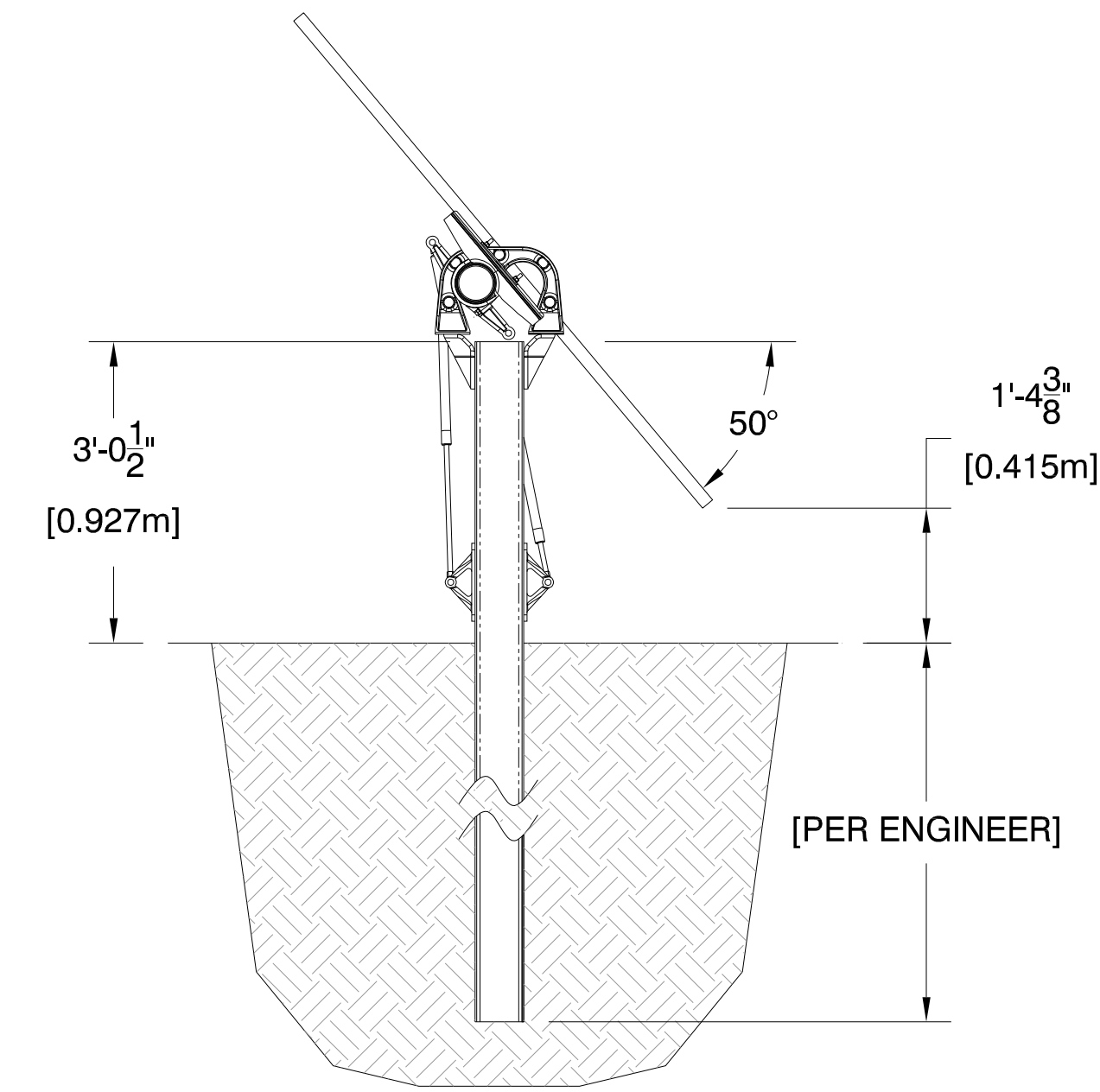
NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
2			
3			
4			
5			
6			
7			
8			

SITE DETAILS	
LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

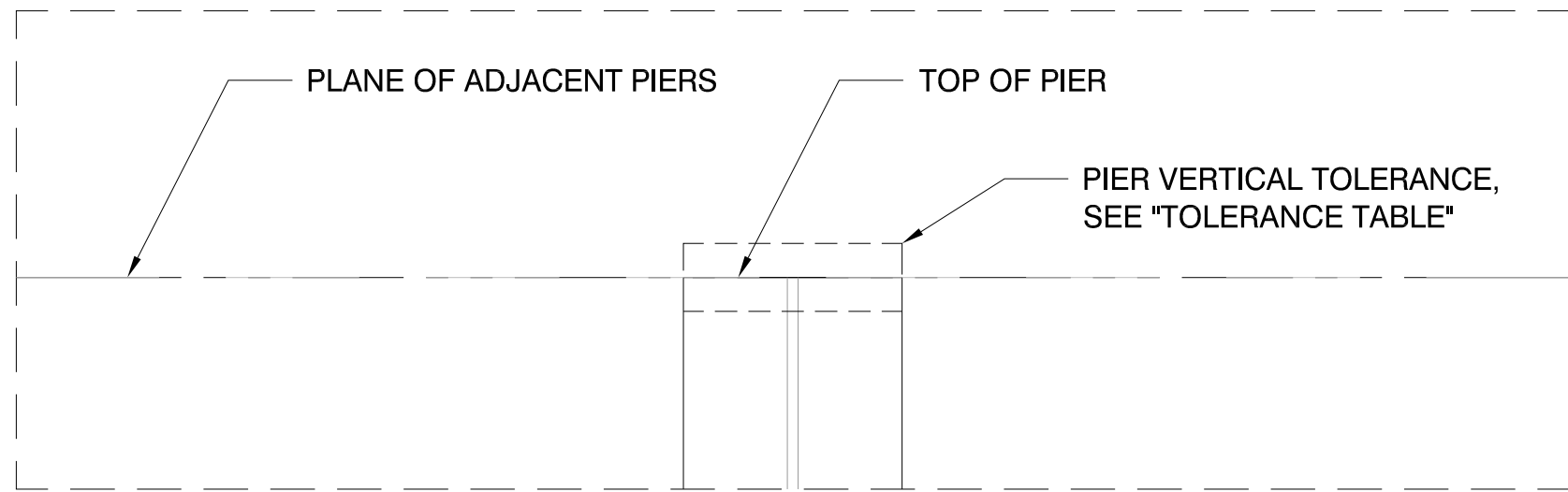
S-405



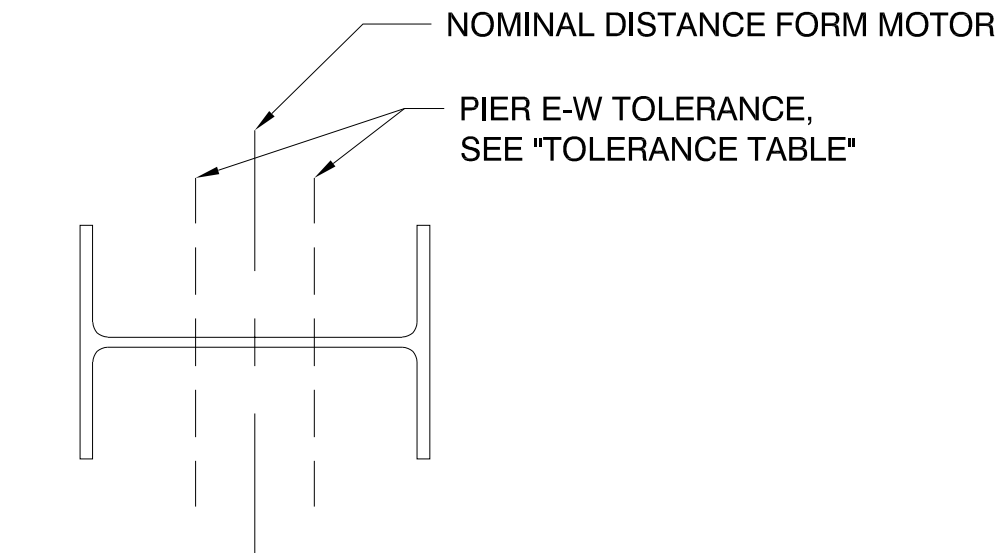




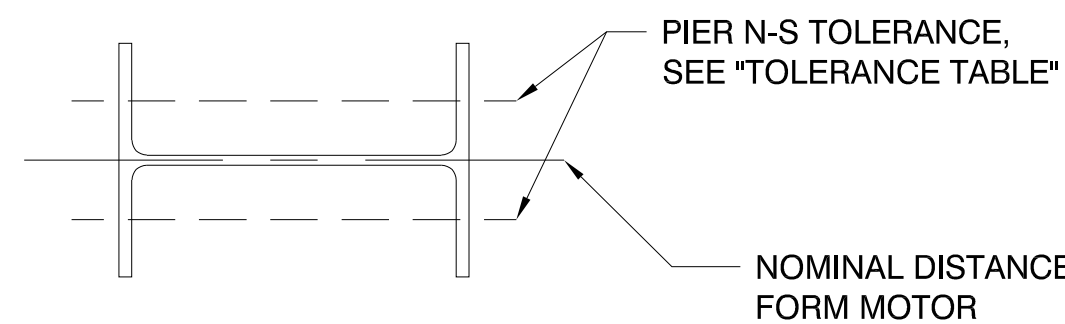
1  
-  
TYPICAL PIER HEIGHT  
SCALE: N.T.S.



2  
-  
PIER HEIGHT TOLERANCES  
SCALE: N.T.S.



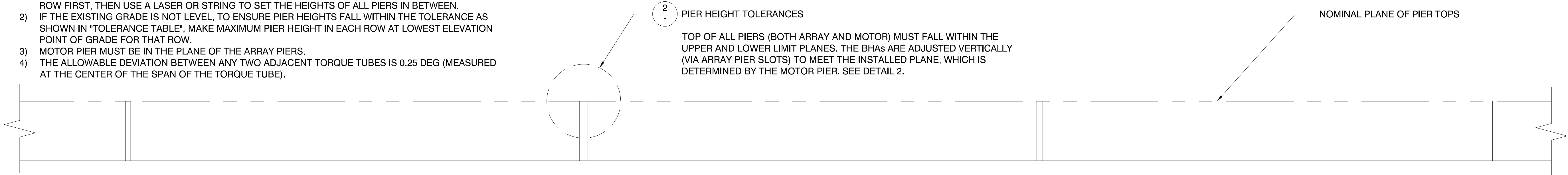
3A  
-  
EAST WEST PIER LOCATION TOLERANCE  
SCALE: N.T.S.



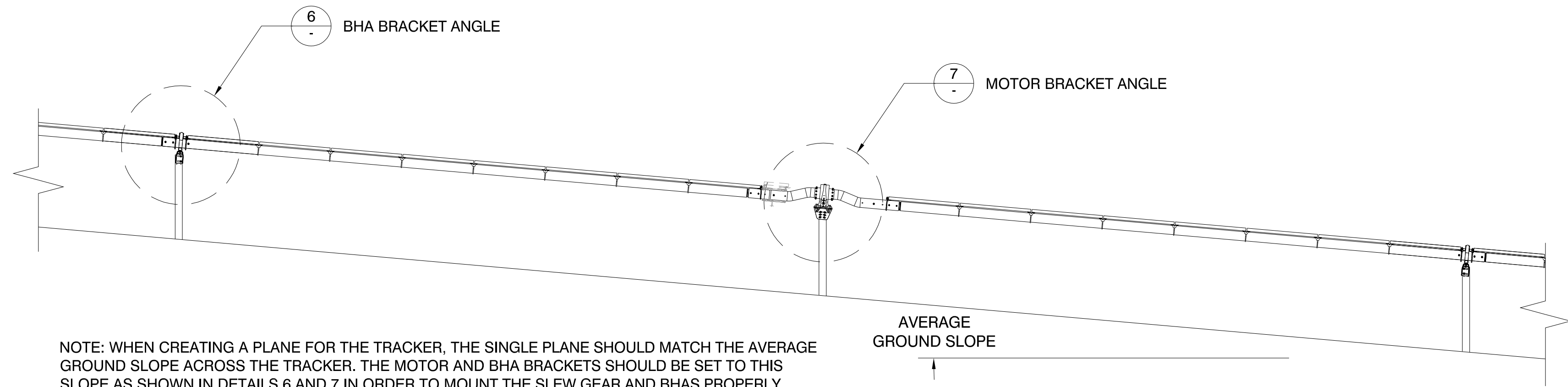
3B  
-  
NORTH SOUTH PIER LOCATION TOLERANCE  
SCALE: N.T.S.

