

DANDELION

Hello,

To Whom it May Concern,

I Brian Zimmerly am authorizing Dandelion Energy Inc and its representative's John DeVore and/or Matthew Rigatti to apply for permits on my behalf using my State of Connecticut License #0409464-S1.

Thank You for the Understanding,

A handwritten signature in black ink, appearing to read 'Brian Zimmerly', with a stylized, flowing script.

Brian Zimmerly

STATE OF CONNECTICUT ♦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

BRIAN A CRUMP
36 VIRGINIA AVE UNIT 1
DANBURY, CT 06810-5738

has been certified by the Department of Consumer Protection as a licensed

ELECTRICAL UNLIMITED CONTRACTOR

License # **ELC.0191160-E1**

Effective: 10/01/2020

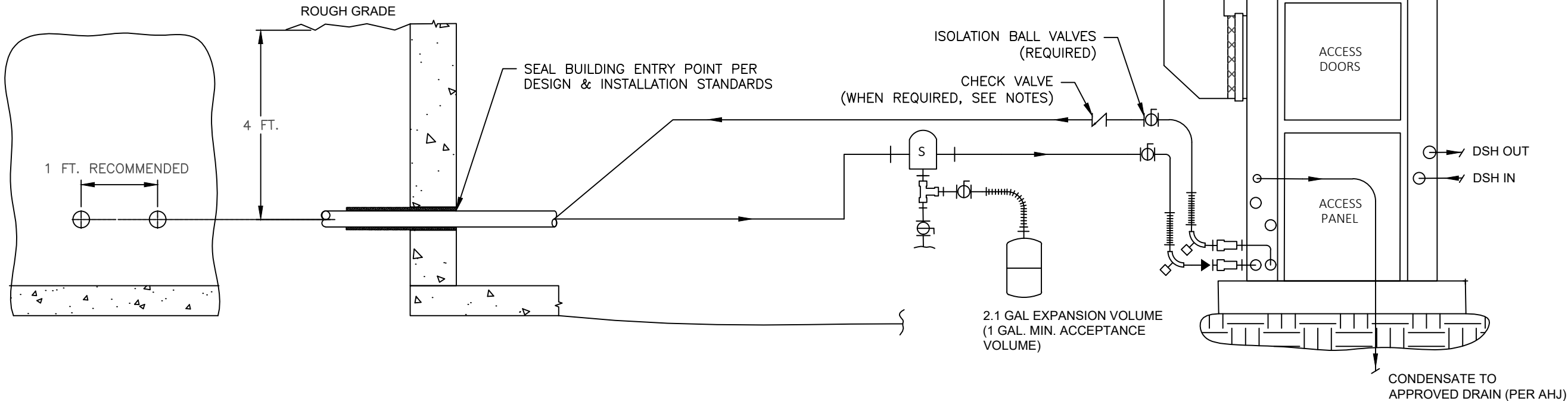
Expiration: 09/30/2021



Michelle Seagull, Commissioner

WVA-048 PERFORMANCE RATINGS (AHRI/ISO 13256-1)					
MODE	HEATING			COOLING	
	BTU/HR	COP	AUX HEAT KW	BTU/HR	EER
FULL	41,000	3.9	10	49,800	17.5
PART	33,100	4.0		38,200	21.5

AIR FILTER SPECIFICATIONS				
NOMINAL SIZE (WxHxD)	EXACT DIMENSIONS	STATIC PRESSURE (IN. W.G.)	MEDIA AREA (SQ. FT.)	FILTER QTY.
24" x 24" x 2"	23 ^{3⁄8} " x 23 ^{3⁄8} " x 1 ^{3⁄4} "	0.30	11.55	2



July 23, 2020

STATE OF CONNECTICUT
RYAN J. CARDA
34627
LICENSED PROFESSIONAL ENGINEER

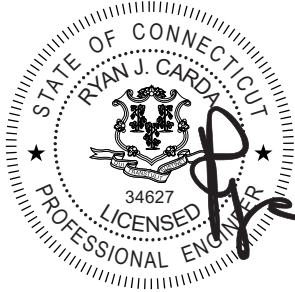
LEGEND	
	AIR SEPARATOR
	BALL VALVE-MANUAL
	DRAIN VALVE-MANUAL
	FLEXIBLE PIPING CONNECTION
	90° ELBOW WITH PT/SENSOR PORT
	TEE CONNECTION-GENERAL PIPING
	PIPING, TUBING, HOSE-GENERAL
	COUPLING-MALE x FEMALE
	EXPANSION TANK

