

(Top 3 inches reserved for recording data)

**DECLARATION OF COVENANTS AND AGREEMENT
FOR MAINTENANCE OF STORMWATER FACILITIES**

This Declaration and Agreement (the “Agreement”) is made by and between Chub Solar LLC, a Minnesota limited liability company, 4000 Lexington Avenue N., Suite 201, Shoreview, MN 55126 (the “Owner” or “Responsible Party”), and the City of Northfield, a Minnesota municipal corporation (the “City”); (collectively the “parties”).

RECITALS:

WHEREAS, the Owner is the lessee of certain real property located in the City of Northfield, Dakota County, Minnesota, legally described as follows:

See Exhibit A attached hereto and incorporated herein by reference (the “Property”); and

WHEREAS, the City Development Review Committee (“DRC”) approved a site plan for improvements for a One Megawatt Community Solar Garden project and associated improvements including roadway/driveway, sanitary sewer, storm sewer, water, storm water management facilities, sidewalk and trails, grading and erosion control facilities and other private improvements (the “project”) upon the Property; and

WHEREAS, all construction and site improvements for the project must be in conformance with the approved site plan (the “Site Plan”) and in conformance with City Code; and

WHEREAS, the Owner plans to install, operate, repair and maintain a storm water infiltration system and related appurtenances (the “Facilities”) on a portion of the Property for future use and benefit of the project; and

WHEREAS, the Facilities on the Property were designed by Aztec Typsa Group in accordance with the requirements of City Code, Chapter 22, Division 2, Stormwater Management; and

WHEREAS, the Owner shall install, operate, repair and maintain the Facilities pursuant to City Code and in accordance with those approved plans and specifications, including but not limited to the following plans, attached hereto as Exhibits and incorporated herein by reference, hereinafter collectively referred to as the “specifications”:

Exhibit B	Civil Site Plan (C04.01)
Exhibit C	Grading and Erosion Plan (C05.01-C6.01)
Exhibit D	Utility Plan (E2.01)
Exhibit E	Landscape Plan (L2.01-L3.02)
Exhibit F	Utilities Details (E4.01)
Exhibit G	Stormwater Maintenance Plan

WHEREAS, in order to provide stormwater management and control, to meet the City’s stormwater permitting requirements, and to promote the water quality and volume control to the City’s stormwater system and water bodies, including but not limited to the Cannon River, the Owner and the City agree that it is reasonable for the City to require the Owner and all subsequent owners of the Property to inspect, operate, repair, maintain and replace, at the Owner’s cost and expense, the Facilities on a regular basis to ensure that the Facilities function as intended in compliance with the specifications, applicable law, stormwater permitting requirements, and this Agreement; and

WHEREAS, pursuant to City Code, the Owner and the City desire to set forth, in this recordable instrument, their agreement to establish covenants and declarations upon the Property for the installation of and ongoing operation, repair, maintenance and replacement of the Facilities on the Property by the Owner and the Owner’s successors and assigns at the Owner’s and the Owner’s successors’ and assigns’ cost and expense.

NOW, THEREFORE, in consideration of the foregoing facts and circumstances, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

1. Installation, Construction and Maintenance.

- a. Construction and Installation Requirements. The Owner shall construct and install the Facilities in accordance with the Site Plan, the approved specifications and this Agreement, at the Owner’s sole cost and expense.
- b. Maintenance Obligation. The Owner shall operate, maintain, repair and replace, as applicable, the Facilities in accordance with the Site Plan, the approved specifications, this Agreement, and applicable law and City Code, as amended, at the Owner’s sole cost and expense.
- c. Personal Property or Debris Storage Prohibited. The Owner shall not deposit or store any personal property or debris, litter, or other objects within the Facilities or in any manner that will otherwise interfere with the proper operation and

maintenance of the Facilities, and the Owner shall use reasonable efforts to keep the Facilities free of any debris, leaves, litter, or other objects.

- d. Maintenance of Vegetation. As applicable, the Owner shall maintain and, when necessary, replace approved plants and vegetation set forth in the specifications. Notwithstanding normal plant maintenance, such as pruning, dividing or thinning vegetation, the Owner shall seek approval from the City before materially altering the plants used as part of or in relation to the Facilities. The Owner shall not use any chemicals within the Facilities unless first approved by the City and only when necessary for the protection of the Facilities or vegetation associated therewith. The Owner shall repair any erosion within or surrounding the Facilities. The Owner shall conduct monthly inspections of the Facilities during the growing season, at the Owner's sole cost and expense, to ensure the Facilities and associated vegetation are maintained in material compliance with the specifications, this Agreement, and applicable law and City Code, as amended. If necessary, the Owner shall repair the Facilities if not in conformance with the standards set forth herein. Repairing landscape and vegetation to maintain a healthy plant community associated with the Facilities may include replacement of dead or diseased plants, vegetation or mulch and removal of noxious weeds, litter or other debris.
- e. Maintenance Costs. The Owner shall incur and pay all costs associated with operating, maintaining, repairing and replacing the Facilities on the Property pursuant to the terms and conditions of this Agreement.

2. Inspections.

- a. Annual Inspections. The Facilities shall be inspected annually by a Qualified Person selected by the Owner to determine whether or not the same are functioning in accordance with the specifications, this Agreement, and applicable law and City Code, as amended. As used in this Agreement, the term "Qualified Person" shall mean a professional engineer licensed by the State of Minnesota, or a person approved by the City Engineer based on training and experience. The Owner's responsibilities under this Section shall be at the Owner's sole cost and expense. If, as a result of the inspection, the Facilities or any portion thereof are determined not to be functioning in accordance with the specifications, this Agreement, and applicable law and City Code, as amended, the Owner shall restore/repair/replace, as necessary for the Facilities to function as specified herein. Upon request from the Owner, the City Engineer may establish an inspection schedule permitting such inspections to be performed less frequently than annually, but the City Engineer may reinstate the annual inspection schedule at any time by written notice to the Owner in the City Engineer's sole judgment and discretion.
- b. City Notification of Inspection. The City shall be notified at least 48 hours prior to the annual inspections or any repair, maintenance or replacement of the Facilities

and, at the sole cost of the City, a representative of the City may observe any inspection, repair, maintenance or replacement.

- c. City Right of Entry and Independent Inspection. Pursuant to City Code, Section 22-306, which is incorporated herein by reference as amended, the City shall have right of entry onto the Property to inspect the Facilities at any reasonable time and in a reasonable manner, provided that the City shall use reasonable efforts to provide prior written notice to the Owner of its intent to enter the Property to inspect in order to allow a representative of the Owner to be present and observe any inspection. The City shall have the right to enter the Property upon reasonable notice to Owner (except in the event of an emergency) when the City has a reasonable basis to believe that a violation of the specifications, this Agreement, or applicable law and City Code, as amended, is occurring or has occurred and to enter upon the Property when necessary, in the City Engineer's sole judgment and discretion, for abatement of a public nuisance or correction and enforcement of a violation of City Code or this Agreement. The City shall not be subject to or liable for any claims of trespass by the Owner in exercising its rights under this Agreement.
 - d. Inspection and Maintenance Report. The Owner shall submit a report to the City, no later than two (2) weeks after any annual inspection or maintenance of the Facilities, providing the following information:
 - i. Date and time of inspection;
 - ii. Log of findings;
 - iii. Date and time of maintenance; and
 - iv. Log of maintenance performed.
3. Remediation and Waiver of Rights.
- a. Remediation Plan. If the City Engineer determines that the Facilities do not conform to the Site Plan, the approved specifications, this Agreement, or applicable law and City Code, as amended, the City Engineer shall notify the Owner of the deficiency in writing. The Owner shall submit a proposed remediation plan and schedule to the City Engineer within thirty (30) days after receipt of such written notice from the City. City and Owner shall use good faith efforts to agree on remediation plans. If the proposed remediation plan and schedule are not acceptable to the City Engineer, the City Engineer shall provide written notice to the Owner of the deficiency, and the Owner shall submit a revised plan to the City Engineer within fourteen (14) days after receipt of such written notice. If the City Engineer approves the proposed remediation plan and schedule, the Owner shall perform the remediation in compliance therewith at the Owner's sole cost and expense.
 - b. Failure to Repair. If the Owner fails to submit a proposed remediation plan and schedule to the City Engineer as prescribed above, or fails to implement a City Engineer approved remediation plan to bring the Facilities into compliance with the

specifications, this Agreement, or applicable law and City Code, as amended, then at the sole cost and expense of the Owner, the City shall have the right, but no obligation, to prepare a remediation plan for the Facilities, enter upon the Property and complete all work necessary to correct the Facilities so as to bring the Facilities into compliance.

- c. Reimbursement to the City. The Owner shall reimburse the City within thirty (30) days after receipt of an invoice from the City for any and all reasonable costs incurred by the City in connection with preparing a remediation plan for the Facilities and all work completed by the City to bring the Facilities back into compliance.
 - d. Waiver of Rights and Certification. If the Owner does not timely reimburse the City, the City may recover its costs by levying a special assessment against the Property certifying the same to the Dakota County Auditor for collection in the same manner as property taxes upon the Property. The Owner, on behalf of itself and its successors and assigns, hereby acknowledges the benefit of such inspection/maintenance/repair/replacement of the Facilities to the Property and hereby expressly waives any rights to hearings, notice of hearings, objections or appeal relating to the levying of any City assessments, the right to contest the City levied assessments under Minnesota Statutes § 429.081 or the certification of such levied assessments to the Dakota County Auditor for collection with property taxes upon the Property.
 - e. Right of Entry. The City shall have the right to enter the Property to implement the terms of this Paragraph 3 and enforce City Code, including but not limited to Chapter 22. The City shall not be subject to or liable for any claims of trespass by the Owner. City Code, Section 22-308 is incorporated herein by reference, as amended.
4. Standards for Performance. Any act of construction, installation, operation, maintenance, repair or replacement to be performed under this Agreement shall be performed in a good and workmanlike manner pursuant to sound engineering practices and in compliance with all applicable governmental requirements, City Code, the Site Plan, the approved specifications, and applicable law and rules.
5. Amendment, Release or Termination. Notwithstanding anything herein to the contrary, no amendment, release or termination of any of the provisions of this Agreement shall be effective or may be filed of record unless the City consents to the amendment, release or termination. Such consent must be evidenced by a resolution duly approved by the City Council, or successor body. The Owner, on behalf of itself and its successors and assigns, expressly acknowledges and agrees that the City has no obligation whatsoever to approve or act upon any proposed amendment, release or termination, and may withhold or delay consent for any reason or no reason whatsoever, or may condition consent upon such terms as the City deems desirable, it being the City's absolute right and prerogative to insist that the terms of this Agreement remain in effect and unaltered and to permit amendment, release or termination only at such times and under such circumstances, if any, as the City

deems desirable in the exercise of its sole judgment and discretion. The Owner, on behalf of itself and its successors and assigns, further agrees and covenants, consistent with this acknowledgment, not to institute any legal proceedings against the City on the grounds that the City failed to respond appropriately to a proposed amendment, release or termination, and to indemnify the City against any expense, including litigation costs, which the City incurs as a result of any violation by that party of this covenant. The City may, at any time, give up the right to approval granted hereunder, said action to be evidenced by City Council resolution. Notwithstanding anything herein to the contrary, the Property shall not be deemed dedicated to the public or otherwise public land. The City shall have no obligation and no right, other than as provided in this Agreement or under the ordinances, statutes and other laws under which the City operates, to maintain or administer Property.

6. Duration. This Agreement shall constitute a covenant running with the land and shall be binding upon and inure to the benefit of the parties, and any and all of their successors and assigns.
7. Authority. The Owner covenants with the City that they are the fee owners of the Property as described above and have good right to create the covenants contained herein.
8. Attorney's Fees. If any action at law or in equity shall be brought by the City on account of any breach of this Agreement by the Owner, the City shall be entitled to recover from the Owner reasonable attorney's fees, the amount of which shall be fixed by the Court and shall be made a part of any judgment or decree rendered.
9. General Terms.
 - a. RECITALS. The recitals to this Agreement are made a part hereof and incorporated herein by reference.
 - b. VOLUNTARY AND KNOWING ACTION. The parties, by executing this Agreement, state that they have carefully read this Agreement and understand fully the contents thereof; that in executing this Agreement they voluntarily accept all terms described in this Agreement without duress, coercion, undue influence, or otherwise, and that they intend to be legally bound thereby.
 - c. AUTHORIZED SIGNATORIES. The parties each represent and warrant to the other that (1) the persons signing this Agreement are authorized signatories for the entities represented, and (2) no further approvals, actions or ratifications are needed for the full enforceability of this Agreement against it; each party indemnifies and holds the other harmless against any breach of the foregoing representation and warranty.
 - d. NOTICES. All communications, demands, notices, or objections permitted or required to be given or served under this Agreement shall be in writing and shall be deemed to have been duly given or served if delivered in person to the other party or its authorized agent or if deposited in the United States mail, postage prepaid, for mailing by certified or registered mail, and addressed to the other party to this

Agreement, to the address set forth in this Agreement, or if to a party not a party to this Agreement, to the address designated by a party to this Agreement in the foregoing manner. Any party may change its address by giving notice in writing, stating its new address, to any other party as provided in the foregoing manner. Commencing on the 10th day after the giving of such notice, such newly designated address shall be such address for the purpose of all communications, demands, notices, or objections permitted or required to be given or served under this Agreement.

- e. **NOT PARTNERSHIP, JOINT VENTURE, OR FIDUCIARY RELATIONSHIP CREATED HEREBY.** Nothing contained in this Agreement shall be interpreted as creating a partnership, joint venture, or relationship of principal and agent between the City and the Owner.
- f. **CUMULATIVE RIGHTS.** Except as otherwise expressly stated herein, no right or remedy herein conferred on or reserved to the City is intended to be exclusive of any other right or remedy hereby provided by law, but each shall be cumulative in, and in addition to, every other right or remedy given herein or hereafter existing at law, in equity, or by statute.
- g. **COMPLIANCE WITH LAWS.** Owner shall abide by all Federal, State and local laws, statutes, ordinances, rules and regulations now in effect or hereinafter adopted pertaining to this Agreement or to the Facilities, improvements, personal property, programs and staff for which the Owner is responsible.
- h. **GOVERNING LAW.** This Agreement shall be deemed to have been made and accepted in Dakota County, Minnesota, and the laws of the State of Minnesota shall govern any interpretations or constructions of the Agreement without regard to its choice of law or conflict of laws principles.
- i. **DATA PRACTICES.** The parties acknowledge that this Agreement is subject to the requirements of Minnesota's Government Data Practices Act, Minnesota Statutes, Section 13.01 et seq.
- j. **NO WAIVER.** Any party's failure in any one or more instances to insist upon strict performance of any of the terms and conditions of this Agreement or to exercise any right herein conferred shall not be construed as a waiver or relinquishment of that right or of that party's right to assert or rely upon the terms and conditions of this Agreement. Any express waiver of a term of this Agreement shall not be binding and effective unless made in writing and properly executed by the waiving party.
- k. **SEVERABILITY.** The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision. Any invalid or unenforceable provision shall be deemed severed from this Agreement to the extent of its invalidity or unenforceability, and this

Agreement shall be construed and enforced as if the Agreement did not contain that particular provision to the extent of its invalidity or unenforceability.

- l. **HEADINGS AND CAPTIONS.** Headings and captions contained in this Agreement are for convenience only and are not intended to alter any of the provisions of this Agreement and shall not be used for the interpretation of the validity of the Agreement or any provision hereof.
- m. **SURVIVABILITY.** All covenants, indemnities, guarantees, releases, representations and warranties by any party or parties, and any undischarged obligations of City and Owner arising prior to the expiration of this Agreement (whether by completion or earlier termination), shall survive such expiration.
- n. **RECORDING.** This Agreement shall bind the heirs, executors, administrators, assigns and successors of the parties. This Agreement shall be recorded by the City at the expense of the Owner within 30 days of full execution hereof.

IN WITNESS WHEREOF, the parties hereto have hereunto executed this document on the latest date affixed to the signatures hereto.

