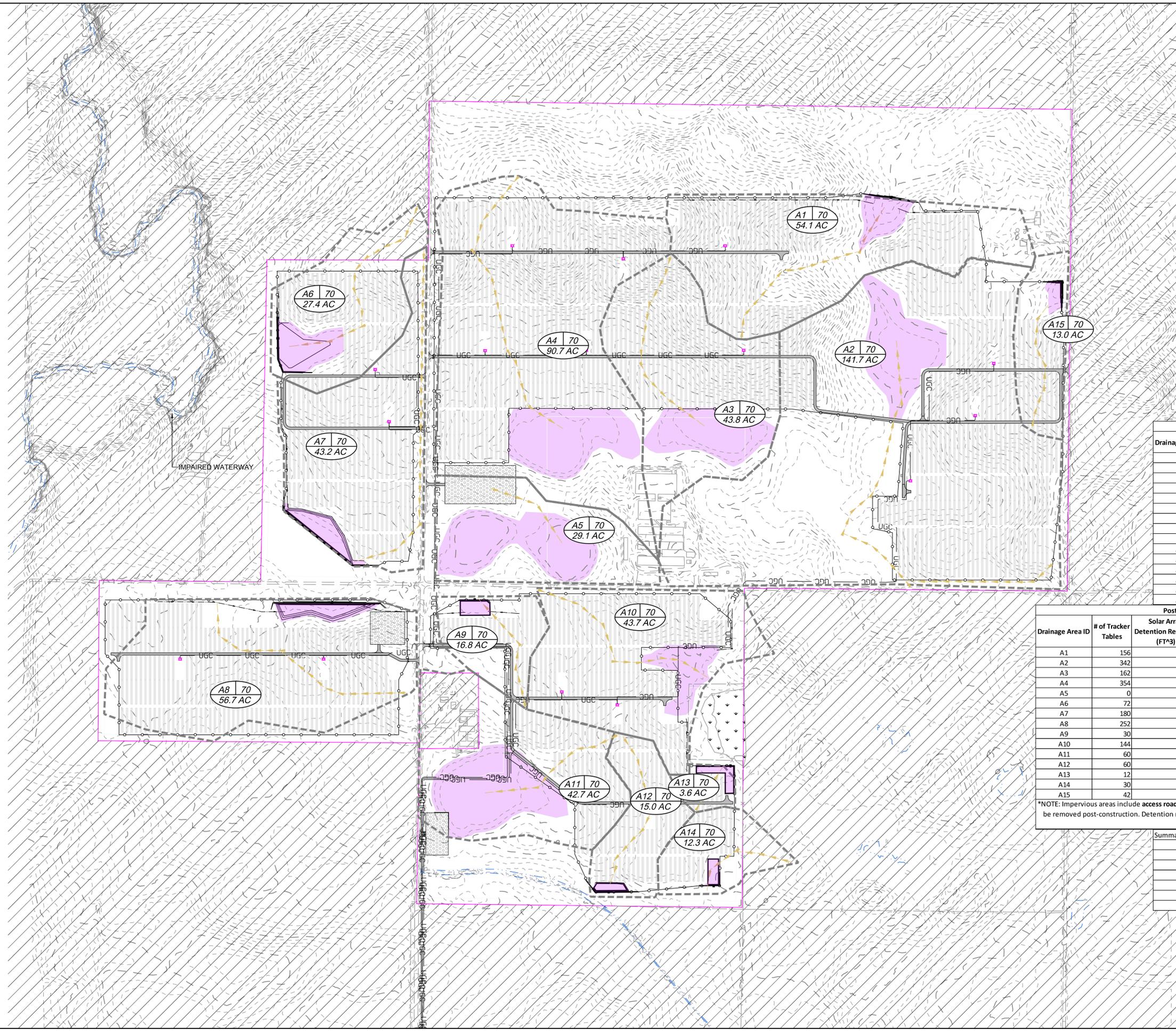


Y:\041\35859\_048 Red Rock\DWG\Sheet\CD\35859\_048-C3-DD-DRAINAGE PLAN.dwg | Plotted on 8/14/2020 1:59 PM by Marcus Trew



**LEGEND**

- PERMANENT FENCE
- TRACKER
- ACCESS ROAD
- LAYDOWN AREA
- INVERTER
- DRAINAGE AREAS
- DRAINAGE FLOW PATH
- DRAINAGE AREA INFO
- DIVERSION DITCH
- OUTSIDE OF PROJECT BOUNDARY
- WETLANDS
- DRAINAGE BASIN AREAS

Construction Sediment Requirements				
Drainage Area ID	Drainage Area (Ac)	3,600 CF per Acre Value	Storage Required (Ac-Ft)	Provided Storage (Ac-Ft)
A1	54.1	194,760	4.47	4.82
A2	141.7	510,120	11.71	14.28
A3	43.8	157,680	3.62	8.95
A4	90.7	326,520	7.50	12.13
A5	29.1	104,760	2.40	12.89
A6	27.4	98,640	2.26	4.44
A7	43.2	155,520	3.57	4.50
A8	56.7	204,120	4.69	5.68
A9	16.8	60,480	1.39	1.50
A10	43.7	157,320	3.61	7.15
A11	42.7	153,720	3.53	14.24
A12	15.0	54,000	1.24	1.30
A13	3.6	12,960	0.30	1.05
A14	12.3	44,280	1.02	1.08
A15	13.0	46,800	1.07	1.13

Drainage Area ID	# of Tracker Tables	Post-Development Detention Requirements				
		Solar Array Detention Required (FT^3)	Other Impervious Areas (SF)	Other Impervious Areas Detention Required (FT^3)	Total Detention Required Per Drainage Area (FT^3)	Detention Provided (FT^3)
A1	156	11,934	21,290	1,774	13,708	210,141
A2	342	26,163	85,370	7,114	33,277	622,208
A3	162	12,393	28,550	2,379	14,772	389,831
A4	354	27,081	70,270	5,856	32,937	528,255
A5	0	-	-	-	-	561,370
A6	72	5,508	12,610	1,051	6,559	193,433
A7	180	13,770	42,490	3,541	17,311	197,730
A8	252	19,278	53,530	4,461	23,739	247,525
A9	30	2,295	26,210	2,184	4,479	65,380
A10	144	11,016	26,040	2,170	13,186	311,325
A11	60	4,590	30,910	2,576	7,166	620,400
A12	60	4,590	9,170	764	5,354	56,585
A13	12	918	9,550	796	1,714	45,810
A14	30	2,295	-	-	2,295	46,943
A15	42	3,213	23,850	1,988	5,201	49,100

\*NOTE: Impervious areas include access roads, inverters, and percentage of solar array. Gravel laydown yards temporary and to be removed post-construction. Detention requirements assume 1" depth for all impervious areas. Percentage of solar array calculation summary below.

Summary of Detention Requirements for Solar Array (Per MPCA Spreadsheet)	
Impervious Area per Table (SF)	1935.5
Pervious Area per Table (SF)	6530.4
Typical Soil Types	D
I/P Ratio	0.296
Total Performance Goal per Tracker Table (FT^3)	161.29
% Performance Goal Achieved for Solar Array	52.6%
Required Detention per Tracker Table (FT^3)	76.5

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**APEX CLEAN ENERGY**  
 PROJECT NAME & ADDRESS  
**RED ROCK SOLAR**  
 COTTONWOOD COUNTY, MN  
 310 4TH ST. NE, SUITE 300  
 CHARLOTTESVILLE, VA 22902

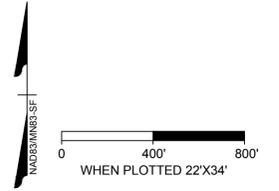
DATE: 08/13/2020  
 PROJECT NUMBER: 35859\_048  
 PROJECT NAME: RED ROCK SOLAR  
 PRELIMINARY  
 DESIGNED BY / DRAWN BY: M. TREW / M. TREW  
 SEAL:

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REVISIONS	
#	DESCRIPTION

DRAWING DESCRIPTION	

**DRAINAGE PLAN**  
 SCALE: 1" = 400'  
 SHEET NUMBER: C3.00



**GENERAL CONSTRUCTION NOTES:**

- The contractor shall be responsible to furnish all material and labor to construct the facility as shown and described in the construction documents and in accordance with the appropriate approving authorities, specifications and requirements.
- All existing utilities shown are located according to the information available to the engineer at the time the drawings were prepared and have not been independently verified. Guarantee is not made that all existing underground utilities are shown or that the location of those shown are accurate. Finding the actual location of any existing utilities is the contractor's responsibility and shall be done before commencement of any work in the vicinity. Furthermore, the contractor shall be fully responsible for any and all damage due to the contractor's failure to exactly locate and preserve all utilities. The owner or engineer will assume no liability for any damage sustained or cost incurred because of the operations in the vicinity of existing utilities or structures, nor for temporary bracing and shoring of same. If it is necessary to shore, brace, swing or relocate a utility, the utility company or department affected shall be contacted by the contractor and their permission obtained regarding the method to use for such work.
- It is the contractor's responsibility to contact the various utility companies which may have buried or aerial utilities within or near the construction area before commencing work. The contractor shall provide 72 hours minimum notice to all utility companies prior to beginning construction. The contractor shall use all necessary safety precautions to avoid contact with overhead and underground power lines.
- Contractor is responsible for all construction field staking, testing and documentation, unless specified otherwise by the owner.
- All contractors must confine their activities to the work area. No encroachments onto developed or unleased areas will be allowed. Any damage resulting therefrom shall be contractor's responsibility to repair.
- These plans, prepared by Timmons Group, do not include designs or systems pertaining to the safety of the contractor or its employees, agents or representatives in the performance of the work. The engineer's seal hereon does not cover any such safety system of the contractor and the contractor shall be responsible for the design and implementation of all required safety procedures and programs.
- The contractor will be solely responsible for implementing an applicable traffic control plan per Minnesota department of transportation (MNDOT) standards and SWPP plan measures as required. Traffic control per MNDOT and the manual of uniform traffic control devices (MUTCD). Contractor is responsible for adaptation and implementation to suit site specific situations.
- The contractor shall obtain and comply with terms of permits issued by each jurisdictional agency. Issuance of this plan does not equate approval from the applicable agencies.
- The contractor is responsible for removal of all construction debris. Burning and/or burying must be approved by the owner and landowner.
- Contractor to relocate all power lines, signs, mailboxes and other obstructions as required.
- Contractor shall locate stockpiles so they do not interfere with the drainage.
- Contractor to notify and obtain permission from the MNDOT prior to construction in the respective row or easement area. Contractor shall follow MNDOT specifications and details for all work within the DOT row.
- The contractor shall notify Minnesota 811 at least 48 hours before excavation activities commence.
- Should any prehistoric or historic remains/artifacts be discovered during site development, work shall temporarily be halted at the specific site and the State Historic Preservation Office of the Department of Museums, Library and Arts shall be notified to record and photograph the site. The period of temporary delay shall be limited to a maximum of two (2) working days from the date of notification.
- All grading shall comply with the standards including, but not limited to maximum slope ratios of 3:1 and varying curvilinear slopes.

**NEW ACCESS ROAD GRADING, MATERIALS AND COMPACTION:**

- The private access roads have been design to accommodate light duty trucks for low volume use in normal operating conditions as well as heavy delivery vehicles throughout the construction period. The road design is not intended for all weather use of high volume, heavy construction loads. Periodic roadway maintenance is required such as grading and replacement of approved road base during and after construction including after heavy rain or excessive freeze-thaw cycles.
- Design access road structural sections are minimum thickness. The engineer of record should be contacted if adverse soil conditions are encountered and a thicker section may be required.
- The contractor shall field verify the horizontal and vertical locations of all existing utilities prior to start of construction and shall notify the construction manager and engineer of any conflicts discovered. Contractor is responsible for protecting existing utilities (shown or not shown) within scope of construction. If any existing utilities are damaged, the contractor shall repair or replace them at contractor's expense.
- All excavating is unclassified and shall include all materials encountered. Unusable excavated material and all waste resulting from site clearing and grubbing shall be disposed of off-site or by arrangement with the landowner at the contractor expense.
- All trees, brush, stumps and debris shall be removed by the contractor in the road construction area. The topsoil shall be removed from roadway and stockpiled for later use in the area that is to be re-vegetated.
- After removal of the topsoil, the roadway subgrade should be compacted and then smoothed and checked for pumping using a minimum 25-ton gross weight tandem axle vehicle. If areas "pump" or rut greater than 1.5 inches, soft area soils should be excavated and re-compacted or replaced with granular soils. Soft areas should be rechecked by proof-rolling and the process repeated as needed. Proof-rolling shall be performed in the presence of the geotechnical engineer or qualified technician.
- Fill soils should be placed in loose lifts not exceeding 8". Fill material shall be compacted to a minimum of XX% of the maximum dry density and +/- 2% of optimum moisture content as determined by AASHTO T 180 (Modified Proctor), Method D (TTCP Modified).
- Fill should be compacted and proof-rolled as described in item 6.
- Care should be taken to ensure the exposed subgrade or fill soils do not dry out or become saturated prior to placement of additional fill or base material. If this occurs, the exposed fill soils or subgrade should be scarified, moisture adjusted, and re-compacted before placement of additional material.
- Subgrade preparation and compaction shall not be conducted when the ground is frozen. Frozen material shall not be placed for compaction. However, if temperatures are above freezing, and if the depth of the frozen ground does not exceed 6 inches then small sections (less than 500 feet in length) may be stripped to below the depth of the frozen ground and compacted immediately and unfrozen aggregate added and compacted according to plans before the next freeze.
- Approved base should be placed in loose lifts per the MNDOT Standards Specifications for Highway and Bridge Construction recommendations. Approved base shall be locally sourced flex base material meeting the requirements of MNDOT spec shown.
- Approved road base should be proof-rolled with a minimum 25 ton gross weight tandem axle vehicle. If pumping or tugging more than 1-inch are observed, soft areas should be excavated and re-compacted or replaced and re-checked by proof-rolling.
- Sediment controlled construction entrance and exit shall be placed at all construction entrances.
- Approved road base shall be compacted per MNDOT Standards Specifications for Highway and Bridge Construction recommendations to the maximum dry density as determined by AASHTO T 180 (Modified Proctor), Method D (TTCP Modified), at a frequency of one test per lift per 2000 lineal feet, or minimum of 2 tests per lift per access road, whichever is greater.

**AREA OF DISTURBANCE**

TOTAL AREA = +/- 418 ACRES

SHOULD ANY PREHISTORIC OR HISTORIC REMAINS/ ARTIFACTS BE DISCOVERED DURING SITE DEVELOPMENT, WORK SHALL TEMPORARILY BE HALTED AT THE SPECIFIC SITE AND THE STATE HISTORIC PRESERVATION OFFICE OF THE DEPARTMENT OF MUSEUMS, LIBRARY AND ARTS SHALL BE NOTIFIED TO RECORD AND PHOTOGRAPH THE SITE. THE PERIOD OF TEMPORARY DELAY SHALL BE LIMITED TO A MAXIMUM OF TWO (2) WORKING DAYS FROM THE DATE OF NOTIFICATION.



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PROJECT NAME & ADDRESS  
**RED ROCK SOLAR**  
 COTTONWOOD COUNTY, MN

DATE	08/13/2020
PROJECT NUMBER	35859.048
PROJECT NAME	RED ROCK SOLAR
PRELIMINARY	
DESIGNED BY / DRAWN BY	M. TREW / M. TREW

SEAL

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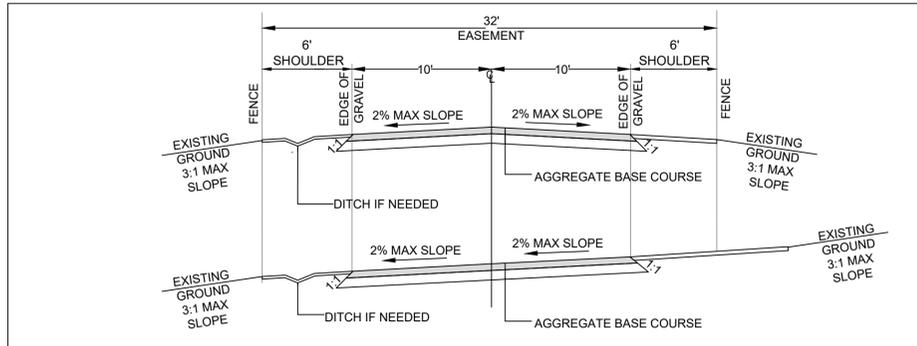
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#	DESCRIPTION

DRAWING DESCRIPTION

**NOTES & DETAILS**

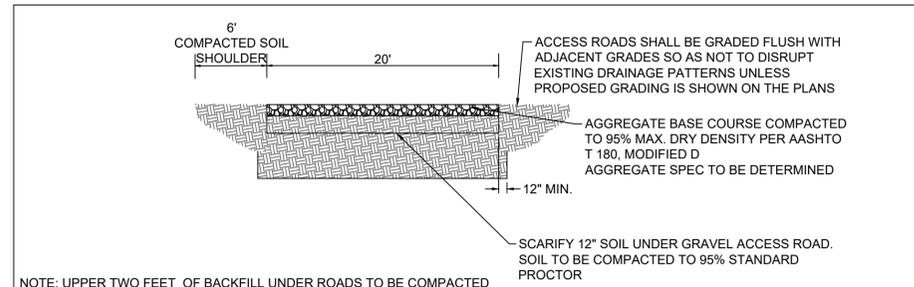
SCALE	SHEET NUMBER
NA	C4.00



- NOTE:
- CROSS SLOPE ROAD APPROACH MAY BE USED DURING CONSTRUCTION WHEN DRAINAGE IS PERPENDICULAR TO ROAD ALIGNMENT. UPON CONSTRUCTION COMPLETION, ACCESS ROADS SHALL BE CROWNED. CONTRACTOR IS RESPONSIBLE FOR ROAD MAINTENANCE AS NEEDED.
  - MATCH THE ACCESS ROAD DIRECTLY INTO EXISTING GROUND SURFACE
  - ROADS ARE TO FOLLOW EXISTING CONTOURS UNLESS OTHERWISE NOTED ON PLANS OR GRADES EXCEED THAT OF THE DELIVERY SPECIFICATIONS LISTED BY THE TURBINE PROVIDER. IF GRADES ARE EXCEEDED, CONTRACTOR MAY USE ASSIST VEHICLES OR MODIFY GRADES AS NEEDED.
  - SUBGRADE COMPACTED TO 95% MAX. DRY DENSITY AND +/- 2% OPTIMUM MOISTURE CONTENT PER AASHTO T 180, METHOD D.
  - THE LONGITUDINAL SLOPE OF THE ACCESS ROAD SHALL NOT EXCEED 6% AND THE WIDTH OF THE TRAVELED WAY OF OF THE ROAD SHALL BE AT LEAST 24 FEET WITH 2% NORMAL CROWN SLOPE

RW-1  
N.T.S. DRAFTED: 06-30-20  
CHECKED BY: TG

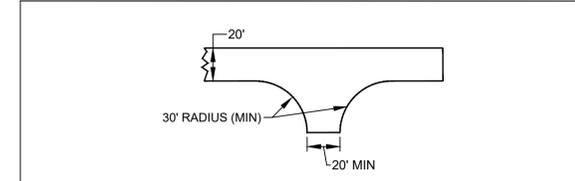
ACCESS ROAD TO SUBSTATION



- NOTE: UPPER TWO FEET OF BACKFILL UNDER ROADS TO BE COMPACTED TO 95% STANDARD PROCTOR. EARTH BACKFILL SHALL BE COMPACTED TO 95% STANDARD PROCTOR OUTSIDE OF ROADS.
- \* UPON AVAILABILITY, RECYCLED CONCRETE AGGREGATE (R.C.A.) MAY BE USED IN LIEU OF AGGREGATE BASE COURSE (A.B.C.).

