

NORTHLAND SOLAR PROJECT

VT Route 100
Lowell, Vermont

Northland Solar LLC

PO Box 1204
Manchester Center, VT 05255
www.nhsolar.com



164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

**ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION**

SOURCE DATA LEGEND

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:

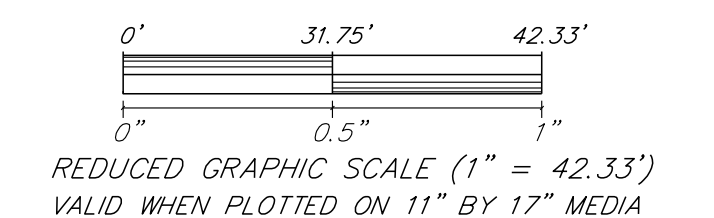
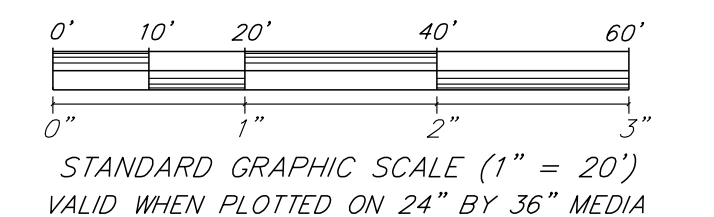
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:

Arrowood Environmental
950 Bert White Road
Huntington, Vermont 05462

Landscape Architect:

T.J. Boyle Associates, LLC
301 College Street
Burlington, Vermont 05401



Proposed Solar Array

REV. NO.	REVISIONS/COMMENTS	DATE

Drawing Title:

ELEVATION A-A VIEWS

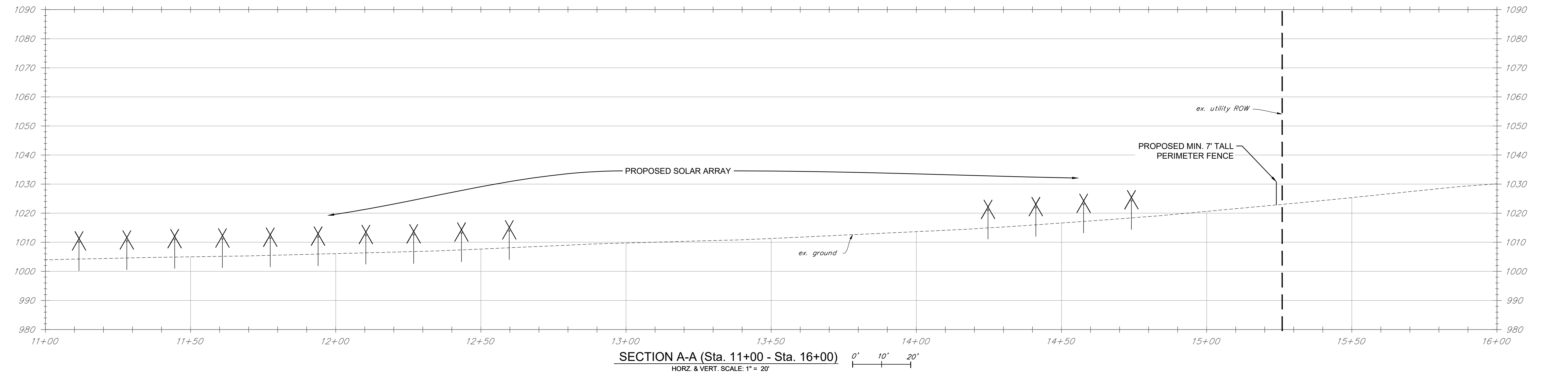
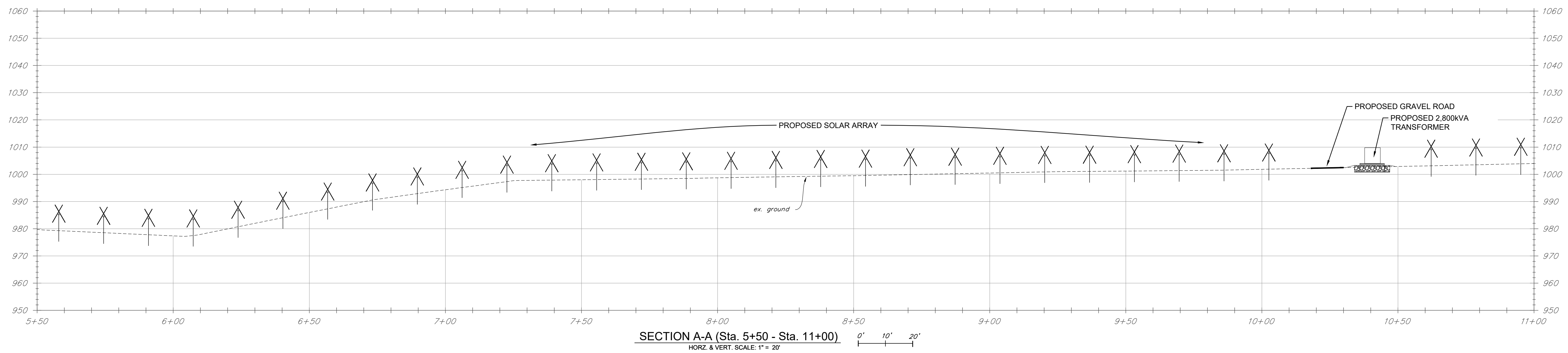
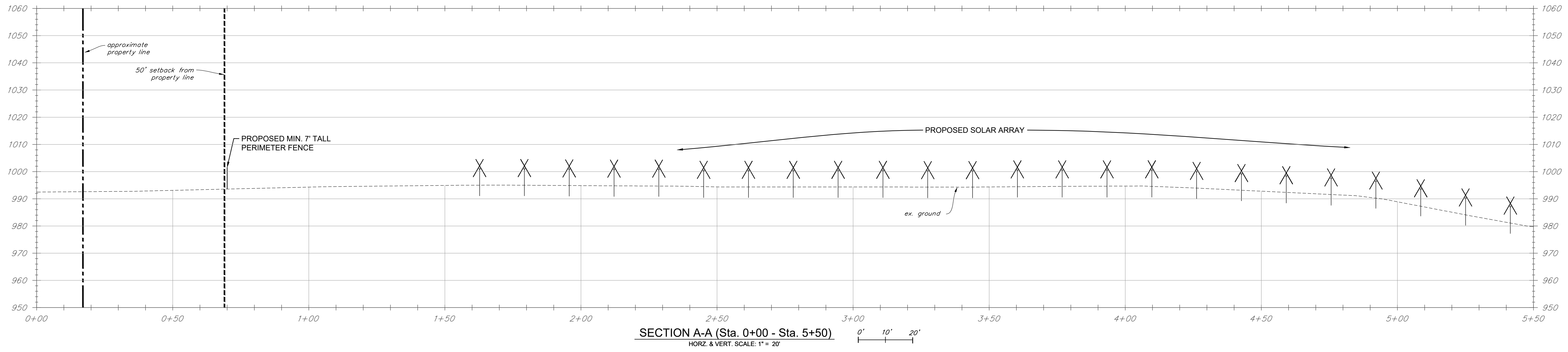
DATE of Issue: 09/18/24

Drawn by: SDG Checked by: GTD

Project No.: 24207 Scale: 1" = 20'

Drawing No.: Rev No.:

C-101



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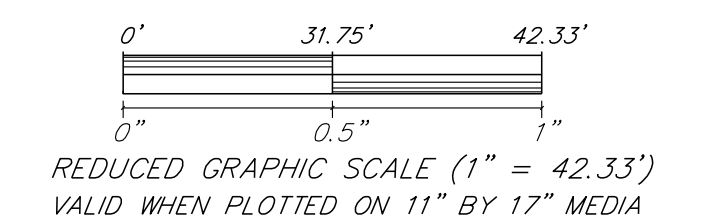
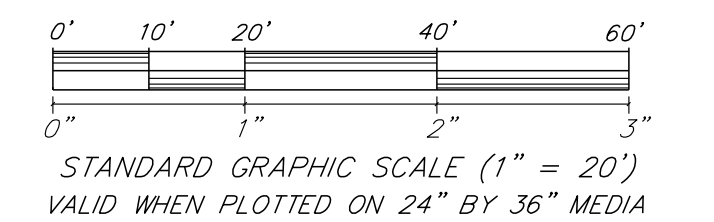
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Environmental:

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Landscape Architect:

T.J. Boyle Associates, LLC
301 College Street
Burlington, Vermont 05401



Proposed Solar Array

REV. NO.	REVISIONS/COMMENTS	DATE

Drawing Title:

ELEVATION B-B VIEWS

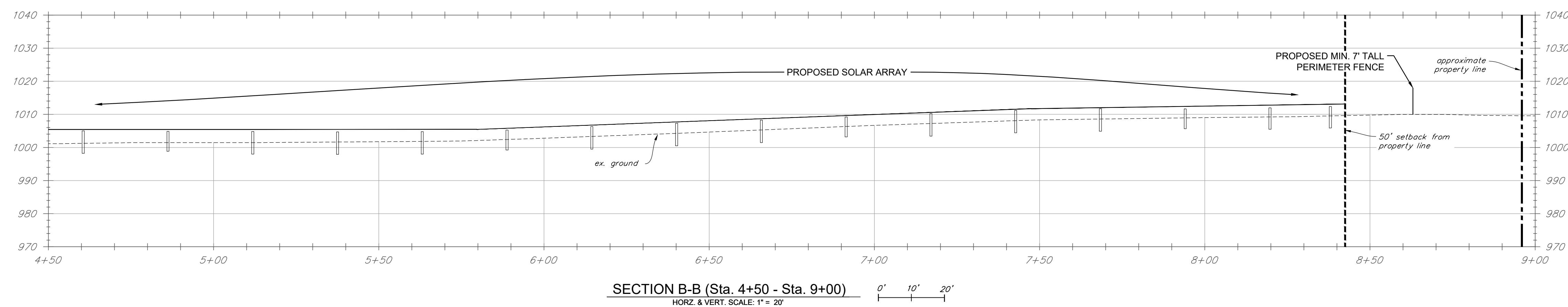
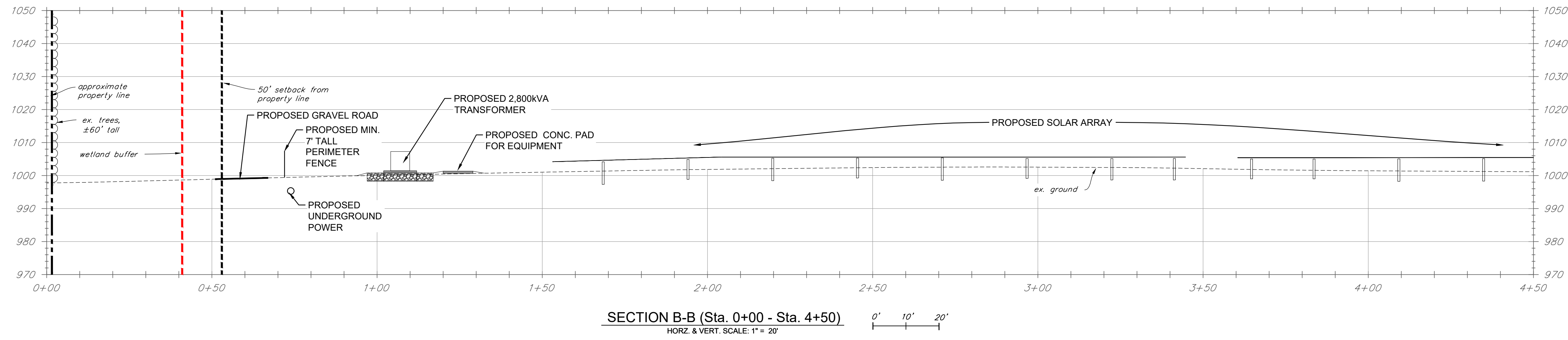
DATE of Issue: 09/18/24

Drawn by: SDG Checked by: GTD

Project No.: 22162 Scale: 1" = 20'

Drawing No.: Rev No.:

C-102



CONSTRUCTION EPSC NOTES:

- Existing vegetation shall be protected and maintained to the extent practicable. All clearing activities will be conducted in accordance with the acceptable management practices.
- A vegetated buffer shall be maintained for water bodies where feasible (e.g., wetlands and streams).
- To the extent practicable, surface flow shall be diverted away from exposed soils via diversion berms, earth dikes, perimeter dikes/swales, temporary swales, water bars, and/or check dams (see details).
- Resource areas (e.g., wetlands, streams, RTE plant species) shall be flagged prior to any construction related activities occurring within close proximity to those areas.
- Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not violate water quality standards or contribute to erosion. Dewatering details shall be reviewed and approved by OSCP prior to use.
- Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel (see details), flume, or slope drain structure.
- Adequate drainage or other protection shall be provided whenever water seeps from a slope face. Install rock sandwiches in locations where seep from cut slopes shall flow through the roadbed; no co-mingling with road runoff, where feasible, or directing of upslope run-on into stormwater treatment systems (see details).
- Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
 - No more than 500 linear feet of trench may be opened at one time.
 - Excavated material shall be placed on the uphill side of trenches, where feasible, but not in resource areas.
- Where feasible, all sediment removed from sediment control practices as part of maintenance shall be disposed of in an area that is at least one of the following, with immediate stabilization following disposal of material:
 - Less than 5% slope
 - At least 100 feet from any downslope water body or conveyance to a water body, including a ditch
 - Vegetated
- Disturbed areas bordering or draining to existing roads shall have an appropriate sediment barrier (e.g., silt fence) spanning the edge of the disturbance to prevent washing of sediment onto roadways or into road ditches.
- In advance of predicted rainfall or snowmelt, all EPSC measures that are located in active areas of earth disturbance shall be inspected and repaired as needed. If necessary, this shall include temporary stabilization of all disturbed soils on the site in advance of the anticipated runoff period.
- Dust control shall be handled via water application to roadways and other areas where dust may be generated.

TEMPORARY AND FINAL STABILIZATION NOTES

- All areas of earth disturbance associated with this project must be stabilized within 14 days of initial disturbance. After the initial 14-day period, all earth disturbance areas associated must be stabilized on a daily basis, with the following exceptions:
 - Stabilization is not required if work is to continue within the area within the next 24 hours and there is no precipitation forecast for the next 24 hours.
 - Stabilization is not required if the work is occurring in a self-contained excavation (i.e., no outlet for stormwater) with a depth of 2 feet or greater (e.g., underground line installation).
- The maximum area of earth disturbance at any one time shall not exceed 5 acres ("10 acres if project applies for an IND permit").
- Soil stabilization shall be achieved by seed and mulch (see details), hydroseeding with mulch tackifier, soil, stone, and/or rolled erosion control products (e.g., erosion control blanket; see detail). Mulch shall be comprised of straw, hay, compost, woodchips, wood stump grindings, and/or erosion control mat (see detail).
- Appropriate seed mix shall be applied to designated areas per this EPSC Plan and seed specifications (see details). For an area to be stabilized for winter by vegetative cover, seeding must be completed by September 15.
- Areas to be stabilized for winter that do not have established vegetation by October 15 shall be stabilized by anchored mulch at the winter application rate, or other approved stabilization measures (e.g., rolled erosion control product; see detail). Dormant seeding with Winter Rye is recommended (see detail).
- All temporary EPSC measures shall be removed within 30 days after final site stabilization or after the temporary EPSC measures no longer needed, unless otherwise authorized and approved in writing by the Owner.
- Following temporary or permanent stabilization, maintenance shall be performed as necessary to ensure continued stabilization.
- Except as noted below, all areas of disturbance shall be seeded and stabilized with EPSC measures (e.g., mulch, erosion control mix, rock rip rap, or rolled erosion control product), including areas where construction has been suspended or sections completed. The following shall also apply:
 - For active construction areas such as borrow or stockpile areas, roadway improvements, and areas within 50 feet of a building under construction, a perimeter sediment control system (e.g., silt fence) shall be installed and maintained to contain soil. Exposed disturbed areas adjacent to a conveyance that provides rapid off-site discharge of sediment (e.g., a cut slope at an entrance) shall be covered with plastic or geotextile to prevent soil loss until the area can be stabilized. Stabilized construction entrances shall be maintained to control equipment and vehicles from tracking material off site.
 - Permanent seeding shall only be undertaken in the spring season from April through May and in late summer and early fall until September 15, summer planting may be conducted if adequate watering is provided. During the peak summer months and in the fall after September 15, an appropriate temporary stabilization shall be implemented. Temporary summer planting may suffice for permanent seeding if adequate rainfall allows for vigorous growth during the mid-summer period. The Contractor's scope of work shall include return to the site the spring following construction to perform any further seeding that may be required and to remove any remaining erosion control measures that are no longer needed.
 - Temporary sediment trapping devices (e.g., silt fence) shall not be removed until permanent stabilization is established in all contributory drainage areas. Similarly, stabilization shall be established prior to converting sediment traps and/or sediment basins into permanent (post-construction) stormwater management practices.
 - Stabilization measures shall be applied to bare earth surfaces with seed and anchored straw mulch, or other approved stabilization measures (e.g., rolled erosion control product) as soon as possible after disturbance.