CHUB SOLAR LLC, a Minnesota
limited liability company

By: _____
(Name), Its (Title)

Date:_____

COUNTY OF _____)
) ss.
 STATE OF MINNESOTA)

The foregoing instrument was acknowledged before me, a notary public in and for the above named County and State, on _____, 2019, by (Name), its (Title), on behalf of Chub Solar LLC, a limited liability company under the laws of the State of Minnesota, Owner.

Notary Public

CITY OF NORTHFIELD

By: _____
Rhonda Pownell, Its Mayor

Date: _____

By: _____
Deb Little, Its City Clerk

Date: _____

COUNTY OF RICE)
) ss.
STATE OF MINNESOTA)

The foregoing instrument was acknowledged before me, a notary public in and for the above named County and State, on _____, 2019, by Rhonda Pownell and Deb Little, respectively the Mayor and City Clerk, on behalf of the City of Northfield, a municipal corporation under the laws of the State of Minnesota.

Notary Public

THIS INSTRUMENT WAS DRAFTED BY:

FLAHERTY & HOOD, P.A.
525 Park Street, Suite 470
St. Paul, MN 55103-2122
651-225-8840

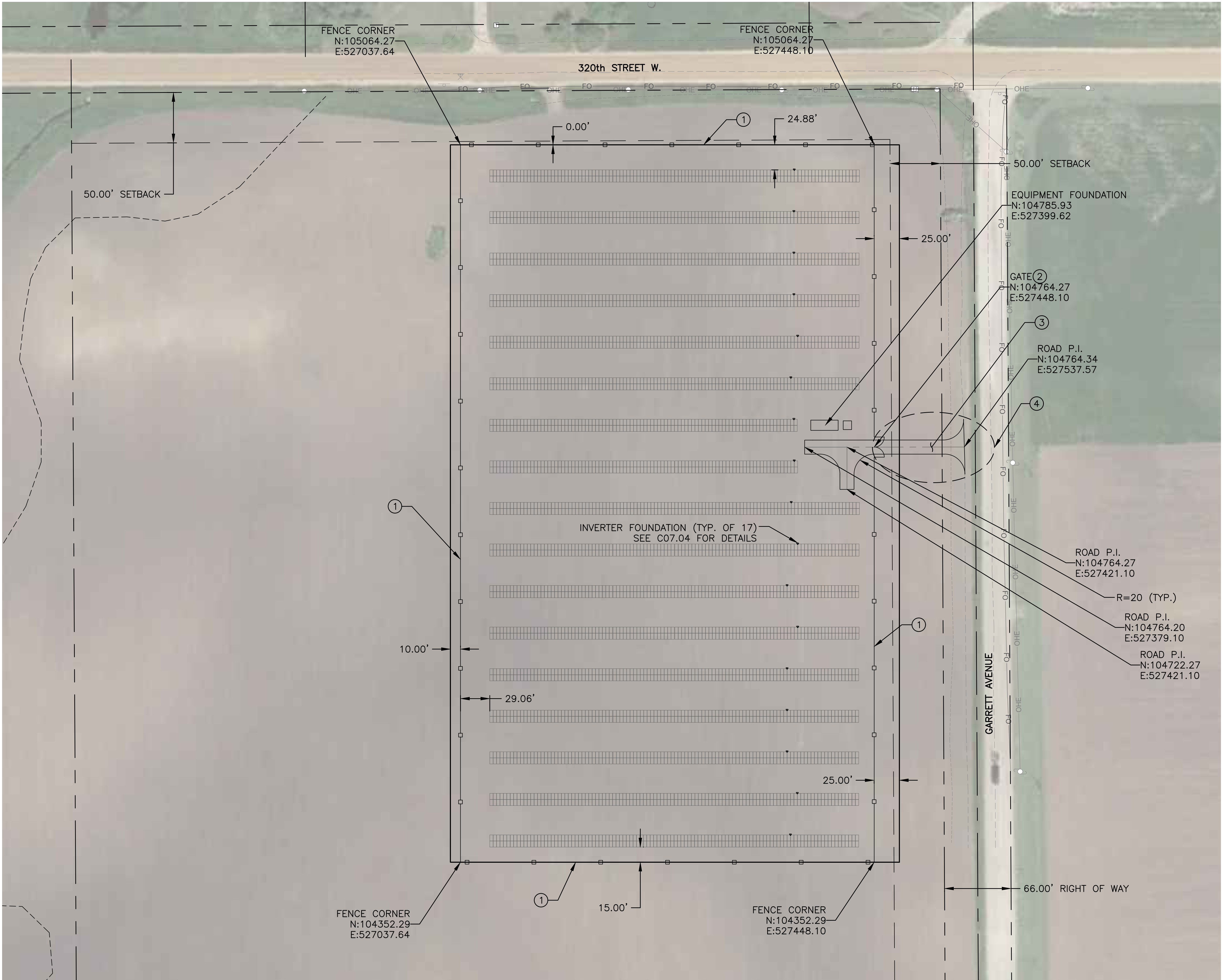
EXHIBIT A

Legal Description of Property

The northeast quarter (NE¹/₄) of the northwest quarter (NW¹/₄), section twenty-seven (27), township one hundred twelve (112), range twenty (20), according to the recorded plat thereof, Dakota County, Minnesota.

EXHIBIT B

Site Plan



CONSTRUCTION NOTES:

- ① CONSTRUCT 7' TALL GAME FENCE PER DETAILS 1 & 2 ON SHEET C07.01
- ② CONSTRUCT 16' WIDE DRIVE GATE PER DETAIL 3 ON SHEET C07.01
- ③ CONSTRUCT 14' WIDE ACCESS ROAD PER DETAILS 4 & 5 ON SHEET C07.01
- ④ CONSTRUCT ENTRANCE PER ENTRANCE DETAIL ON SHEET C07.02

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Sarah Smedley

SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
DATE OF SIGNATURE: JULY 26, 2019

ENGINEER
AZTEC
TYP SA Group

DEVELOPER
Nokomis Partners

CONTRACTOR
Konisto

811
Know what's below.
Call before you dig.

REV		DATE	DESCRIPTION	DRW			CK			APV		
				REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
0		6/14/19	ISSUED FOR PERMIT	CRK			CRK			SAS		
1		7/16/19	ISSUED FOR PERMIT	CRK			CRK			SAS		
2		7/26/19	CITY COMMENTS	CRK			CRK			SAS		

SCALE: 1"=50'
SIZE: 22"x34"
PROJECT#: AZENE1906-05

PROJECT
CHUB COMMUNITY SOLAR GARDEN
7488 320TH STREET WEST, NORTHFIELD, MINNESOTA 55057

TITLE
CIVIL SITE PLAN

SHEET
C04.01

REV
2

EXHIBIT C

Grading, Drainage & Erosion Plan

Jul 26, 2019 - 2:47pm
Chile

R:\Phoenix\Projects\AZENE1906-Wenonah-Portfolio-Konisto\05-TO-05-Chub\CADD\C05.00 CHUB EROSION CONTROL PLAN R01.dwg

SWPPP NARRATIVE

THIS PLAN IS TO SUPPLEMENT THE CONSTRUCTION OF CHUB COMMUNITY SOLAR GARDEN, A 1MW_{ac} FIXED TILT SOLAR ARRAY IN NORTHFIELD, MN. THE CONSTRUCTION PROCESS WILL INCLUDE THE INSTALLATION OF A GRAVEL ACCESS ROAD, CHAIN LINK PERIMETER FENCE, ARRAY RACKING AND MODULES MOUNTED TO DRIVEN PILES, STRING INVERTERS MOUNTED TO DRIVEN PILES, CONCRETE EQUIPMENT AND TRANSFORMER PADS, INFILTRATION BASINS, AND LANDSCAPE SCREENING. PRIOR TO ANY SITE DISTURBANCE, SILT FENCE AND VEHICLE TRACKING WILL BE INSTALLED AS SHOWN IN THE PLAN. ADDITIONAL SEDIMENT CONTROLS WILL BE INSTALLED IN THE AREA OF THE PROPOSED BASINS AND TRENCHES ON THE DOWNSLOPE SIDE IN ORDER TO MITIGATE SEDIMENT LEAVING THE SITE AND AS NEEDED TO PREVENT CONSTRUCTION TRAFFIC FROM ENTERING. THE AREA OF THE PROPOSED ARRAY WILL BE MOWED AND THE CUTTINGS WILL BE SPREAD EVENLY AS A MULCH COVER AND THEN LIGHTLY ROLLED TO PROVIDE AN EVEN WORKING SURFACE. PRIOR TO ANY CONCRETE WORK OR CONCRETE DELIVERIES, A CONCRETE WASH AREA WILL BE INSTALLED AND PROPERLY MARKED. UPON COMPLETION OF THE ARRAY INSTALLATION, THE APPROVED SEED MIX WILL BE APPLIED AS DIRECTED IN THE LANDSCAPE PLAN. TEMPORARY BMP's WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS UNTIL THE SITE REACHES FINAL STABILIZATION. UPON FINAL STABILIZATION, THE INFILTRATION BASINS AND COLLECTION TRENCHES WILL BE STABILIZED, AND TEMPORARY BMP's WILL BE REMOVED.

SWPPP DESIGNER

AZTEC ENGINEERING
TOM REECE
DESIGN OF CONSTRUCTION SWPPP (EXP. 5/31/2021)

SWPPP INSTALLATION AND MAINTENANCE

NEIL VAN BERKUM IS CERTIFIED FOR CONSTRUCTION INSTALLATION THROUGH THE EROSION AND STORMWATER MANAGEMENT CERTIFICATION PROGRAM AND WILL BE SUPERVISING THE INSTALLATION AND MAINTENANCE OF SITE BMP's. THE CONTRACTOR WILL BE USING A 3rd PARTY INSPECTOR, BRAUN INTERTEC. AT THIS TIME THE EXACT INSPECTOR(S) HAVE NOT BEEN ASSIGNED TO THE PROJECT. ONCE PROJECT START HAS BEEN CONFIRMED, THE NAME AND CERTIFICATION OF THE ASSIGNED INSPECTOR(S) WILL BE PROVIDED.

SHEET NOTES

- FOR SPECIFICATIONS ON SEED MIX, SEE LANDSCAPE PLAN UNDER SEPARATE COVER.
- DISCHARGES FROM BMP's SHALL BE ROUTED TO VEGETATED AREAS UNLESS INFEASIBLE.
- SWPPP MUST BE KEPT ON SITE DURING CONSTRUCTION ALONG WITH MODIFICATIONS MADE TO IT.

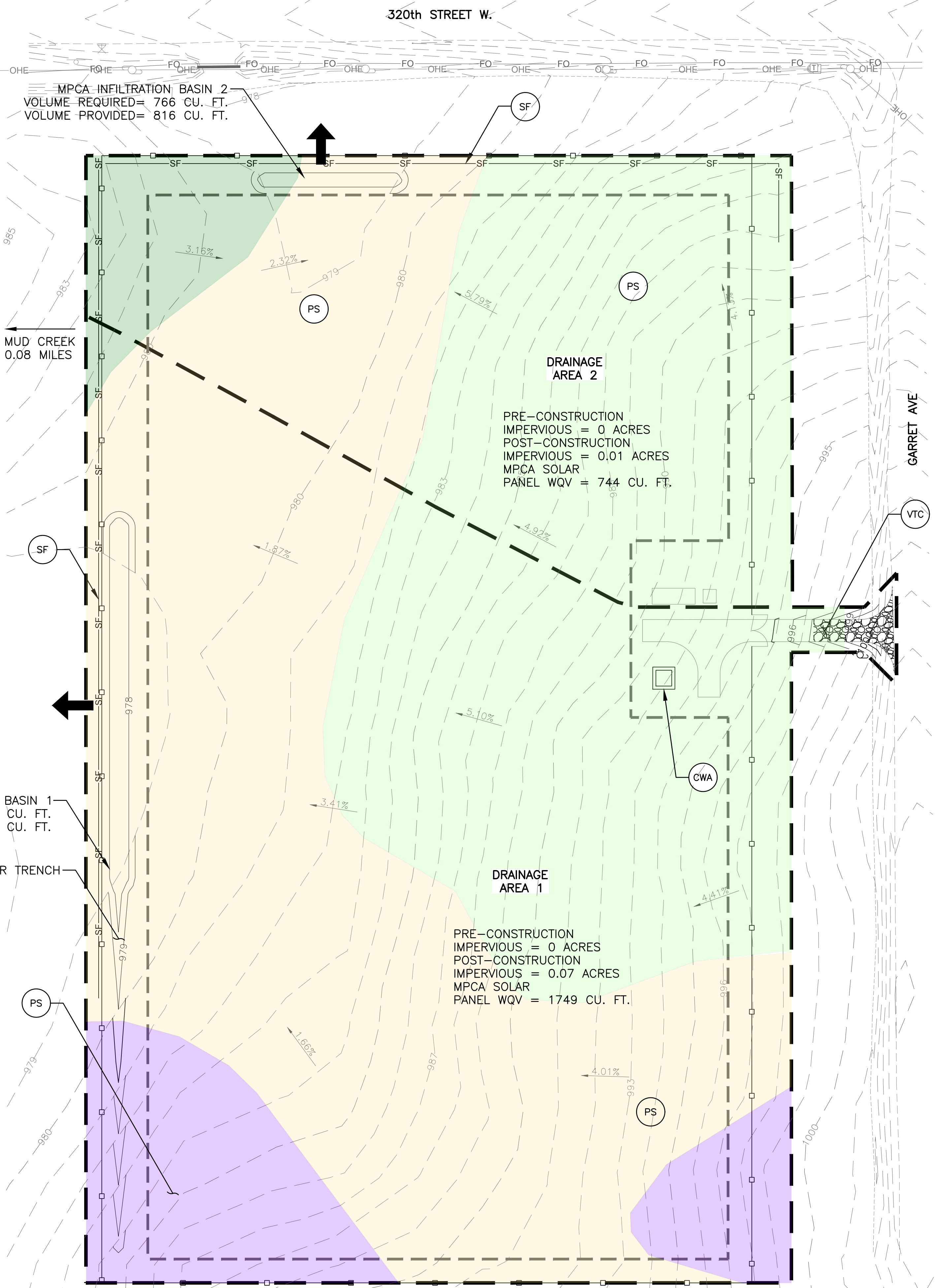
	SOIL TYPE	SOIL RATING
	LESTER LOAM, 2 TO 6 PERCENT SLOPES	C
	LESTER LOAM, 2 TO 6 PERCENT SLOPES, MODERATELY ERODED	C
	MARSHAN SILTY CLAY LOAM	B/D
	BLOOMING SILT LOAM, 1 TO 6 PERCENT SLOPES	B

MPCA INFILTRATION BASIN 1
VOLUME REQUIRED = 1999 CU. FT.
VOLUME PROVIDED = 2770 CU. FT.