NOTES:

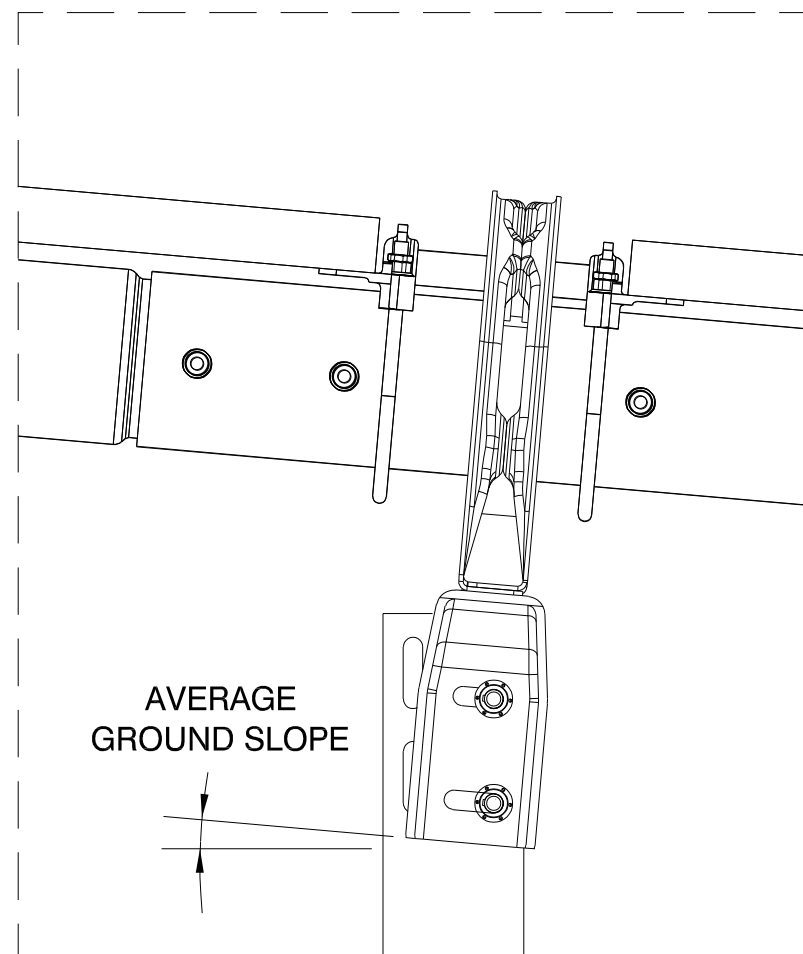
- 1) TO ALIGN THE PIER TOPS IN A SINGLE HORIZONTAL PLANE, SET THE END PIERS OF THE TRACKER ROW FIRST, THEN USE A LASER OR STRING TO SET THE HEIGHTS OF ALL PIERS IN BETWEEN.
- 2) IF THE EXISTING GRADE IS NOT LEVEL, TO ENSURE PIER HEIGHTS FALL WITHIN THE TOLERANCE AS SHOWN IN "TOLERANCE TABLE", MAKE MAXIMUM PIER HEIGHT IN EACH ROW AT LOWEST ELEVATION POINT OF GRADE FOR THAT ROW.
- 3) MOTOR PIER MUST BE IN THE PLANE OF THE ARRAY PIERS.
- 4) THE ALLOWABLE DEVIATION BETWEEN ANY TWO ADJACENT TORQUE TUBES IS 0.25 DEG (MEASURED AT THE CENTER OF THE SPAN OF THE TORQUE TUBE).



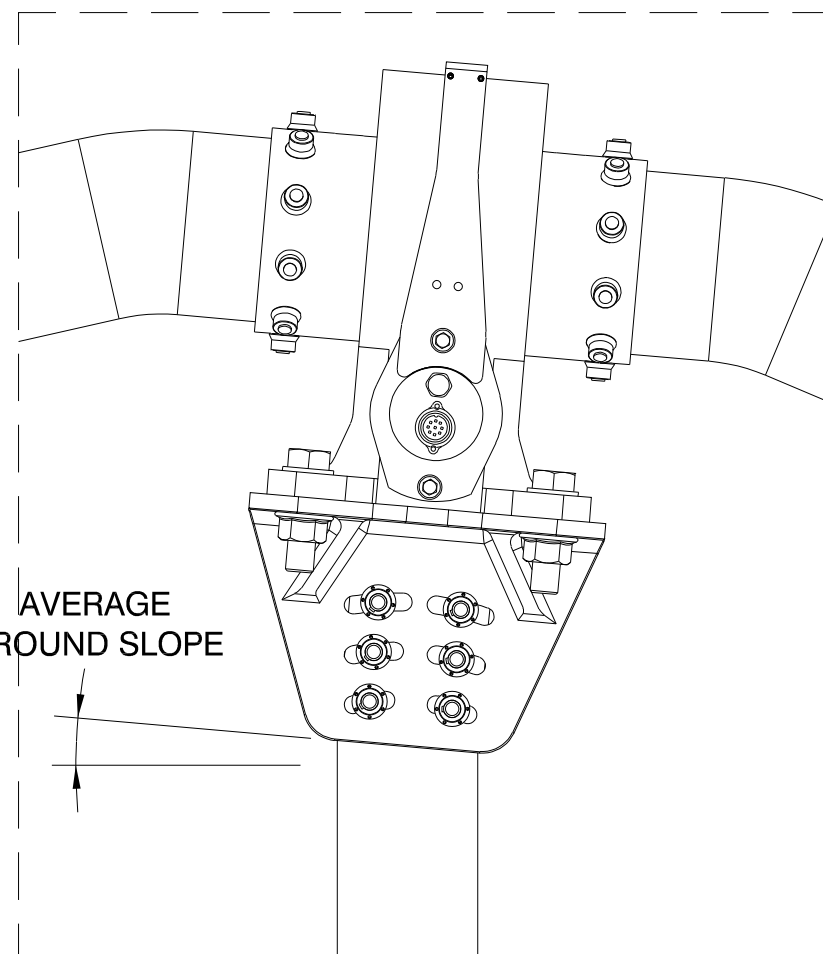
4  
-  
TRACKER PLANAR TOLERANCES  
SCALE: N.T.S.



5  
-  
PLANE PARALLEL W/ AVERAGE GROUND SLOPE  
SCALE: N.T.S.



6  
-  
BHA BRACKET ANGLE  
SCALE: N.T.S.



7  
-  
MOTOR BRACKET ANGLE  
SCALE: N.T.S.

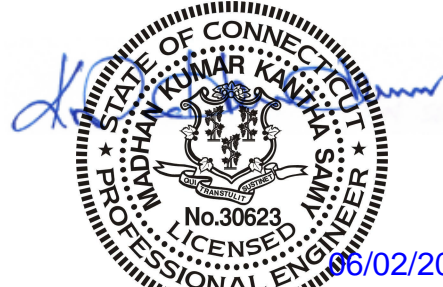
2.4 TOLERANCE TABLE		
MEASUREMENT TYPE	0-6.1% (STANDARD SLOPE)	>6.1-15% (HIGH SLOPE)
TOP OF PIER E-W POSITION	+/- 1" (25.4 mm)	
TOP OF PIER N-S POSITION	+/- 1 3/4" (45.5 mm)	+/- 1 3/8" (34.9 mm)
PIER VERTICAL	+/- 1 1/8" (17.5 mm)	+/- 1/2" (12.7 mm)
PIER TWIST	+/- 5°	
0 - 3% TRACKER SLOPE	PIER PLUMB E-W	+/- 1.5°
	PIER PLUMB N-S	+/- 3°
>3 - 15% TRACKER SLOPE	PIER PLUMB E-W	+/- 1.5°
	PIER PLUMB N-S	+/- 1.5°

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A Flex Company

NEXTracker Inc.  
6200 Paseo Padre Parkway  
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CS ENERGY  
NORTH STONINGTON

CT, NORTH AMERICA  
US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

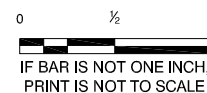
PIER TOLERANCES

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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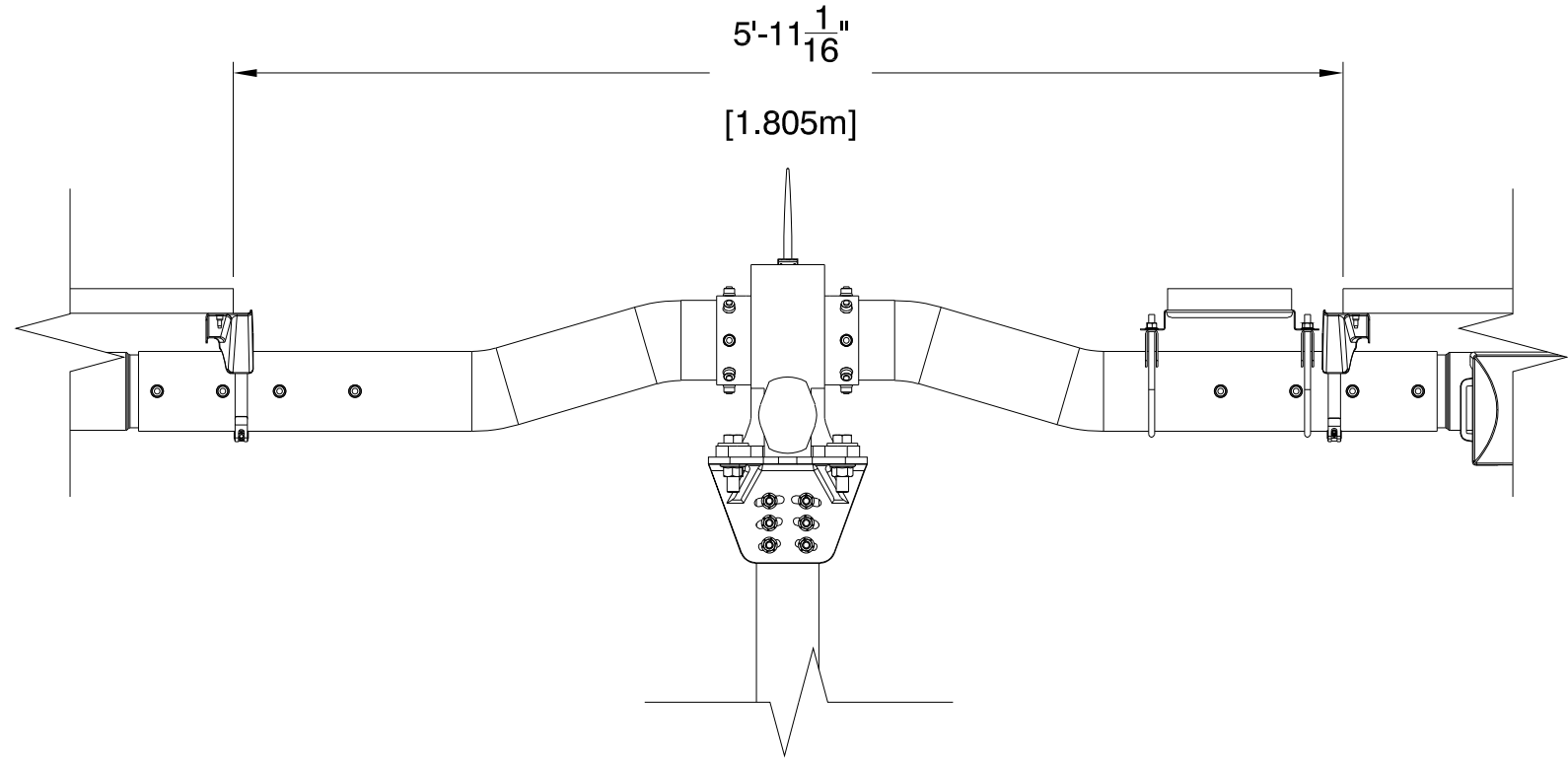
SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