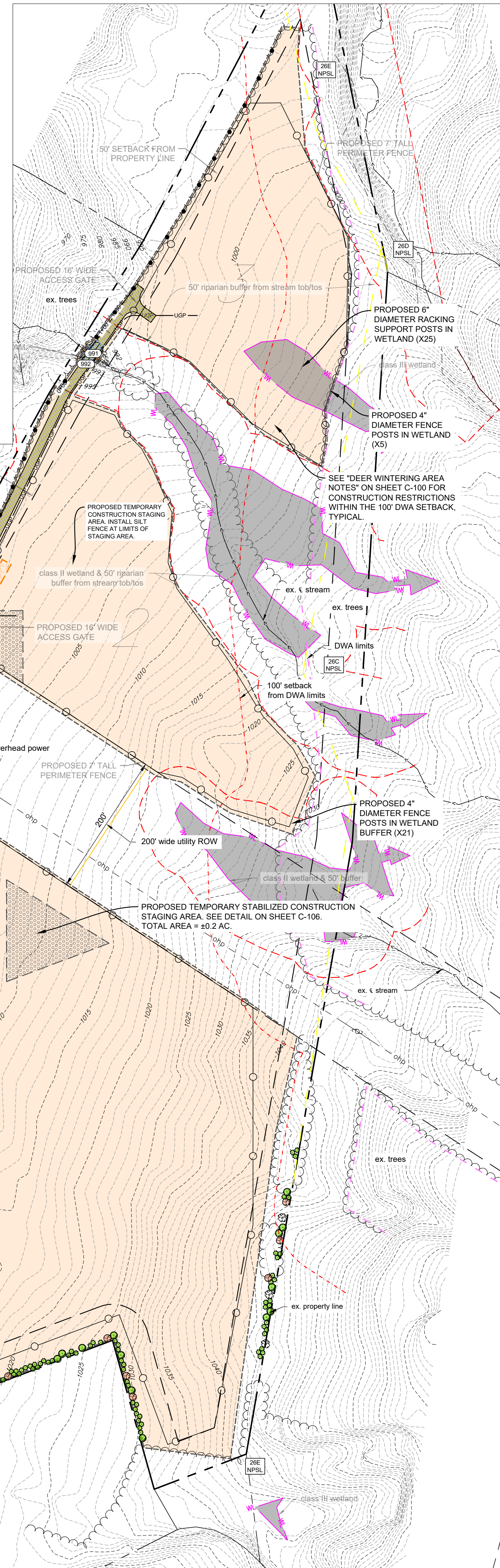
*EPSC - Erosion Prevent & Sediment Control
 *OSPC - On-Site Plan Coordinator

WINTER EROSION PREVENTION AND SEDIMENT CONTROL REQUIREMENTS

(October 15th - April 15th)

- For areas to be stabilized with vegetative cover, seeding or hydroseeding shall be completed no later than September 15th to ensure adequate growth and cover.
- If seeding is not completed by September 15th, additional non-vegetative protection must be used to stabilize the site for the winter period. This includes the use of rolled Erosion Control Matting or netting of a heavy mulch layer.
- Where mulch is used for temporary stabilization it must be applied at double the standard rate, or a minimum of 3 inches with an 80%-90% cover.
- Stabilized Construction Entrances shall be enlarged to provide for snow stocking.
- Limits of disturbance shall be moved or replaced to reflect any revised boundaries of winter work.
- A snow management plan shall be prepared with adequate storage and control of meltwater, requiring cleared snow to be stored down slope of all areas of disturbance and out of stormwater treatment structures.
- A minimum 25 foot buffer shall be maintained from perimeter controls such as silt fence.
- Drainage structures must be kept open and free of snow and ice dams.
- Silt fence and other sediment control practices requiring earth disturbance must be installed ahead of frozen ground.
- To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
 - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
 - Disturbed areas that collect and retain runoff, such as house foundation or open utility trenches.
- Prior to stabilization, snow or ice must be removed to less than 1 inch thickness.
- Use stone to stabilize areas such as the perimeter of buildings under construction or where construction vehicle traffic is anticipated. Stone paths should be 10-20 feet wide to accommodate vehicular traffic.
- For areas of disturbance within 100 ft of a waterbody, the following must be installed across the slopes, down gradient of the earth disturbance:
 - A combination of one practice from group A placed in front of a practice from group B
 - Two group B practices, or
 - A single row of Reinforced Silt Fence

Group A	Group B
Silt Socks	Silt Fence
Straw Wattles	Erosion Control Berms



NOTES:

- ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
- THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 VERMONT STATE PLANE 4400 (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD83 (US SURVEY FEET).
- EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON A TOPOGRAPHIC SURVEY BY KREBS & LANSING IN AUGUST 2025 AND LIDAR DATA PROVIDED BY THE VERMONT CENTER FOR GEOGRAPHIC INFORMATION.
- UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
- THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES FOR PROPERTY ARE FROM BOUNDARY MONUMENTATION FOUND IN THE FIELD AND LAND RECORDS RESEARCH.
- PRIMARY AGRICULTURAL SOILS (PAS) ON THE PROJECT SITE SHALL BE PRESERVED IN A MANNER THAT ALLOWS FOR COMPLETE RESTORATION DURING PROJECT DECOMMISSIONING. CONTRACTOR SHALL STORE EXCAVATED PAS SOIL IN ACCORDANCE WITH AFM GUIDELINES, "ACT 250 PROCEDURE: RECLAMATION OF VERMONT AGRICULTURAL SOILS".
- SOIL EXCAVATION FOR CONDUIT TRENCHING IN PAS WILL BE REMOVED AND THEN BACKFILLED IN THE SAME SOIL LAYERS. SOIL DISPLACED BY INSTALLATION OF CONDUIT IS RECLAIMABLE. IF SAND BEDDING IS REQUIRED THEN IT WILL BE STORED IN THE PAS STOCKPILE AREAS.
- THIS IS A PRELIMINARY DESIGN PLAN. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED AND POSSIBLE PERMIT CONSTRAINTS REVEALED DURING PROJECTS REVIEW.

LEGEND

- EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)
- CENTERLINE STREAM
- STREAM TOWNS
- WETLAND (DELINEATED BY ARROWWOOD ENVIRONMENTAL)
- ENVIRONMENTAL BUFFER
- LIMITS OF DEER WINTERING AREA
- 100' SETBACK FROM DWA
- PROPOSED FINISH GRADE CONTOUR (1' INTERVALS)
- CONSTRUCTION STAGING AREA
- TEMPORARY SILT FENCE (TO BE INSTALLED PRIOR TO CONSTRUCTION)
- LIMITS OF DISTURBANCE SUBJECT TO CONSTRUCTION STORMWATER PERMIT. INSTALL CONSTRUCTION LIMIT BARRIER FENCING/FLAGGING AT LIMITS AND MAINTAIN THROUGHOUT CONSTRUCTION.
- PROPOSED PAS STOCKPILE AREA
- PROPOSED 12' WIDE GRAVEL ACCESS ROAD
- PROPOSED PERMEABLE GRAVEL ACCESS ROAD OR TEMPORARY GRAVEL ACCESS ROAD FOR CONSTRUCTION
- PROPOSED VEGETATIVE MANAGEMENT AREA

CONSTRUCTION NOTES:

- THE MAXIMUM CONCURRENT AREA OF EARTH DISTURBANCE AT ANY ONE TIME SHALL NOT EXCEED 5 ACRES ("10 ACRES IF PROJECT APPLIES FOR AN IND PERMIT").
- THE CONTRACTOR SHALL BE THE ON-SITE COORDINATOR FOR THE PROJECT AND SHALL BE RESPONSIBLE FOR ALL INSPECTIONS AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL MEASURES FOR THE PROJECT. INSPECTIONS, TURBIDITY MONITORING AND CORRESPONDING REPORTS SHALL BE PERFORMED AT A MINIMUM, ONCE A WEEK AND AFTER EVERY PRECIPITATION EVENT THAT RESULTS IN A DISCHARGE FROM THE SITE.
- AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE SHALL NOT BE DISTURBED.

ON-SITE PLAN COORDINATOR NOTES:

- A QUALIFIED PERSON OR PERSONS SHALL BE DESIGNATED AS THE ON-SITE PLAN COORDINATOR (OSPC).
- THE OSPC SHALL BE KNOWLEDGEABLE IN PRINCIPLES AND PRACTICES OF EPSC IMPLEMENTATION AND POSSESS SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY AND TO ASSESS EFFECTIVENESS OF EPSC MEASURES SELECTED TO CONTROL QUALITY OF STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY.
- THE OSPC SHALL BE RESPONSIBLE FOR ON-SITE IMPLEMENTATION OF THIS EPSC PLAN, INCLUDING TURBIDITY MONITORING AND DISCHARGE REPORTING.
- THE OSPC SHALL HAVE AUTHORITY TO STOP AND/OR MODIFY CONSTRUCTION ACTIVITIES AS NECESSARY TO COMPLY WITH THIS EPSC PLAN AND TERMS AND CONDITIONS OF THE PERMIT.
- THE OSPC SHALL BE RESPONSIBLE FOR INSPECTIONS AND REPORTING PER THE PERMIT.
- THE OSPC OR HIS/HER DESIGNEE SHALL BE ON-SITE ON A DAILY BASIS DURING ACTIVE CONSTRUCTION.
- THE OSPC'S CONTACT INFORMATION SHALL BE PROVIDED TO VT DEC PRIOR TO START OF CONSTRUCTION.

EPSC INSPECTION NOTES:

- THE CONTRACTOR FOR EACH PROJECT SHALL BE THE ON-SITE PLAN COORDINATOR FOR THE PROJECT AND SHALL BE RESPONSIBLE FOR ALL INSPECTIONS AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL MEASURES FOR THE PROJECT.
- INSPECTIONS FOR RUNOFF OF VISIBLY DISCOLORED STORMWATER LEAVING THE CONSTRUCTION SITE SHALL BE CONDUCTED ONCE A WEEK, AND DAILY DURING THE WINTER CONSTRUCTION PERIOD (OCT. 15 - APRIL 15). INSPECTIONS SHALL ALSO OCCUR AS SOON AS REASONABLY POSSIBLE DURING OR AFTER EVERY PRECIPITATION EVENT WHICH PRODUCES RUNOFF FROM THE CONSTRUCTION SITE. A RUNOFF-PRODUCING EVENT IS A PRECIPITATION EVENT THAT RESULTS IN WATER EXITING THE LIMITS OF DISTURBANCE, REGARDLESS OF WHETHER OR NOT THERE IS ULTIMATELY A DISCHARGE OF THAT RUNOFF INTO A RECEIVING WATER.
- THE OSPC SHALL CONTINUE INSPECTIONS UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED FOR THE PROJECT.