COLLECTOR TRENCH

PS

SF



BMP LEGEND

- SF Silt Fence per Detail 1 on Sheet C07.03
- VTC Vehicle Tracking Control per Detail 2 on Sheet C07.03
- CWA Concrete Washout Area per Detail 3 on Sheet C07.03
- PS Permanent Seeding
- Drainage Area Boundary
- - - Solar Array Footprint
- Flow Direction Arrow
- - - 5510 Existing Major Contour
- - - 5508 Existing Minor Contour
- 5506 Proposed Major Contour
- 5504 Proposed Minor Contour
- Site Discharge Point

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Sarah Smedley

SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
DATE OF SIGNATURE: JULY 26, 2019

ENGINEER



DEVELOPER



CONTRACTOR



REV	DATE	DESCRIPTION	DRW	CK	APV	SAS	SAS	SAS	SAS
0	6/14/19	ISSUED FOR PERMIT	CRK	TFR	SAS				
1	7/16/19	ISSUED FOR PERMIT	CRK	TFR	SAS				
2	7/26/19	CITY COMMENTS	CRK	TFR	SAS				

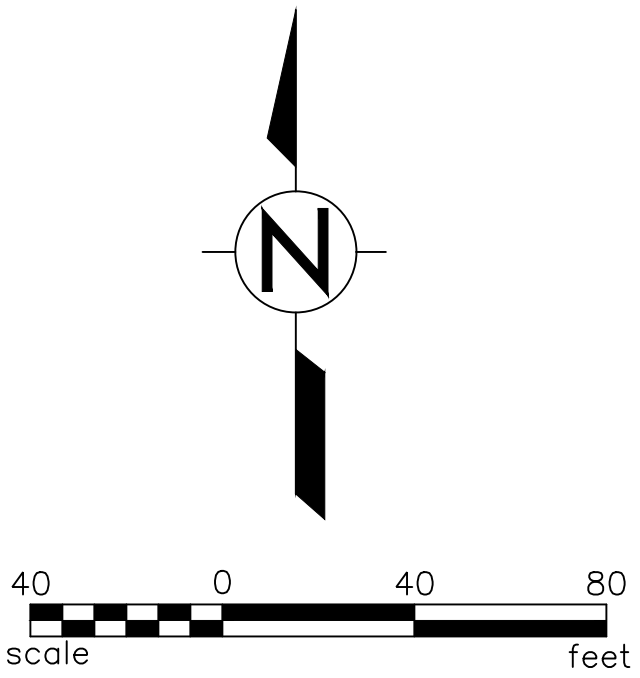
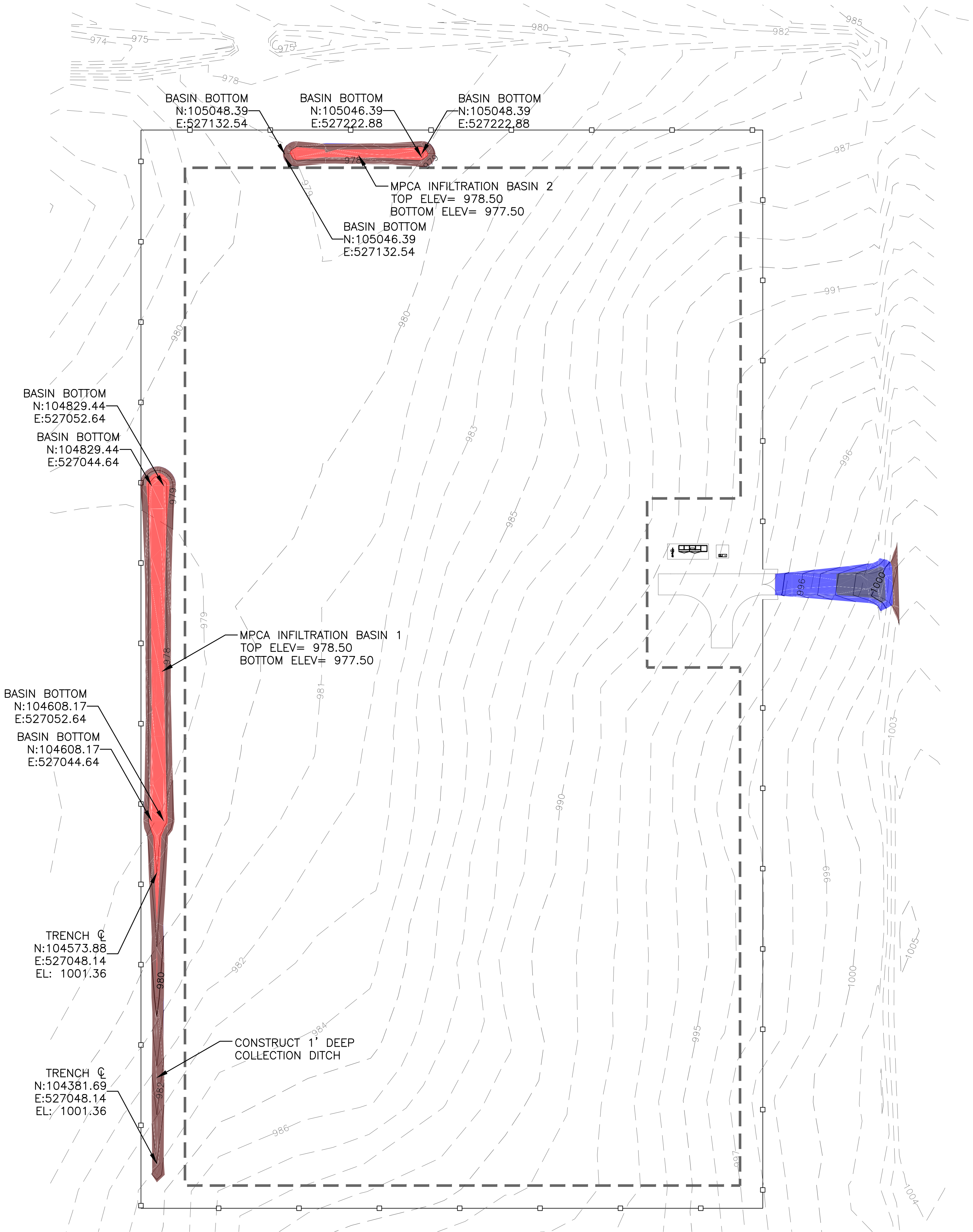
SCALE: 1"=40'
SIZE: 22"x34"
PROJECT#: AZENE1906-05

PROJECT CHUB COMMUNITY SOLAR GARDEN
7488 320TH STREET WEST, NORTHFIELD, MINNESOTA 55057

TITLE EROSION CONTROL PLAN

SHEET C05.01

REV 2



EARTHWORK LEGEND		
-2.00	-1.00	
-1.00	0.00	
0.00	1.00	
1.00	2.00	

LEGEND	
---	EXISTING MAJOR CONTOUR
---	EXISTING MINOR CONTOUR
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Sarah Smedley

SARAH SMEDLEY, MINNESOTA LICENSE NO. 52904
DATE OF SIGNATURE: JULY 26, 2019

ENGINEER
AZTEC
TYPsAGroup

DEVELOPER
Nokomis Partners

CONTRACTOR
Konisto

811
Know what's below.
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REVISIONS					
REV	DATE	DESCRIPTION	DRW	CK	APV
0	6/14/19	ISSUED FOR PERMIT	CRK	TFR	SAS
1	7/16/19	ISSUED FOR PERMIT	CRK	TFR	SAS
2	7/26/19	CITY COMMENTS	CRK	TFR	SAS

SCALE: 1"=40'
SIZE: 22"x34"
PROJECT#: AZENE1906-05

PROJECT
CHUB COMMUNITY SOLAR GARDEN
7488 320TH STREET WEST, NORTHFIELD, MINNESOTA 55057

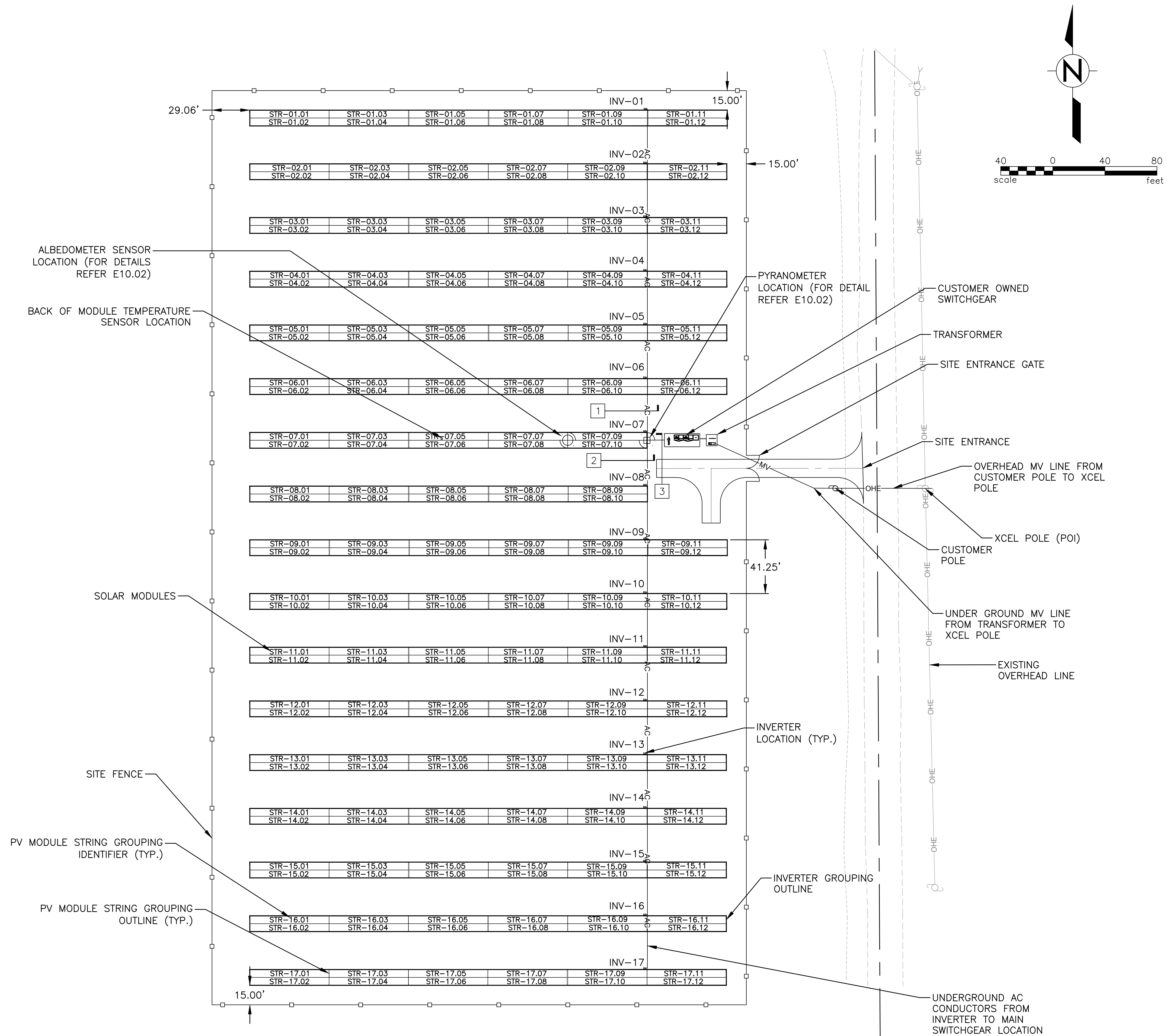
TITLE
GRADING PLAN

SHEET
C06.01

REV
2

EXHIBIT D

Utility Plan



LEGEND

1

INDICATES TRENCH SECTION
DETAIL ON SHEET E05.01

INVERTER GROUPING OUTLINE

STRING GROUPING OUTLINE

AC

UNDERGROUND AC LINE

STR-1.01

STRING PREFIX

INVERTER IDENTIFIER

STRING ID #

CHUB GARDEN PROJECT SPECIFICATIONS	
SRC#068908	
TOTAL PEAK POWER (MWp)	1.2600
TOTAL NOMINAL POWER (MWac)	1.000
DC/AC RATIO	1.26
INVERTERS (CHINT CPS SCA50/60KTL)	QTY (15)60kW, (2)50kW
MODULE (CS3U-350PB-AG)-BI-FACIAL	350W
FIXED TILT RACKING	RBI
MODULES/STRING	18
TOTAL NUMBER OF STRINGS	200
NUMBER OF MODULES	3600
TILT	25°
PITCH	41.25'
GCR	0.30

NOTE- REFER CIVIL DRAWINGS FOR
FOUNDATION LAYOUT DETAILS OF INVERTER
FOUNDATION AND SWITCHGEAR PAD

- SHEET NOTES:
1.

WHERE MULTIPLE CONDUCTOR RUNS SHARE THE SAME
PATH, SINGLE LINES ARE SHOWN FOR CLARITY.
2.

CONDUCTOR/CONDUIT ROUTING IS PROPOSED.
CONTRACTOR MAY ALTER ROUTING TO IMPROVE
CONSTRUCTABILITY PROVIDED ENGINEER IS NOTIFIED
AND APPROVES OF THE ALTERNATE PATH/LOCATION.
3.

INVERTER LOCATION ARE PROPOSED. CONTRACTOR MAY
CHANGE LOCATIONS TO IMPROVE CONSTRUCTABILITY
PROVIDED ENGINEER IS NOTIFIED AND APPROVES OF
THE ALTERNATE LOCATION.
4.

ALL XCEL EQUIPMENT,CONDUCTORS AND ROUTING
SHOWN FOR INFORMATION ONLY AND IS ENTIRELY
WITHIN SCOPE OF UTILITY DESIGN & INSTALL.

I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION, OR REPORT WAS PREPARED BY ME
OR UNDER MY DIRECT SUPERVISION AND THAT I
AM A DULY LICENSED PROFESSIONAL ENGINEER
UNDER THE LAWS OF THE STATE OF MINNESOTA.

THOMAS D. FIRSTBROOK, MINNESOTA LICENSE NO. 57096

DATE OF SIGNATURE: JUNE 20, 2019

ENGINEER

AZTEC

TYPSAGroup

DEVELOPER

Nokomis Partners

CONTRACTOR

Konisto

811

Know what's Below.
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REVISIONS

REV	DATE	DESCRIPTION	DRW	CK	APV	TDF
1	06/20/19	ISSUED FOR PERMIT	AK			

SCALE: 1"=40'

SIZE: 22"x34"

PROJECT#: AZENE1906-05

PROJECT

CHUB COMMUNITY SOLAR GARDEN, LLC
7488 320TH STREET, NORTHFIELD, MINNESOTA 55057

TITLE

ELECTRICAL SITE LAYOUT

SHEET

E02.01

REV

0

EXHIBIT E

Landscape Plan

Jun 24, 2019 -- 11:33am
JPerrilo

\\\\aztec.us\\public\\Phoenix\\Projects\\AZENE1906--Wenonah--Portfolio--Konisto\\05--TO--05--Chub\\CADD\\L01.01 CHUB LANDSCAPE COVER SHEET R00.dwg

LEASE AREA:

THAT PART OF THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 27, TOWNSHIP 112 NORTH, RANGE 20 WEST, DAKOTA COUNTY, MINNESOTA, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER OF THE NORTHWEST QUARTER; THENCE SOUTH 89 DEGREES 43 MINUTES 46 SECONDS WEST ALONG THE NORTH LINE OF SAID NORTHEAST QUARTER OF THE NORTHWEST QUARTER, A DISTANCE OF 73.60 FEET; THENCE SOUTH 0 DEGREES 16 MINUTES 14 SECONDS EAST, A DISTANCE OF 88.35 FEET TO THE POINT OF BEGINNING OF THE LAND TO BE DESCRIBED; THENCE NORTH 90 DEGREES 00 MINUTES 00 SECONDS WEST, A DISTANCE OF 445.45 FEET; THENCE SOUTH 0 DEGREES 00 MINUTES 00 SECONDS WEST, A DISTANCE OF 711.98 FEET; THENCE SOUTH 90 DEGREES 00 MINUTES 00 SECONDS EAST, A DISTANCE OF 445.45 FEET; THENCE NORTH 0 DEGREES 00 MINUTES 00 SECONDS EAST, A DISTANCE OF 711.98 FEET TO THE POINT OF BEGINNING.

ACCESS EASEMENT:

A 14.00 FOOT WIDE EASEMENT FOR INGRESS AND EGRESS PURPOSES OVER AND ACROSS THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 27, TOWNSHIP 112 NORTH, RANGE 20 WEST, DAKOTA COUNTY, MINNESOTA, THE CENTERLINE OF SAID EASEMENT IS DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID NORTHEAST QUARTER OF THE NORTHWEST QUARTER; THENCE SOUTH 89 DEGREES 43 MINUTES 46 SECONDS WEST ALONG THE NORTH LINE OF SAID NORTHEAST QUARTER OF THE NORTHWEST QUARTER, A DISTANCE OF 73.60 FEET; THENCE SOUTH 0 DEGREES 16 MINUTES 14 SECONDS EAST, A DISTANCE OF 88.35 FEET; THENCE SOUTH 0 DEGREES 00 MINUTES 00 SECONDS WEST, A DISTANCE OF 324.08 FEET TO THE POINT OF BEGINNING OF THE CENTERLINE TO BE DESCRIBED; THENCE SOUTH 90 DEGREES 00 MINUTES 00 SECONDS EAST, A DISTANCE OF 42.49 FEET TO THE WEST RIGHT OF WAY LINE OF GARRETT AVENUE AND SAID CENTERLINE THERE TERMINATING.