SYSTEM PRESSURIZATION DETAILS		
RANGE	MIN.	MAX.
START-UP PRESSURE	30 PSI	50 PSI

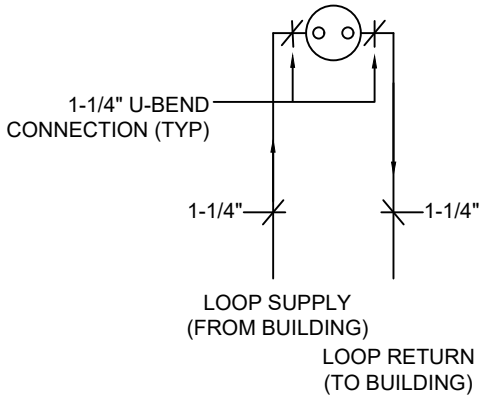
DANDELION AIR OPERATION LIMITS		
PARAMETER	COOLING	HEATING
MIN EAT	60°F	45°F
MAX EAT	100°F	80°F
MIN EWT	30°F	20°F
MAX EWT	110°F	90°F
MIN WATER FLOW	2.3 GPM/TON	
MAX WATER FLOW	4.0 GPM/TON	
MIN AIR FLOW	300 CFM/TON	

- NOTES:**
- LEFT SIDE RETURN SHOWN. PORT AND KNOCK-OUT LOCATIONS MIRRORED FOR RIGHT HAND AIR RETURN.
 - APPROVED INTERIOR PIPING MATERIALS: HDPE, PEX AND/OR RUBBER HEATER HOSE. REFER TO DANDELION'S DESIGN & INSTALLATION STANDARDS FOR SIZING REQUIREMENTS.
 - SUPPLY-RETURN LINE SIZES SELECTED PER DANDELION'S DESIGN AND INSTALLATION STANDARDS.
 - ALL INTERIOR PIPING INSULATED WITH CLOSED-CELL INSULATION (½ MIN. THICKNESS).
 - TARGET DEPTH FOR BUILDING ENTRY POINT IS 4 FT BELOW GRADE. REFER TO DANDELION'S DESIGN AND INSTALLATION STANDARDS FOR PROVISIONS WHEN EXCEPTIONS OCCUR.
 - THE USE OF CHECK VALVES IS REQUIRED WHEN MULTIPLE HEAT PUMPS ARE CONNECTED TO A COMMON (SHARED) GROUND LOOP.
 - SEE SHEETS 2, 3, AND 4 (OF 4) FOR ADDITIONAL DANDELION SYSTEM REQUIREMENTS.

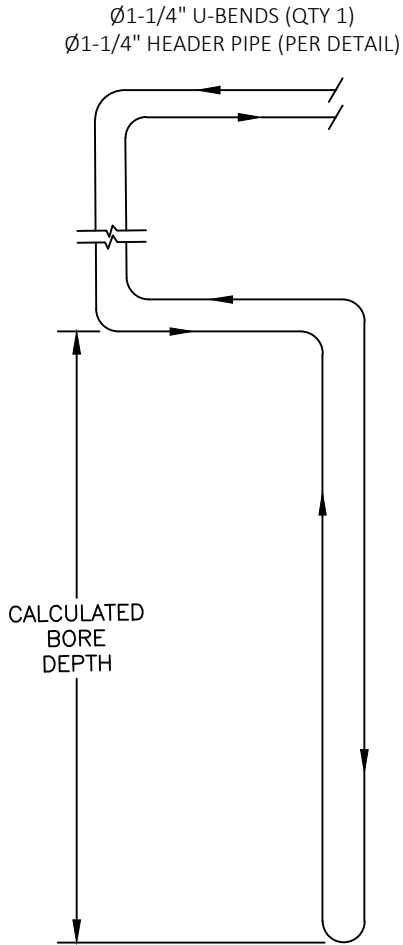
CONTRACTOR NAME:	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION: INTERIOR PIPING 4-TON MODEL (WVA-048)	PAGE: 1 OF 4
VERSION V2019.06	PROJECT ID:	DATE:	SCALE: NTS SIZE: ISO_B_11 X 17	