RW-2  
N.T.S. DRAFTED: 06-30-20  
CHECKED BY: TG

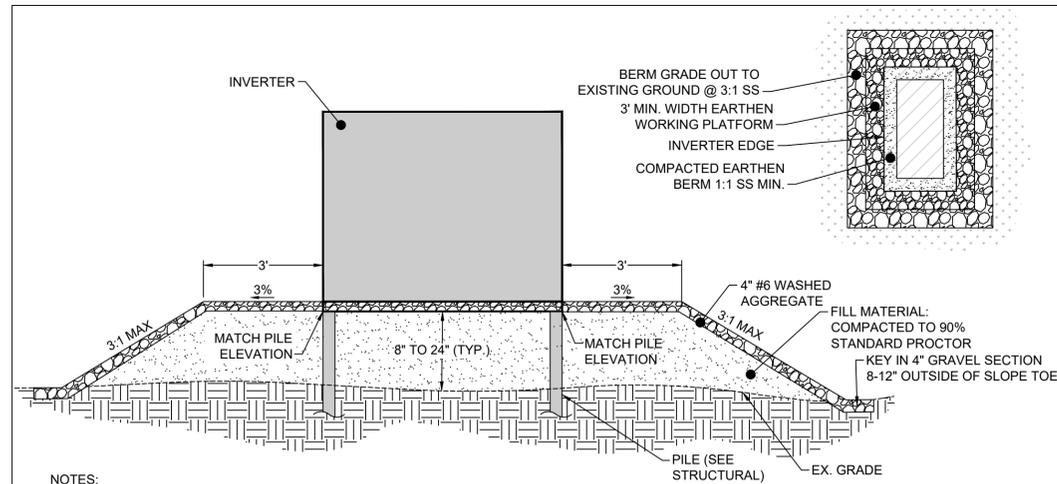
SOLAR PV ARRAY FARM ACCESS ROAD SECTION



- NOTE:
- ROAD WIDTH VARIES. SEE SITE PLAN SHEETS FOR DETAIL.
  - ROAD SECTION TYPE VARIES, SEE PLAN SHEETS FOR DETAIL.

RW-3  
N.T.S. DRAFTED: 06-30-20  
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TURNAROUND DETAIL



- NOTES:
- REFERENCE INVERTER STATION FOUNDATION DESIGN DETAILS IN STRUCTURAL DRAWINGS.
  - BERM TO BE CONSTRUCTED AFTER INVERTER AND WIRING IS IN PLACE.

RS-8  
N.T.S.

ELEVATED SKID GRADING DETAIL



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**RED ROCK SOLAR**  
COTTONWOOD COUNTY, MN

DATE: 08/13/2020  
PROJECT NUMBER: 35859.048  
PROJECT NAME: RED ROCK SOLAR  
PRELIMINARY  
DESIGNED BY / DRAWN BY: M. TREW / M. TREW

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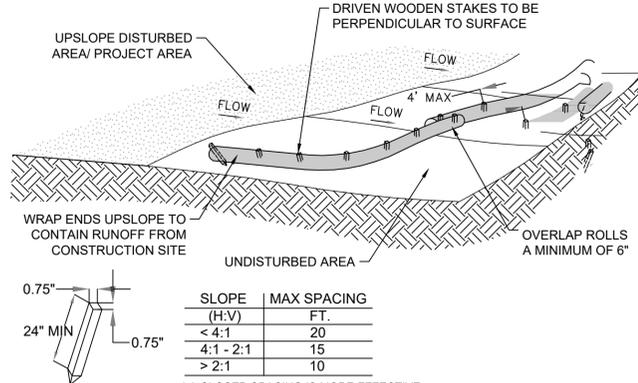
REVISIONS	
#	DESCRIPTION

DRAWING DESCRIPTION

**NOTES & DETAILS**

SCALE: NA SHEET NUMBER: C4.01

- NOTE:
- FIBER ROLLS SHALL BE IN STALLED PRIOR TO UPSLOPE DISTURBANCE ACTIVITIES COMMENCE.
  - FIBER ROLLS SHALL BE PREFABRICATED AND MADE FROM WEED FREE RICE STRAW, FLAX, OR A SIMILAR AGRICULTURAL MATERIAL BOUND INTO A TIGHT TUBULAR ROLL BY NETTING. USE A 6" OR 12" DIA. ROLL.
  - TRENCHES SHALL BE CREATED ALONG THE SLOPE OF THE PERIMETER. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND THE WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.
  - STAKE FIBER ROLLS INTO THE TRENCH. DRIVE STAKES AT THE END OF EACH FIBER ROLL AND SPACED 4 FEET MAXIMUM ON CENTER. USE WOOD STAKES WITH NOMINAL CLASSIFICATION OF 0.75 IN BY 0.75 IN. AND A MINIMUM LENGTH OF 24 IN.
  - ROLLS SHALL BE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
  - TURN THE ENDS OF THE FIBER ROLLS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL. THE UPSLOPE POINT SHOULD BE A MINIMUM 6" HIGHER IN ELEVATION THAN THE LOW POINT.
  - IF MORE THAN ONE FIBER ROLL IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED A MINIMUM OF 6 INCHES, NOT ABUTTED.
  - FIBER ROLLS ENCASED WITH PLASTIC NETTING ARE USED FOR A TEMPORARY APPLICATION ONLY AND SHOULD BE REMOVED FOLLOWING STABILIZATION. FIBER ROLLS USED IN A PERMANENT APPLICATION SHALL BE ENCASED WITH A BIODEGRADABLE MATERIAL AND MAY BE LEFT IN.
  - TEMPORARY INSTALLATIONS SHOULD ONLY BE REMOVED WHEN UP GRADIENT AREAS ARE STABILIZED PER GENERAL PERMIT REQUIREMENTS, AND/OR POLLUTANT SOURCES NO LONGER PRESENT A HAZARD. BUT, THEY SHOULD ALSO BE REMOVED BEFORE VEGETATION BECOMES TOO MATURE SO THAT THE REMOVAL PROCESS DOES NOT DISTURB MORE SOIL AND VEGETATION THAN IS NECESSARY.
  - FIBER ROLLS MUST BE INSPECTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS FOR THE ASSOCIATED PROJECT TYPE AND RISK LEVEL. IT IS RECOMMENDED THAT AT A MINIMUM, THE BMPs BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, DAILY DURING EXTENDED RAIN EVENTS, AND AFTER THE CONCLUSION OF RAIN EVENTS.
  - REPAIR OR REPLACE SPLIT, TORN, UNRAVELING, OR SLUMPING FIBER ROLLS.
  - SEDIMENT THAT ACCUMULATES UP SLOPE OF THE BMP SHOULD BE PERIODICALLY REMOVED IN ORDER TO MAINTAIN BMP EFFECTIVENESS. SEDIMENT SHOULD BE REMOVED WHEN SEDIMENT ACCUMULATION REACHES ONE-THIRD THE DESIGNATED SEDIMENT STORAGE DEPTH.
  - RILLS OR GULLIES MAY BEGIN TO FORM FOLLOWING MAJOR STORM EVENTS WHERE RUNOFF HAS OVERTOPPED THE FIBER ROLLS. THESE RILLS OR GULLIES SHOULD BE PROMPTLY REPAIRED.