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KREBS & LANSING CONSULTING ENGINEERS

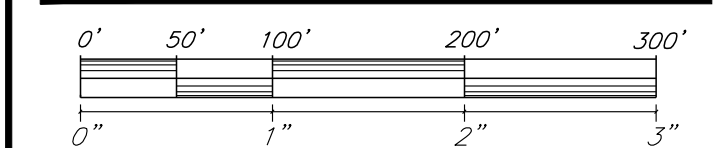
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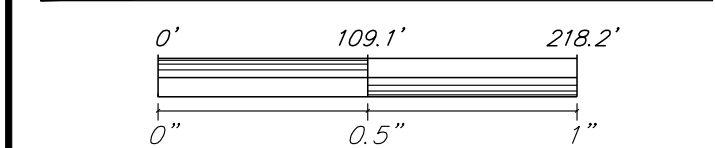
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STANDARD GRAPHIC SCALE (1" = 100')

VALID WHEN PLOTTED ON 24" BY 36" MEDIA



REDUCED GRAPHIC SCALE (1" = 218.2')

VALID WHEN PLOTTED ON 11" BY 17" MEDIA

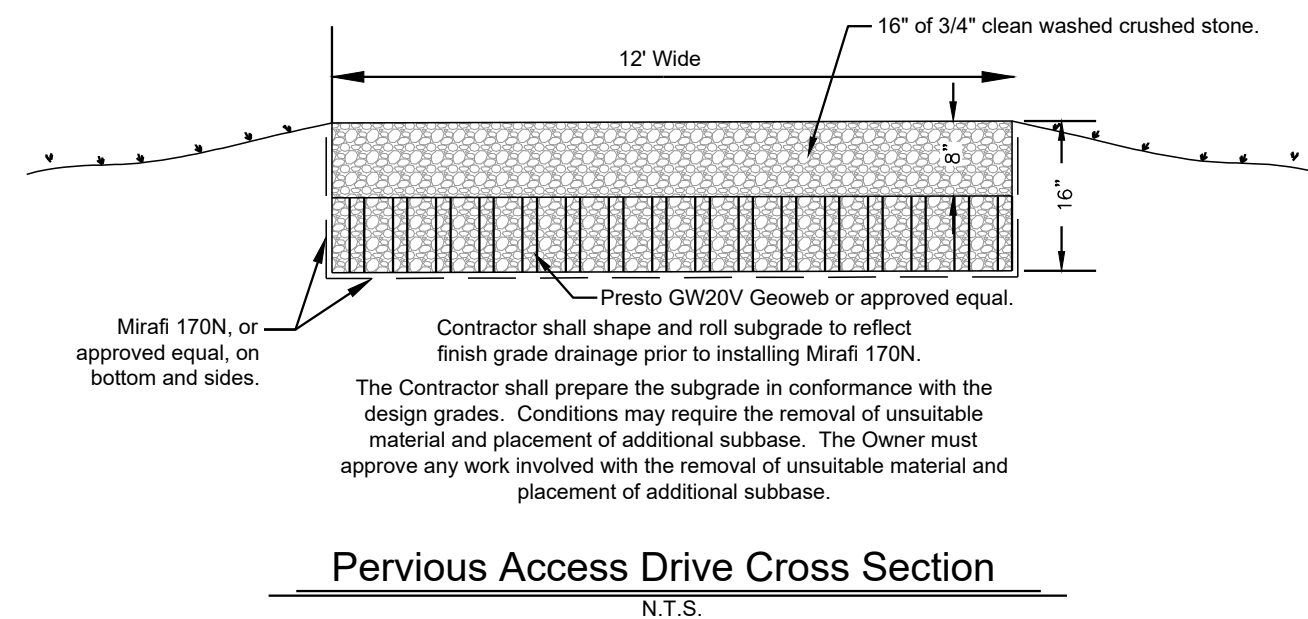
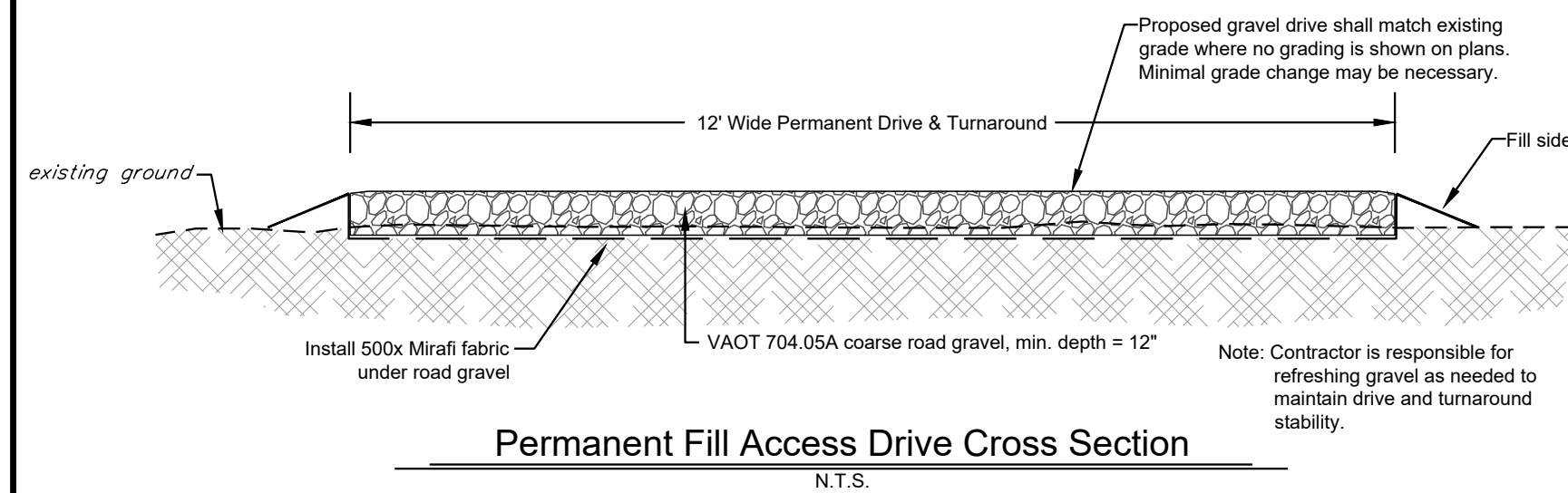
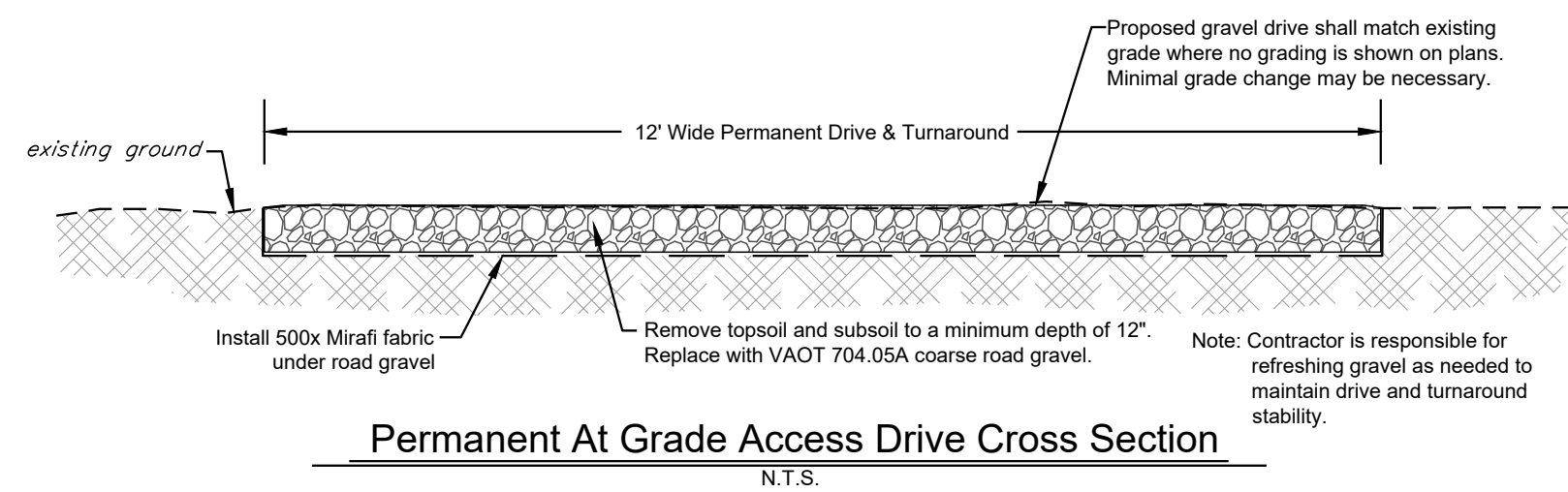
Proposed Solar Array