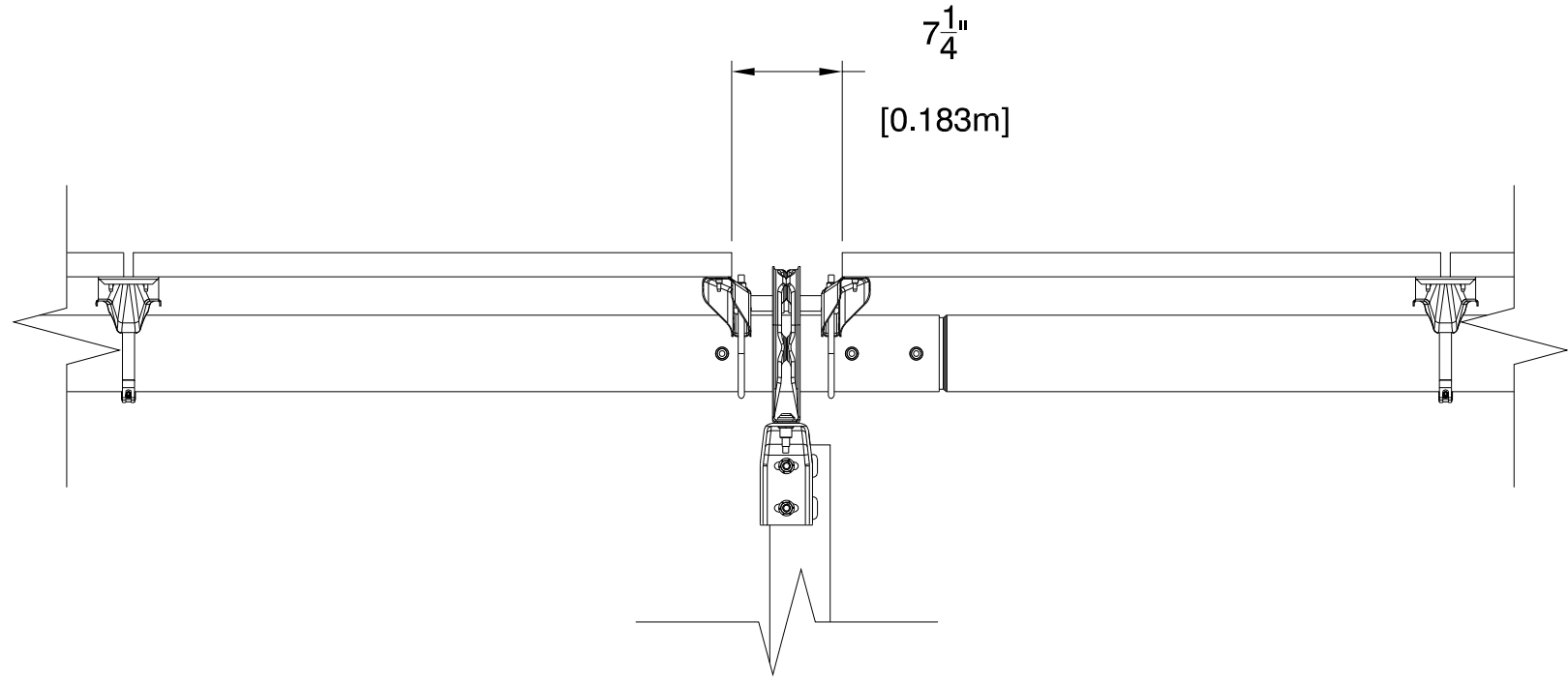
S-501





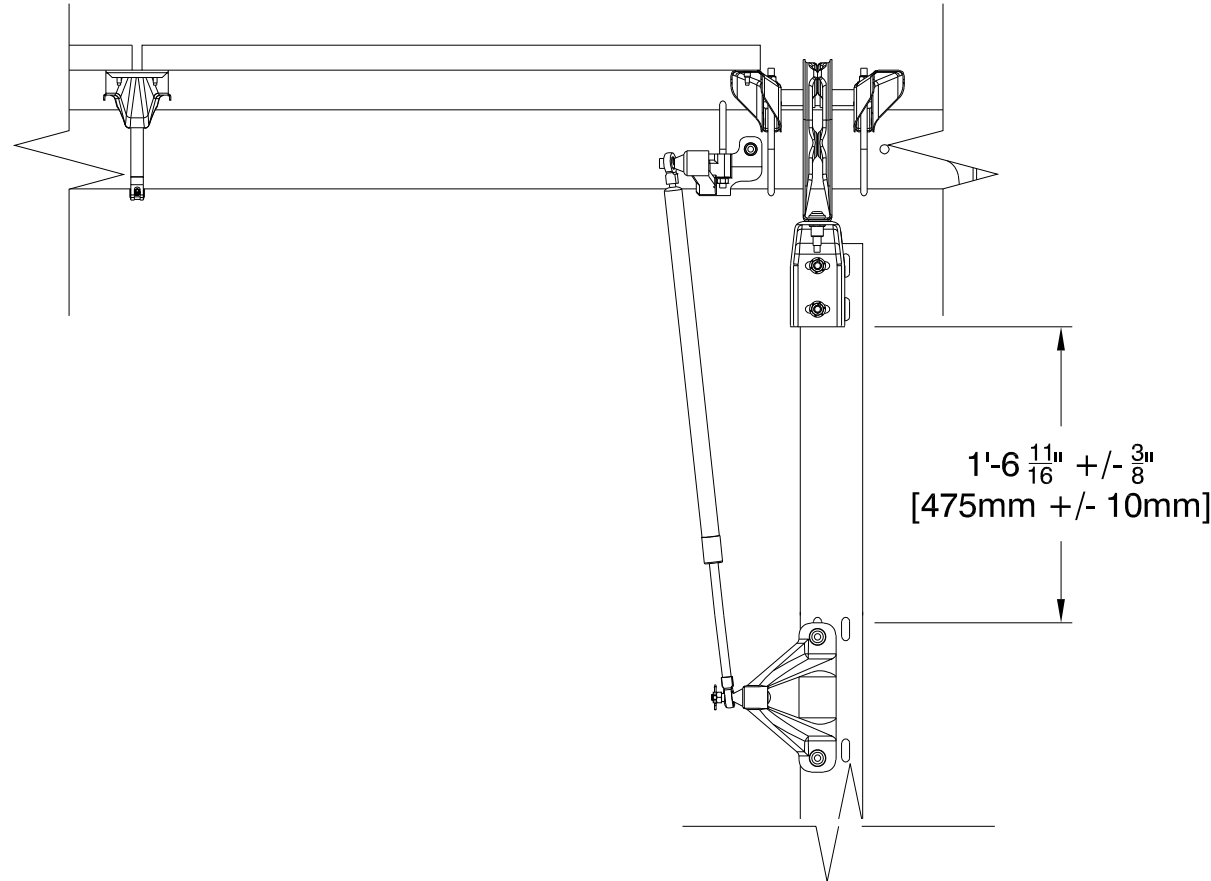


1 TYPICAL MODULE SPACING ACROSS MOTOR  
SCALE: N.T.S.

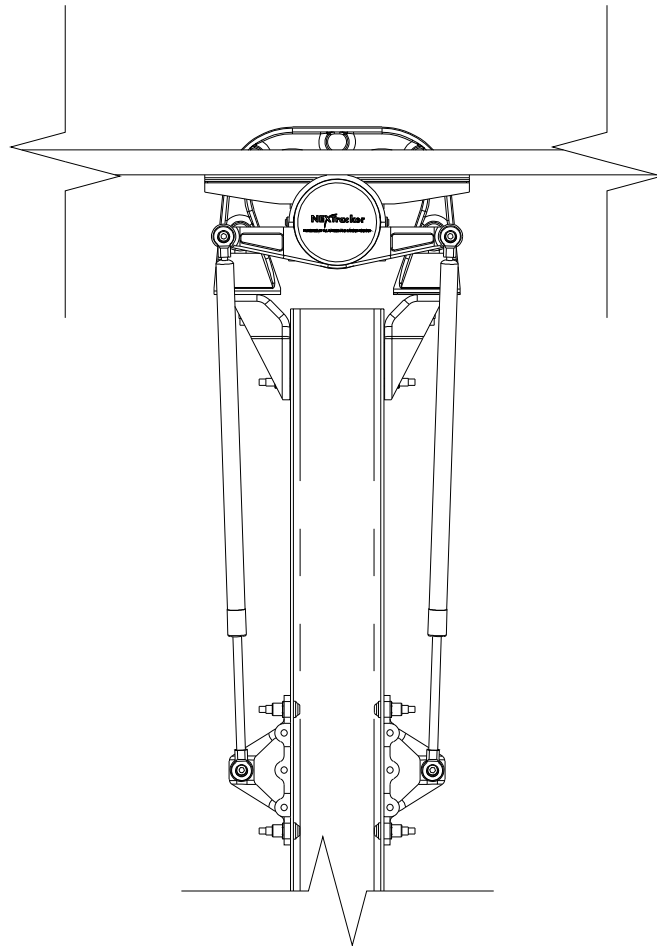


2 TYPICAL MODULE SPACING ACROSS BHA  
SCALE: N.T.S.

- NOTE:
- FOR DETAILS 4 AND 5, REFER TO DETAIL 6 FOR DAMPER ROD/BODY ORIENTATION.
  - INSTALL DAMPERS ON SIDE OF PIER CLOSEST TO MOTOR.

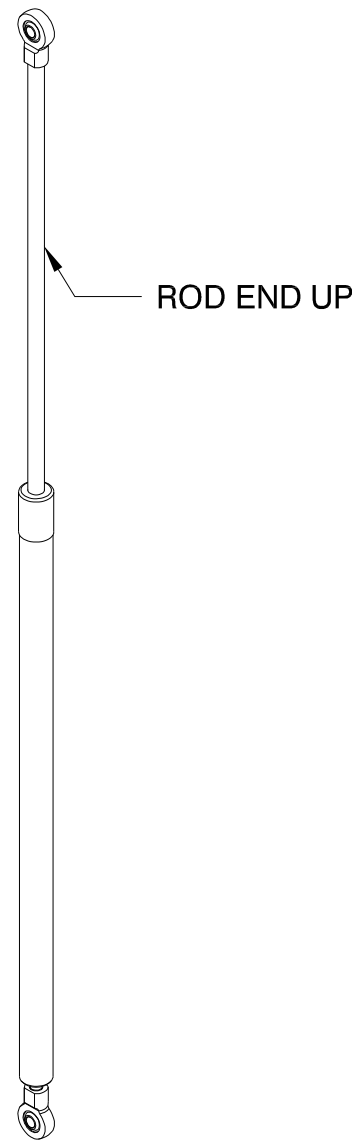


3 INNER DOUBLE DAMPER  
SCALE: N.T.S.

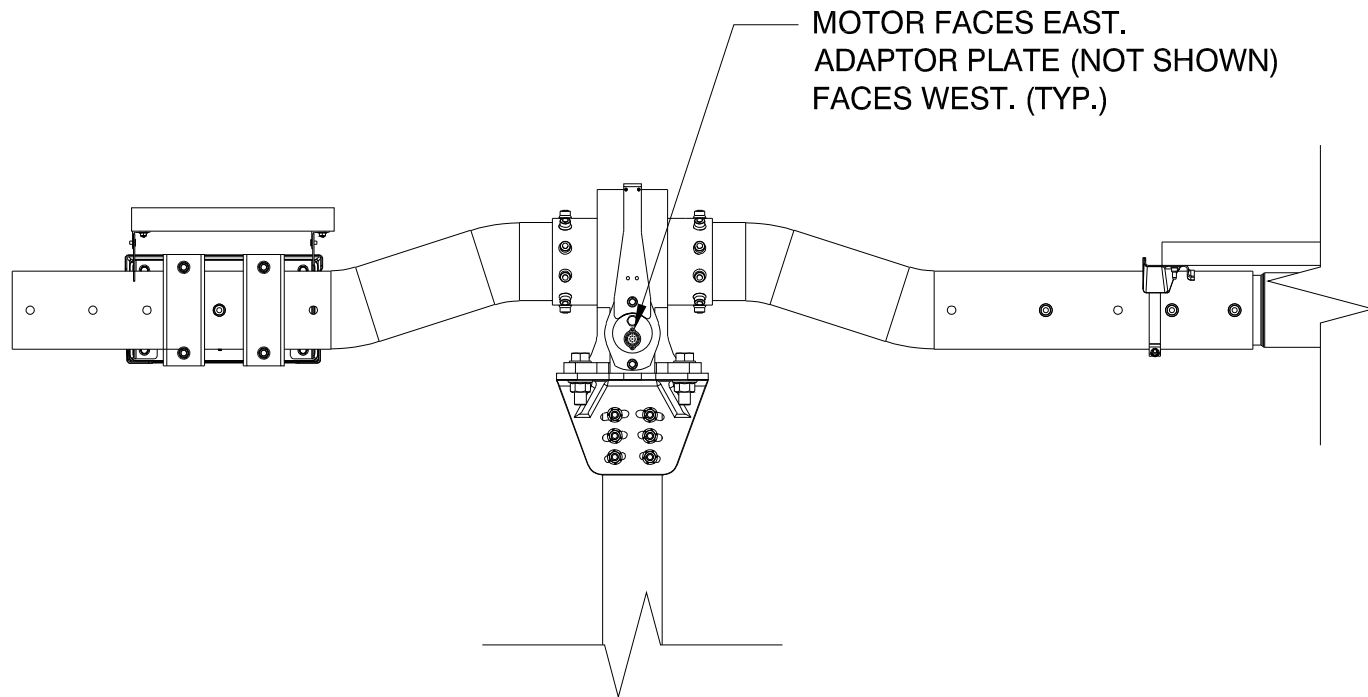


4 DOUBLE DAMPER  
SCALE: N.T.S.

- NOTE:
- SEE SHEET S-4XX, DETAIL 2 FOR DAMPER LOCATIONS

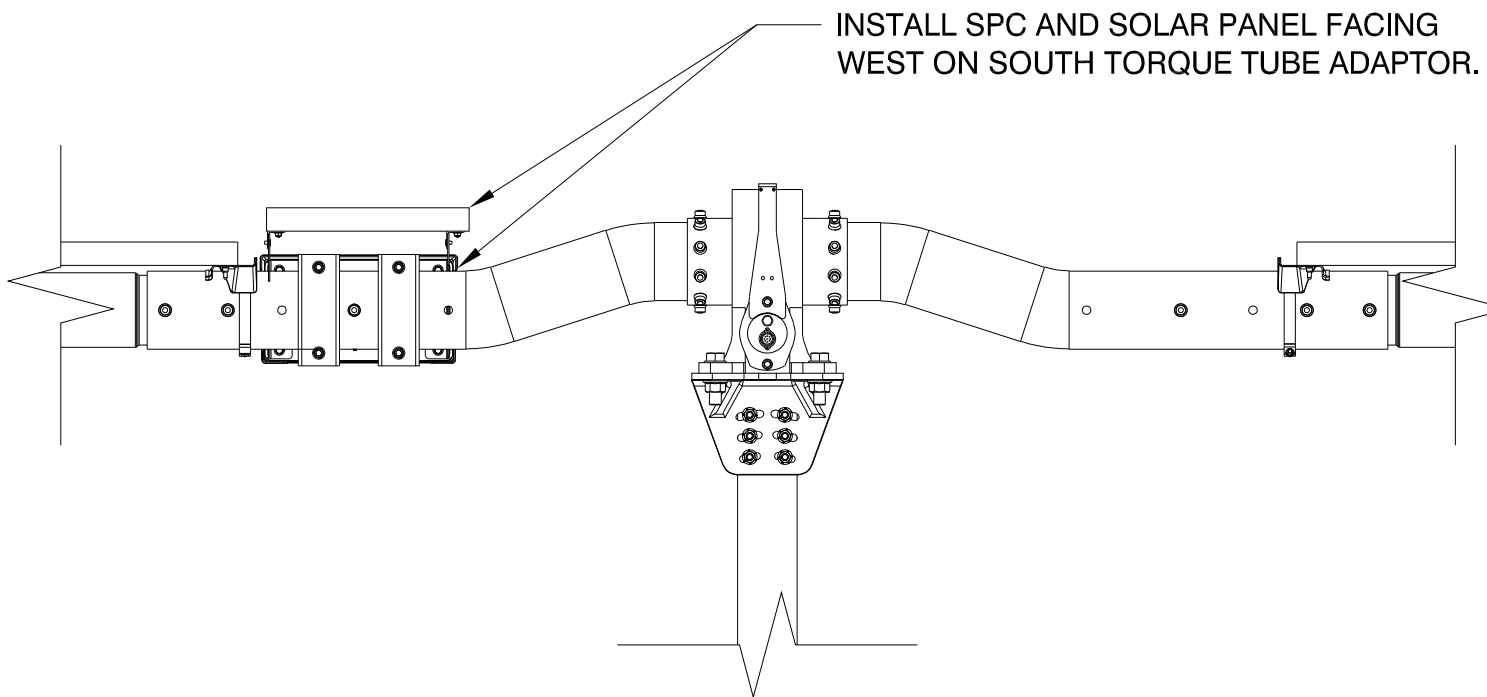


5 21215 DAMPER ORIENTATION  
SCALE: N.T.S.