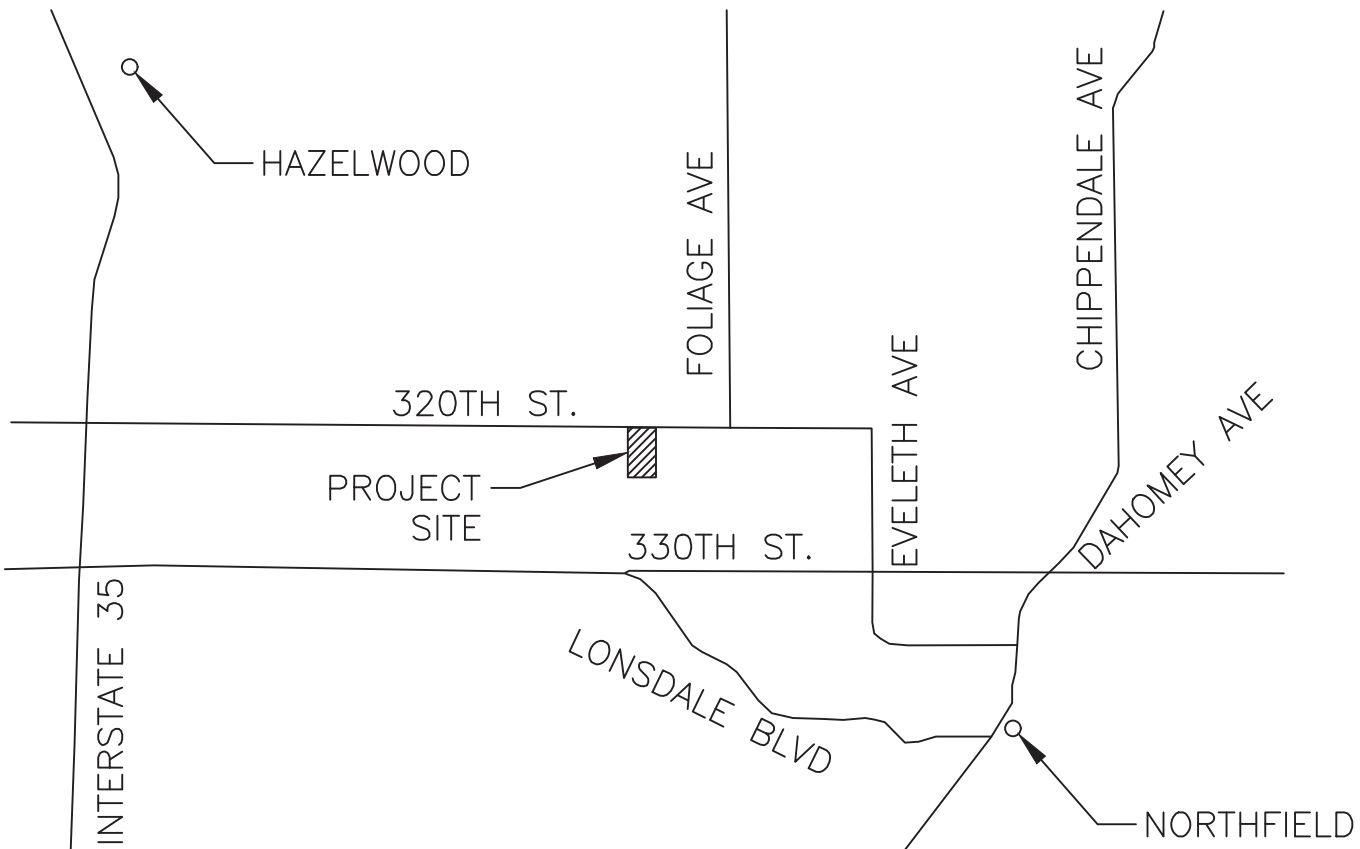
THIS SIDELINES OF SAID EASEMENT SHALL BE SHORTENED OR LENGTHENED TO TERMINATE AT SAID WEST RIGHT OF WAY LINE OF GARRETT AVENUE.

BENCHMARK:

THE VERTICAL RELIEF IF FROM GROUND MEASUREMENT. THE VERTICAL DATUM IS NAVD88. BENCHMARK IS MnDOT CONTROL POINT 1920 AH (ELEV=920.17 FT)

BASIS OF BEARING:

ORIENTATION OF THIS BEARING SYSTEM IS BASED ON THE DAKOTA COUNTY COORDINATE SYSTEM (2011 ADJ)



VICINITY MAP
N.T.S

LANDSCAPE PLAN SET
FOR
CHUB COMMUNITY SOLAR GARDEN
AT
7488 320TH STREET WEST, NORTHFIELD, MINNESOTA 55057



CONTRACTOR

KONISTO COMPANIES, LLC
126 ROCKPOINT AVENUE,
SUITE C
DURANGO, CO 81301

CONTACT: CHRISTOPHER SILL
(970)–403–8732

OWNER

NOKOMIS PARTNERS
2639 NICOLLET AVE. SUITE 200
MINNEAPOLIS, MN, 55408

CIVIL ENGINEER

AZTEC ENGINEERING GROUP, INC.
4561 E. MCDOWELL ROAD
PHOENIX, AZ 85008
(602)–454–0402

LICENSED ENGINEER:
SARAH SMEDLEY
MN PE REG# 52904

GEOTECHNICAL ENGINEER

BRAUN INTERTEC, CORP.
11001 HAMPSHIRE AVENUE S.
MINNEAPOLIS, MN, 55438
(952)995–2000

LICENSED ENG
ERIK C JOHNSON
MN PE REG# 49817

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

STEVE LOHIDE, MINNESOTA LICENSE NO. 55785
DATE OF SIGNATURE: JUNE 24, 2019

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
L01.01	COVER SHEET
L02.01	LANDSCAPE PLANTING PLAN
L03.01	LANDSCAPE NOTES
L03.02	LANDSCAPE NOTES AND DETAILS

LEGEND	
— — — — —	SECTION LINE
— — — — —	RIGHT OF WAY LINE
— — — — —	LEASE BOUNDARY
- - - - -	EASEMENT
— — — — —	ACCESS ROAD
— — — — —	GAME FENCE
- - - - -5510— —	EXISTING MAJOR CONTOUR
- - - - -5508— —	EXISTING MINOR CONTOUR
— — — — —5506— —	PROPOSED MAJOR CONTOUR
— — — — —5504— —	PROPOSED MINOR CONTOUR

ENGINEER

AZTEC
TYPsAGroup

CLIENT

Nokomis Partners

KONISTO

811
Know what's below.
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REVISIONS		REV	DATE	DESCRIPTION	DRW	CK	APV	SEL	SEL	SEL	SEL	SEL
		0	6/24/19	ISSUED FOR PERMIT	JP							

SCALE: 1"=100'
SIZE: 22"x34"
PROJECT#: AZENE1906–05

PROJECT

CHUB COMMUNITY SOLAR GARDEN
7488 320TH STREET WEST, NORTHFIELD, MINNESOTA 55057

TITLE

COVER SHEET

SHEET	REV
C01.01	0



REVISIONS					
REV	DATE	DESCRIPTION	DRW	CK	APV
0	6/24/19	ISSUED FOR PERMIT	JP	SEL	SEL

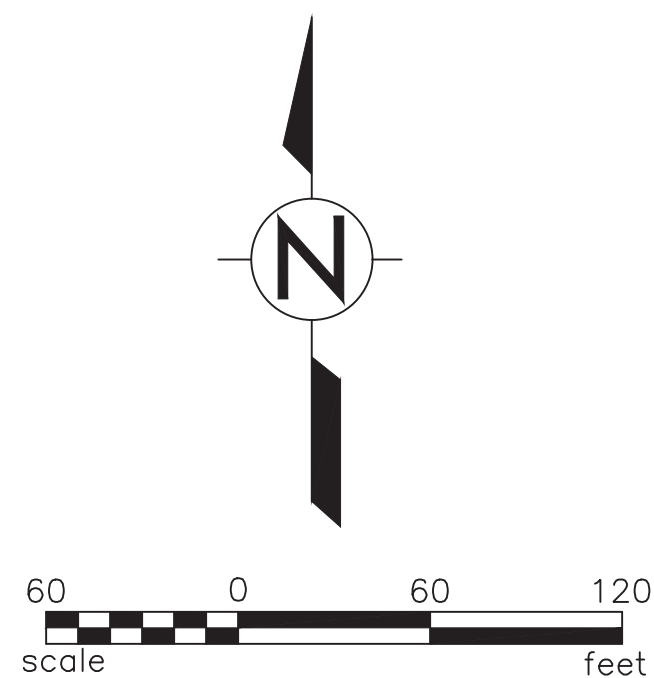
SIZE:	22"x34
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PROJECT#: AZENE1906-05

LANDSCAPE PLANTING PLAN

SHEET
L02.01

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TREE

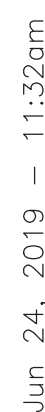
SYM.	COMMON NAME/ BOTANICAL NAME	SIZE/REMARKS	QUANTITY
⊙	NORTHERN WHITE CEDAR/ THUJA OCCIDENTALIS	MIN. 2 FT HEIGHT, BALLED & BURLAPPED	101 EA
■ ■ ■	MULCH	MIN. 3 INCH DEPTH	36,817 SF

ARRAY AREA SEED MIX - TOTAL 5.5 ACRES				
COMMON NAME	SCIENTIFIC NAME	% OF MIX	PLS (LBS./ACRE)	
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM	46.00	5.52	
SIDE OATS GRAMA	BOUTELOUA CURTIPENDULA	33.00	3.96	
BLUE GRAMA	BOUTELOUA GRACILIS	7.75	0.93	
REVENUE SLENDER WHEATGRASS	ELYMUS TRACHYCAULUM	4.00	0.48	
SILKY WILD RYE	ELYMUS VILLOSUS	3.50	0.42	
KALM'S BROME	BROMUS KALMII	2.00	0.24	
POVERTY OATGRASS	DANTHONIA SPICATA	2.00	0.24	
JUNE GRASS	KOELERIA MACRANTHA	1.50	0.18	
PLAINS OVAL SEDGE	CAREX BREVIR	0.25	0.03	

OPEN AREA POLLINATOR SEED MIX — TOTAL 1.1 ACRES				
COMMON NAME	SCIENTIFIC NAME	% OF MIX	PLS (LBS./ACRE)	
PURPLE PRAIRIE CLOVER	DALEA PURPUREA	25.00	8.00	
BLACK EYED SUSAN	RUBRICKIA HIRTA	16.00	5.12	
GOLDEN ALEXANDER	ZIZIA AUREA	12.00	3.84	
LEADPLANT	AMORPHA CANESCENS	9.00	2.88	
PARTRIDGE PEA	CHAMAECRISTA FASCICULATA	8.00	2.56	
HOARY VERVAIN	VERBENA STRICTA	5.00	1.60	
THIMBLEWEED	ANEMONE CYLINDRICA	5.00	1.60	
WHITE PRAIRIE CLOVER	DALEA CANDIDA	4.00	1.28	
WILD LUPINE	LUPINUS PERENNIS	3.00	0.96	
LONG-HEADED CONEFLOWER	RATIBIDA COLUMNIFERA	2.25	0.72	
COLUMBINE	AQUILEGIA CANADENSIS	2.00	0.64	
PRAIRIE ROSE	ROSA ARKANSANA	2.00	0.64	
YARROW	ACHILLEA MILLEFOLIUM	2.00	0.64	
BUTTERFLY MILKWEED	ASCLEPIAS TUBEROSA	2.00	0.64	
PRAIRIE ONION	ALLIUM STELLATUM	1.00	0.32	
CALICO ASTER	SYMPHYOTRICHUM LATERIFLORUM	1.00	0.32	
STIFF TICKSEED	COREOPSIS PALMATA	0.50	0.16	
GRAY GOLDENFROD	SOLIDAGE MEMORALIS	0.25	0.08	

I HEREBY CERTIFY THAT THIS PLAN SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

STEVE LOHIDE, MINNESOTA LICENSE NO. 55785
DATE OF SIGNATURE: JUNE 24, 2019



JPerillo

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NOTES AND SPECIFICATIONS

Section 1: General Guidelines

A. Submittals

- 1. Product Data: Submit manufacturer product data and literature describing all products required by this section to the Owner for approval.
- 2. Plant Growers Certificates: Submit Plant Growers certificates for all plants indicating that each plant meets the requirements, including the requirements for root system quality, to the Owner for approval.

B. Quality Assurance

- 1. Plant Acceptance
 - a. The Owner will inspect all work for Plant Acceptance upon written request of the Contractor.
 - b. Plant Acceptance by the Owner shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.
 - c. Any plant that is deemed defective as defined under the warranty provisions below shall not be accepted.
 - d. The Contractor is responsible for the condition and quality of work and materials during construction, and until Plant Acceptance. Contractor shall bear the total cost of replacing any and all plants until this time.
- 2. Warranty
 - a. The contractor agrees to replace defective work and plants as defined below.
 - b. Plants warranty shall begin on the date of Plant Acceptance and continue for one year.
 - c. All plants shall be warranted to be healthy, reasonably free of defects, in flourishing condition, and shall bear foliage of normal density, size, and color for the species at the end of the warranty period.
 - d. Defective Plants: Plants shall be deemed defective that are dead, diseased, insect infested, or not in a vigorous, thriving condition, during or at the end of the warranty period. The following conditions shall be deemed as indicating a defective plant.

- 1) Any plant that has a canopy or root system with 25 percent or more of its volume dead, diseased, insect infested, or not in a vigorous, thriving condition.
- 2) Evidence of damage to plants, which diminishes the aesthetic character and form or structural integrity of the plant or group of plants.
- 3) Plants that have had more than 25 percent of the canopy reduced by removed limbs that were not removed under the direction of the Owner.
- 4) Plants that do not meet the requirements for stem girdling and kinked roots and proper depth of the root crown.
- 5) Plants packaged with non-biodegradable fabrics or twine that have not been removed during the planting process.
- 6) Any tree that has open wounds (not completely healed) that penetrates the cambium into the wood on trunks or major limbs, the removal of which would result in the loss of 25 percent or more of the structure and form of the tree.
- 7) Properly-made pruning wounds that are not yet fully healed over can be considered as satisfactory if callus tissue has formed around the entire circumference of the wound.
- 8) The Owner shall make the final determination that plants are defective.

- e. Plants determined to be defective shall be replaced without cost to the Owner, as soon as weather conditions permit and within the specified planting period.
- f. Any work required by the Quality Assurance document or the Owner during the progress of the work to remediate plant defects, including the removal of roots or branches, or planting plants that have been bare rooted during installation to inspect for or correct root defect, shall not be considered as grounds to void any conditions of the warranty. In the event the contractor feels that such remediation work may compromise the future health of the plant, the plant or plants in question shall be rejected and replaced with plants that do not contain defects that require remediation.
- g. The Contractor is exempt from replacing plants, after Plant Acceptance and during the warranty period, that are removed by others or lost or damaged due to occupancy of project, by a third party, through vandalism, or as a result of any natural disaster.
- h. The warranty of all replacement plants shall extend for an additional one-year period from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of the said extended warranty period, the Owner may elect one more replacement items or credit for each item. These tertiary replacement items are not protected under a warranty period.
- i. During and by the end of the warranty period, remove all tree wrap, ties, and guying unless agreed to by the Owner to remain in place. All trees that have leaned shall be straightened.

3. Seed and Plant Final Acceptance

- a. At the end of the warranty period, the Owner shall inspect all warranted work, upon written request of the Contractor. The request shall be received at least 10 calendar days before the anticipated date of final inspection.
- b. Seeding will be accepted based on uniform soil coverage of germinated seed mix.