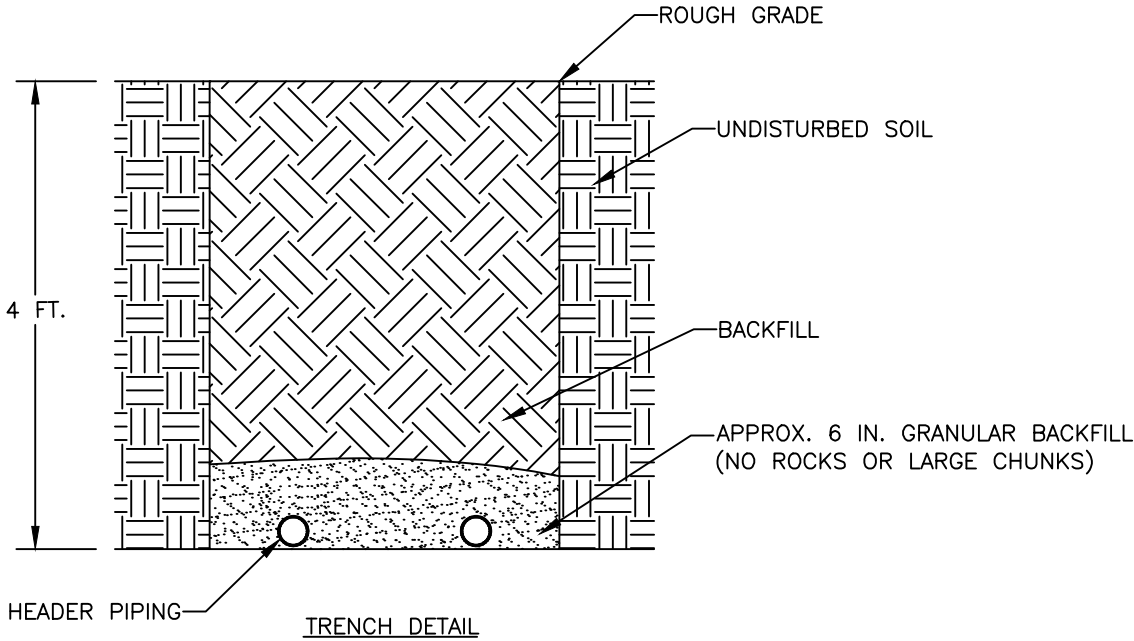
[Signature]
July 23, 2020



HEADER PIPING DETAIL



GROUND LOOP LAYOUT DETAIL



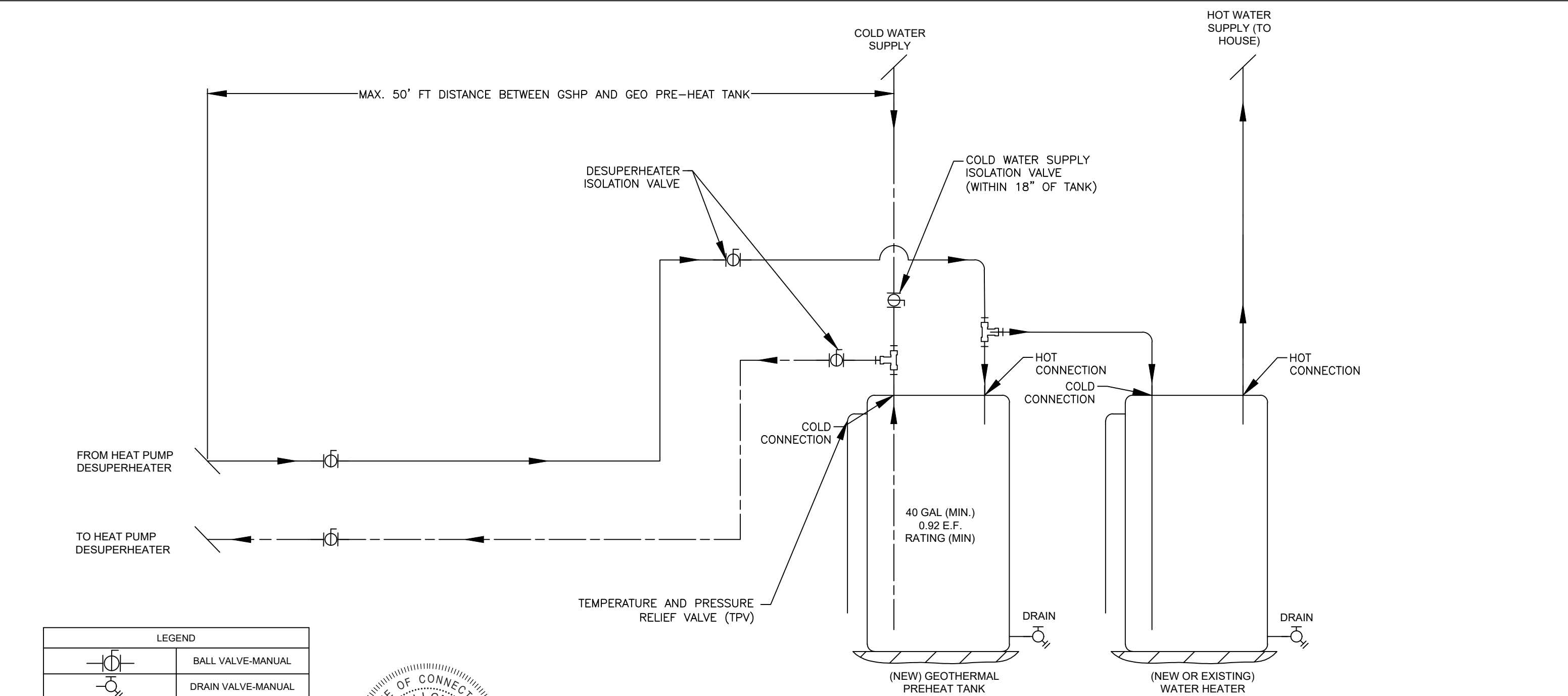
TRENCHING NOTES:
WHEN SITE CONDITIONS DO NOT ALLOW EXCAVATION TO THE REQUIRED 4 FT. DEPTH INSULATE THE HEADER PIPING WITH R10 EPS FOAM BOARD INSULATION. INSTALL THE INSULATION DIRECTLY ABOVE AND ALONG THE OUTER EDGES OF THE PIPING AT THE BOTTOM OF THE TRENCH FOR FREEZE PROTECTION.

GENERAL NOTES:

- ALL UNDERGROUND PIPE FITTINGS/CONNECTIONS MADE VIA HEAT FUSION PER ANSI/CSA/IGSHPA C448.0-16, SECTION 5.4.2
- ALL GROUND LOOP PIPING HDPE, MIN. 160 PSI RATING (PE 3608 OR 4710, DR11) PER ANSI/CSA/IGSHPA C448.0-16, SECTION 5.4.2
- MINIMUM BORE SPACING AND CALCULATED BORE DEPTH PER LOOPLINK RLC
- MIN. SEPARATION DISTANCE FROM ALL STRUCTURES AND UTILITIES (FOUNDATION, GAS, SEWER, SEPTIC, PROPERTY LINES, ETC.) IS 10 FT., UNLESS OTHERWISE SPECIFIED BY THE AHJ.
- INSTALL R2 (MIN.) PIPE INSULATION ON HEADER PIPING WHEN CROSSING A WATER/SEWER LINE
- FULL LENGTH GROUTING REQUIRED, 1.20 BTU/HR-FT-F GROUT THERMAL CONDUCTIVITY VALUE
- HEADER PIPING MUST BE LAID OUT IN REVERSE-RETURN FASHION AS INDICATED IN THE HEADER DETAIL DRAWING.
- ALTERNATIVE PIPING LAYOUT/DESIGN MUST BE PRE-APPROVED BY DANDELION.
- SEE SHEETS 1, 3, AND 4 (OF 4) FOR ADDITIONAL DANDELION SYSTEM REQUIREMENTS.
- PRIOR TO STARTUP, THE GROUND LOOP SHALL BE FLUSHED AT 2 FPS TO REMOVE AIR/DEBRIS USING A 1.5 HP PURGE PUMP