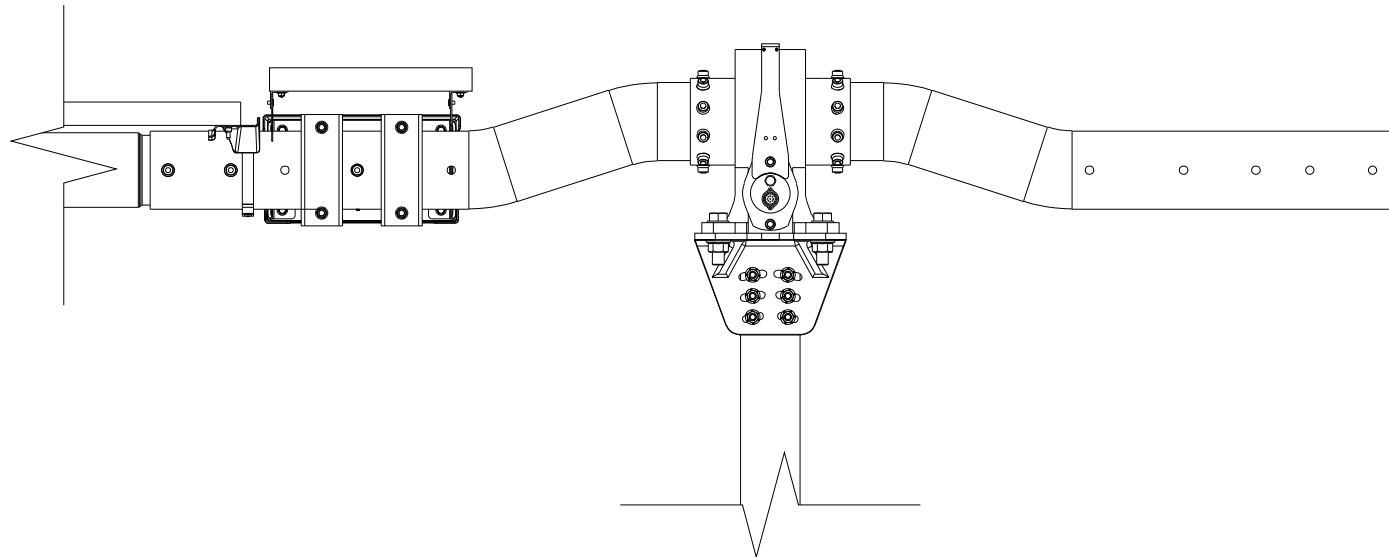


7A NORTH WING (ONLY) TRACKER  
SCALE: N.T.S.

- NOTE:
- IF SITE REQUIRES TILTED BRACKET PANEL MUST FACE EQUATOR

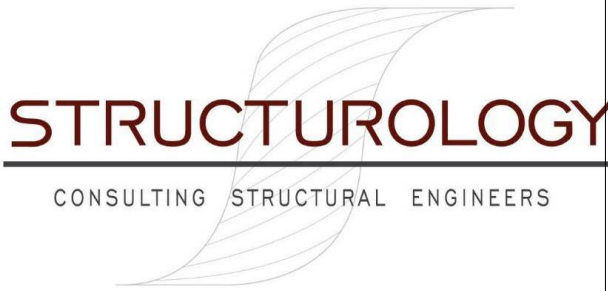


7B 2-WING TRACKER  
SCALE: N.T.S.



7C SOUTH WING (ONLY) TRACKER  
SCALE: N.T.S.

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CS ENERGY  
NORTH STONINGTON

CT, NORTH AMERICA  
US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

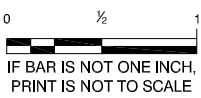
BHA & DAMPER  
DETAILS(0 - <6.1%)

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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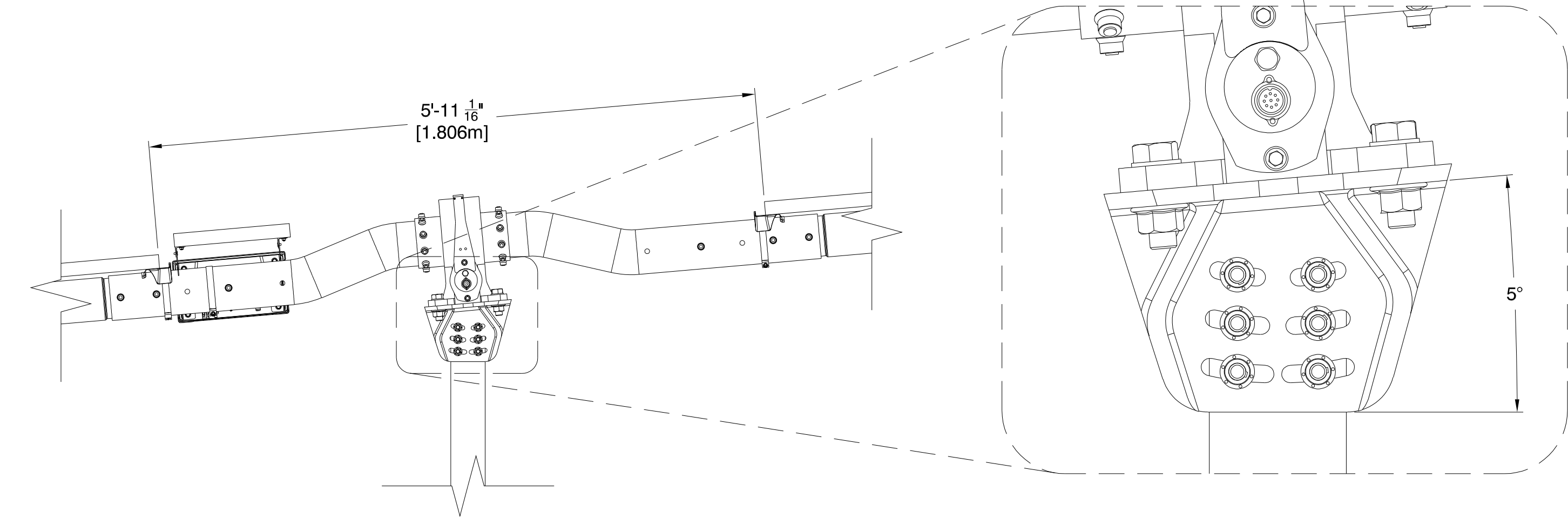
SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

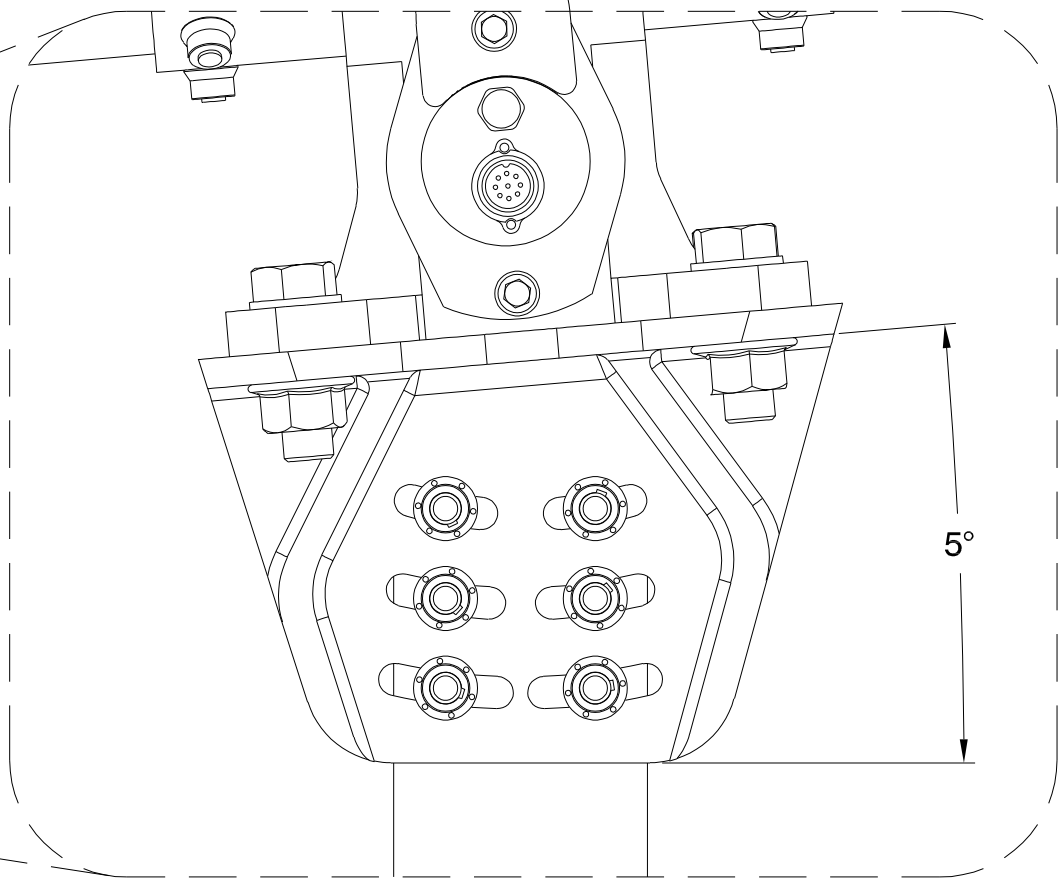
S-601



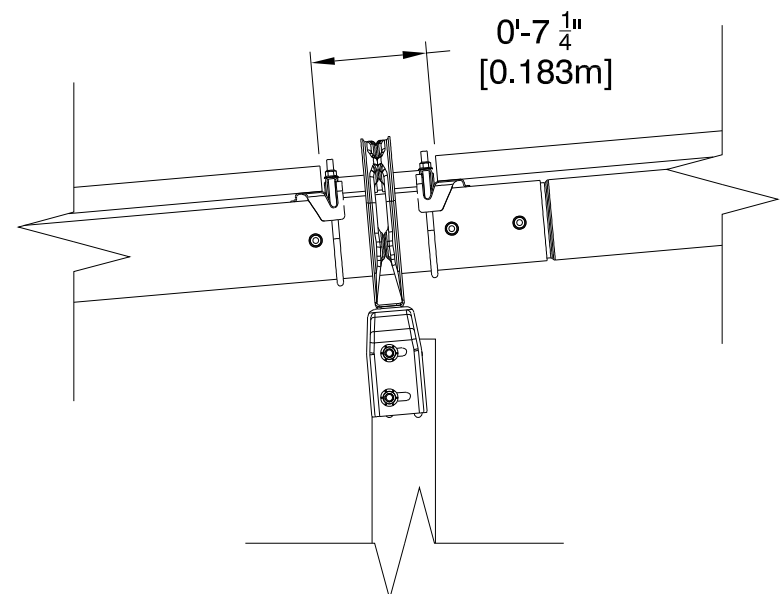




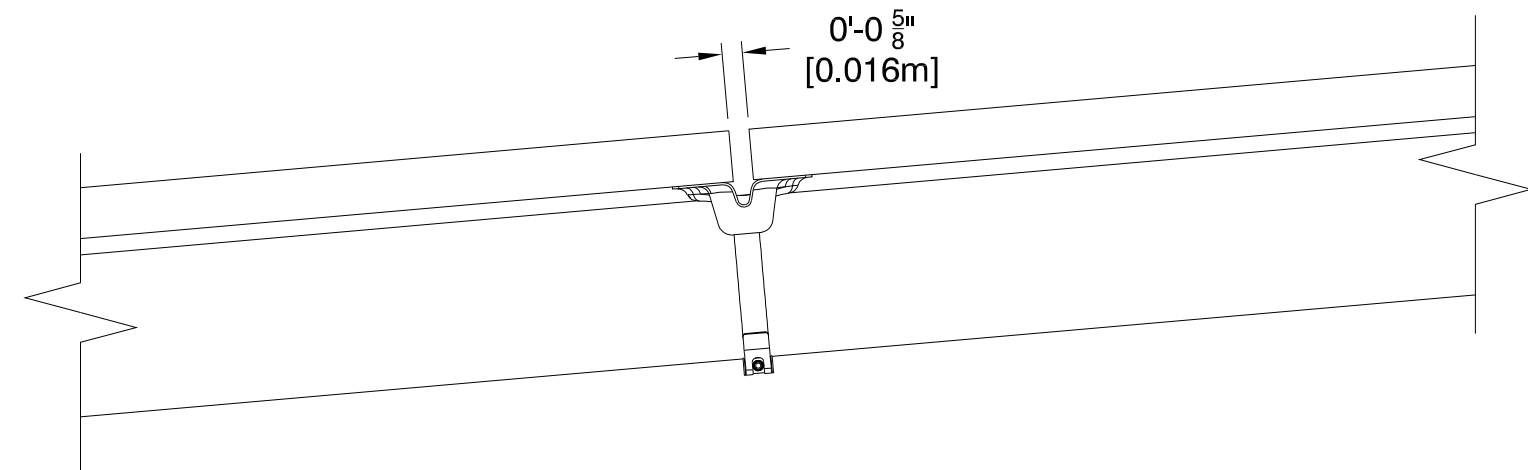
1 TYPICAL MOTOR SPACING  
SCALE: N.T.S.