C. Selection and inspection of plants

- 1. Purchasing trees from the growing nursery is preferred over re-wholesale suppliers. When re-wholesale suppliers are utilized, the contractor shall submit the name and location of the growing nursery from where the trees were obtained by the re-wholesale seller. The re-wholesale nursery shall be responsible for any required plant quality certifications.
- 2. The contractor shall require the grower or re-wholesale supplier to permit the Owner to inspect the root system of all plants including random removal of soil around the base of the plant. Inspections may be as frequent and as extensive as needed to verify that plants conform to the grower's root quality certifications. For field grown plants, viewing of

- plants by the Owner may be at the growing nursery prior to the harvesting of the plant.
- 3. The Owner may choose to attach their seal to each plant, or a representative sample. Viewing and/or sealing of plants by the Owner at the nursery does not preclude the Owner's right to reject material while on site.
- 4. Where requested by the Owner, submit photographs of plants or representative samples of plants. Photographs shall be legible and clearly depict the plant specimen. Each submitted image shall contain a height reference, such as a measuring stick. The approval of plants by the Owner via photograph does not preclude the Owner's right to reject material while on site.
- 5. Unless approved by the landscape architect, plants shall have been grown at a latitude not more than 325 km (200 miles) north or south of the latitude of the project unless the provenance of the plant can be documented to be compatible with the latitude and cold hardness zone of the planting location. Many tree species are sensitive to the photoperiod of their native provenance. For example, red maple stock from native southern stock will not harden off in time for northern winters.

D. Substitutions for seed and plants not available

- 1. Submit all requests for substitutions of plant species, or size to the Owner, for approval, prior to purchasing the proposed substitution.

E. Site conditions

- 1. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Owner, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.
- 2. Do not install plants into saturated or frozen soils. Do not install plants during inclement weather, such as heavy rain or snow or during extremely hot, cold or windy conditions.

F. Planting around utilities

- 1. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.
- 2. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.
- 3. Notification of Local Utility Locator Service, is required 72 hours prior to digging. The Contractor is responsible for knowing the location of and avoiding utilities that are not covered by the Local Utility Locator Service.

Section 2: Product Guidelines

A. Standards and measurement

- 1. Provide plants of quantity, size, genus, species, and variety or Cultivars as shown and scheduled in contract documents.
- 2. Tree stock shall conform to ANSI Z60.1, American Standard for Nursery Stock, and all state requirements for nursery stock except where they are modified by this specification. Where there is a conflict between this specification and the above specifications, this specification will apply.
- 3. Plants larger than specified may be used if acceptable to the Owner. Use of such plants shall not increase the contract price. If larger plants are accepted the root ball size shall be increased in proportion to the size of the plant. Larger plants may not be acceptable if the resulting root ball cannot be fit into the required planting space.

B. Plant Quality

- 1. General
 - a. Provide healthy, vigorous stock, grown in a recognized nursery and reasonably free of disease, insects, eggs, bores, and larvae. At the time of planting all plants shall have root system, stem, and branch form that will not restrict normal growth, stability and vigor for the expected life of the plant.
- 2. Plant quality above the soil line
 - a. Plants shall be of exceptional quality with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified.
 - b. There should be one dominant leader to the top of the tree with the largest branches spaced at least 6 inches apart. All trees are assumed to be single leader plants unless a different form is specified in the plant list or drawings.
 - c. Tree shall have no significant branch unions with included bark between stems.
 - d. Tree trunks shall be reasonably straight with lateral limbs reasonably symmetrical, free of large voids, and evenly distributed along the trunk. Clear trunk should be no more than 40 percent of tree height unless otherwise specified in the planting specifications.
 - e. Branches should be less than ½ the trunk diameter at the attachment point unless otherwise approved by Project Landscape Architect or Arborist.
 - f. Trees greater than 1.5 inches caliper should be able to stand erect without a supporting stake.
 - g. The trunk and branches shall be reasonably free of knots, scrapes, broken or split wood, fresh limb cuts, sunscald, injuries, and abrasions. All graft unions, where applicable, shall be completely healed without visible sign of graft rejection. All grafts shall be visible above the soil line.
 - h. Open trunk and branch wounds shall be less than 10 percent of the circumference at the wound and no more than 2 inches tall. Pruning shall not encroach on the branch collar. Properly made pruning cuts are not considered open trunk wounds. Pruning cuts in accordance with ANSI standards are considered properly made pruning cuts.
- 3. Plant quality at or below the soil line
 - a. The roots shall be reasonably free of scrapes, broken or split wood.
 - b. A minimum of three structural roots reasonably distributed around the trunk shall be found in each plant.
 - c. Plants with structural roots on only one side of the trunk (J roots) shall

- be rejected.
- d. The root crown must not be more than 2 inches below the soil line.
- e. The root system shall be reasonably free of stem girdling roots above the root collar, vertical roots and or kinked roots from nursery production practices. Stem girdling roots, vertical and kinked roots include roots on the interior of the root ball. There shall be no roots greater than 1/10 the diameter of the trunk circling more than one-third the way around in the top half of the root ball. Roots larger than this may be cut provided they are smaller than one-third the trunk diameter. There shall be no kinked roots greater than 1/5 the trunk diameter. Roots larger than this can be cut provided they are less than one-third the trunk diameter.
- f. Trees may be rejected if the extent of root cutting required to remedy girdling, kinked, and vertical roots renders the tree unlikely to thrive by the end of the warranty period.
- g. The final plant grower shall be responsible for determining that the plants have been root pruned at each step in the plant production process to remove stem girdling roots and kinked roots, or practices that produce a root system throughout the root ball that meets these requirements. Regardless of the work of previous growers, the plant's root system shall be modified at the final production stage to produce the required plant root quality. The final grower shall certify in writing that all plants are reasonably free of stem girdling and kinked roots.
- h. Except for bare root trees, all trees should be rooted into the root ball so that soil or media remains intact and trunk and root ball move as one when lifted, but not root bound. The trunk should bend when gently pushed and should not be loose so it pivots at or below the soil line.
- 5. Submittals
 - a. Submit for approval the required seed and plant quality certifications from the grower where seeds and plants are to be purchased, for each plant type. The certification must state that each plant meets all the above plant quality requirements. The grower's certification of plant quality does not prohibit the Owner from inspecting any plant or rejecting the plant if it is found to not meet the requirements.

C. Root ball

- 1. Balled and burlapped plants
 - a. All Balled and Burlapped Plants shall be field grown, and the root ball packaged in a burlapped-and-twine or burlap-and-wire basket package.
 - b. Plants shall be harvested with the following modifications to standard nursery practices.
 - 1) Prior to digging any tree, using hand tools or an air spade, carefully remove the soil from the top of the root ball of each plant to locate the root crown. Care must be exercised not to damage the surface of the root crown and the top of the structural roots.
 - 2) Balled and burlapped trees shall be dug prior to leafing out (bud break) in the spring or during the fall planting period except for plants known to be considered as fall planting hazards. Plants that are fall planting hazards shall only be dug prior to leafing out in the spring. Plants to be shipped or installed when in leaf shall be pre-dug prior to bud break and stored appropriately in protected storage yards with adequate water.
 - 3) Twine and burlap used for wrapping the root ball package shall be natural, biodegradable material that has not been treated with preservatives to retard decomposition. If the burlap decomposes during the storage period the root ball shall be re-wrapped prior to shipping.
 - c. Trees greater than 5 inches in caliper shall be root-pruned a minimum of 12 months before transplanting. All root pruning shall be accomplished utilizing accepted horticultural practices for root pruning including staking and watering.

D. Seed

- 1. Seed to be as identified on the planting plan.
- 2. Contractor to provide uniformly blended seed mixes as required by the contract and meeting the requirements of the project.
- 3. Minimum Pure Live Seed (PLS): Contractor to provide seed meeting the minimum purity and germination requirements for certification in accordance with the seed certification standard on file with the appropriate seed certifying agency.
- 4. Provide seed tested in accordance with the official rules for testing on file with the AOSA and meeting the minimum germination requirements as stated above. Plant seed within 12 months of viability testing exclusive of the month the test was completed.
- 5. Label each container of seed with the following information:
 - a. Total PLS weight for the container
 - b. Net weight for the container
 - c. Area covered by the amount of seed in the bag when applied at the rate specified for that mix on the planting plan
- 6. List the following information for each mix component that is 5 percent or less of the seed mix:
 - a. Species
 - b. Variety
 - c. Origin
 - d. Pure seed (%)
 - e. Hard (dormant) seed (%)
 - f. PLS (%) for each component
- 7. Attach applicable certification tags from appropriate seed certifying agencies to each bag containing certified seed or provide a certification certificate with the certified seed.

E. Mulch

- 1. Mulch around trees
 - a. Mulch shall be Shredded Hardwood Mulch.
 - b. Mulch to be free of mold, dirt, sawdust, and deleterious material.
 - c. Mulch to be from a supplier outside of the Emerald Ash Borer quarantine area.

- 2. Mulch in seeding areas (Type 1).
 - a. Mulch to be derived from grain straw, hay, cuttings of agricultural grasses, and legumes.
 - b. Free of noxious weeds
 - c. Free of cattail, reed canary grass, birds-foot, crown vetch, Queen Anne's Lace
 - d. Air dried condition at the time of delivery
 - 3. Submit manufacturer's product data and one gallon sample for approval for each type of Mulch.
- F. Anti-desiccant
- 1. Anti-Desiccant shall be emulsion type, film-forming agent similar to Dowax by Dow Chemical Company, or Wilt-Pruf by Nursery Specialty Products, Inc., Croton Falls, New York, designed to permit transpiration but retard excessive loss of moisture from plants. Deliver in manufacturer's fully identified containers and use in accordance with manufacturer's instructions.
 - 2. Submit manufacturer's product data for approval.

G. Tree staking and guying material

- 1. Tree guying is to be flat woven polypropylene material, 3/4 inch wide, with 900 pound break strength. Product to be ArborTie, manufactured by Deep Root Partners, L.P., or approved equal.
- 2. Stakes shall be as identified in the project details.
- 3. Submit manufacturer's product data for approval.

H. Chemical or biological additives

- 1. Chemical or biological additives are designed to increase soil fertility. All material shall be delivered to the site in unopened containers and stored in a dry enclosed space suitable for the material and meeting all environmental regulations. Biological additives shall be protected from extreme cold and heat. All products shall be freshly manufactured and dated for the year in which the products are to be used.
- 2. A soil test shall determine existing soil fertility and fertilizer rates shall be adjusted per the soil test.
- 3. Depending on the seeding method used, fertilizer application rates will vary as follows.
 - a. Drop seeding onto tilled sites
 - 1) Apply 10-10-10 at 200 lbs/acre
 - c. Hydroseeding
 - 1) Apply 10-10-10 at 300 lbs/acre
 - d. Broadcast Seeding
 - 1) Apply 10-10-10 at 200 lbs/acre
 - e. Interseeding into existing vegetation or mulch
 - 1) Apply 22-5-10 at 200 lbs/acre

Section 3: Execution Guidelines

A. Site examination

- 1. Examine the surface grades and soil conditions to confirm that the soil and drainage modifications indicated on the Plans and Details have been completed. Notify the Owner in writing of any unsatisfactory conditions.

B. Delivery, storage and handling

- 1. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind, and extremes of heat and cold temperatures.
- 2. Branches shall be tied with rope or twine only, in a manner that will not damage any part of the tree.
- 3. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind.
- 4. Provide adequate water to the root ball during the shipping and storage period. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered.
- 5. Do not deliver more plants to the site than can be adequately stored. Provide a suitable remote staging area for plants and other supplies.
- 6. The Owner shall approve the duration, method and location of storage of plants.
- 7. Protective covering is required over all plants during delivery.
- 8. Before shipping, apply 1/8 inch thick, wax sealed, corrugated cardboard trunk protection, or approved equal, around the trunk of all trees from the top of the root ball package to the first branch or up to four feet high, whichever is lower. Secure the cardboard with plastic tape.
- 9. If trees are moved when in full-leaf, spray with anti-desiccant per manufacturer's recommendations at nursery no greater than 48 hours prior to digging, and again two weeks after transplanting. Spraying should take place in early morning hours with foliage at maximum turgidity.

C. Planting season

- 1. Planting shall only be performed when weather and soil conditions are suitable for planting the specified materials in accordance with locally accepted practices. Install plants during the planting time as described below unless otherwise approved in writing by the Owner. In the event that the Contractor requests planting outside the dates of the planting season, approval of the request does not change the requirements of the warranty.
 - a. Planting shall be completed within the following dates:
 - 1) Coniferous trees: between April 15 and July 15, or between September 1 and November 14
 - 2) Seeding: April 15 - October 15

D. Coordination with project work

- 1. Coordinate the relocation of any underground obstructions, utility lines, etc. that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner of any conflicts encountered.

E. Layout and planting sequence

- 1. When applicable, plant trees before other plants are installed.

F. Soil protection during plant delivery and installation

- 1. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.
 - a. Where possible deliver and plant trees requiring the use of heavy mechanized equipment prior to final soil preparation and tilling.
 - b. Till and restore grades to all soil that has been driven over or compacted during the installation of plants.

G. General installation of plants

- 1. Inspect each plant after delivery and prior to installation for damage or other characteristics that may cause rejection of the plant. Notify the Owner of any such conditions.
- 2. The root system of each plant, regardless of root ball package type, shall be inspected by the Contractor at the time of planting to confirm that the roots meet the requirements for tree quality. The Contractor shall undertake, at the time of planting, all modifications to the root system required by the Owner to meet these quality standards.
- 3. Exposed Stem Tissue after Modification: The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping such as Dewitt Tree Wrap fabric. Secure the fabric with biodegradable tape such as 3M Scotch 234 or 232 masking tape or approved equal. DO NOT USE string, twine or any other material that may girdle the trunk if not removed.
- 4. Using hand tools, back hoe or mini-excavator, excavate the planting hole into the planting soil to the depth of the root ball, as measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing.
 - a. The measuring point for root ball depth shall be the average height of the outer edge of the root ball after any required root ball modification.
 - b. Scarify sides and bottom of planting hole.
- 6. Trees are to be planted on unexcavated subgrade. Do not over excavate depth of planting pit.
- 7. Set top outer edge of the root ball 1 to 3 inches above the average elevation of the proposed finish. Set the plant plumb. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.
- 8. Brace root ball by tamping planting soil around the lower portion of the root ball. Place additional planting soil around base and sides of ball in six-inch (6 inch) lifts. Lightly tamp each lift using hand tools to settle backfill and eliminate voids.
- 9. Where indicated on the drawings, build a 3 inch high, level saucer of planting soil around the outside of the root ball to retain water. Tamp the saucer to reduce erosion of the saucer.
- 10. Thoroughly water the planting soil and root ball immediately after planting.
- 11. Remove corrugated cardboard trunk protection after planting.
- 12. Follow additional requirements for the permitted root ball packages.

H. General installation of seed

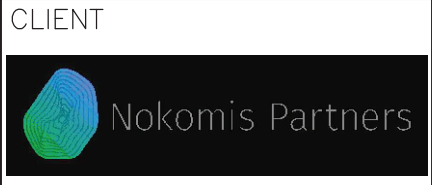
- 1. Seeding identified seed mixes
 - a. Seed identified seed mixes with a seed driller, a drop type seeder, or a hydro seeder uniformly at the adjusted bulk application rate of each seed mix. Use a drill capable of accurately metering the types of seed planted and capable of maintain a uniform mixture of seeds during drilling. Use a drill with disk furrow openers and a packer assembly to compact the soil directly over the drill row. Seed seed mixes in rows spaced no greater than 8 inches apart. Place seeds to a final planting depth from 1/8 inch to 3/8 inch. Perform drill seeding at a right angle to surface drainage. A drop type seeder equipped with a separate seed box for the fluffy seed and a soil packer assembly may be used in lieu of a drill with disc openers. Use a cyclone or spinner type seeder on areas no greater than one acre or on areas inaccessible to other equipment, as approved by the Owner.
 - b. Use blower equipment to place Type 1 mulch at a target application rate of 2 ton per acre. Apply the mulch at an actual rate as directed by the owner to match project conditions. Apply the mulch material to ensure 90 percent coverage of the soil surface.
 - c. Anchor mulch with a disk anchoring tool as required immediately after placement unless otherwise approved by the owner. Punch the mulch into the soil to a depth from 2 inches to 3 inches. Space the blades and discs on the anchoring tool no greater than 8 inches apart.
- 2. Contractor to provide method of seed installation to owner for approval prior to installing seed.