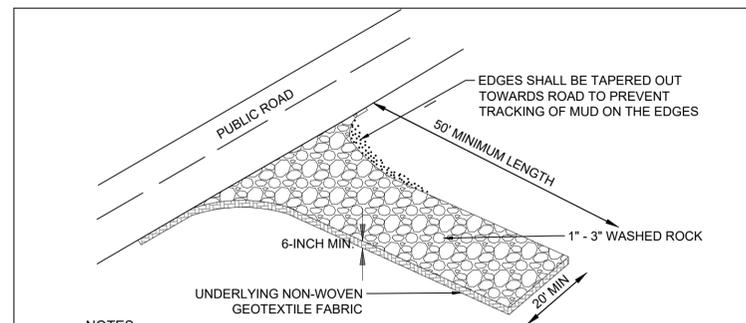


TYPICAL FIBER ROLLS

SC-1

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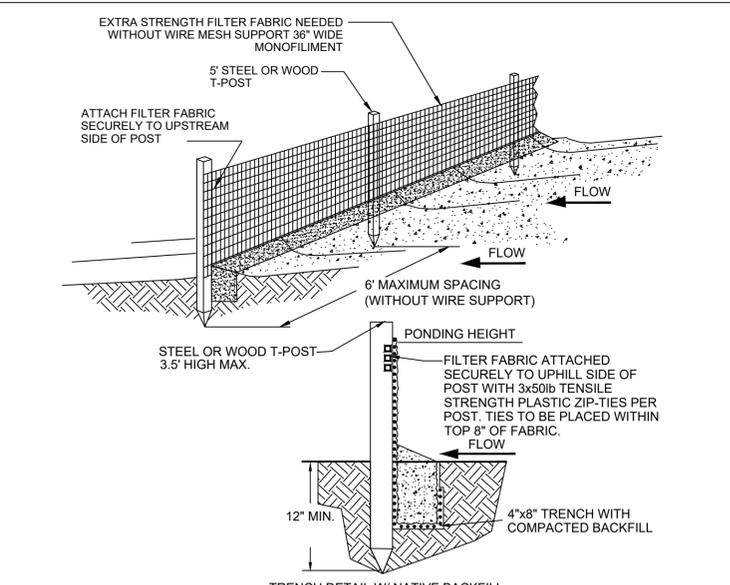
- NOTES:
- ROCK CONSTRUCTION ENTRANCE SHOULD BE A MINIMUM THICKNESS OF 6" AND CONTAIN MAXIMUM SIDE SLOPES OF 4:1.
  - ROCK ENTRANCE SHOULD BE INSPECTED AND MAINTAINED REGULARLY
  - ROCK ENTRANCE LENGTH MAY NEED TO BE EXTENDED IN CLAY SOILS

TYPICAL PROJECT ENTRANCE

SC-2

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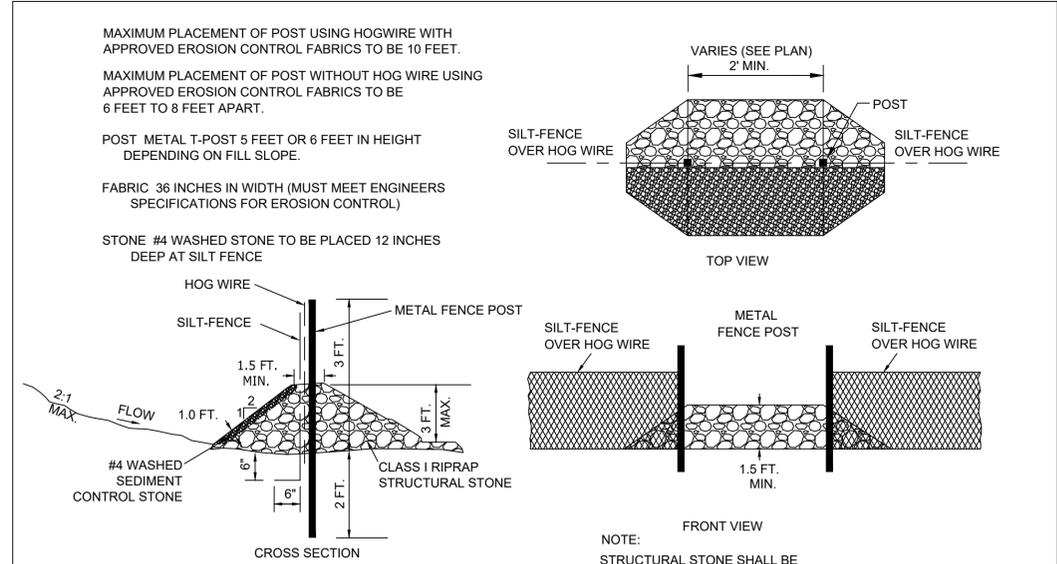
- NOTES:
- SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
  - ENDS OF THE SILT FENCE SHALL BE WRAPPED UPHILL UNTIL THE BOTTOM OF THE SILT FENCE IS EQUAL OR GREATER THAN THE PONDING HEIGHT.
  - INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATION HAS REACHED 1/3 OR GREATER HEIGHT OF THE FABRIC.
  - REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

SILT FENCE

SC-3

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- NOTES:
- INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL AND MAKE ANY REQUIRED REPAIRS.
  - SHOULD THE FABRIC OF A SEDIMENT FENCE, NEAR AN OUTLET, COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
  - REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
  - REPLACE STONE AT OUTLET TO DIMENSIONS SHOWN ABOVE IF OUTLET BECOMES EXCESSIVELY CLOGGED WITH SEDIMENT.
  - REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

ES-3  
N.T.S.

SILT FENCE OUTLET

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PROJECT NAME & ADDRESS

RED ROCK SOLAR  
COTTONWOOD COUNTY, MN

DATE: 08/13/2020

PROJECT NUMBER: 35859.048

PROJECT NAME: RED ROCK SOLAR

PRELIMINARY

DESIGNED BY / DRAWN BY: M. TREW / M. TREW

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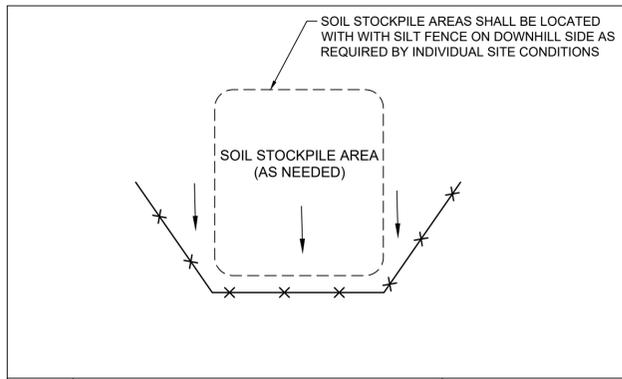
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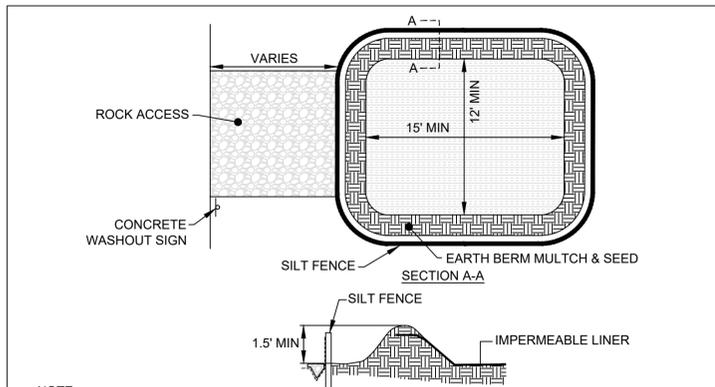
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SHEET NUMBER: C4.02

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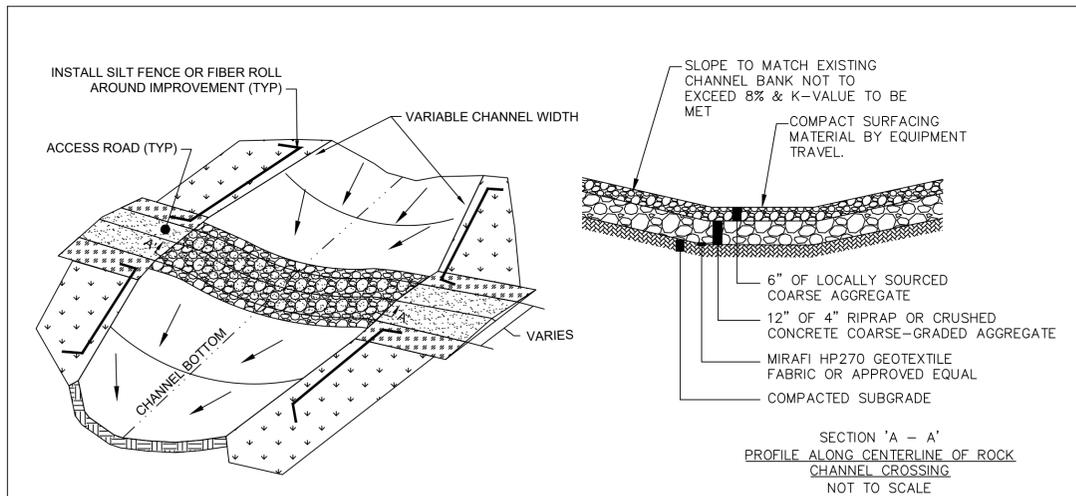
ES-4  
N.T.S. SOIL/SEDIMENT STOCKPILE AREAS



NOTE:

1. CONCRETE WASHOUT AREAS SHALL HAVE AN IMPERMEABLE LINER TO PREVENT WASHOUT WATER FROM INFILTRATING/CONTACTING SOIL.
2. IMPERMEABLE LINER INCLUDES 10 MIL POLYLINER OR COMPACTED CLAY LINER.
3. ALTERNATE WASHOUT LAYOUT MAY BE USED IF APPROVED BY CONTRACTOR AND E.O.R.. WASHOUT SYSTEMS CAN BE USED AS ALTERNATE WASHOUT AREAS.