SYSTEM ANTIFREEZE MUST MEET OR EXCEED AHJ BUILDING CODES				
CORRESPOND WITH FREEZE POINT 12-13°F BELOW MIN EWT				
ANTIFREEZE CONCENTRATION % BY VOLUME				
ANTIFREEZE TYPE	MIN EWT (°F)			
	25°F	30°F	35°F - 45°F	> 45°F
PROPYLENE GLYCOL	28%	22%	20%	0%
ETHANOL	25%	20%	15%	0%
METHANOL	DO NOT USE	15%	10%	0%
HEAT TRANSFER FLUID MUST COMPLY WITH ANSI/CSA/IGSHPA C448.0-16, SECTION 5.7				

CONTRACTOR NAME:	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION: GROUND LOOP AND HEADER PIPING 1-1/4" U-BENDS (QTY 1)		PAGE: 2 OF 4
VERSION V2019.06	PROJECT ID:	DATE:	SCALE: NTS	SIZE: ISO_B_11 X 17	



LEGEND	
	BALL VALVE-MANUAL
	DRAIN VALVE-MANUAL
	HOT WATER LINE
	COLD WATER LINE
	PIPING, TUBING, HOSE-GENERAL
	TEE CONNECTION-GENERAL PIPING

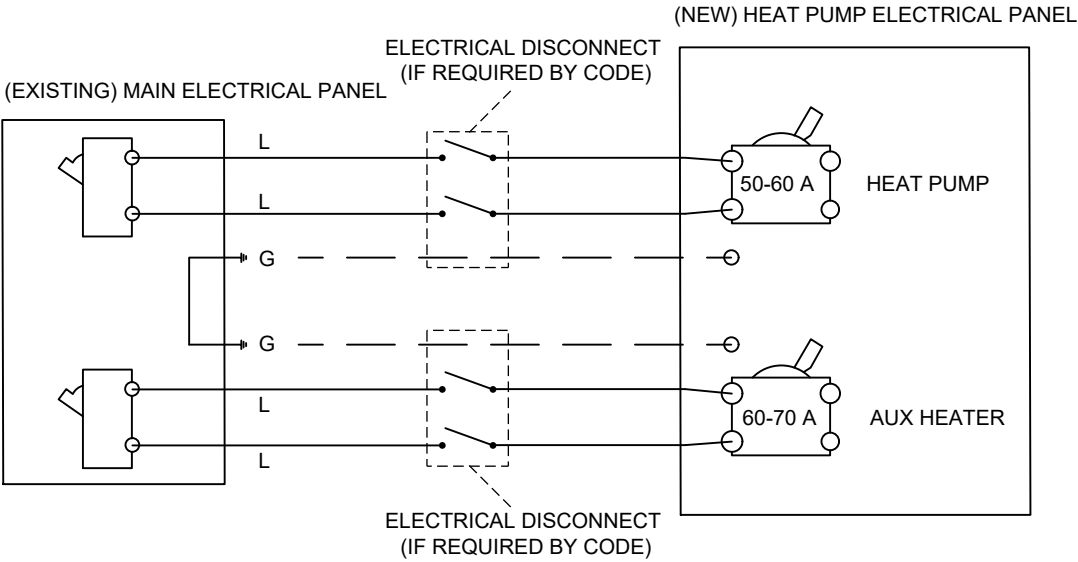
STATE OF CONNECTICUT
RYAN J. CARDIA
34627
LICENSED PROFESSIONAL ENGINEER
[Signature]
July 23, 2020

- NOTES:
- DOMESTIC HOT WATER CONNECTIONS SHALL MEET OR EXCEED ALL APPLICABLE BUILDING CODES.
 - TEMPERATURE AND PRESSURE RELIEF VALVE (TPV) SHALL BE FACTORY INSTALLED AND TERMINATED ACCORDING TO APPLICABLE BUILDING CODES
 - ALL NEW PLUMBING $\frac{1}{2}$ IN. (MIN.), PEX OR COPPER
 - THE NEW WATER HEATER AND GEOTHERMAL STORAGE TANK SHALL TIE-INTO THE EXISTING DOMESTIC WATER PLUMBING.
 - SEE SHEETS 1, 2, AND 4 (OF 4) FOR ADDITIONAL DANDELION SYSTEM REQUIREMENTS.