2 HIGH SLOPE MOTOR BRACKET  
SCALE: N.T.S.



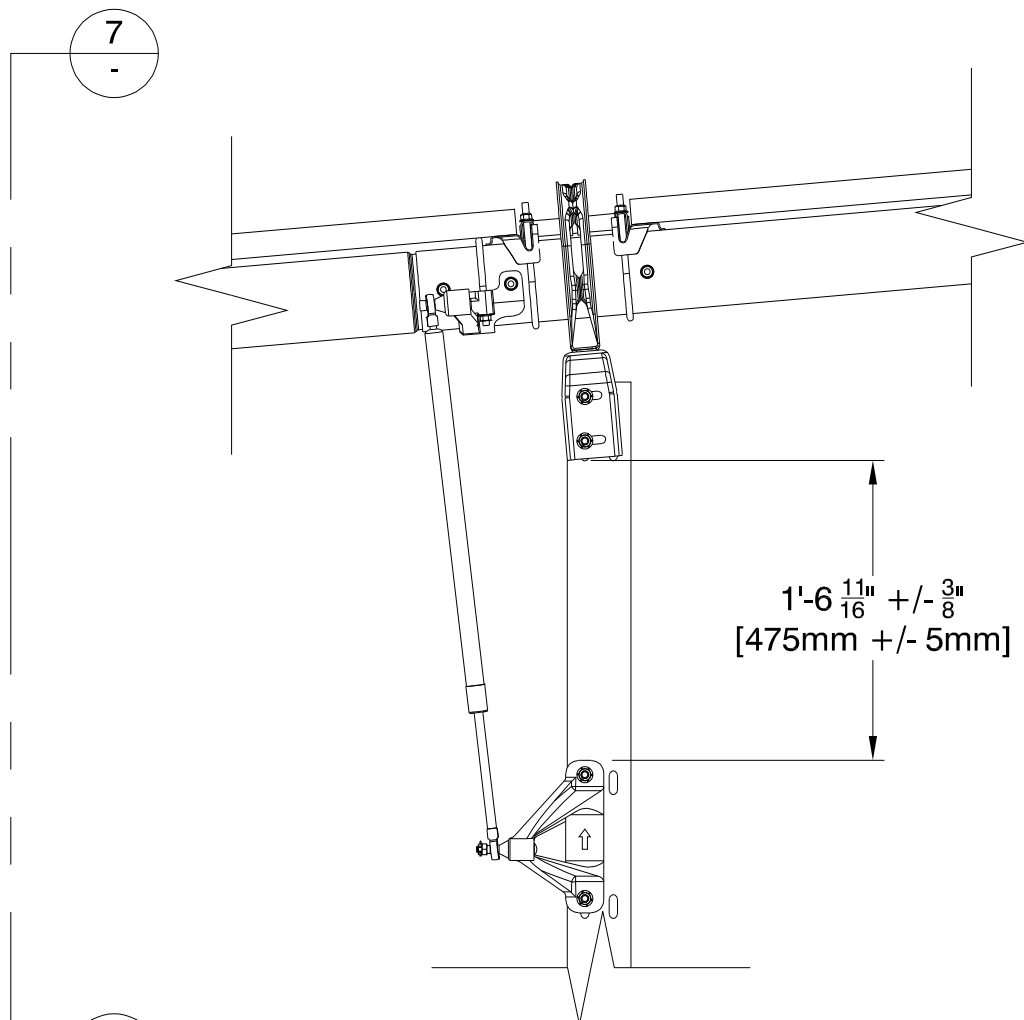
3 TYPICAL BHA SPACING  
SCALE: N.T.S.



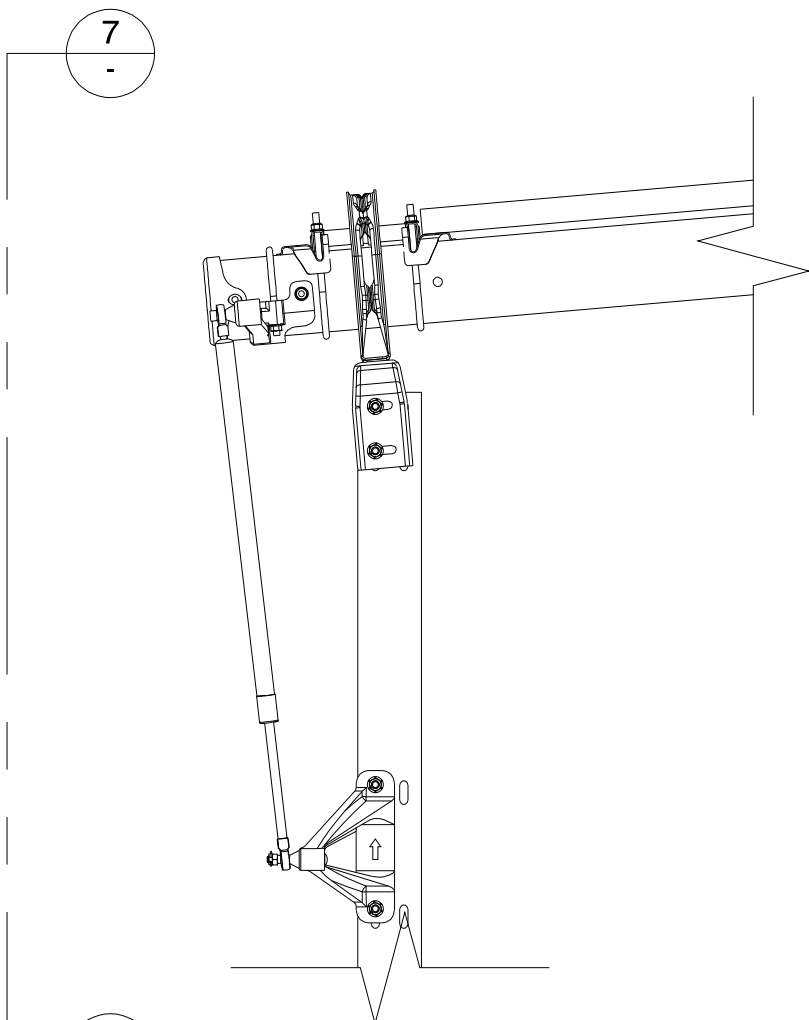
4 TYPICAL MODULE SPACING  
SCALE: N.T.S.

NOTES:  
MODULE SPACING MAY VARY SLIGHTLY DEPENDING ON MODULE TYPE

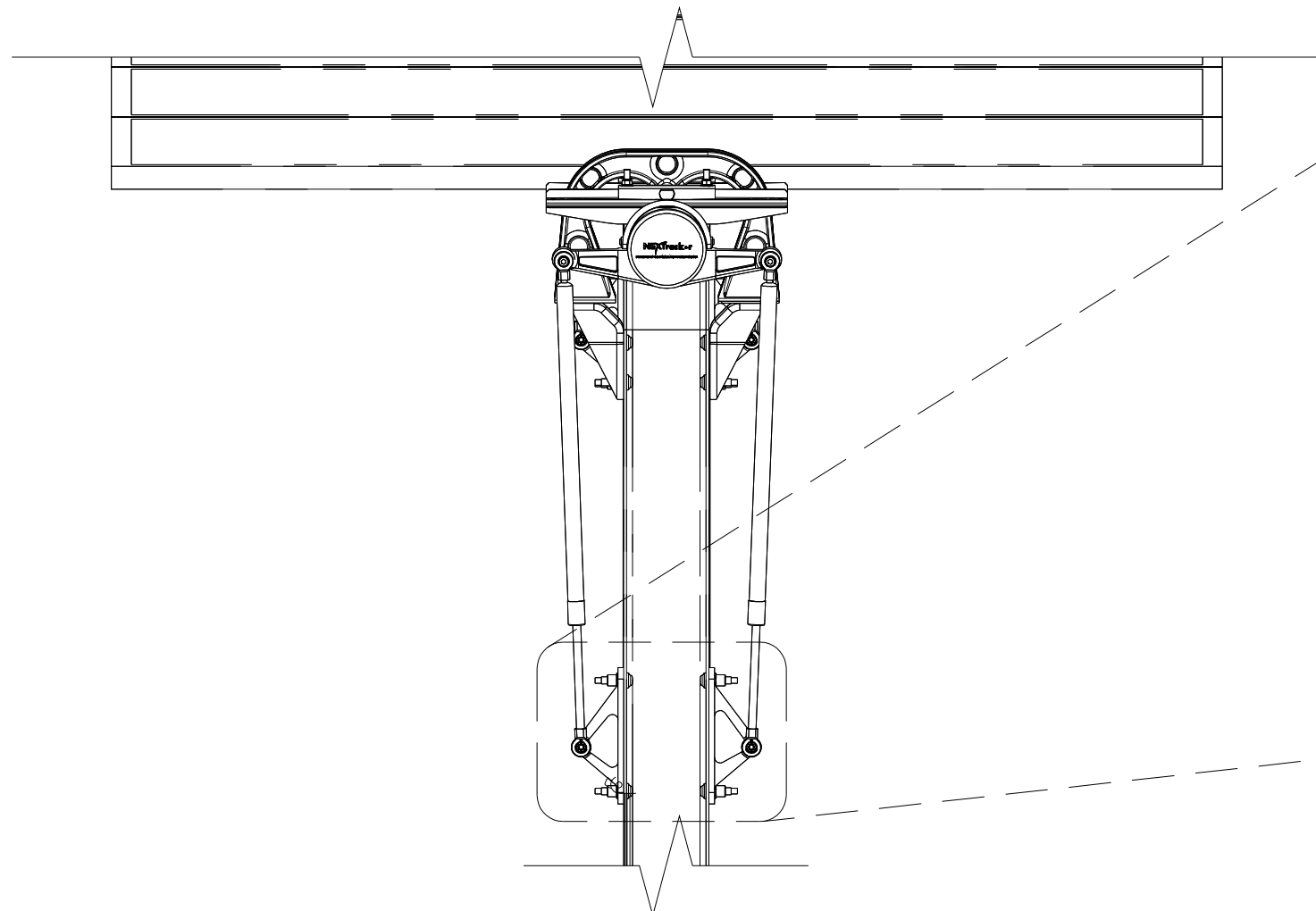
- NOTES:
1. DAMPERS SHALL BE INSTALLED ROD END DOWN
  2. DOUBLE DAMPERS WILL USE BOTH SIDE 1 & 2 LOWER DAMPER MOUNTS
  3. SINGLE DAMPERS WILL USE SIDE 1 LOWER DAMPER MOUNTS
  4. LOWER DAMPER MOUNTS SHALL BE INSTALLED ON DOWNHILL SIDE OF PIER
  5. LOWER DAMPER MOUNTS SHALL BE INSTALLED WITH ARROW POINTING UPWARDS