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EROSION PREVENTION & SEDIMENT CONTROL PLAN & NOTES

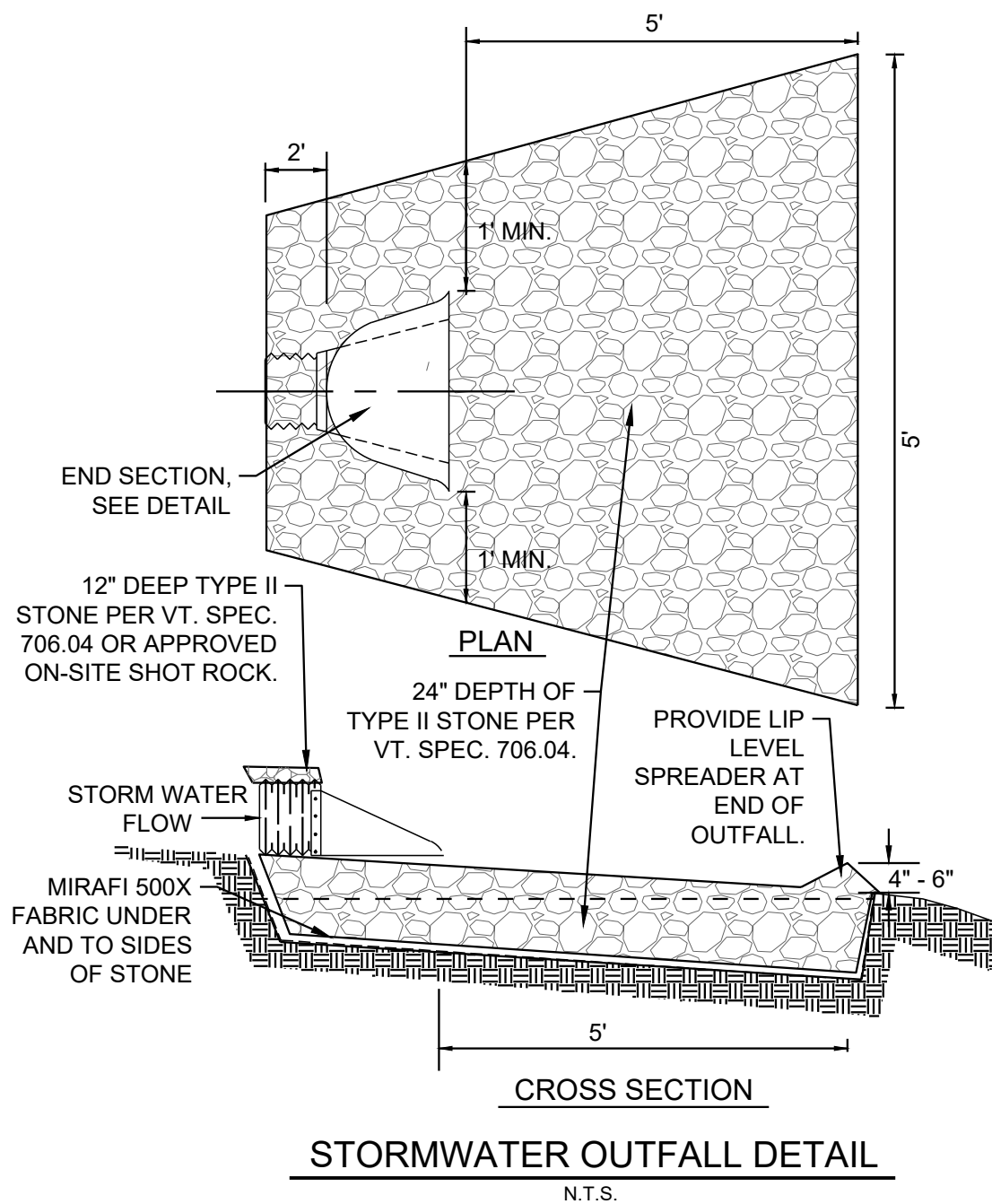
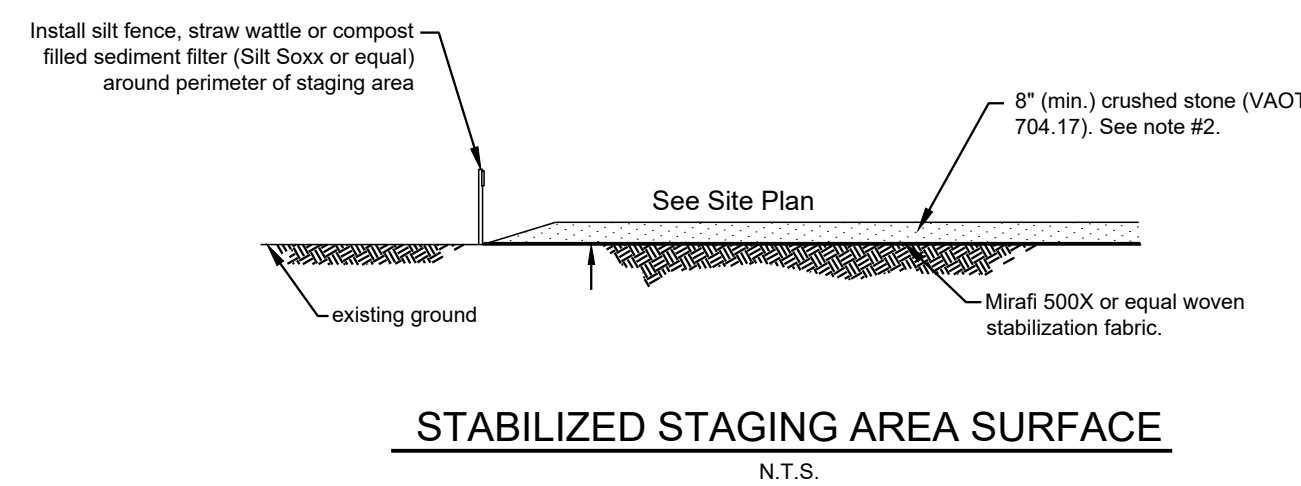
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C-103



NOTES

- Perimeter sediment controls to be installed before construction of staging area is installed.
- Install minimum 8" thick crushed stone (VAOT 704.17) and Miraf 500x stabilization fabric directly over topsoil to create stable staging area where construction vehicle traffic is anticipated or has been disturbed. Contractor is responsible for all stone necessary for proper stabilization.
- Install and maintain stabilized construction entrance, see detail.
- At the end of construction remove and dispose of stone, scarify or till subsoils to 4 inches of depth or to depth needed to achieve a total depth of 8 inches of uncompacted soil after calculated amount of amendment is added. Except for within the drip line of existing trees, the entire surface shall be disturbed by scarification; Amend soil to meet organic content requirements.
 PRE-APPROVED RATE: Place 1 inch of composted material with an organic matter content between 40 and 65% and rototill into 3 inches of soil, or
 CALCULATED RATE: Place calculated amount of composted material or approved organic material and rototill into depth of soil needed to achieve 4 inches of settled soil at 4% organic content. *Contractor to provide calculation and site sketch indicating areas used for calculations.
 Rake beds to smooth and remove surface rocks larger than 2 inches in diameter; Water or roll to compact soil in turf areas to 85% of maximum dry density.
- Contractor is responsible for refreshing crushed stone as needed to maintain stability of stabilized staging area and prevent offsite sediment tracking.



EROSION CONTROL BLANKET
(To be used on all slopes 3H:1V or greater)

NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDING BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO UNCOMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
- CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 2" (5cm) OVERLAP. STAPLE THROUGH OVERLAP AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE: BLANKET SHALL BE USED ON SLOPES 3:1 OR STEEPER

NOTE:
 ** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
 USA 1-800-772-2040 CANADA 1-800-448-2040
 www.nagreen.com

CHANNEL INSTALLATION

NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
- BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDING BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO UNCOMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
- FULL LENGTH EDGE OF BLANKETS AT TOP OF SLOPE MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
- IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
- THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

CRITICAL POINTS
 A. OVERLAPS AND SEAMS
 B. UNDETECTED WATER LINE
 C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
 ** HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
 ** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
 USA 1-800-772-2040 CANADA 1-800-448-2040
 www.nagreen.com

EROSION CONTROL BLANKET
(To be used on all slopes 3H:1V or greater)

NORTH AMERICAN GREEN S75BN

MATERIAL SPECIFICATIONS:

- EROSION CONTROL BLANKET SHALL BE A MACHINE-PRODUCED MAT OF 100% AGRICULTURAL STRAW.
- THE BLANKET SHALL BE OF CONSISTENT THICKNESS WITH THE STRAW EVENLY DISTRIBUTED OVER THE ENTIRE AREA OF THE MAT. THE BLANKET SHALL BE COVERED ON THE TOP SIDE WITH 100% BIODEGRADABLE WOVEN NATURAL ORGANIC FIBER NETTING HAVING AN APPROXIMATE 1/2" X 1" MESH AND BE SEWN TOGETHER WITH BIODEGRADABLE THREAD.
- STRAW EROSION CONTROL BLANKET SHALL BE S75BN AS MANUFACTURED BY NORTH AMERICAN GREEN, INC. (812-867-6632) OR EQUIVALENT. EROSION CONTROL BLANKET SHALL HAVE THE FOLLOWING PROPERTIES:

MATERIAL CONTENT:

- STRAW: 100% (0.50 lbs/sq.yd.) (0.27 kg/m²)
- NETTING: ONE SIDE ONLY, LENO WOVEN 100% BIODEGRADABLE NATURAL ORGANIC FIBER (APPROX. WEIGHT 9.3 lbs./100 sq. ft.)
- THREAD: BIODEGRADABLE

PHYSICAL SPECIFICATIONS (ROLL):

- WIDTH: 6.67 feet (2.03 m)
- LENGTH: 108 feet (32.92 m)
- WEIGHT: 46.4 lbs. ± 10% (21.05 kg)
- AREA: 80 sq. yd. (50 m²)