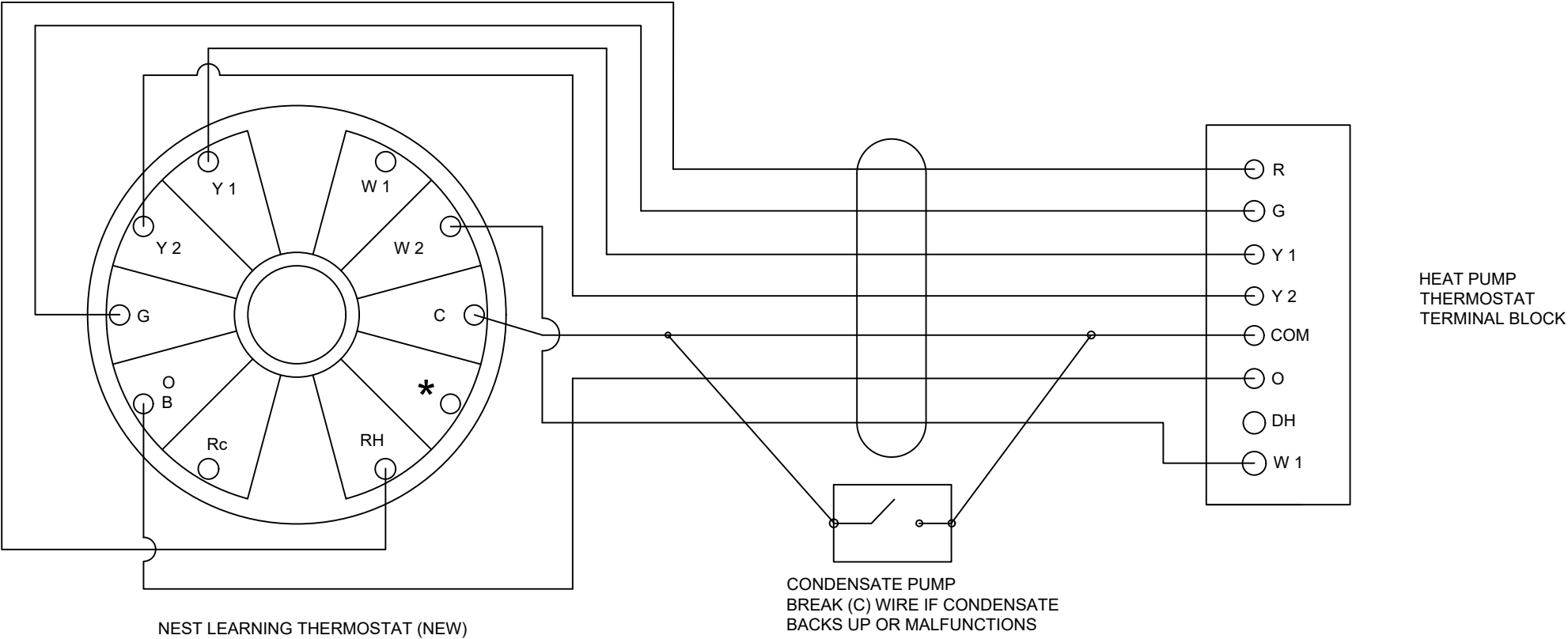
CONTRACTOR NAME:	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION: DOMESTIC WATER PRE-HEAT ALL MODELS	PAGE: 3 OF 4
VERSION V2020-03	PROJECT ID:	DATE:	SCALE: NTS SIZE: ISO_B_11 X 17	

NOTES:

- ELECTRICAL WORK MUST MEET OR EXCEED ALL APPLICABLE BUILDING & ELECTRICAL CODES
- WHEN THE DISTANCE FROM THE SERVICE PANEL TO THE HEAT PUMP IS GREATER THAN 100 FT, CONSULT WITH THE ENGINEERING TEAM FOR FURTHER REVIEW.
- SEE SHEETS 1, 2, AND 3 (OF 4) FOR ADDITIONAL DANDELION SYSTEM REQUIREMENTS.