I. Permitted root ball packages and special planting requirements

- 1. Balled and burlapped plants
 - a. Remove burlap or cloth wrapping and wire baskets from full depth of root ball (remove all wire and burlap except burlap and wire under root ball). Completely remove and properly dispose all strings, nails, burlap, baskets, and wrappings from the root ball and trunk before backfilling.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

STEVE LOHIDE, MINNESOTA LICENSE NO. 55785
DATE OF SIGNATURE: JUNE 24, 2019



REV	DATE	DESCRIPTION	REVISIONS				DRW	CK	APV
			ISSUED FOR PERMIT	UP	SEL	SEL			
0	6/24/19								

SCALE:	N/A
SIZE:	22"x34"
PROJECT#:	AZENE1906-05

PROJECT	CHUB COMMUNITY SOLAR GARDEN		7488 320TH STREET WEST, NORTHFIELD, MINNESOTA 55057	PLANTING NOTES AND SPECIFICATIONS	TITLE
SHEET	L03.01		REV		
			0		

\\aztec.us\public\Phoenix\Projects\AZENE1906-Wenonah-Portfolio-Koristo\05-TO-05-Chub\CADD\LO3.02 CHUB LANDSCAPE NOTES AND DETAILS R00.dwg JPerilo Jun 24, 2019 11:31am

NOTES AND SPECIFICATIONS CON'T FROM SHEET L03.01

J. Tree staking and guying

- 1. Stake or guy only if necessary for the tree to be stable in unusual circumstances, for example, in strong winds and if approved by Project Landscape Architect.
- 2. The Owner shall have the authority to require that trees are staked or to reject staking as an alternative way to stabilize the tree.
- 3. Poor-quality trees with cracked, wet, or loose root balls, poorly developed trunk-to-crown ratios, or undersized root balls shall be rejected if they require staking, unless written approval to permit staking or guying as a remedial treatment is obtained from the landscape architect. Trees that settle out of plumb due to inadequate soil compaction either under or adjacent to the root ball shall be excavated and reset. In no case shall trees that have settled out of plumb be pulled upright using guy wires.
- 4. If a tree needs to be staked, use a method that minimizes the chance of girdling the tree. Many such systems are available on the market. Allow for some trunk movement with whatever method is used. Do not use wires or cables to guy trees.
- 5. Trees that are guyed shall have their guys and stakes removed after one full growing season or at other times as required by the Owner.

K. Straightening plants

- 1. Maintain all plants in a plumb position throughout the warranty period. Straighten all trees that move out of plumb including those not staked. Plants to be straightened shall be excavated and the root ball moved to a plumb position, and then re-backfilled.
- 2. Do not straighten plants by pulling the trunk with guys.

L. Installation of fertilizer and other chemical additives

- 1. Do not apply any fertilizer to plantings during the first year after transplanting unless soil testing demonstrates that fertilizer or other chemical additives is required. Apply chemical additives only upon the approval of the Owner.
- 2. Fertilizers shall be applied according to the manufacturer's instructions and standard horticultural practices.

M. Pruning of trees and shrubs

- 1. Trees need as many leaves as possible to recover from transplant shock, so prune as little as possible at the time of planting. Prune only broken or dead branches, if present, as well as co-dominant leaders, limbs that rub against each other, and poorly angled branches if these have not been pruned out by the nursery.
- 2. In general, preserve the natural character of the plant and follow recommendations in An Illustrated Guide to Pruning, Third Edition (Gilman 2011).
- 3. All pruning shall be performed by a person experienced in landscape pruning.
- 4. Wherever possible and appropriate to the species, preserve or create a central leader.
- 5. Pruning of large trees shall be done using pole pruners or if needed, from a ladder or hydraulic man lift to gain access to the top of the tree. Do not climb in newly planted trees
- 6. Remove and replace excessively pruned or malformed stock resulting from improper pruning.
- 7. Pruning shall be done with clean, sharp tools.
- 8. No tree paint or sealants shall be used.

N. Mulching of trees

- 1. Apply a 3 inch minimum depth of mulch to the extent indicated on plans.

O. Watering

- 1. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants from the point of installation until the date of Plant Acceptance.
- 2. Hand water root balls of all plants to assure that the root balls have adequate moisture. Test the moisture content in each root ball and the soil outside the root ball to determine the water content.
- 3. The Contractor shall install one set (two bags) of watering bags for each tree to be maintained and used for tree watering during the warranty period. Watering bags shall be removed between December 1 and March 1.

P. Cleanup

- 1. During installation, keep the site free of trash and the work area in an orderly condition at the end of each day.
- 2. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Owner seals are to remain on the trees and removed at the end of the warranty period.

Q. Protection during construction

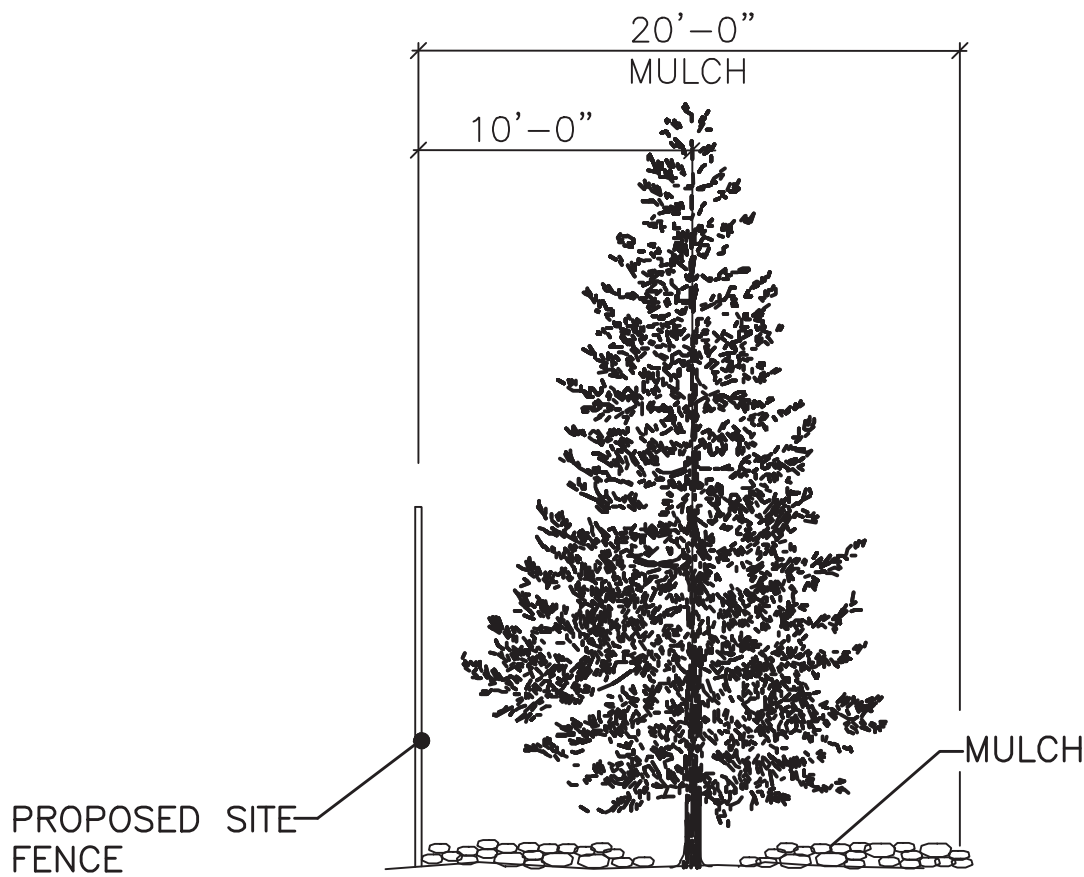
- 1. The Contractor shall protect landscape work and materials from damage due to planting operations or operations by other Contractors or trespassers. Maintain protection during installation until Plant Acceptance. Treat, repair or replace damaged planting work immediately.
- 2. Damage done by the Contractor, or any of their sub-contractors, to plants or any other parts of the work shall be replaced by the Contractor at no expense to the Owner.

R. Plant maintenance prior to plant acceptance

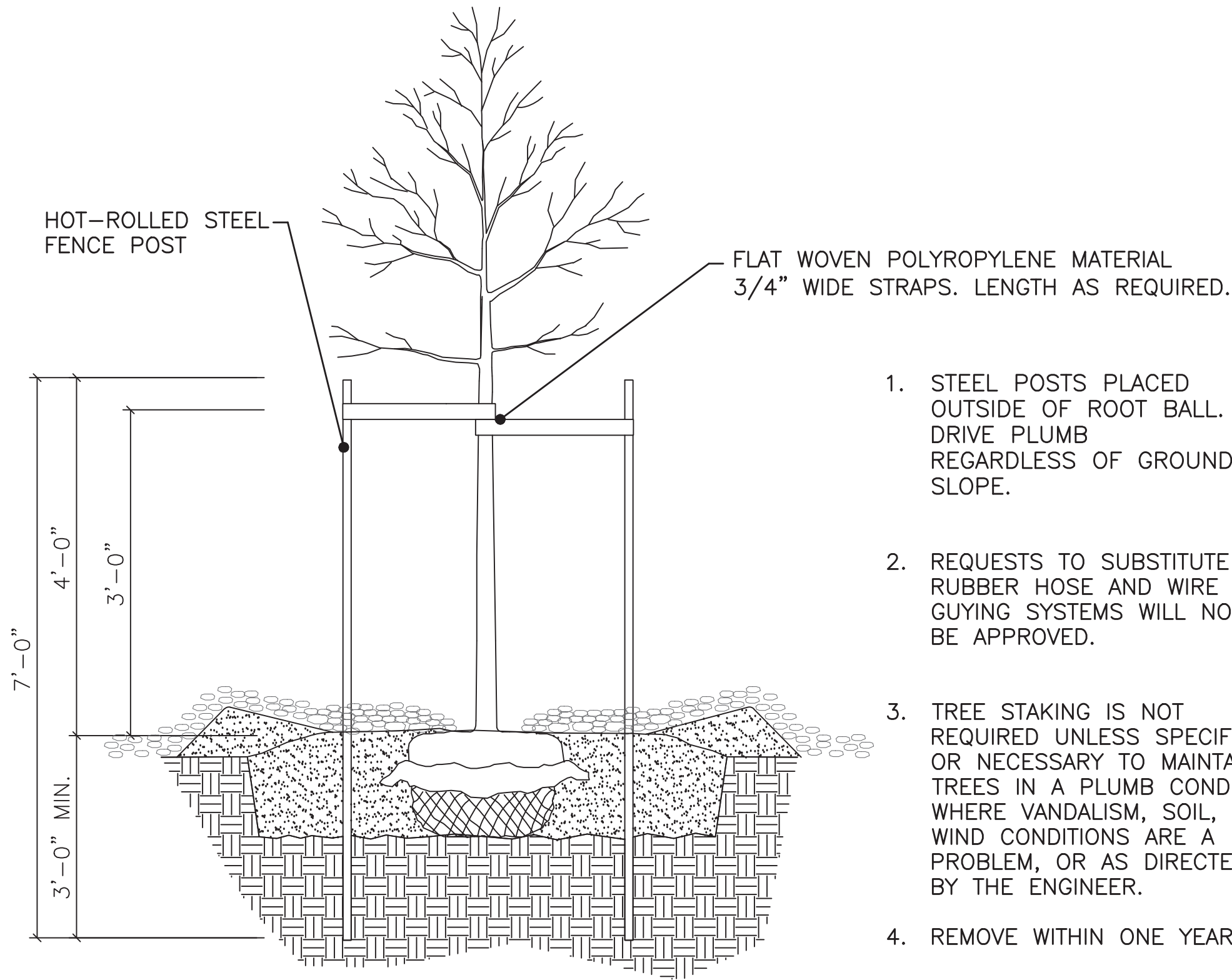
- 1. During the project work period and prior to Plant Acceptance, the Contractor shall maintain all plants.
- 2. Maintenance during the period prior to Plant Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of insects and disease and in healthy growing condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures.

S. Maintenance during the warranty period

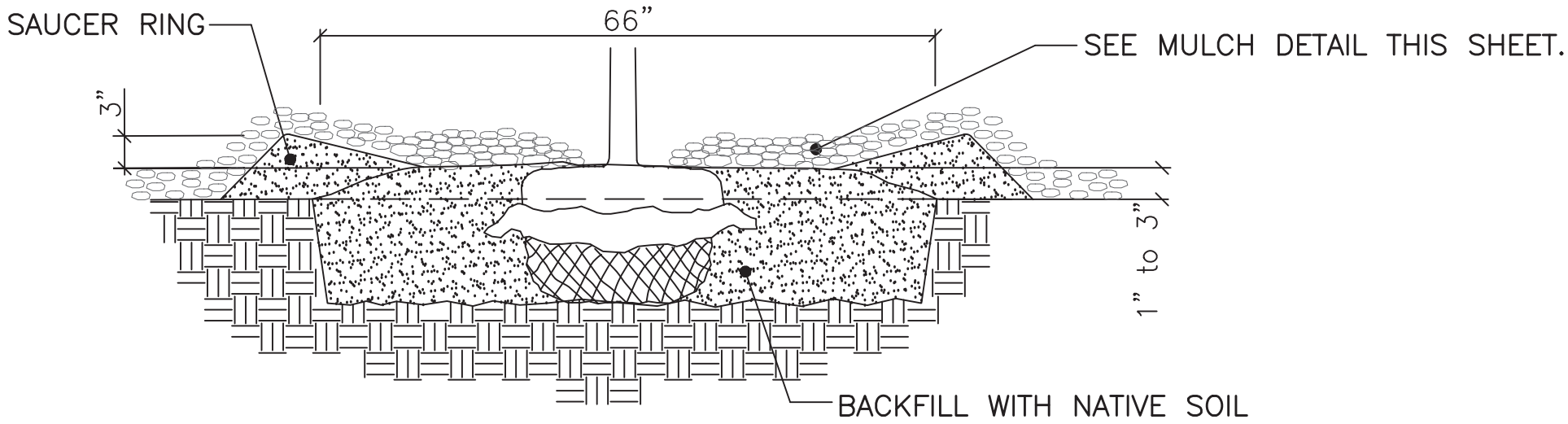
- 1. During the warranty period, provide all maintenance for all plantings to keep the plants in a healthy state and the planting areas clean and neat.
- 2. General requirements:
 - a. All chemical and fertilizer applications shall be made by licensed applicators. All work and chemical use shall comply with applicable local, provincial and federal requirements.
 - b. Meet with the Owner a minimum of three times during the year to review the progress and discuss any changes that are needed in the maintenance program. At the end of the warranty period attend a hand over meeting to formally transfer the responsibilities of maintenance to the Owner.
- 3. Provide the following maintenance tasks:
 - a. Watering: provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.
 - 1) Maintain all watering systems and equipment and keep them operational. Monitor soil moisture to provide sufficient water. Check soil moisture and root ball moisture with a soil moisture meter on a regular basis and record moisture readings. Do not over water.
 - b. Soil nutrient levels: apply fertilizers at rates recommended by soil testing.
 - c. Plant pruning: remove cross over branching, developing co-dominant leaders, dead wood and winter-damaged branches. Do not over prune or shear plants.
 - d. Restore plants: reset any plants that have settled or are leaning as soon as the condition is noticed.
 - e. Guying: remove tree guys and staking after the first full growing season.
 - f. Weed control: Mow seeding as needed during establishment period for weed control. Mow height to be set between 4 and 12 inches.
 - g. Disease and insect control: Provide an Integrated Plant Management (IPM) program to maintain disease and insects at acceptable and manageable levels. Manageable levels shall be defined as minimum damage to plants. Use least invasive methods to control plant disease and insect outbreaks. The Owner must approve in advance the use of all chemical pesticide applications.
 - h. Plant replacement: replace all plants that are defective as defined in the warranty provisions, as soon as the plant decline is obvious and in suitable weather and season for planting.
 - i. Mulch: refresh mulch to maintain complete coverage. Do not over mulch. Do not apply mulch against the trunks of plants. Replacement mulch shall meet the requirements of the original approved material.