NORTHLAND SOLAR PROJECT

VT Route 100
Lowell, Vermont

Northland Solar LLC

PO Box 1204
Manchester Center, VT 05255
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KREBS & LANSING
CONSULTING ENGINEERS

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Colchester, Vermont 05446 www.krebsdanslinc.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

SOURCE DATA LEGEND
 MAPPING SOURCE DATA USED FOR PLAN COMPILATION
 Civil Engineering:
 Krebs and Lansing Consulting Engineers, Inc.
 164 Main Street, Suite 201
 Colchester, Vermont 05446

Proposed Solar Array

REV. NO.	REVISIONS/COMMENTS	DATE

Drawing Title:

DETAILS

DATE of Issue: 09/22/24
 Drawn by: SDG Checked by: GD
 Project No.: 25222 Scale: N.T.S.
 Drawing No.: Rev No.:

Act 250 Procedure:

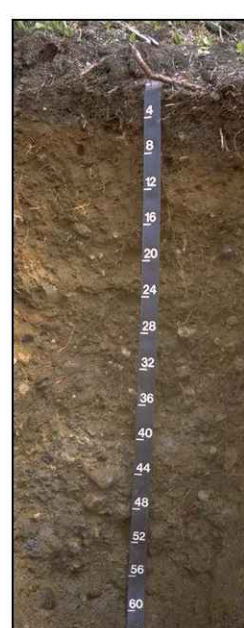
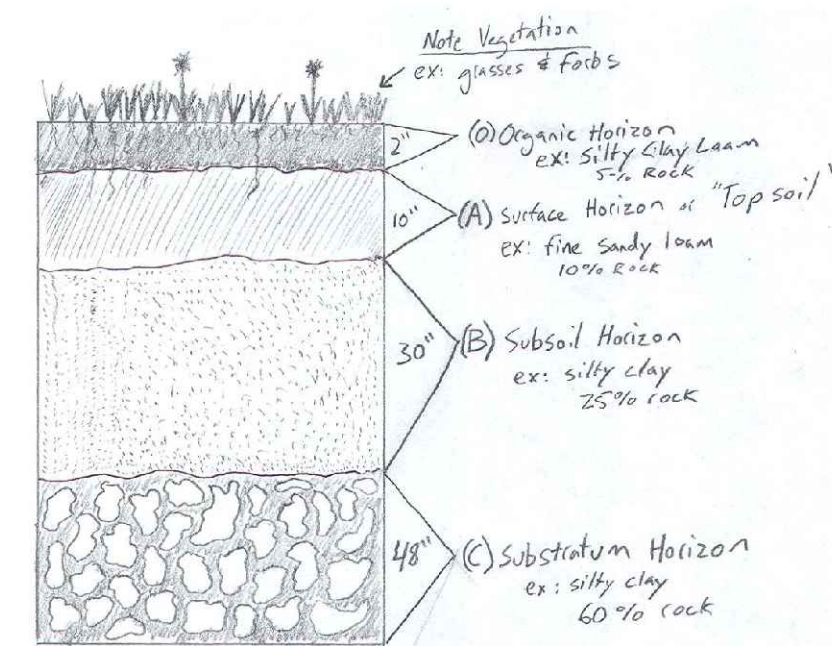
Reclamation of Vermont Agricultural Soils

Revised 10/02/2014 by the Vermont Agency of Agriculture, Food and Markets, with assistance from USDA Natural Resources Conservation Service (NRCS) and Ben Waterman, soils consultant

The reclamation of Agricultural soils is technically feasible from the Agency of Agriculture's perspective. However, to ensure that the soil is returned to a physical and biological state that is comparable to the soil quality prior to activities of potential adverse impact, the following parameters should be addressed in the site reclamation plan.

Part 1. Pre-disturbance phase:

- 1) Prepare a pre-disturbance General Site Characteristics report, including:
 - a) Maps: 1) a map showing the existing site topography, 2) an NRCS soil map showing the distribution of all NRCS soil survey map units and their acreage, 3) an NRCS soil map showing areas with a farmland classification rating of prime, statewide importance or local importance on the site and their acreage, 4) a map showing the extent of the proposed disturbance. For purposes of this document a "disturbance" is any activity that involves excavation, modification of soils or potential compaction of soils with heavy equipment. The NRCS soil maps can be either GIS-generated or from Web Soil Survey. Scale should be a minimum 1:2,000 or as large as necessary to delineate all soil map units.
 - b) An additional map (labeled "Agricultural Soil Reclamation Map") that identifies the proposed location of the soil stockpiles, the area to be reclaimed, and the final topography if it will be different than existing. A narrative that outlines the proposed reclamation map should be provided. Scale should be large enough to delineate all relevant areas.
 - c) Information on the existing site soil conditions:
 - i) For areas to be excavated: One on-site soil profile description representing the area to be disturbed. If the area to be disturbed spans more than one NRCS soil survey map unit, at least one profile description should be completed for every map unit to represent all impacted areas. The descriptions should include depths to and thickness of A, E, B and/or C horizons, USDA texture class, soil structure and moist consistency ratings for samples within each horizon. Soil profiles should be at least 6" deep. For profile description protocols, refer to: The Field Book for Describing and Sampling Soils, version 3.0 (Schoeneberger, Wysocki, Denton, and Soil Survey Staff, 2012), available online and in print at USDA NRCS service centers.
 - ii) For areas to be excavated and/or compacted, one representative soil sample from each map unit impacted and subject to reclamation shall be submitted to measure



For this profile: surface organic material and loamy dark brown topsoil (A horizon) go to about 8 inches, brownish loamy subsoil (B horizon) goes to about 30 inches or so, then lighter colored gravelly substratum (C horizon) starting at 30 inches...

- ii) pre-disturbance soil productivity using the Cornell Soil Assessment Package testing service (<http://soilhealth.cals.cornell.edu/extension/test.htm>)
- iii) For areas to be excavated and/or potentially compacted with heavy equipment: Soil compaction status should be measured for impacted areas, with at least one measurement for each NRCS soil map unit. Compaction can be measured by performing a soil bulk density test for the topsoil (A horizon). Alternatively, to measure surface and subsurface hardness, penetrometer readings can be taken using a field penetrometer with field penetration resistance measured in psi.
- iii) For areas to be excavated, soil pH should be measured before disturbance with at least one test for each NRCS soil map unit using University of Vermont or other Cooperative Extension or professional soil testing lab and protocols.

Part 2. Soil removal and stockpiling phase:

- a) Soil material and woody material, if present, should be stockpiled into several distinct piles:
 - i) Surface organic soil material (if present) and the dark topsoil material (A horizon) in one pile.
 - ii) Loamy brownish subsoil material (B horizon) in a separate pile.
 - iii) Unconsolidated bedrock, such as bank-run gravel or un-weathered soil parent material (BC or C horizon) in a separate pile. (Note: In Vermont areas from recently formed floodplain soils, it is uncommon to shovel disturbances to reach the C horizon; however, in the event this layer is disturbed, it should not be mixed with other subsoil. This will enable subsoil layers to be restored to their original order in the soil profile to the extent possible.)
 - iv) Woody stumps (where present) should be removed and stockpiled in a separate pile. If woody stumps have not been chipped, soil that is attached to the roots will eventually dry out and fall off the roots. To speed up this process, use an excavator to shake the roots clean. This is some of the best topsoil and should be added to the stockpiled topsoil. The stumps can then be chipped or ground and added to the woody stockpile, or used in the re-planting process.
- b) Stockpiling of the soil and woody material is to be in predetermined locations that can be monitored over the life of the excavation and reclamation.
- c) To minimize potential for erosion, soil stockpiles should be seeded or temporarily stabilized with application of straw mulch or other erosion control matting to maintain a uniform cover until soil is backfilled and restored. If stockpiles are to be kept in place throughout the winter and soil disturbance is completed by October 15, they should be stabilized with seeding of winter rye. Additional cover such as hay straw mulch or erosion control matting should be installed if seeding of rye can't be accomplished before September 15. For sites with earth disturbance occurring after October 15, Vermont Agency of Natural Resources guidelines for winter erosion control on construction sites should be followed. (see http://www.nrs.state.vt.us/dnc/water/bstormwater/docs/construction/water_risk_site_handbook.pdf)