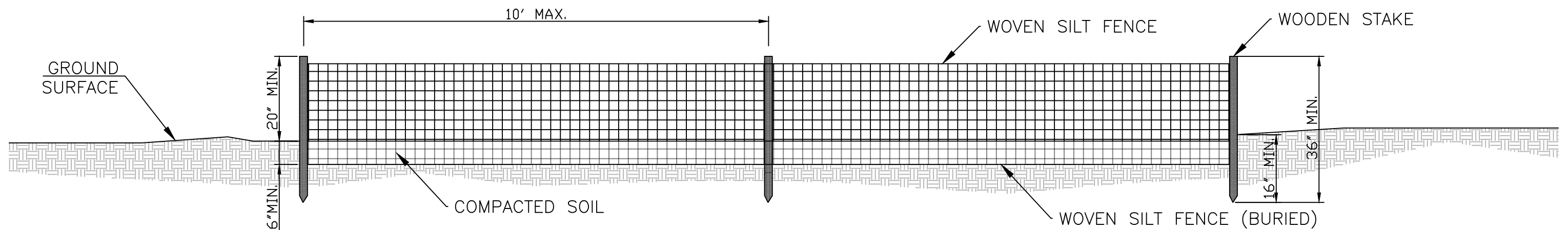


DESC	BREAKER SIZE	MCA*
HEAT PUMP	50-60 AMP	41.3
AUX. HEATER	60-70 AMP	52.5
*MCA = MINIMUM CIRCUIT AMPACITY		



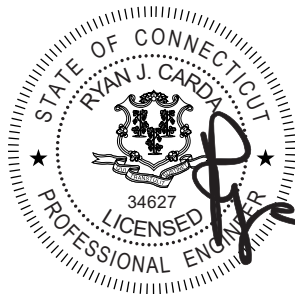
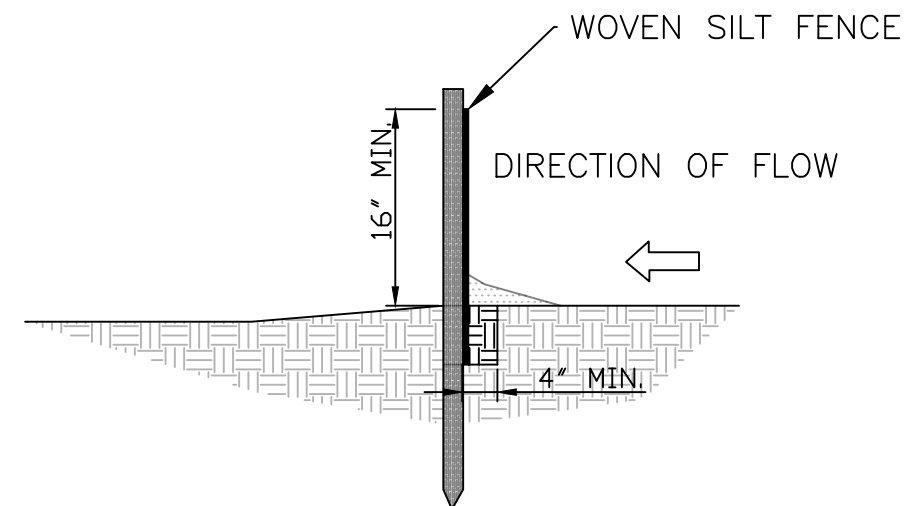
DANDELION AIR HEAT PUMP & AUX HEAT - COPPER (ALUMINUM) WIRE GAUGE SIZING					
HEAT PUMP			AUX. HEAT		
MIN CIRCUIT AMPS	CONDUCTOR RATING		MIN CIRCUIT AMPS	CONDUCTOR RATING	
	167°F (75°C)	194°F (90°C)		167°F (75°C)	194°F (90°C)
41.3	6 (6)	6 (6)	52.5	6 (4)	6 (6)

CONTRACTOR NAME:	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION: ELECTRICAL SUPPLY, THERMOSTAT, CONDENSATE PUMP WIRING 5-TON MODEL (WVA-060)	PAGE: 4 OF 4
VERSION V2020.03	PROJECT ID:	DATE:	SCALE: NTS SIZE: ISO_B_11 X 17	



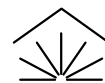
GENERAL NOTES:

1. SILT FENCE SHALL BE USED TO CONTROL SEDIMENT AND PREVENT STORMWATER POLLUTION DURING DRILING AND TRENCHING ACTIVITIES AS PART OF GEOTHERMAL SYSTEM INSTALLATION.
2. SILT FENCES SHALL BE INSTALLED AND MAINTAINED IN GENERAL ACCORDANCE WITH NEW YORK STATE ENVIRONMENTAL CONSERVATION STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
3. EMBED FILTER CLOTH A MINIMUM OF 6 INCHES INTO THE GROUND AND BACKFILL WITH COMPACTED SOIL.
4. WHEN TWO SECTIONS OF FENCE ARE ADJOINED TO EACH OTHER, THEY SHALL BE OVERLAPPED BY A MINIMUM OF 6 INCHES.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED.