- 1. MULCH DEPTH TO BE MINIMUM 3" DEPTH.
- 2. PULL MULCH BACK NO LESS THAN 3" AND NO MORE THAN 6" FROM TREES AT THE TRUNK OR MAIN STEM.
- 3. SUBSIDING OR DETERIORATING MULCH IS ACCEPTABLE THROUGHOUT THE ESTABLISHED PERIOD IF THE MULCH DEPTH IS MAINTAINED AT A MINIMUM 3" DEPTH.
- 4. MULCH CONTAMINATED WITH SOIL MUST BE REMOVED AND REPLACED.



1 STAKING AND GUYING



- 1. SCARIFY SIDES AND BOTTOM OF HOLE.
- 2. PROCEED WITH CORRECTIVE PRUNING.
- 3. SET PLANT ON UNEXCAVATED SUBGRADE. PLACE PLANT SO THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE WITH BURLAP AND WIRE BASKET, (IF USED), INTACT.
- 4. SLIT REMAINING TREATED BURLAP AT 6" INTERVALS.
- 5. BACKFILL TO WITHIN APPROXIMATELY 12" OF THE TOP OF THE ROOTBALL, THEN WATER PLANT.
- 6. REMOVE THE TOP 1/3 OF THE BASKET OR THE TOP TWO HORIZONTAL RINGS WHICHEVER IS GREATER. REMOVE ALL BURLAP AND NAILS FROM THE TOP 1/3 OF THE BALL. REMOVE ALL TWINE. REMOVE OR CORRECT STEM GIRDLING ROOTS.
- 7. PLUMB AND BACKFILL WITH PLANTING SOIL.
- 8. PROVIDE 3" DEPTH LEVEL SAUCER AROUND OUTSIDE OF PLANTING PIT TO RETAIN WATER.
- 9. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
- 10. BACK FILL VOIDS AND WATER A SECOND TIME.
- 11. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

3 BALLED & BURLAPPED STOCK PLANTING

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

STEVE LOHIDE, MINNESOTA LICENSE NO. 55785
DATE OF SIGNATURE: JUNE 24, 2019

ENGINEER

CLIENT

REV	DATE	DESCRIPTION	DRW	CK	APV	SEL	SEL			
0	6/24/19	ISSUED FOR PERMIT	JP							

SCALE: N/A

SIZE: 22"x34"

PROJECT#: AZENE1906-05

PROJECT

CHUB COMMUNITY SOLAR GARDEN

7488 320TH STREET WEST, NORTHFIELD, MINNESOTA 55057

TITLE

PLANTING NOTES, SPECIFICATIONS AND DETAILS

SHEET

L03.02

REV

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EXHIBIT F

Utilities Details

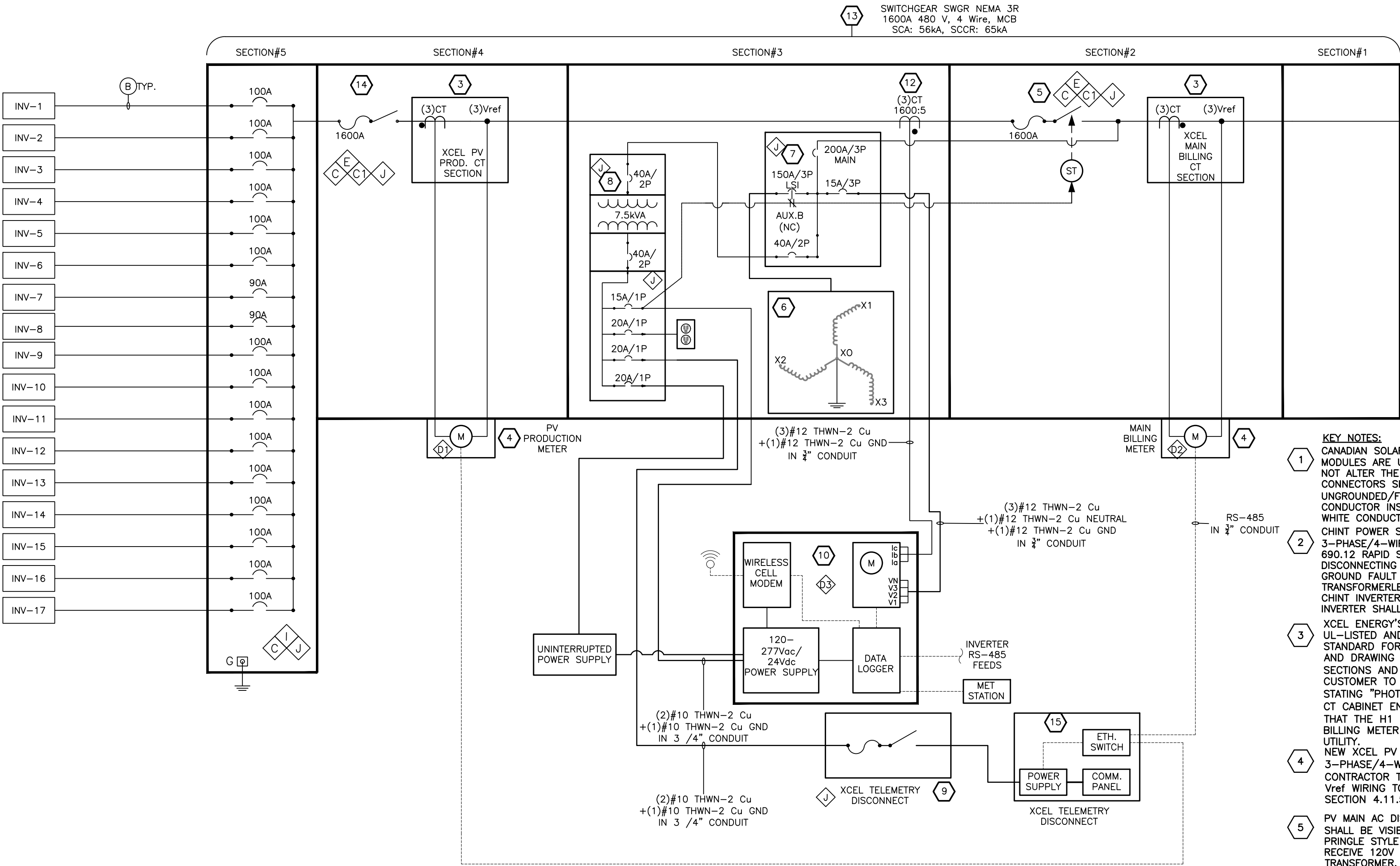
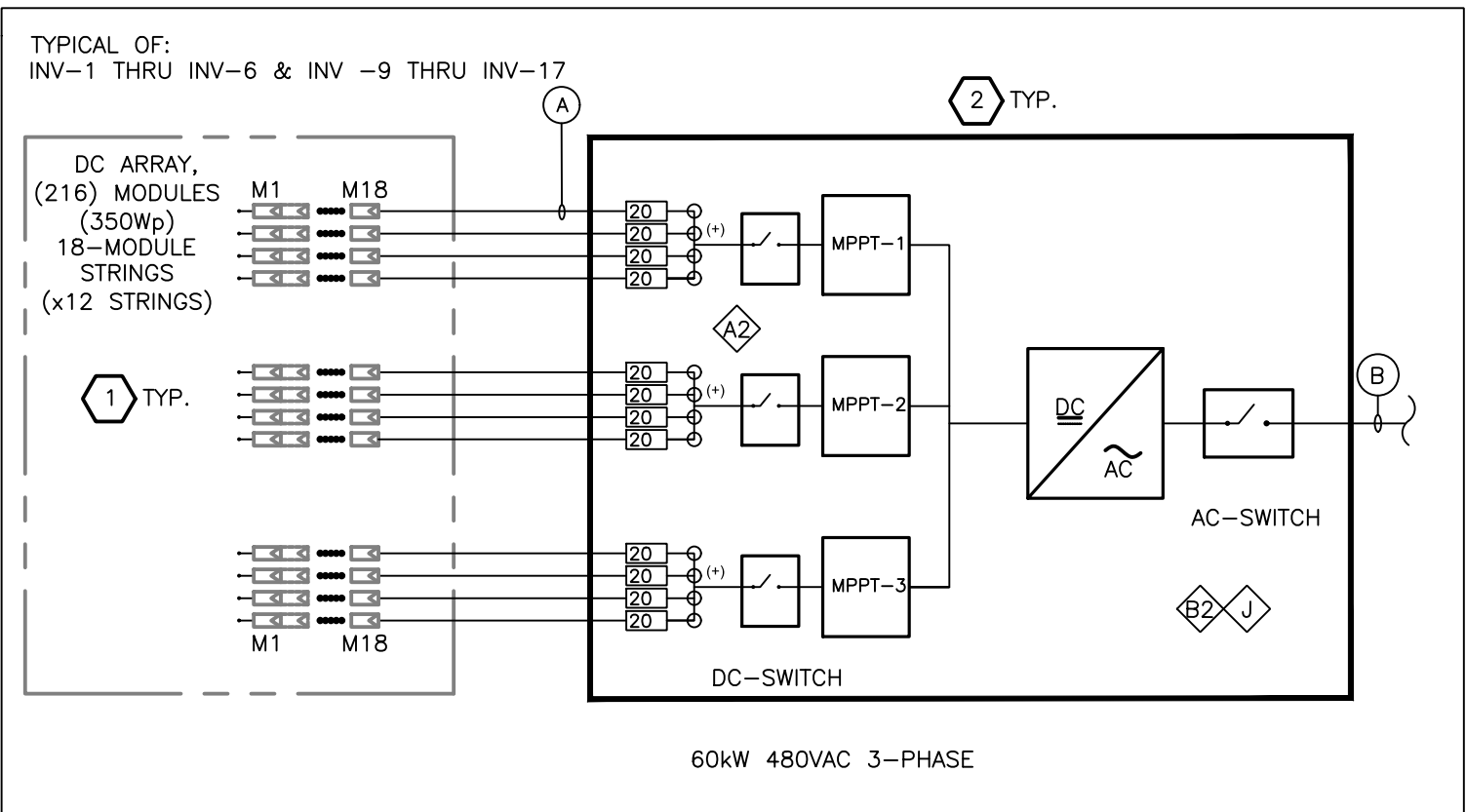
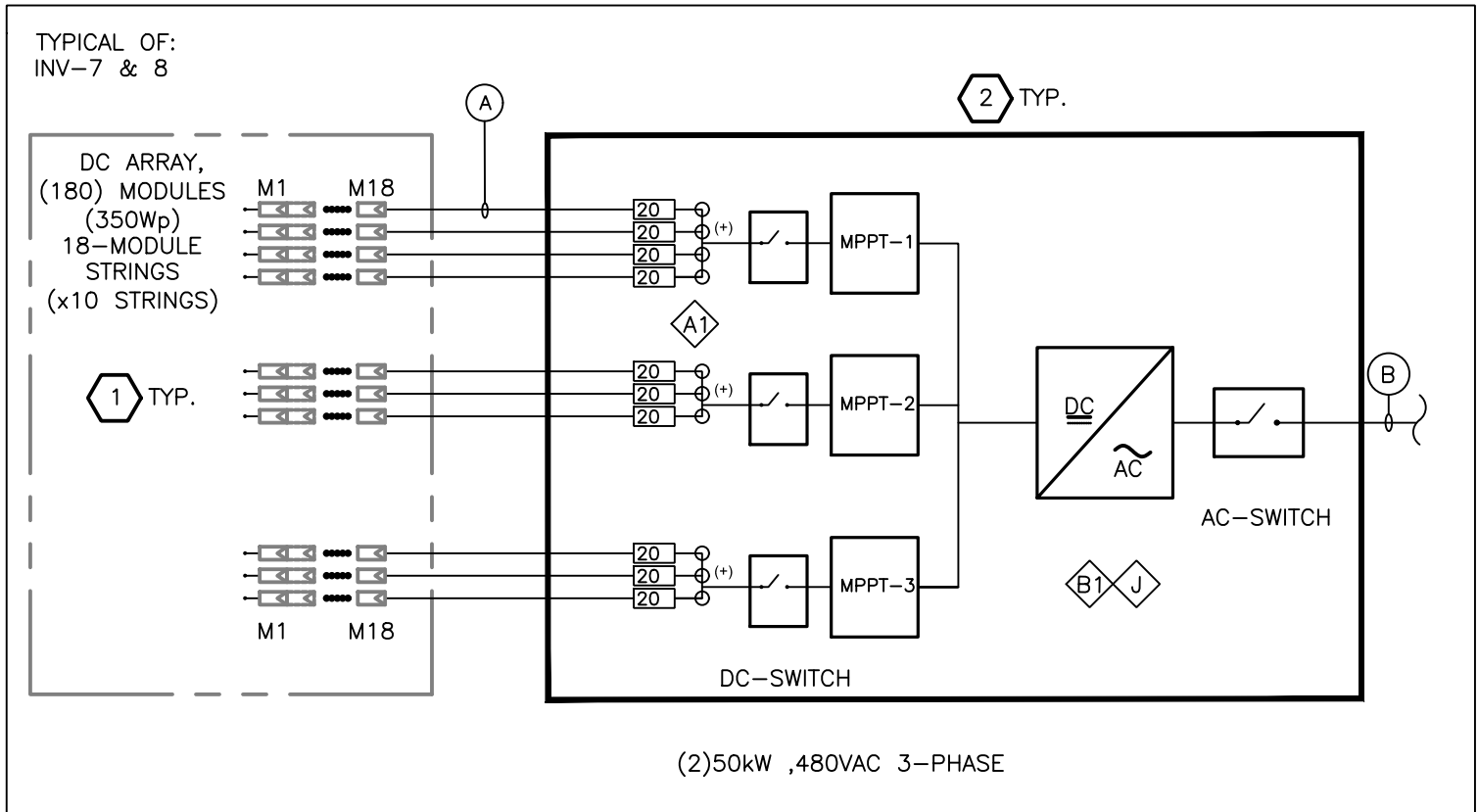
PROJECT OVERALL SUMMARY		
OVERALL SYSTEM SIZE	1.26MWdc/1.0MWac	
STRING LENGTH	18xMODULES/STRING	
RACKING TYPE	FIXED TILT-RBI	
AZIMUTH	180	
TILT	25 DEGREES	
PROJECT ADDRESS	7488 320TH STREET, NORTHFIELD, MINNESOTA 55057	
SRC#068908		
MODULE QUANTITY	3600	
50/60kW INVERTER QTY.	2/15	
PV MODULE SPECS		
NO. OF STRINGS	200	
MAKE	CANADIAN SOLAR	
MODEL-CS3U-350PB-AG	AT STC	AT 20% BYFACIAL GAIN
Pmax	350	420
Voc	46.6 VDC	46.6 VDC
Vmp	39.2 VDC	39.2 VDC
Isc	9.51 ADC	11.41 ADC
Imp	8.94 ADC	10.73 ADC
INVERTER SPECS		
MAKE	CHINT POWER SYSTEM	
MODEL	CPS SCA50KTL	CPS SCA60KTL
AC Volts	480 VAC	480 VAC
NOMINAL AC OUTPUT	60.2 A	72.2 A
POWER FACTOR	+/-0.8 ADJUSTABLE	+/-0.8 ADJUSTABLE
FREQUENCY	57-63 Hz	57-63 Hz
DC ARRAY GROUNDING	FLOATING	FLOATING

PV PRODUCTION METER NOTES:

1. THE UTILITY PRODUCTION METERING & MAIN BILLING METERING PROVISIONS WILL BE IN COMPLIANCE WITH THE CURRENT REVISION OF THE XCEL ENERGY STANDARD, SPECIFICALLY SECTION 4.10.7, 4.12.1, AND DRAWING TR-40, OR AS MAY BE AMENDED.
2. THE METER SOCKET FOR THE PV PRODUCTION METER SHALL BE MARKED WITH A STAMPED BRASS, ALUMINUM, OR STAINLESS STEEL TAG SECURELY ATTACHED TO THE METER SOCKET INDICATING THE ADDRESS INCLUDING THE UNIT, TYPICALLY "PV PROD" IN ACCORDANCE WITH THE REQUIREMENTS FOR "METER IDENTIFICATION" IN SECTION 4.14.4 OF THE XCEL ENERGY STANDARD, OR AS MAY BE AMENDED.
3. THE METER SOCKET FOR THE MAIN BILLING METER SHALL BE MARKED WITH A STAMPED BRASS, ALUMINUM, OR STAINLESS STEEL TAG, INDICATING THE ADDRESS IN ACCORDANCE WITH THE REQUIREMENTS FOR "METER IDENTIFICATION" IN SECTION 4.14.4 OF THE XCEL ENERGY STANDARD.
4. THE PV PRODUCTION METER SHALL BE LOCATED WITHIN TEN (10) FEET OF THE MAIN BILLING METER. THE APPROVAL OF THE PROPOSED PV PRODUCTION METERING WILL NEED TO BE OBTAINED BY THE LOCAL ELECTRIC METER SHOP.