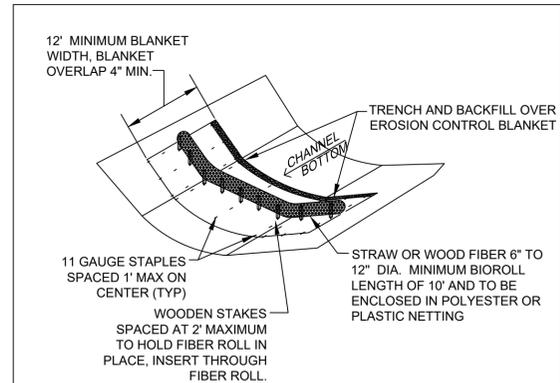
ES-5  
N.T.S. CONCRETE WASHOUT AREA



NOTES:

1. CROSSING SHALL HAVE THE TOP-MOST SURFACE AT ELEVATION OF ADJACENT DITCH CHANNEL BOTTOM.
2. CHANNEL TO BE RESTORED AND STABILIZED UPSTREAM AND DOWNSTREAM OF CROSSING UPON COMPLETION OF CONSTRUCTION.
3. WHERE POSSIBLE, ACCESS ROADS SHALL CROSS ANY DITCH/STREAM AT A 90 DEGREE ANGLE.
4. GRAVEL BAG BERMS MAY BE NECESSARY IF FLOWS REQUIRE TO PREVENT EROSION.

ES-8  
N.T.S. ACCESS ROAD LOW WATER CROSSING



NOTE:

1. BLANKET TYPE, WEIGHT, AND STAPLE LENGTH SHALL BE CHOSEN BASED ON ENGINEER AND MANUFACTURER'S RECOMMENDATIONS.
2. ENDS OF BIOROLL SHALL BE HIGHER THAN AT STREAM BED ELEVATION TO ENSURE WATER TO NOT BYPASS BIOROLL.
3. REFER TO THE PROJECT SWPPP FOR IMPLEMENTATION CRITERIA.

ES-10  
N.T.S. TEMPORARY BIOROLL/BLANKET IN DITCH/STREAM



Y:\041\35859\_048 Red Rock Solar\DWG\Sheet\CD\35859\_048-C5-00-DETAILS.dwg [Plotted on 8/13/2020 8:26 AM] by Marcus Trew

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**APEX CLEAN ENERGY**  
310 4TH ST. NE, SUITE 300  
CHARLOTTESVILLE, VA 22902

**RED ROCK SOLAR**  
COTTONWOOD COUNTY, MN

DATE: 08/13/2020  
PROJECT NUMBER: 35859\_048  
PROJECT NAME: RED ROCK SOLAR  
PRELIMINARY  
DESIGNED BY / DRAWN BY: M. TREW / M. TREW

NOT FOR CONSTRUCTION

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REVISIONS	
#	DESCRIPTION

NOTES & DETAILS

SCALE: NA SHEET NUMBER: C4.03



**SEEDING SCHEDULE**

- 
**ARRAY AREA GRASS MIX**  
 FOR USE WITHIN FENCED AREA,  
 PRIMARILY UNDER SOLAR ARRAYS  
 425.31 ACRES
- 
**WET AREA GRASS MIX**  
 FOR USE IN DETENTION PONDS AND  
 DIVERSION DITCHES  
 28.46 ACRES

**NOTES**

1. ARRAY GRASS MIX SHOULD BE LOW-GROWING FOR PLACEMENT BENEATH SOLAR ARRAYS.
2. SEEDING LOCATION OF WET AREA SEED MIX IS BASED ON SITE-SPECIFIC SOIL CONDITIONS AND IS NOT REPRESENTATIVE OF WETLAND BOUNDARIES.
3. WITH THE EXCEPTION OF LAYDOWN AREAS, AREAS OUTSIDE OF THE PROPOSED FENCE WILL CONTINUE IN AGRICULTURAL PRODUCTION AND NO ADDITIONAL SEEDING IS PROPOSED. LAYDOWN AREA AND ANY ADDITIONAL AREAS OUTSIDE OF THE FENCE THAT ARE INCIDENTALLY DISTURBED WILL BE REVERTED TO THE PRE-EXISTING LAND USE.

Y:\041\35859\_048 Red Rock Solar\DWG\Sheet\CD\35859\_048-1\_00-LANDSCAPE OVERALL.dwg [Plotted on 8/13/2020 8:27 AM] by Marcus Trew

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 310 4TH ST. NE, SUITE 300  
 CHARLOTTESVILLE, VA 22902

**RED ROCK SOLAR**  
 COTTONWOOD COUNTY, MN

DATE: 08/13/2020  
 PROJECT NUMBER: 35859\_048  
 PROJECT NAME: RED ROCK SOLAR  
 PRELIMINARY  
 DESIGNED BY / DRAWN BY: T. BUCKLEY / T. BUCKLEY

**NOT FOR CONSTRUCTION**

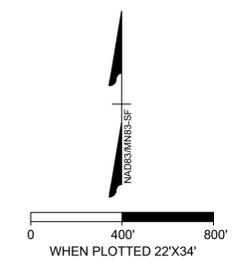
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REVISIONS	
NO.	DESCRIPTION
07/23/20	SEEDING AREA ADJUSTED
07/29/20	SEEDING AREA ADJUSTED

DRAWING DESCRIPTION

**SEEDING PLAN**

SCALE: 1" = 400'  
 SHEET NUMBER: L1.00



### QUANTITY SUMMARY

TOTAL 430W MODULES	204,120
TOTAL NUMBER INVERTERS	16
INVERTER MODEL	SMA 4400-US
MODULES PER STRING	27
TOTAL STRINGS	7560
STRINGS PER BLA BLOCK	24
STRINGS PER INVERTER	408-504
BLOCKS PER INVERTER	21
MODULES PER INVERTER	11,016-13,608
NEXTRACKER GEMINI (FULL LENGTH 108 MODULES)	1890

### OVERALL DETAILS

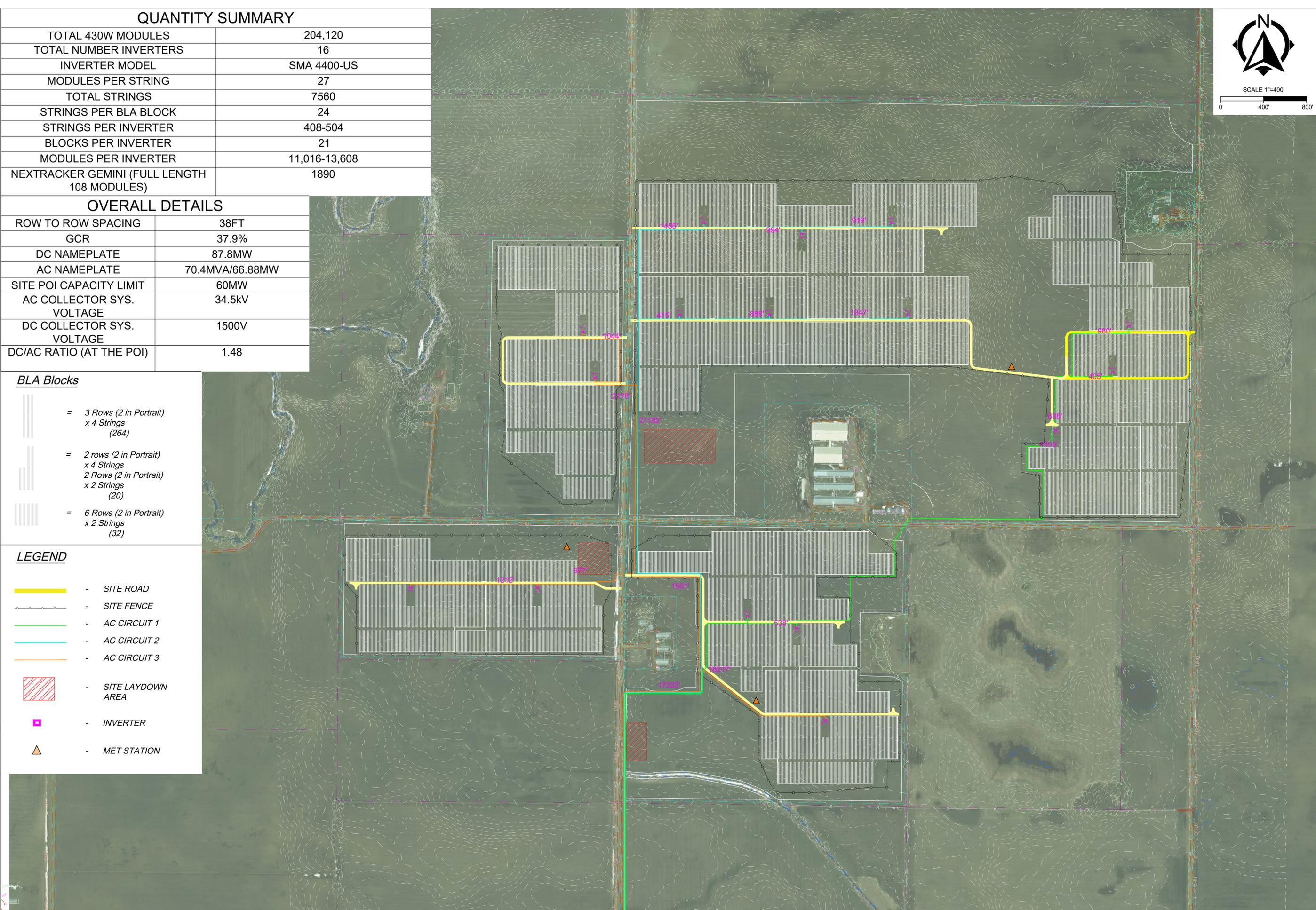
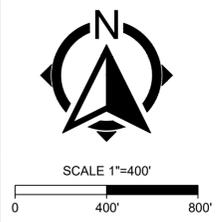
ROW TO ROW SPACING	38FT
GCR	37.9%
DC NAMEPLATE	87.8MW
AC NAMEPLATE	70.4MVA/66.88MW
SITE POI CAPACITY LIMIT	60MW
AC COLLECTOR SYS. VOLTAGE	34.5kV
DC COLLECTOR SYS. VOLTAGE	1500V
DC/AC RATIO (AT THE POI)	1.48