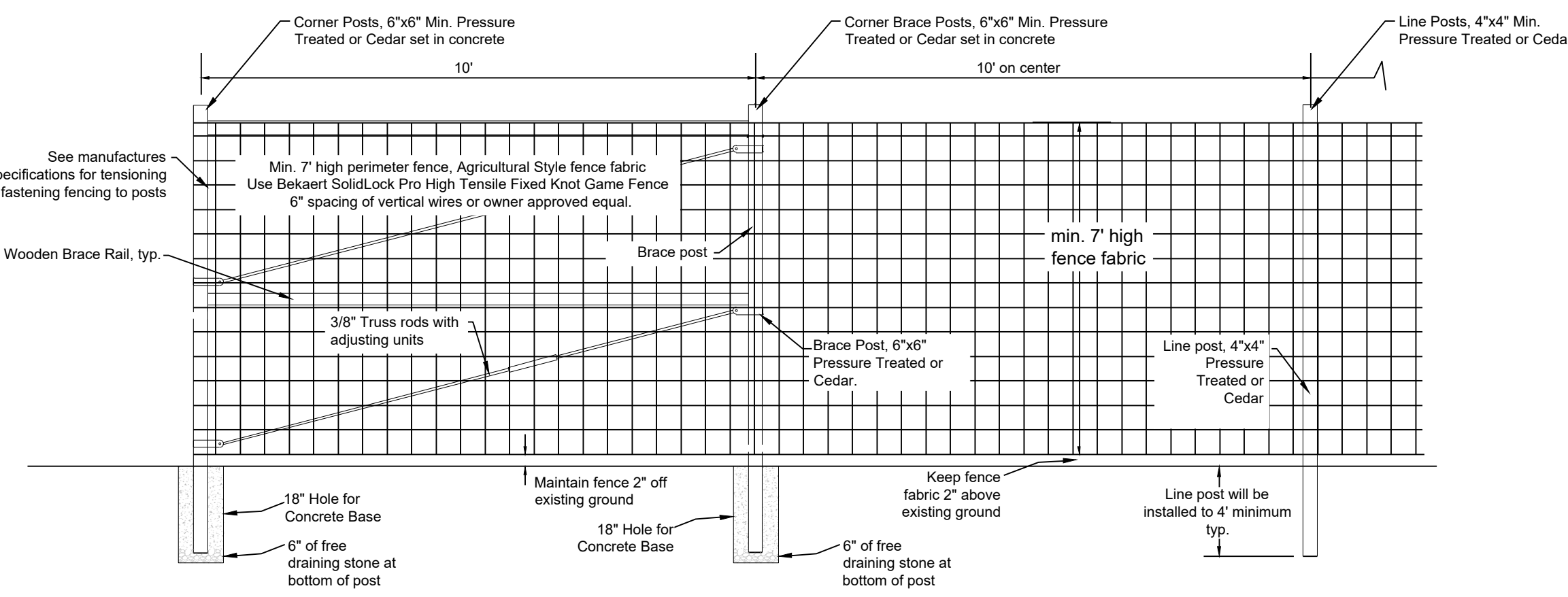
Part 3. Reclamation phase:

- 1) In areas where soils with a NRCS farmland classification of prime, statewide or local importance are to be reclaimed, the final site topography should have slopes less than 15 percent. It is preferred that level to slightly convex areas, with slopes between 0% and 8% slopes, are created, with no concave areas where water may pool.

- 2) Soil stockpiles should be layered in the following sequence:
 - a) Soil that was originally deepest in the soil profile should be placed first, directly above the re-graded base material and graded to the final slope contours.
 - b) Soil that was originally shallow layers of subsoil replaced before topsoil and re-graded.
 - c) The topsoil material is then placed on top of the re-graded subsoil material.
 - d) The thickness of topsoil material covering subsoil layer(s) should approximate the pre-disturbance thickness.
 - e) One representative soil sample from each map unit subject to reclamation shall be submitted to measure post-reclamation soil productivity using the Cornell Soil Health Assessment Package testing service to verify that soils have been effectively reclaimed in all impacted areas (<http://soilhealth.cals.cornell.edu/extension/test.htm>).
 - f) Exposed soil should be seeded and mulched as soon as possible after final grading to prevent erosion and allow for the establishment of vegetation. In areas where a farmer or landowner intends to cultivate or plow the area within two weeks of completion of the soil reclamation and final grading, the area does not need to be seeded. The selection of the seed cover can include input of the landowner based on pre-construction use and land cover to ensure that introduced grass or vegetable species do not adversely impact future soils productivity for hay, pasture or crops. Seed can be selected for soil stabilization qualities, its likelihood for successful establishment given soils and time of year, and its compatibility with adjacent land uses. For guidelines and information on erosion control and seed stabilization practices see <http://doh.vt.gov/assess/reclamation/soilhealth/V1705060000.pdf> or http://www.nrs.state.vt.us/dnc/water/bstormwater/docs/construction/water_risk_site_handbook.pdf or http://ftp://ftp-facts.srs.gov/2011/11/FOTS/Technical_References/ConsPlanmnc/Cons_Gray_PHS.pdf.
- 3) Final soil productivity testing should be performed on the same areas tested prior to soil disturbance. Results should be similar to the original, pre-disturbance measured readings. If bulk density is higher than tested originally, subsoiling, plowing or other methods of decompaction should be employed to alleviate soil compaction. Soil material should not be spread or driven on by heavy machinery when it is very wet, otherwise, soil compaction could be severe. Reclaimed topsoil layers should have a pH within 0.5 points of the pre-disturbance readings. Lime can be applied at rates recommended by soil test labs to raise soil pH if necessary. If soil tests indicate the pH is lower than 6.0, in most cases unless specifically requested by a farmer, lime can be applied at the recommended rate to bring the pH up to within the range of 6.0-7.0.

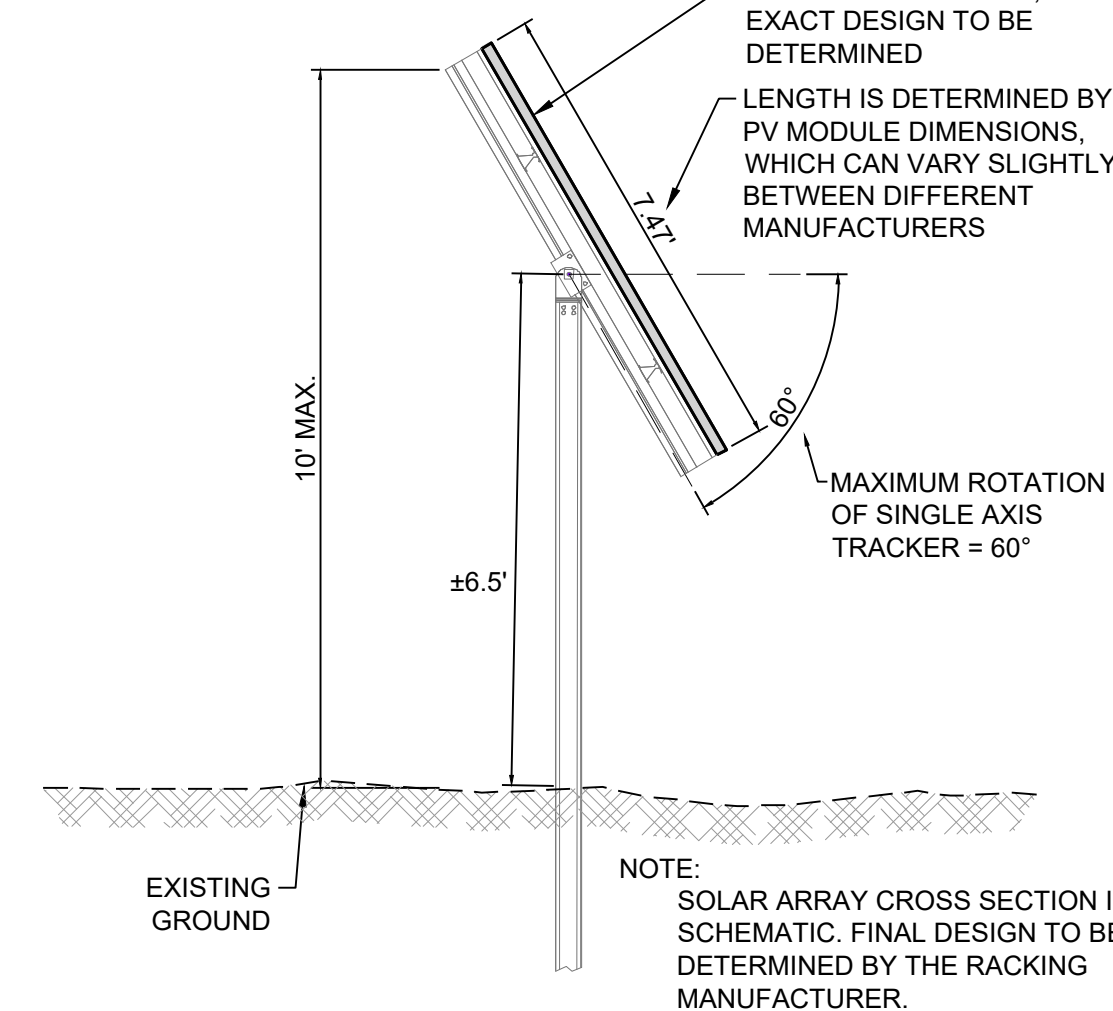
ATTACHMENT A

Examples of a Soil Profiles:



Typical Agricultural Fence
N.T.S.