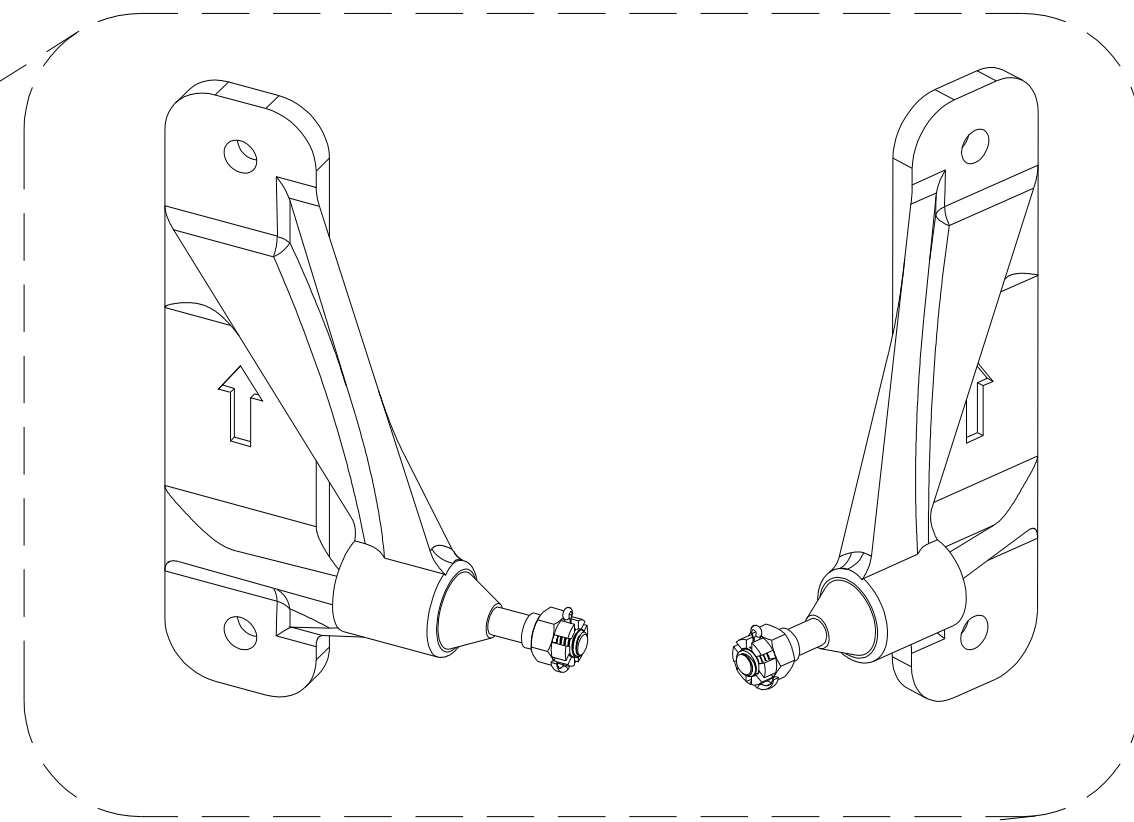
5 INNER SINGLE/ DOUBLE DAMPER  
SCALE: N.T.S.



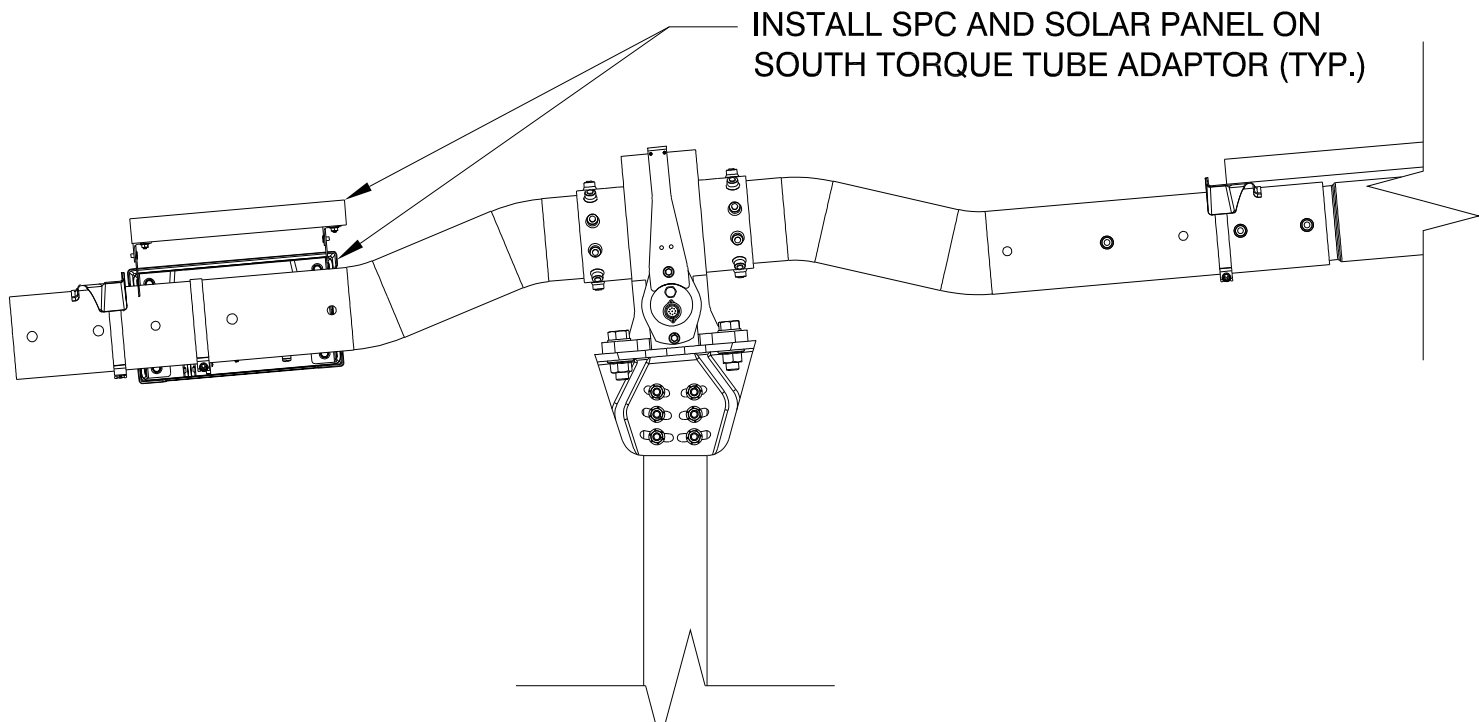
6 OUTER SINGLE/DOUBLE DAMPER  
SCALE: N.T.S.



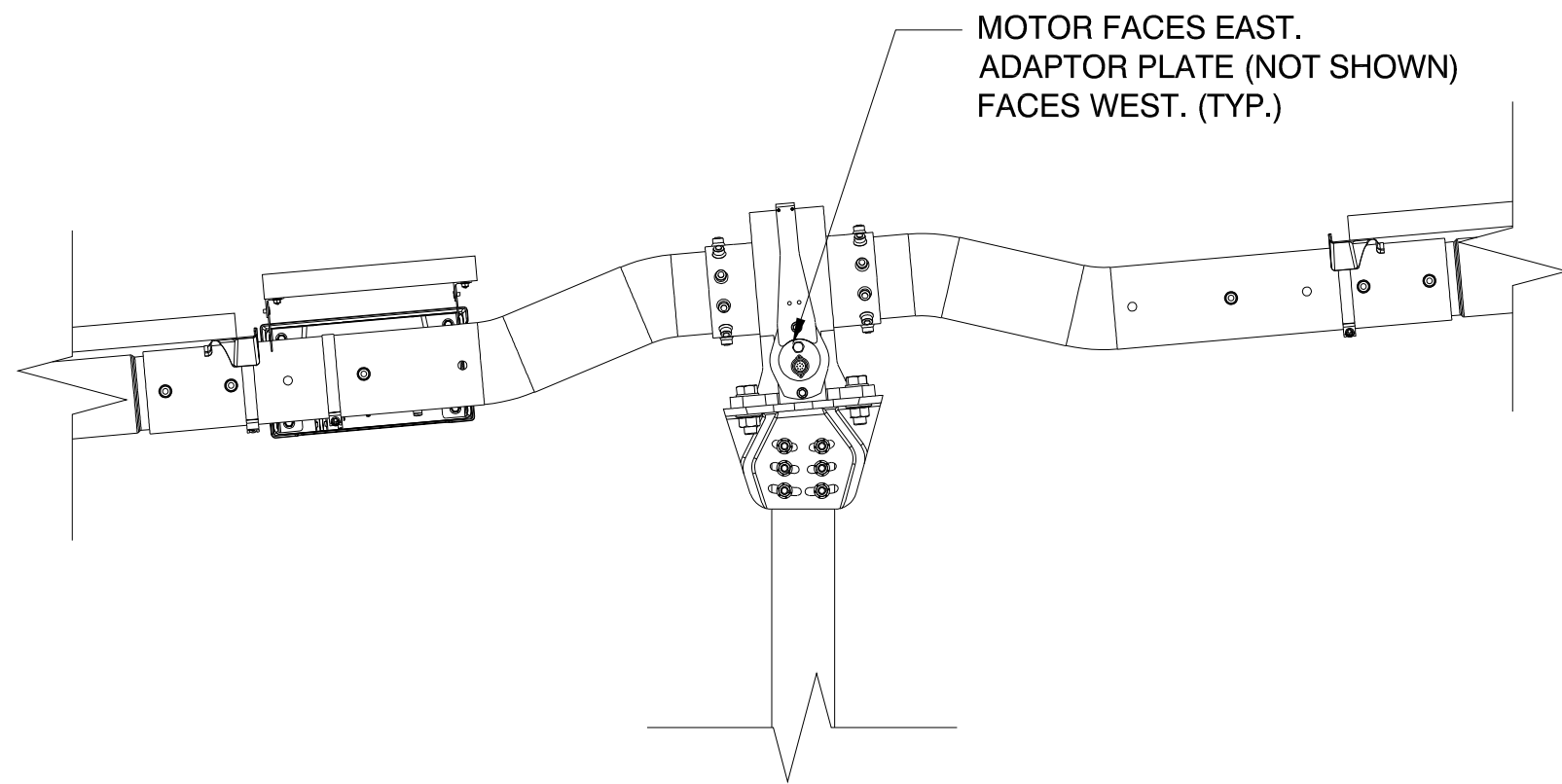
7 SINGLE/DOUBLE DAMPER  
SCALE: N.T.S.



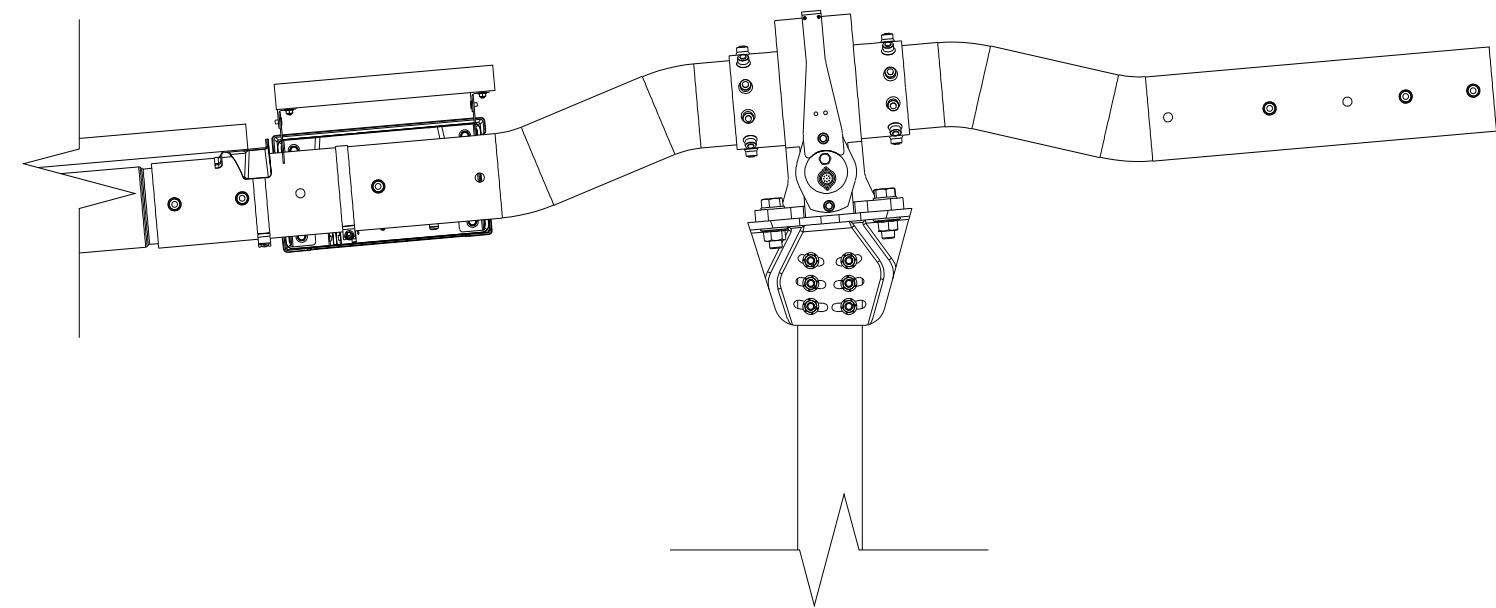
8 HIGH SLOPE LOWER DAMPER MOUNTS (SIDE 1 & 2)  
SCALE: N.T.S.



9A NORTH WING (ONLY) TRACKER  
SCALE: N.T.S.



9B 2-WING TRACKER  
SCALE: N.T.S.



9C SOUTH WING (ONLY) TRACKER  
SCALE: N.T.S.

**NEXTracker.**  
A Flex Company

NEXTracker Inc.  
6200 Paseo Padre Parkway  
Fremont, CA 94555

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ITEMS ONLY.