#### BLA Blocks

- = 3 Rows (2 in Portrait) x 4 Strings (264)
- = 2 rows (2 in Portrait) x 4 Strings  
2 Rows (2 in Portrait) x 2 Strings (20)
- = 6 Rows (2 in Portrait) x 2 Strings (32)

#### LEGEND

- SITE ROAD
- SITE FENCE
- AC CIRCUIT 1
- AC CIRCUIT 2
- AC CIRCUIT 3
- SITE LAYDOWN AREA
- INVERTER
- MET STATION



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PROJECT NAME & ADDRESS  
**RED ROCK SOLAR**  
 COTTONWOOD COUNTY, MN

DATE: 7/31/2020  
 PROJECT NUMBER: 35859 048  
 PROJECT NAME: RED ROCK SOLAR  
 PRELIMINARY  
 DESIGNED BY: DRAWN BY: W. WENTZLER / W. WENTZLER

SEAL

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REVISIONS	
#	DESCRIPTION
A	07/08/2020 FOR REVIEW
B	07/30/2020 UPDATED PER COMMENTS

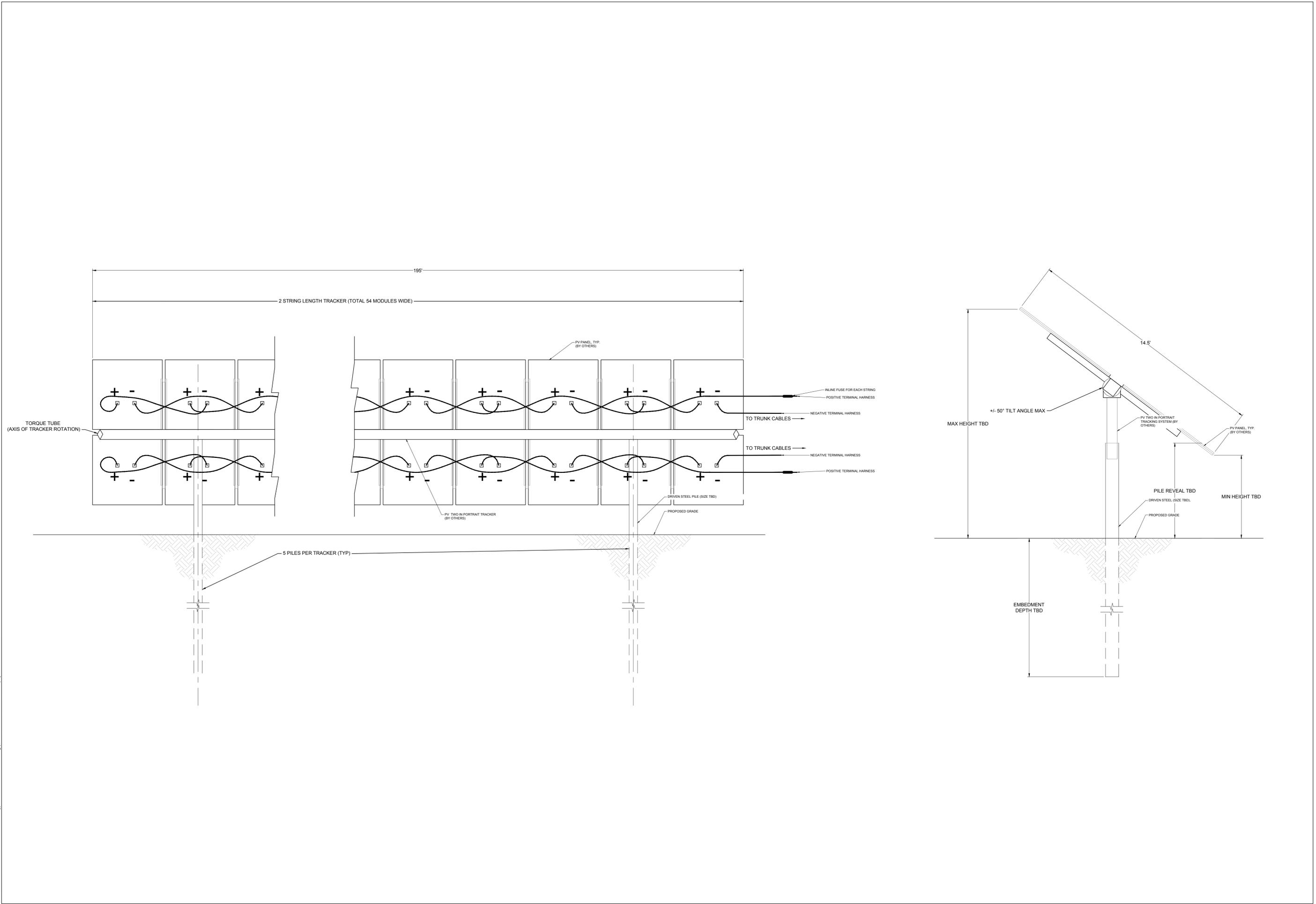
DRAWING DESCRIPTION  
**OVERALL LAYOUT**

SCALE: 1" = 400'  
 SHEET NUMBER: SK-01

Y:\04135859\_048 Red Rock Solar\DWG\35859\_048-SPAFAR\_VW.dwg | Printed on 7/31/2020 9:16 AM | by William Wentzler



Y:\041\35859.048 Red Rock\Electrical\Typical\Track End Elevation.dwg | Plotted on 7/30/2020 5:33 PM | by William Wenzler



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**RED ROCK SOLAR**  
 COTTONWOOD COUNTY, MN

DATE: 7/30/2020  
 PROJECT NUMBER: 35859.048  
 PROJECT NAME: RED ROCK SOLAR  
 PRELIMINARY  
 DESIGNED BY / DRAWN BY: W. WENTZLER / W. WENTZLER