Note:
 -Agricultural style fence requires strong corner brace post assemblies, posts for corner assemblies and at gates shall be set in concrete as shown on this detail, see Bekairt for additional specifications
 -Additional bracing may be required on longer fence runs. Contractor to add additional bracing when contractor observes corner post deflection during fence tensioning/lashing
 -All posts to be pressure treated or cedar.
 -Fabric to be fastened with manufacturer approved corrosion resistant staples
 -Fabric to be Bekairt SolidLock Pro High Tensile Fixed Knot Game Fence
 -Height: min. height 84", Vertical Spacing of Wires: 6" or owner approved equal



**TYPICAL SINGLE AXIS TRACKER
1 MODULE IN PORTRAIT ORIENTATION CROSS SECTION**
N.T.S.

Torque Tube Hangers
Quick and Easy Under Panel Cable Management

CAB Torque Tube Hangers
Safe, Strong, and Durable
(Designed for quick, easy installation over many types of torque tubes of fixed lift structures)

Benefits:
 - CAB Hangers deliver superior durability and long service life. They are manufactured from cast, galvanized, high tensile strength spring steel for maximum strength and corrosion resistance.
 - CAB PVC coating provides an extra measure of safety and protection for cables.
 - CAB Torque Tube Hangers were very easy to install and cut labor costs over other adjustment methods. We really liked the hangers and highly recommend them on future projects."
 - Reduces shading in bifacial panel projects.
 - CAB Torque Tube Hangers offer a sturdy long-term solution for under panel cable management. Supports large bundles of cables easily and effectively. CAB Hangers help reduce installation costs and simplify future project maintenance.
 - Safely manages all types of cables under solar panels.
 - Designed with innovative features for quick installation over many styles of torque tubes or fixed lift structures.
 - Easy installation requires no tools.
 - Greatly reduces labor time compared to cable ties, clips or clamps.
 - In seconds, hangers can be installed and cables loaded.
 - Spiral carrier securely retains cables or cables loaded.
 - Hangers simplify upgrades, maintenance, and troubleshooting.
 - Custom designs available for many torque tubes or fixed lift structures.

170 Industrial Park Rd. | Chandler, AZ 85119-1109 USA
 1.814.472.5077
 cabolar.com

CAB ABOVE GRADE WIRE MANAGEMENT SYSTEM DETAIL
N.T.S.

Secondary Containment

BCI
Barricade Construction Inc.
Justice Safety Group

their safety is essential.
Protecting people prevents the problem.

Barrier Boom
Versatile and Proven Solutions for Secondary Containment Compliance

Barrier Boom is a proven Secondary Containment System designed to allow the unimpeded flow of water during normal rainfall or snow-melt events, but becoming an impervious barrier in the event of an oil release. Barrier Boom is constructed from non-woven geotextile materials that with DRI Solidifying Polymer Granules, a proprietary blend of concrete (USDA) forage-grade polymers, and black water Agent 30, a non-woven geotextile material with embedded white fibers. Barrier Boom has become the accepted solution for SPC Secondary Containment by professional engineers across the nation.

Applications:
 - Barrier Boom is the ideal solution for providing Secondary Containment for oil and gas storage tanks, fuel storage tanks, and other applications around the world. Applications for Secondary Containment with Barrier Boom include: Water tank, pad-mounted transformers, oil-filling equipment storage areas, fuel tank and oil storage areas - all without the cost of concrete walls, sump pumps, and oil-water separator systems.
 - Barrier Booms can be used with dry seal and steel liner systems in non-impervious subsurface applications.

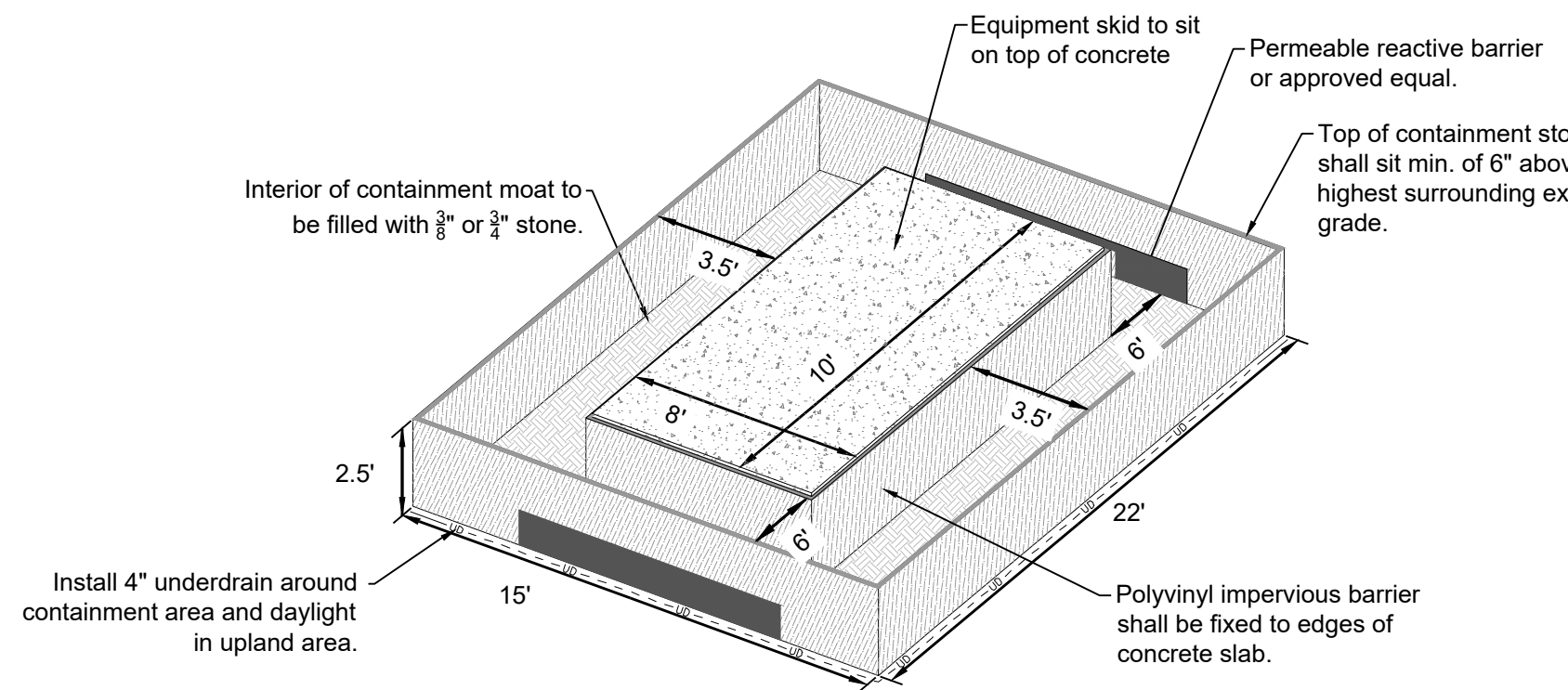
Specifications:
 - Barrier Boom has a minimum of 2.5 GPM per sq. ft. of rainfall with one foot of head pressure.
 - Installation flow rate: 0.25 GPM (underwater).
 - Solidifies approximately a half gallon of oil per square foot depending on oil viscosity.
 - Service life of installed product: Life of equipment.
 - UV resistance of 30%.
 - Customization available: 30%
 - Contains 10% by vol. of heavy polymers per square foot.

BCI Agent Barrier Boom Specifications

Water gets in, but not out.
 - Water gets in, but not out.
 - Water gets in, but not out.
 - Water gets in, but not out.

For further info call 1-800-285-4203 or visit us online at BCIConstruction.com

BCI AGENT BARRIER BOOM SPECIFICATIONS



Secondary Oil Containment Design for 2,800 kVA Transformer
N.T.S.

NOTE: CONTRACTOR SHALL CONFIRM TRANSFORMER EQUIPMENT PAD DIMENSIONS AND TRANSFORMER OIL VOLUME PRIOR TO ORDERING. IF VOLUME OR DIMENSIONS DO NOT MATCH THE DESIGN CONTACT ENGINEER TO UPDATED DESIGN.

VOLUME CALCULATIONS:

Required Capacity:
 110% of the 720 Gallons of Transformer Oil = 792 gal. = 105.9 c.f.
 Containment Area = 22' x 15' = 330 s.f.
 Volume of freeboard required = 330 s.f. x 0.42 ft. = 138.6 c.f.

Total Capacity Required = 105.9 c.f. + 138.6 c.f. = 244.5 c.f.

Capacity Provided in Secondary Oil Containment System:
 Area of containment = (22x15) - (10'x8') = 250 s.f.
 Volume of Containment = 250 s.f. x 2.5' of depth = 625 c.f.
 When filled with stone with 40% void ratio = 625 c.f. * 0.4 = 250.0 c.f.
 Total Capacity Provided = 250.0 c.f. > 244.5 c.f. required

**NORTHLAND
SOLAR
PROJECT**

VT Route 100
Lowell, Vermont

**Northland
Solar LLC**

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www.ningsolar.com

**KREBS &
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CONSULTING ENGINEERS**

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Colchester, Vermont 05446 www.krebsandlansing.com

**ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION**

SOURCE DATA LEGEND

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:

Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

**Proposed
Solar Array**

REV. NO.	REVISIONS/COMMENTS	DATE

Drawing Title:

DETAILS

DATE of Issue: 09/18/24

Drawn by: SDG

Checked by: GTD

Project No.: 25222

Scale: N.T.S.

Drawing No.:

Rev No.:

C-107

- NOTES:**
1. The O&M Firm will review the installation for safety and code compliance (by the appropriate qualified licensed mechanical and electrical professionals), accurate and up to date reporting information and updates required. Please note that Krebs and Lansing Consulting Engineers, Inc. work pertains to the stormwater controls only. The safety and code compliance portion of the design and review shall be completed by the appropriate licensed mechanical and electrical professionals (Engineers) required by the O&M firm prior to construction of the project. Any appropriate code or safety modifications dictated by that review shall be incorporated into O&M protocols for the site prior to construction commencing.
 2. All penetrations through the concrete base of the transformer pad will be sealed.
 3. This design is for a 2,800 kVA pad mount transformer with 720 gallons of oil sitting on a 8' x 10' concrete pad. Containment is sized to hold 110% of the oil volume plus 5" of freeboard.