CS ENERGY  
NORTH STONINGTON

CT, NORTH AMERICA  
US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

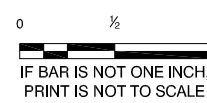
**BHA & DAMPER  
DETAILS (6.1 - 15%)**

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
1	LAYOUT UPDATED	05/18/2020	OL
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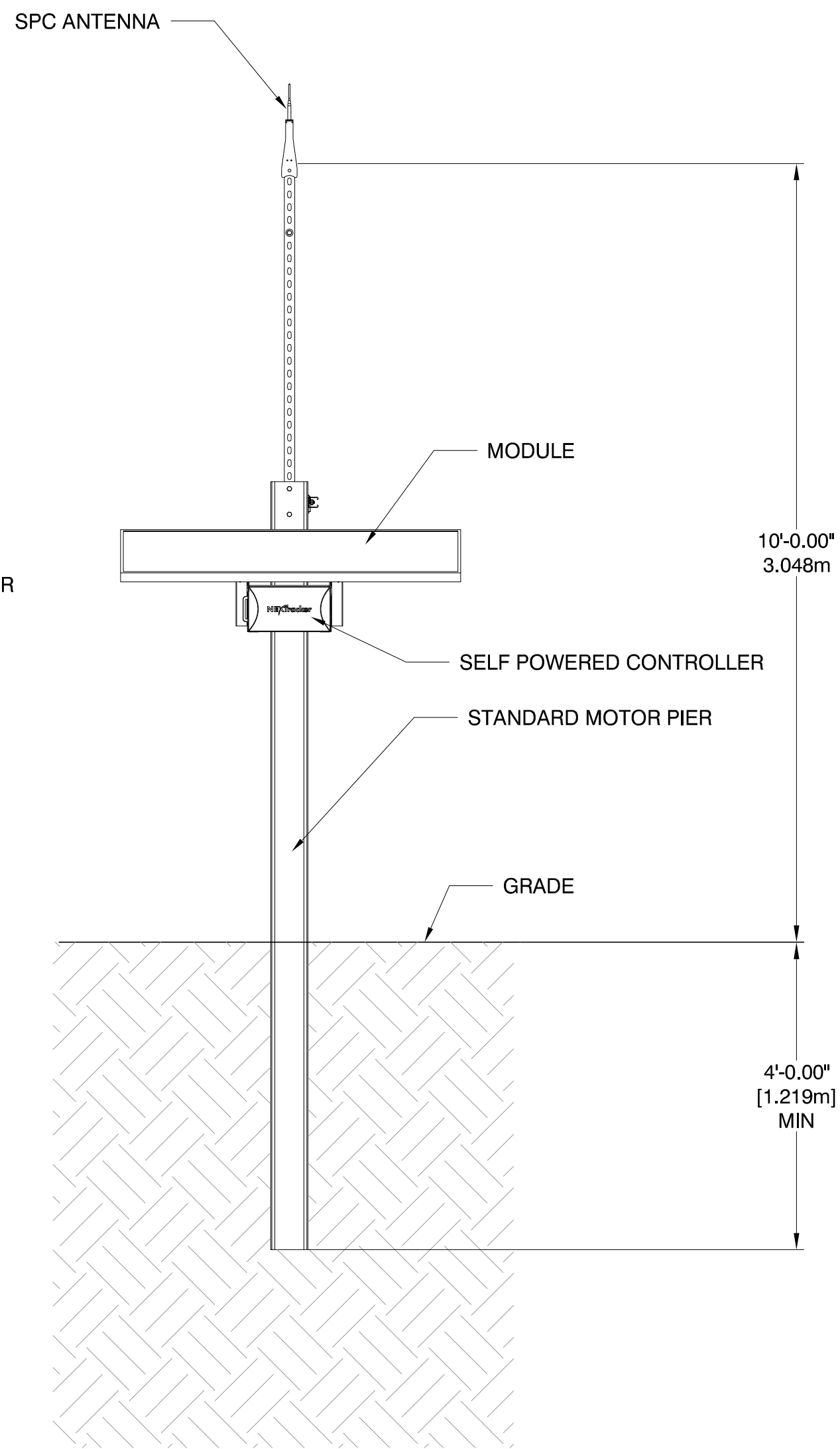
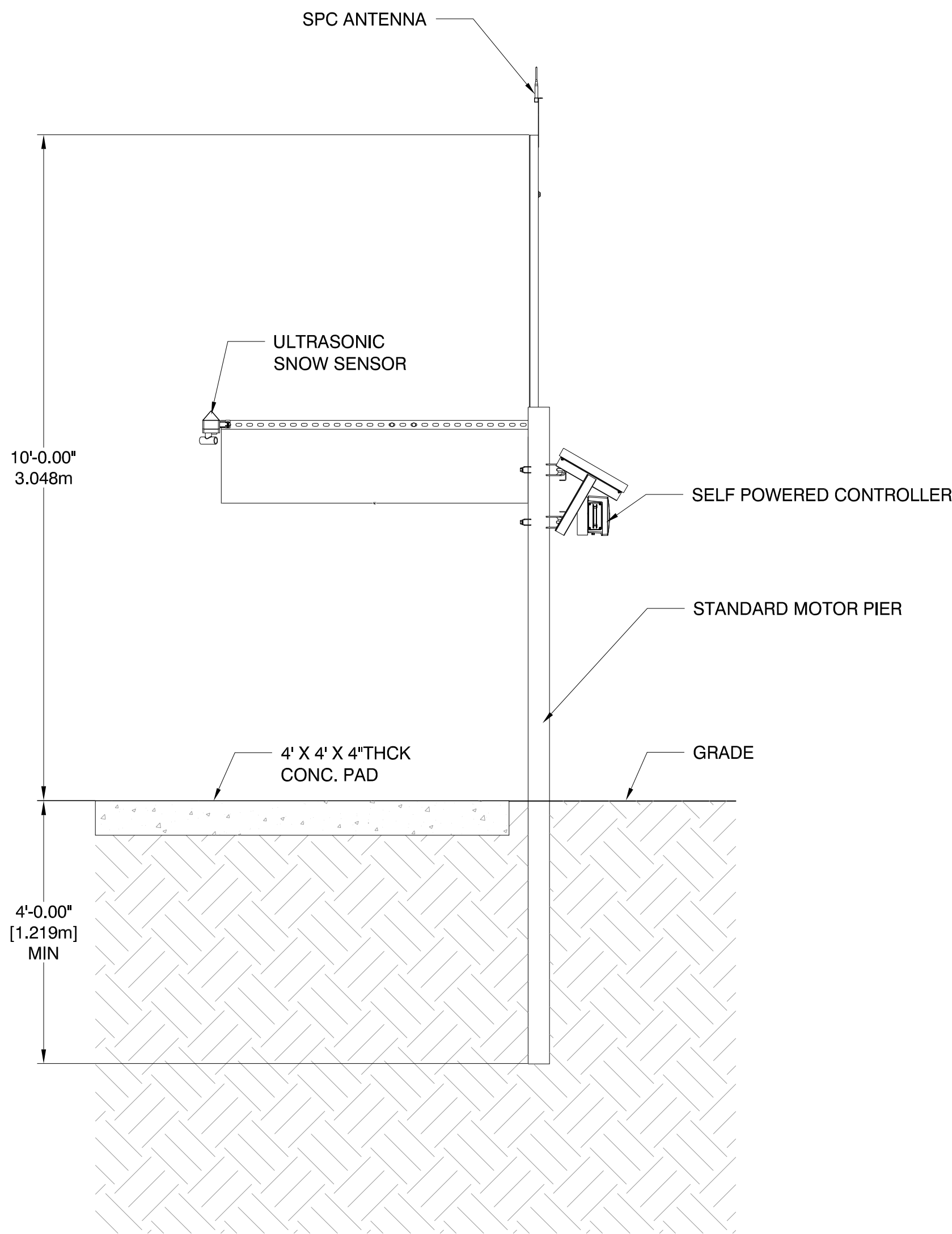
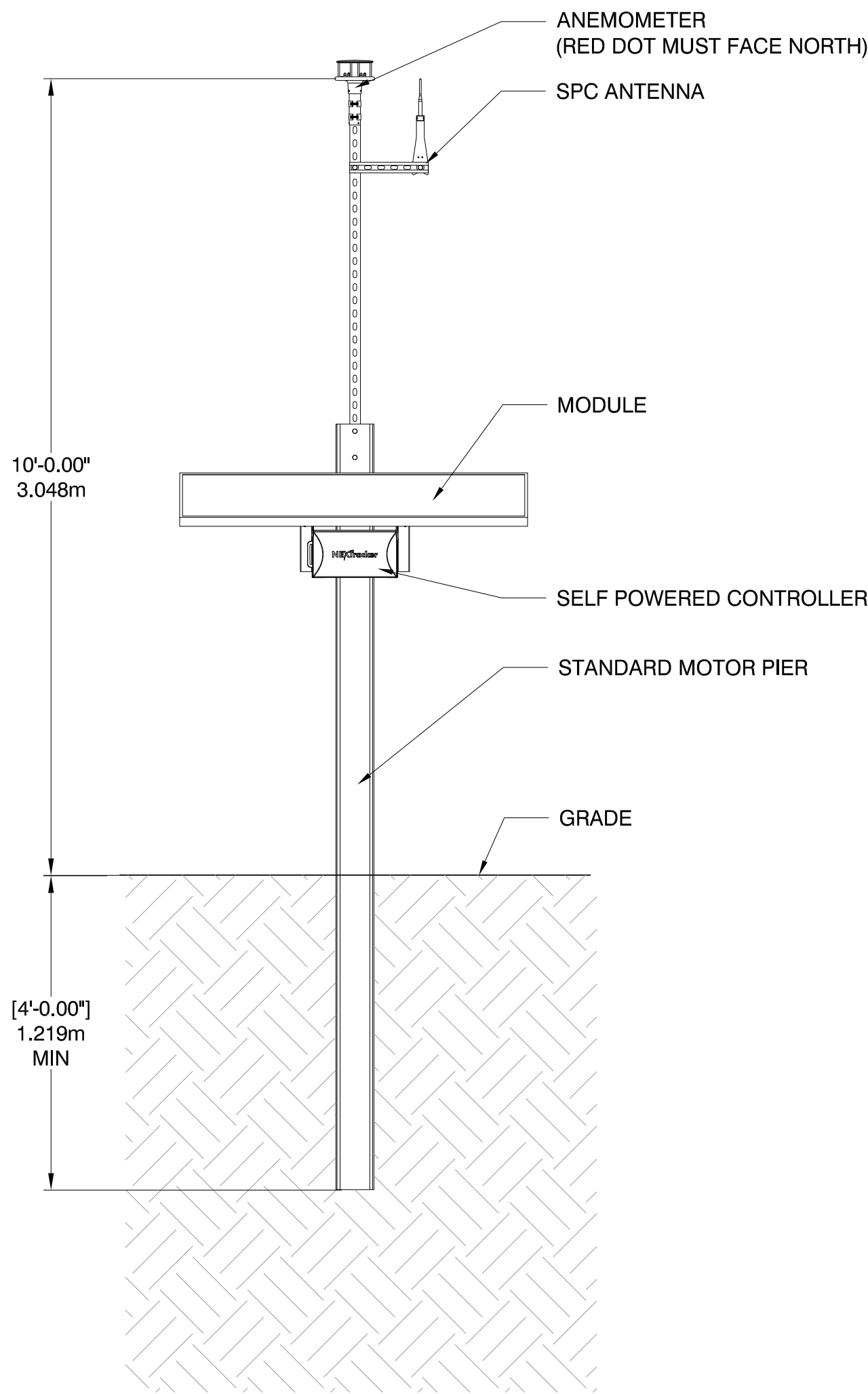
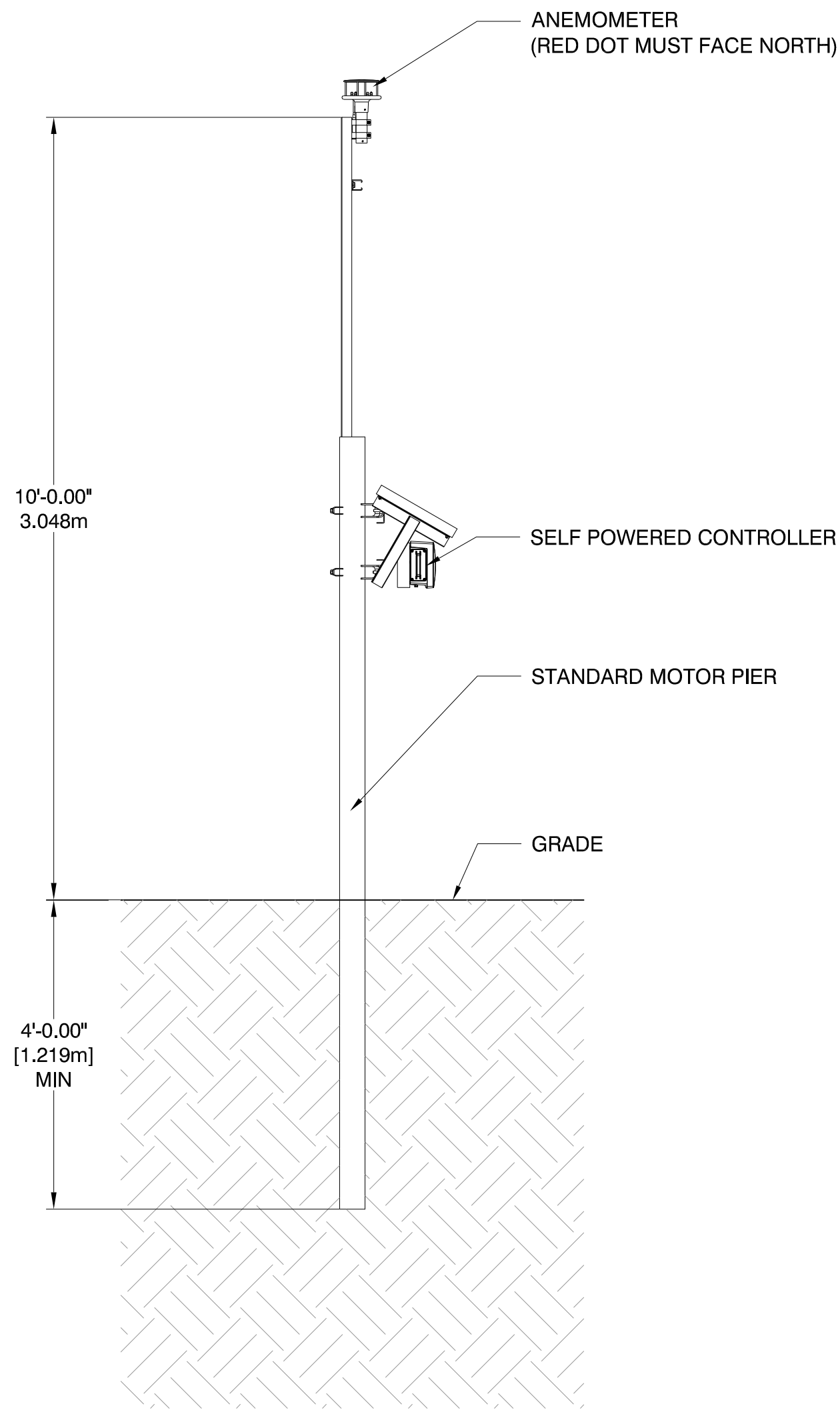
**SITE DETAILS**