SEAL

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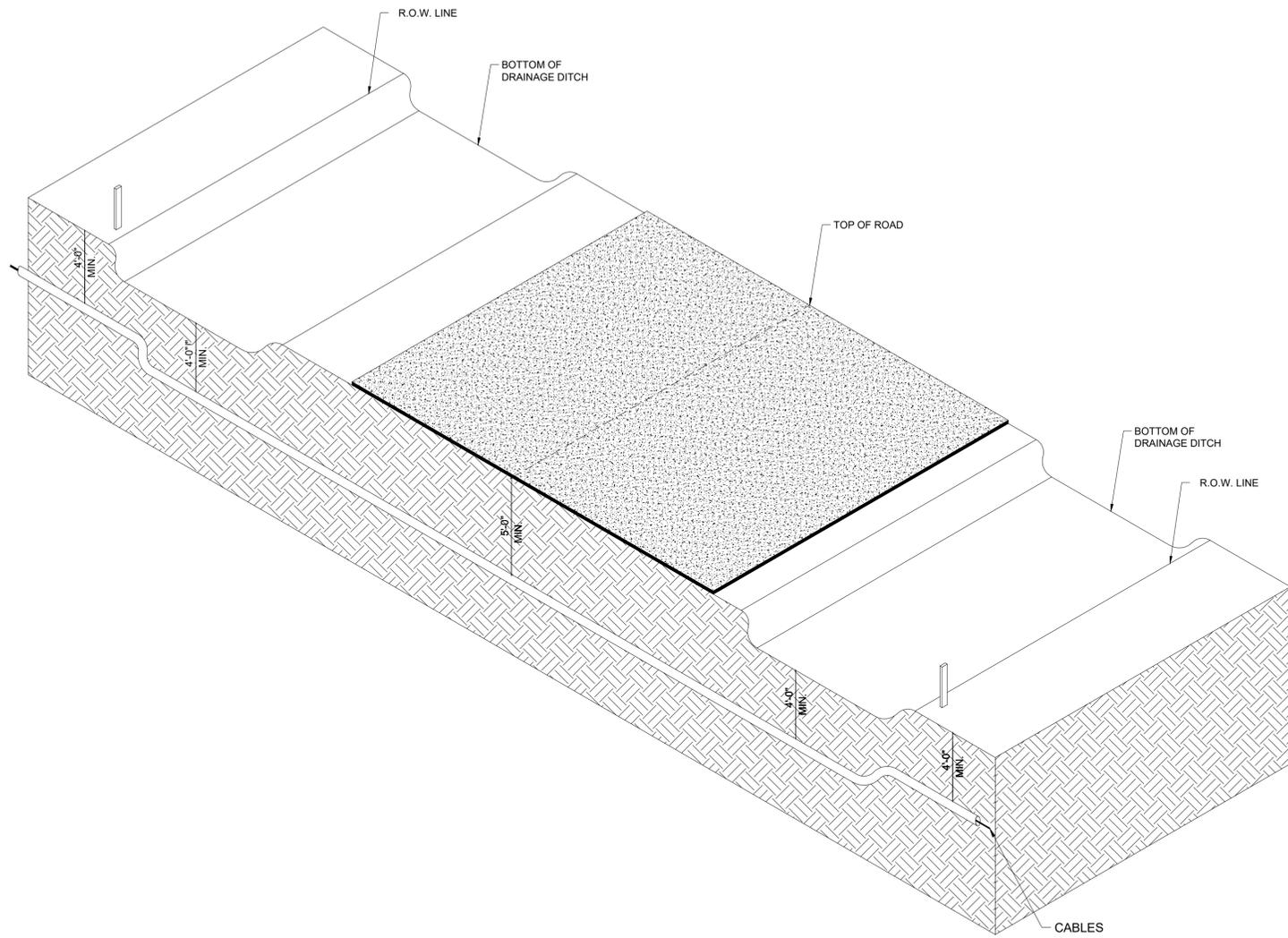
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REVISIONS	
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A	07/08/2020 FOR REVIEW
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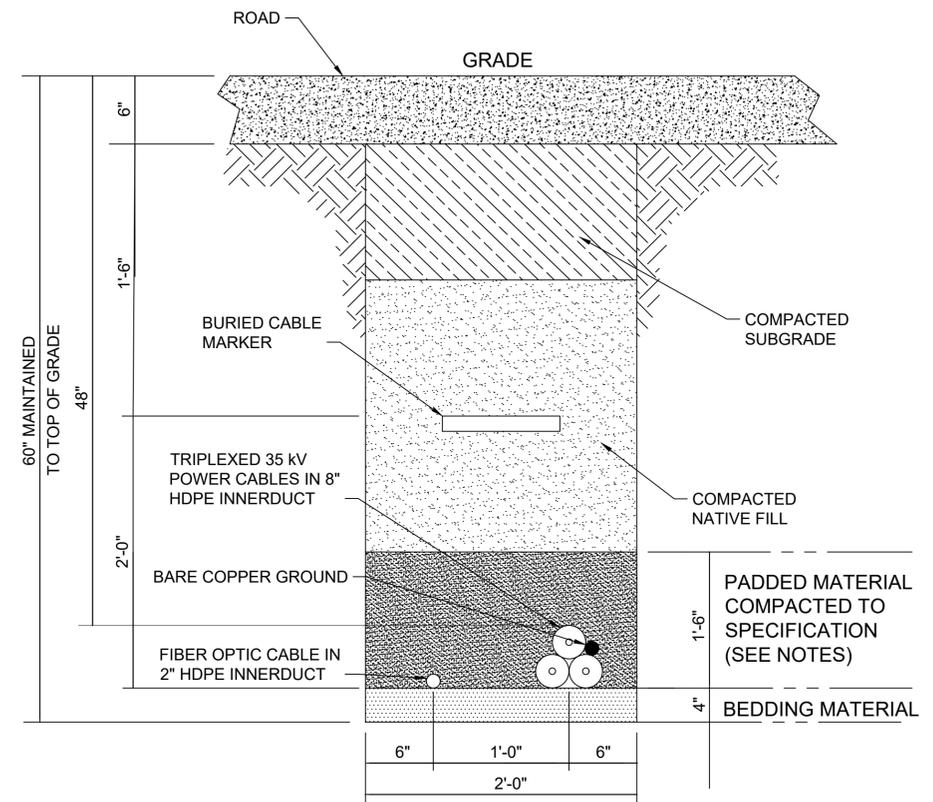
DRAWING DESCRIPTION

**TYPICAL CIRCUIT TRACKER DETAILS**

SCALE: NA SHEET NUMBER: SK-03



**ROAD BORE DETAIL**  
HORIZONTAL DIRECTIONAL DRILLING



**ACCESS ROAD CROSSING DETAIL**

Y:\841\35859.048 Red Rock\Electrical\MV Power Station Detail.dwg | Plotted on: 7/30/2020 5:24 PM | by: William Wentzler

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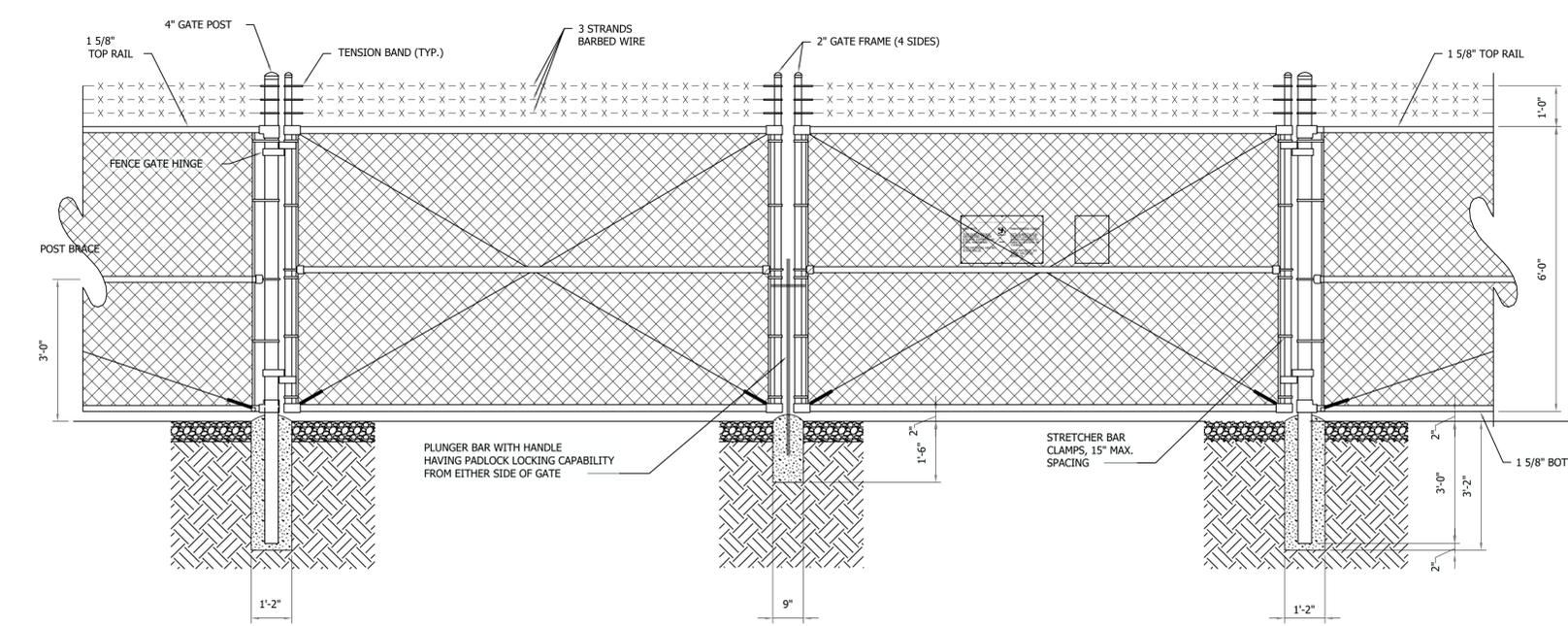
REVISIONS	
#	DESCRIPTION
A	07/08/2020 FOR REVIEW
B	07/30/2020 UPDATED PER COMMENTS

DRAWING DESCRIPTION  
**TYPICAL ROAD CROSSING DETAILS**

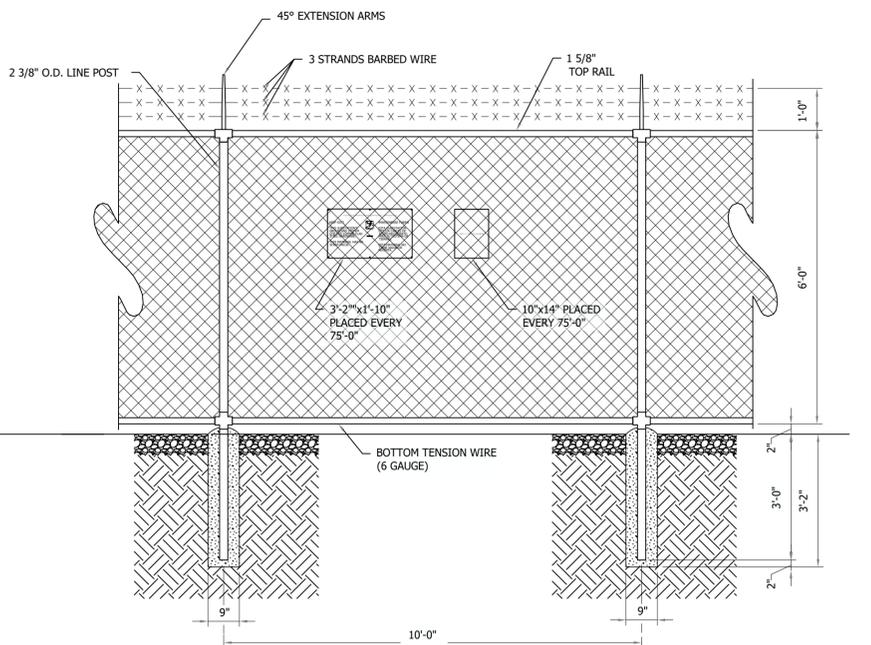
REVISIONS	
#	DESCRIPTION
A	07/08/2020 FOR REVIEW
B	07/30/2020 UPDATED PER COMMENTS