GENERAL UTILITY NOTES: PV SYSTEM WARNING LABELS, PLACARDS AND BRASS TAGS SHALL MEET XCEL REQUIREMENTS AS SPECIFIED IN THE XCEL ENERGY STANDARD FOR ELECTRIC INSTALLATION AND USE MANUAL. UTILITY PV AC DISCONNECT SHALL BE LOCATED 10 FEET OR LESS FROM PV PRODUCTION METER AND MAIN BILLING METER. DISCONNECT IS ACCESSIBLE, CLEARLY MARKED, AND LABELED "UTILITY PV AC DISCONNECT". UTILITY PV PRODUCTION METER SHALL BE NO MORE THAN 10FT FROM UTILITY MAIN BILLING METER. XCEL ENERGY METER DEPARTMENT TO REVIEW AND APPROVE METER LOCATIONS. PLACARDS SHALL CLEARLY STATE LOCATION OF NEW PV PRODUCTION METER & NEW MAIN BILLING METER.

LEGEND	
	DISCONNECT SWITCH
	LV BREAKER
	CURRENT TRANSFORMER
	SOLAR PV MODULE
	SHUNT TRIP UNIT
	METER
	LV FUSE
	POWER CONDUCTOR
	CONTROL CIRCUIT
	DATA/COMM.
	CONDUCTOR IDENTIFIER PER CABLE SCHEDULES
	LABEL IDENTIFIER PER SHEET E01.06
	FUSE



- KEY NOTES:**
1. CANADIAN SOLAR CS3U-350PB-AG MODULES, 350Wdc. (18) MODULES PER STRING. SOLAR MODULES ARE UL1703 LISTED WITH PRE-INSTALLED QUICK CONNECTS ON MODULE LEADS. DO NOT ALTER THE QUICK CONNECTS, THIS WILL VOID WARRANTY. END-OF-STRING CONDUCTOR CONNECTORS SHALL MATCH FACTORY INSTALLED MODULE CONNECTORS. DC ARRAY IS UNGROUNDED/FLOATING. POSITIVE AND NEGATIVE CONDUCTORS SHALL BOTH BE FUSED. POSITIVE CONDUCTOR INSULATION SHALL BE RED, NEGATIVE CONDUCTOR INSULATION SHALL BE BLACK. WHITE CONDUCTOR INSULATION SHALL NOT BE USED.
 2. CHINT POWER SYSTEM CPS SCA50KTL & CPS SCA60KTL INVERTERS 50/60kW. 480Vdc 3-PHASE/4-WIRE OUTPUT, UL1741 LISTED WITH INTEGRAL ANTI-ISLANDING PROTECTION & NEC 690.12 RAPID SHUTDOWN CAPABILITY. IEEE 1547 COMPLIANT. INVERTER HAS INTEGRAL DC & AC DISCONNECTING MEANS. INVERTER EQUIPPED WITH DC ARC FAULT CIRCUIT INTERRUPTION & GROUND FAULT PROTECTION. POSITIVE DC INPUTS ONLY SHOWN FOR CLARITY - INVERTER IS TRANSFORMERLESS AND NEGATIVE DC INPUTS ARE ALSO FUSED IDENTICALLY TO POSITIVE POLE. CHINT INVERTERS DO NOT REQUIRE A NEUTRAL WIRE FOR NORMAL AC OUTPUT OPERATION. INVERTER SHALL BE OPERATED IN INDEPENDENT MPPT MODE.
 3. XCEL ENERGY'S METERING REQUIREMENTS: UTILITY METER CT CABINET SECTIONS SHALL BE UL-LISTED AND MEET THE CURRENT INSTALLATION REQUIREMENTS PER THE XCEL ENERGY STANDARD FOR ELECTRIC INSTALLATION AND USE MANUAL, SPECIFICALLY SECTIONS 4.10.7, 4.12.1 AND DRAWING TR-40. CONTRACTOR TO FURNISH 1600A CT SECTIONS WITH REMOVABLE BUS SECTIONS AND MOUNTING PROVISION FOR WINDOW TYPE CT PER SECTION 4.12.1 ITEM #5. CUSTOMER TO PROCURE A LABELING PLACARD WITH BLACK LETTERS ON YELLOW BACKGROUND STATING "PHOTOVOLTAIC SYSTEM CONNECTED" TO BE LOCATED ON OR IMMEDIATELY ADJACENT TO CT CABINET ENCLOSURES. THE CT'S FOR THE PV PRODUCTION METER SHALL BE MOUNTED SUCH THAT THE H1 POLARITY MARKING FACES TOWARD THE PV GENERATION. THE CT'S FOR THE MAIN BILLING METER SHALL BE MOUNTED SUCH THAT THE H1 POLARITY MARKING FACES TOWARD THE CT'S FOR THE MAIN BILLING METER.
 4. NEW XCEL PV PRODUCTION METER, MAIN BILLING METER, & RESPECTIVE METER SOCKETS, 480V 3-PHASE/4-WIRE. XCEL TO PROVIDE METER SOCKET, CONTRACTOR TO INSTALL ELECTRICAL CONTRACTOR TO INSTALL CT'S. XCEL TO PROVIDE AND INSTALL METER, AND CT SECONDARY & Vref WIRING TO METER. REFERENCE XCEL ENERGY STANDARD FOR ELECTRIC INSTALLATION AND USE, SECTION 4.11.5 & XCEL FINAL DESIGN.
 5. PV MAIN AC DISCONNECT. 1600A, 480/277Vdc, FUSED, 3-POLE BLADED DISCONNECT. DISCONNECT SHALL BE VISIBLE BREAK, LOCKABLE, AND SHALL BE LABELED "PV MAIN AC DISCONNECT". EATON PRINGLE STYLE BOLTED PRESSURE SWITCH WITH 120V SHUNT TRIP, OR EQUAL. SHUNT TRIP SHALL RECEIVE 120V CONTROL CIRCUIT FROM AUX. B-CONTACT ON BREAKER FEEDING ZIGZAG GROUNDING TRANSFORMER. IN THE EVENT OF A ZIGZAG BREAKER TRIP EVENT THE CONTROL CIRCUIT SHALL ACTIVATE THE SHUNT TRIP AND OPEN THE BOLTED PRESSURE SWITCH.
 6. ZIGZAG GROUNDING TRANSFORMER PER XCEL ENERGY EFFECTIVE GROUNDING REQUIREMENTS. TRANSFORMER SHALL BE SIZED PER PV GROUND REFERENCING REQUIREMENTS AND SAMPLE CALCULATIONS DOCUMENT DATED NOVEMBER 15, 2015. GROUNDING TRANSFORMER X0 SHALL BE BONDED TO GROUND VIA SWITCHGEAR GROUND BUS. ADJUSTABLE BREAKER SHALL DETECT OVERCURRENT IN ZIGZAG TRANSFORMER AND AUX. B-CONTACT WILL SHUNT TRIP THE UTILITY DISCONNECT SWITCH. ZIGZAG XFMR SPECIFICATIONS ARE AS FOLLOWS: X0,dg=0.13824ohm +/- 10%, Ro,dg=0.03456ohm (MAX), Iphase=80.2A (MIN), Ineut=240.6A (MIN), 5-SEC FAULT WITHSTAND=2500A (MIN).
 7. NEW PANELBOARD PB1-AUX1. 480/277Vdc, 4-WIRE, NEMA 3R, 200A MCB, ADDITIONAL SUB-FEED BREAKERS AS SHOWN. 150A/3P BREAKER FOR ZIGZAG CONNECTION SHALL BE PROCURED WITH AUXILIARY B-CONTACT (N.C.) FOR CONTROL CIRCUIT TO SHUNT TRIP ON PV MAIN AC DISCONNECT. ZIGZAG BREAKER SHALL ALSO HAVE LONG/SHORT/INST./GROUND ADJUSTABLE TRIP SETTINGS. IN EVENT OF OVERCURRENT TRIP ON ZIGZAG BREAKER, AUX. B-CONTACT SHALL CLOSE AND SEND TRIP SIGNAL TO SHUNT TRIP.
 8. NEW 7.5kVA 480/240/120V MINI POWER CENTER WITH 240/120V AUXILIARY POWER PANEL PB1-AUX1. DERIVE 120V ZIGZAG CONTROL CIRCUIT VOLTAGE FROM 15A/1P BREAKER SHARED WITH CUSTOMER MONITORING/DAS. ADDITIONAL 20A/1P BREAKER FOR DUPLEX OUTLET.
 9. NEW XCEL TELEMETRY DISCONNECT, SQUARE-D H221NRB 30A FUSED SWITCH. XCEL TO PROVIDE SWITCH, CUSTOMER TO MOUNT/INSTALL AND WIRE DISCONNECT PER XCEL MINNESOTA TELEMETRY REQUIREMENTS DOCUMENT.
 10. NEW CUSTOMER MONITORING/DAS ENCLOSURE. SPECIFIC COMPONENTS TBD BASED ON FINAL DAS VENDOR DESIGN, TYPICAL EQUIPMENT SHOWN ON THIS DIAGRAM FOR INFORMATIONAL/REFERENCE PURPOSES ONLY.
 11. NEW XCEL-SUPPLIED XFMR, 1000kVA TRANSFORMER. XCEL TO SUPPLY AND INSTALL TRANSFORMER. TRANSFORMER ASSUMED TO HAVE INTERNAL FUSING AND DISCONNECTION MEANS. TWO WINDING, GROUND-ED-WYE PRIMARY, 480/277V GROUND-ED-WYE SECONDARY. ALL OTHER COMPONENTS OF XCEL-SUPPLIED TRANSFORMER ASSUMED.
 12. CUSTOMER METERING CT'S PLACED AROUND SWITCHGEAR OUTPUT CONDUCTORS TO POINT OF INTERCONNECTION. (3) DONUT-STYLE OR SPLIT-CORE CT'S OF SPECIFIED RATIO SHALL BE INSTALLED. 0.3% METERING ACCURACY MINIMUM. CT'S SHALL BE PROVIDED BY DAS SUPPLIER.
 13. NEW CUSTOMER SUPPLIED SWITCHGEAR SWGR. 1600A, 3ø/4W, 480/277Vdc, FULLY RATED 65kAIC NEMA 3R. CUSTOMER TO SUPPLY WITH ALL ITEMS INDICATED PRE-INSTALLED IN A 4-SECTION SWITCHGEAR. XCEL TO REVIEW AND APPROVE SWITCHGEAR SHOP DRAWINGS FOR TECHNICAL AND METERING COMPLIANCE PRIOR TO PLACEMENT OF SWITCHGEAR ORDER. SWITCHGEAR SHALL HAVE GROUND FAULT PROTECTION AT MAIN PV AC DISCONNECT PER NEC 230.95.
 14. PV UTILITY AC DISCONNECT. 1600A, 480/277Vdc, FUSED, 3-POLE BLADED DISCONNECT. DISCONNECT SHALL BE VISIBLE BREAK, LOCKABLE AND SHALL BE LABELED "PV UTILITY AC DISCONNECT." EATON PRINGLE STYLE BOLTED PRESSURE SWITCH OR EQUAL.
 15. NEW XCEL TELEMETRY CABINET. XCEL TO PROVIDE ENCLOSURE AND CONTENTS, CUSTOMER TO MOUNT/INSTALL ENCLOSURE AND CONNECT AC POWER PER XCEL MINNESOTA TELEMETRY REQUIREMENTS DOCUMENT. CUSTOMER TO PROVIDE & INSTALL ALL CAT5 ETHERNET WIRING FROM PV PRODUCTION & MAIN BILLING METERS TO TELEMETRY ENCLOSURE.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

THOMAS D. FIRSTBROOK, MINNESOTA LICENSE NO. 57096
DATE OF SIGNATURE: JUNE 20, 2019

ENGINEER

AZTEC
TYPsAGroup

DEVELOPER

Nokomis Partners

CONTRACTOR

KONISTA

811
Know what's below.
Call before you dig.

REVISIONS		DESCRIPTION	DRW	CK	APV	TDF
REV	DATE	ISSUED FOR PERMIT	AK			
1	06/20/19					

SCALE: #
SIZE: 22"x34"
PROJECT#: AZENE1906-05

CHUB COMMUNITY SOLAR GARDEN, LLC
7488 320TH STREET, NORTHFIELD, MINNESOTA 55057

PROJECT	SHEET	REV
	E04.01	0

SINGLE LINE DIAGRAM

EXHIBIT G

EXHIBITG

Stormwater Maintenance Plan

Post Construction Long Term Maintenance Plan for
Chub Garden LLC: Northfield, MN

System Description:

The site consists of a series of storm water basins to capture runoff from the solar facility and allow filtration into the soil. The site contains native grasses and plants within and around the solar project. The site contains trees around the perimeter for the purposes of visual screening.

System Maintenance

Landscape Maintenance

- The facility should be checked bi-annually for signs of erosion, vegetation loss, and channelization of the flow.
- The grass should not be allowed to grow greater than 42" in height within the solar array footprint. Site shall be mowed as needed to appropriate site coverage and manage height. Clippings shall be left on site or removed as determined by site manager.

Filtration Areas

Activity	Frequency
Water plants	As necessary during first growing season
Water plants during dry periods	As needed after first growing season
Re-mulch void areas	As needed
Treat diseased trees and shrubs	As needed
Remove litter and debris	Annually
Basin Drainage/Standing Water	Annually

- Erosion

The soil and mulch in the facility and in areas draining to the facility shall be inspected for eroded areas. Eroded areas shall be filled with soil or mulch and vegetated.

- Plant Maintenance

Vegetation maintenance includes watering plants during dry periods, re- mulching void areas, treating diseased trees and shrubs and mowing.

- Sediment Accumulation & Clogging

Sediment accumulation within the facility may reduce the filtration capacity and impair proper performance of the facility. The facility shall be inspected for accumulation of sediment annually. Excessive sediment accumulation shall be removed with the area re-mulched and replanted.

- Debris & Litter

A filtration device is expected to accumulate debris and litter. Debris and litter should be removed annually to maintain appearance and public acceptance of the filtration device.

- Basin Drainage

Basins have been designed to drain within 48 hours of rainfall event to prevent standing water.

- Standing Water

If the facility has standing water more than 48 hours after a rain event, the engineered soils may have become clogged preventing proper filtration of stormwater. The facility will need to have the mulch removed, the soil scarified around the plants and new mulch added.

**FEE OWNER CONSENT AND JOINDER
TO
AGREEMENT**

John Peter Fink, fee owner of the Property, the use of which is governed by the foregoing Agreement for Maintenance of Stormwater Facilities ("Agreement'), affirms and consents to the provisions of the Agreement, agrees that the Property shall be bound by the provisions of the Agreement, agrees that the Agreement shall not merge into any estate of John Peter Fink, and joins in the grant of licenses to Chub Solar, LLC.

Dated this ____ day of _____, 2019.

John Peter Fink

STATE OF MINNESOTA)
) ss.
COUNTY OF ____)

The foregoing instrument was acknowledged before me this ____ day of _____, 2019, by John Peter Frank, as owner.

NOTARY PUBLIC

THIS INSTRUMENT WAS DRAFTED BY:

FLAHERTY & HOOD, P.A.
Northfield City Attorney
525 Park Street, Suite 470
St. Paul, MN 55103-2122
Telephone: (651) 225-8840