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

S-602



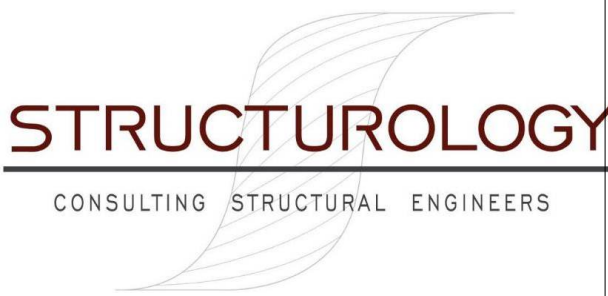




A Flex Company  
NEXTracker Inc.  
6200 Paseo Padre Parkway  
Fremont, CA 94555

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CS ENERGY  
NORTH STONINGTON

CT, NORTH AMERICA  
US

PROJECT NUMBER:

510063

SITE ID:

001035

SHEET TITLE:

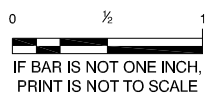
WEATHER STATION  
DETAILS

NO.	REVISION	DATE	INIT.
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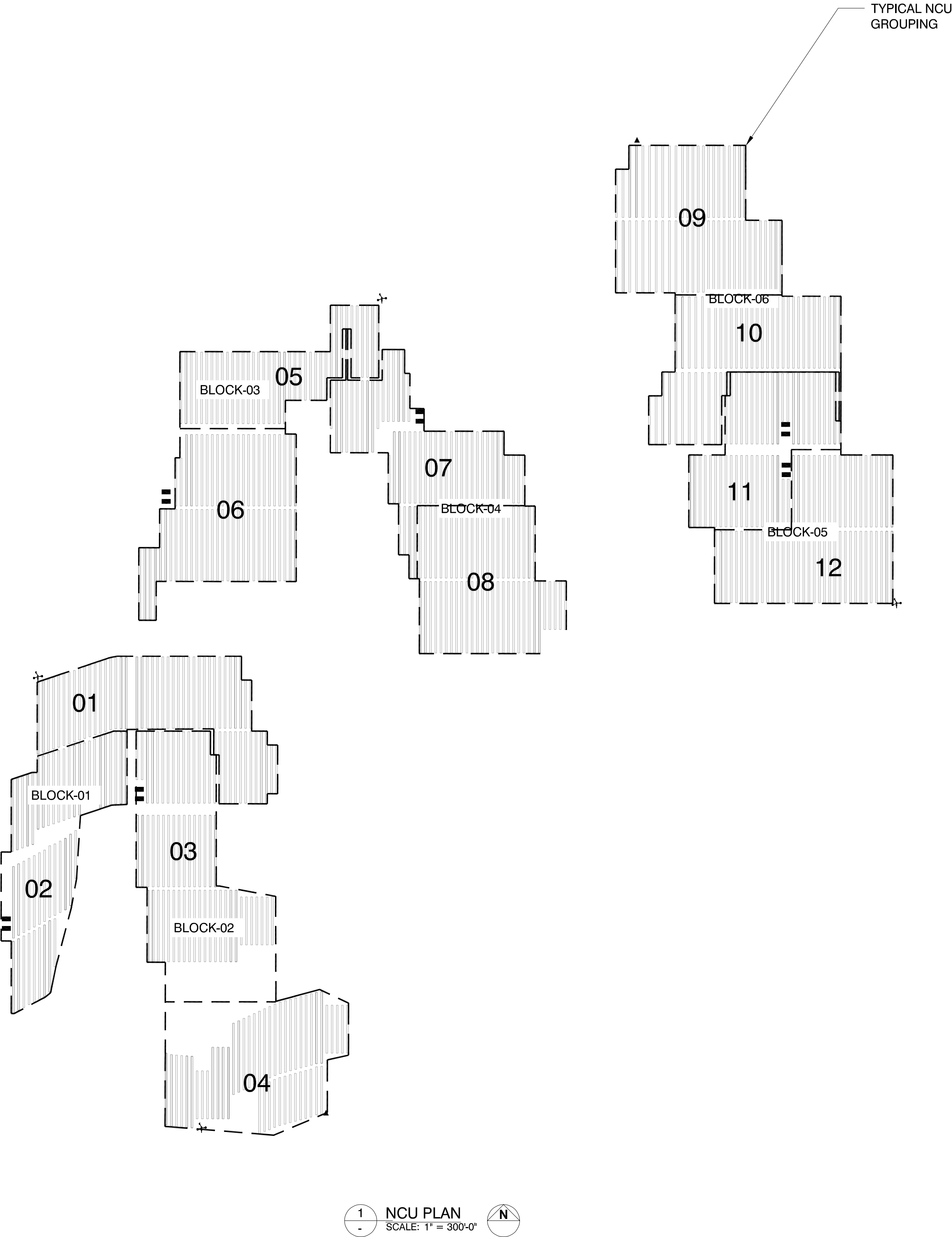
SITE DETAILS

LATITUDE	41.419684
LONGITUDE	-71.833032
SNOW LOAD	30 PSF
WIND LOAD	119 MPH ASCE 7-16
STOW STRAT.	50 STOW - 22MPH
NEXTRACKER	NX 100 2.4.9.4
81 TRACKER	6-6-7-7-6-M-6-8-8-8-6-6
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DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE
SHEET NO.:	

S-701



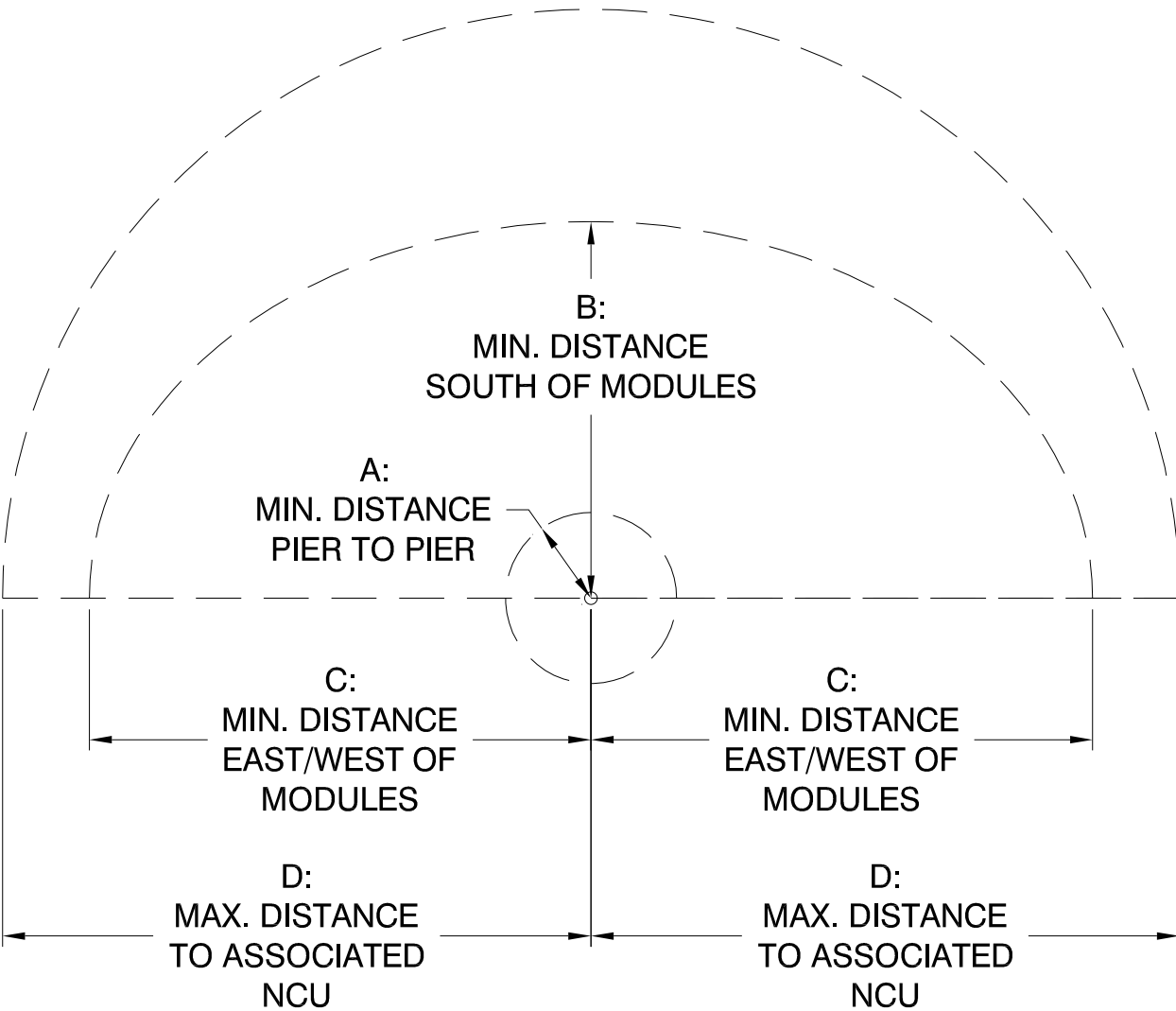




NCU PLAN KEY	
SYMBOL	DESCRIPTION
	NCU
	WIND SENSOR, WEATHER STATION
	SNOW SENSOR, WEATHER STATION

- NOTES:
- NCUs ARE LOCATED AT THE EQUIPMENT PAD.
  - UNISTRUT MOUNTING HARDWARE AND M8 FASTENERS WILL BE PROVIDED BY OTHER.
  - SPC RANGE LABELS ARE WEST TO EAST, NORTH TO SOUTH. SEE PIER PLAN (S-2XX) FOR TRACKER COLUMN LABELS & SECTION LABELS WHICH CORRESPOND TO SPC RANGES SHOWN IN THE TABLE BELOW.
  - WEATHER STATION SYMBOLS ARE SCHEMATIC. ASSOCIATED PIERS MAY BE INSTALLED +/- 50 FEET FROM LOCATION INDICATED ON PLANS IF THEY ALSO MEET THE FOLLOWING CRITERIA:

- A. PIER TO PIER: MIN. 3 FEET  
B. SOUTH OF MODULES: MIN. 13.5 FEET  
C. EAST/WEST OF MODULES: MIN. 18 FEET  
D. PIER TO ASSOCIATED NCU UNIT: MAX. 1148 FEET



NCU #	BLOCK NUMBER	SPC (RANGE)	# WIND SENSORS	# SNOW SENSORS	CHANNEL	PAN ID
01	01	106-146 240-251	01	00	15	0001
02	01	201-223 301-313 401-409	00	00	16	0002
03	02	101-116 201-216 303-327	00	00	17	0003
04	02	406-441 524-536	01	00	18	0004
05	03	109-140 142-147	01	00	19	0005
06	03	208-231 301-331	00	00	20	0006
07	04	104 201-216 312-338 414-417	00	01	21	0007
08	04	418-440 518-546	00	0	22	0008
09	05	108-129 201-220	00	01	23	0009
10	05	221-240 306-340	00	00	24	0010
11	06	101-123 201-230	00	00	25	0011
12	06	310-340 406-417 440	01	00	15	0012

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NEXTracker Inc.

6200 Paseo Padre Parkway

Fremont, CA 94555

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CS ENERGY

NORTH STONINGTON

CT, NORTH AMERICA

US

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NCU PLAN

NO.	REVISION	DATE	INIT.
0	ISSUE FOR PERMIT	05/18/2020	AA
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SITE DETAILS

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54 TRACKER	6-6-6-M-6-8-8-8-6
DATE	05/18/2020
DRAWN BY	AA
CHECKED BY	LEE

SHEET NO.:  
S-901

0 30 1

IF DIM IS NOT ONE INCH, PRINT IS NOT TO SCALE