DRAWING DESCRIPTION  
**TYPICAL FENCE DETAILS**

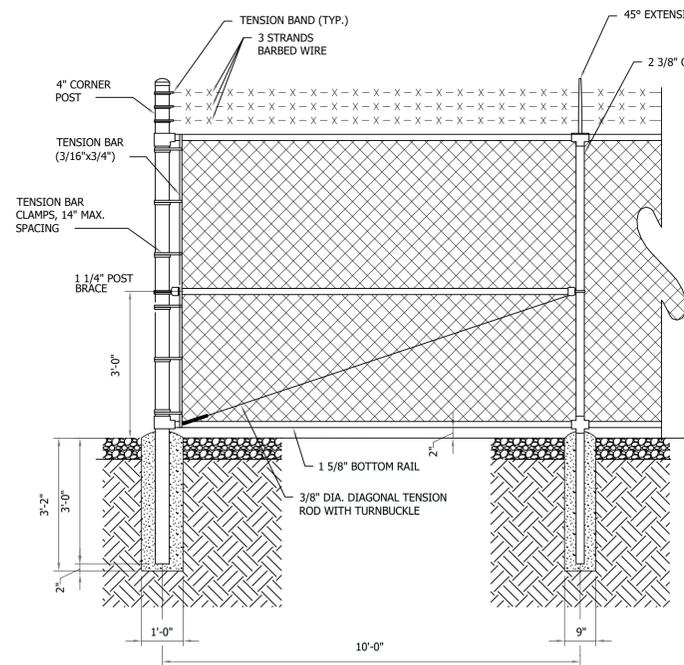
SCALE	SHEET NUMBER
NA	SK-05



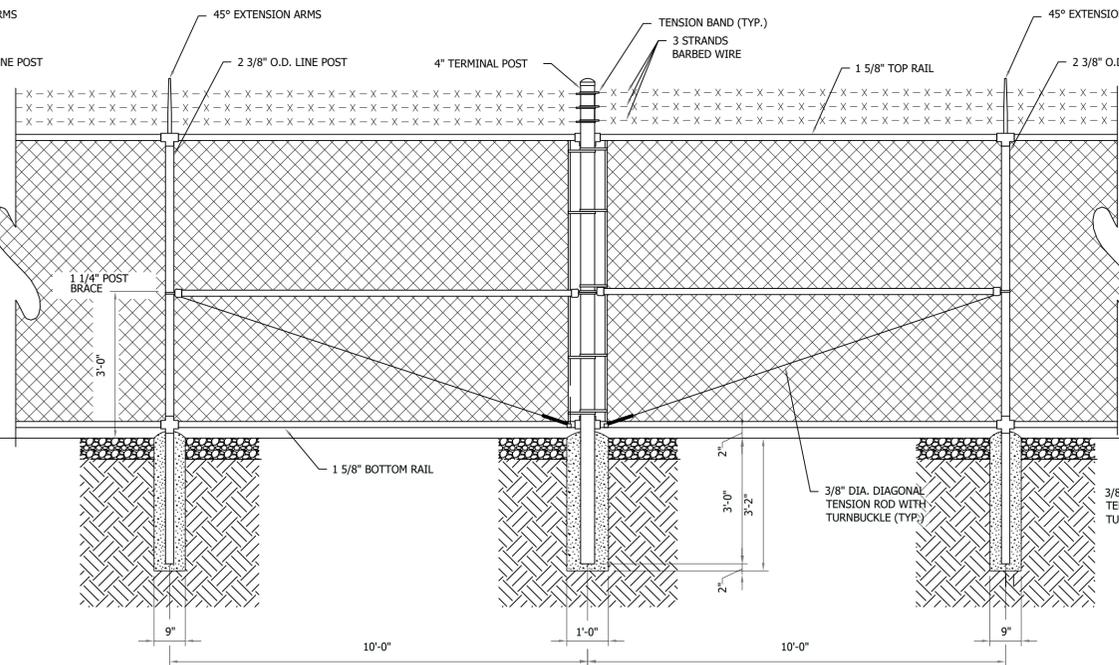
**TYPICAL 20' DRIVE GATE DETAIL**  
 N.T.S.



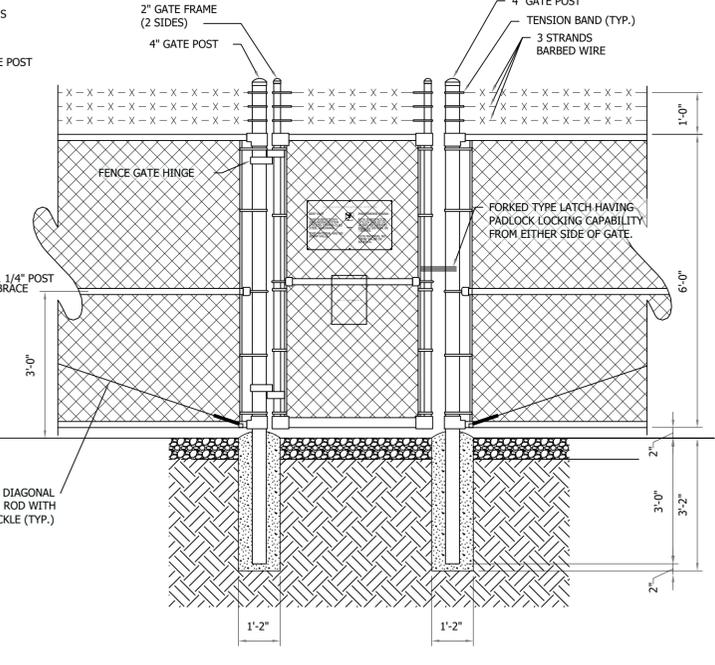
**TYPICAL FENCE FABRIC DETAIL**  
 N.T.S.



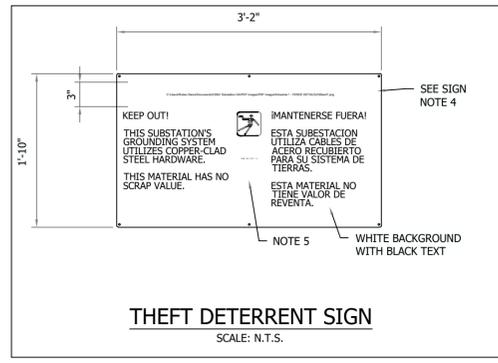
**TYPICAL FENCE CORNER DETAIL**  
 N.T.S.



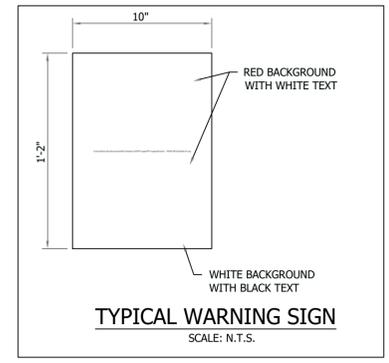
**TYPICAL FENCE TENSION SECTION DETAIL**  
 N.T.S.



**TYPICAL 4' WALK GATE DETAIL**  
 N.T.S.



**THEFT DETERRENT SIGN**  
 SCALE: N.T.S.



**TYPICAL WARNING SIGN**  
 SCALE: N.T.S.

**SIGN NOTES:**

1. SIGNS SHALL COMPLY WITH ANSI Z535.1-Z535.5 (LATEST REVISION).
2. THE SYMBOL/PICTORIAL PANEL SHALL BE SQUARE WITH A BLACK SYMBOL OF A BODY WITH WIRE AND LIGHTNING BOLT ON A WHITE BACKGROUND.
3. SIGNS SHALL BE MANUFACTURED FROM AN 80 MIL ALUMINUM SHEET, TYPE 3003 H-14 COATED FRONT AND BACK WITH AN ACRYLIC ENAMEL. ALL SHARP EDGES AND BURRS SHALL BE REMOVED. THE SIGNS SHALL HAVE A THICKNESS OF 0.080". THE MOUNTING HOLES SHALL BE PROTECTED BY BRASS FERRULES.
4. THE SIGNAL WORDS "NOTICE" AND "AVISO" SHALL BE WHITE LETTERS ON A RECTANGULAR ANSI SAFETY BLUE BACKGROUND.
5. CONTRACTOR TO USE AVAILABLE IMAGES FROM THE WIRE MANUFACTURER.

**GENERAL NOTES:**

- 1) "45°" TYPE EXTENSION ARM WITH 3 STRANDS BARBED WIRE 12.1/2 GAUGE GALVANIZED TWISTED DOUBLE STRAND, 4 POINT ROUND BARBS SPACED AT 5".
- 2) CROWN CONCRETE AROUND ALL POSTS, T.O.C. SHALL BE APPROXIMATELY 1" ABOVE AGGREGATE SURFACING.
- 3) FENCE FABRIC - 9 GAUGE, 2" MESH KNUCKLED BOTH ENDS.
- 4) INSTALL CAPS ON ALL GATE, CORNER AND PULL POSTS.
- 5) ALL PIPE SIZES ARE O.D. AS REFERENCED IN FENCE SPECS U.N.O.
- 6) SEE FENCE PLAN FOR SIGNAGE LOCATIONS.

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