July 23, 2020

CONTRACTOR NAME:



DANDELION ENERGY, INC.
335 MADISON AVENUE, 4TH FLOOR
NEW YORK, NY 10017

DESCRIPTION:

SILT FENCE DETAIL

SCALE: NTS

DRAWING:

5 of 7



DANDENE-01

MJIANG

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/8/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER York International Agency, LLC 500 Mamaroneck Avenue Suite 220 Harrison, NY 10528	CONTACT NAME:	
	PHONE (A/C, No, Ext): (914) 376-2200	FAX (A/C, No): (914) 376-2891
	E-MAIL ADDRESS: certificate@yorkintl.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Admiral Insurance Company	24856
INSURED Dandelion Energy, Inc. 335 Madison Avenue, 4th Floor New York, NY 10017	INSURER B : Travelers Casualty Insurance Company of Americ	19046
	INSURER C : Federal Insurance Co.	20281
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:			CA000028168-02	9/8/2020	9/8/2021	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY			BA8N124299	7/5/2020	7/5/2021	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input type="checkbox"/> RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y / N If yes, describe under DESCRIPTION OF OPERATIONS below		N / A				PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
C	Inland Marine			06691718	5/2/2020	5/2/2021	Leased/Rented Equip. 100,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

Dandelion Energy, Inc. 335 Madison Avenue, 4th Floor New York, NY 10017	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

9/9/2020

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IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Commercial Lines - 305-443-4886 USI Insurance Services LLC 2601 South Bayshore Drive, Suite 1600 Coconut Grove, FL 33133	CONTACT NAME: TriNet Risk Department PHONE (A/C, No, Ext): 888-572-2412 FAX (A/C, No): E-MAIL ADDRESS: certs@trinet.com																					
INSURED TriNet HR II-A, Inc. L/C/F Dandelion Energy Inc. 9000 Town Center Parkway Bradenton, FL 34202	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">INSURER(S) AFFORDING COVERAGE</th> <th style="text-align: center;">NAIC #</th> </tr> <tr> <td style="width: 80%;">INSURER A: Indemnity Insurance Company of North America</td> <td></td> <td style="text-align: center;">43575</td> </tr> <tr> <td>INSURER B:</td> <td></td> <td></td> </tr> <tr> <td>INSURER C:</td> <td></td> <td></td> </tr> <tr> <td>INSURER D:</td> <td></td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> <td></td> </tr> </table>	INSURER(S) AFFORDING COVERAGE		NAIC #	INSURER A: Indemnity Insurance Company of North America		43575	INSURER B:			INSURER C:			INSURER D:			INSURER E:			INSURER F:		
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INSURER C:																						
INSURER D:																						
INSURER E:																						
INSURER F:																						

COVERAGES**CERTIFICATE NUMBER:** 15141984**REVISION NUMBER:** See below

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG \$ \$ \$ \$ \$ \$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER:						
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) \$ \$ \$ \$
	<input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY						
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$						EACH OCCURRENCE AGGREGATE \$ \$ \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input checked="" type="checkbox"/> N	N/A	WLR_C67480090	03/01/2021	03/01/2022	X PER STATUTE OTH-ER E.L. EACH ACCIDENT \$ 2,000,000 E.L. DISEASE - EA EMPLOYEE \$ 2,000,000 E.L. DISEASE - POLICY LIMIT \$ 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Workers' Compensation is limited to worksite employees of Dandelion Energy Inc. through a co-employment contract with TriNet HR II-A, Inc.

CERTIFICATE HOLDER**CANCELLATION**

Dandelion Energy Inc.
 335 Madison Ave., Floor 4,
 New York, NY 10017

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

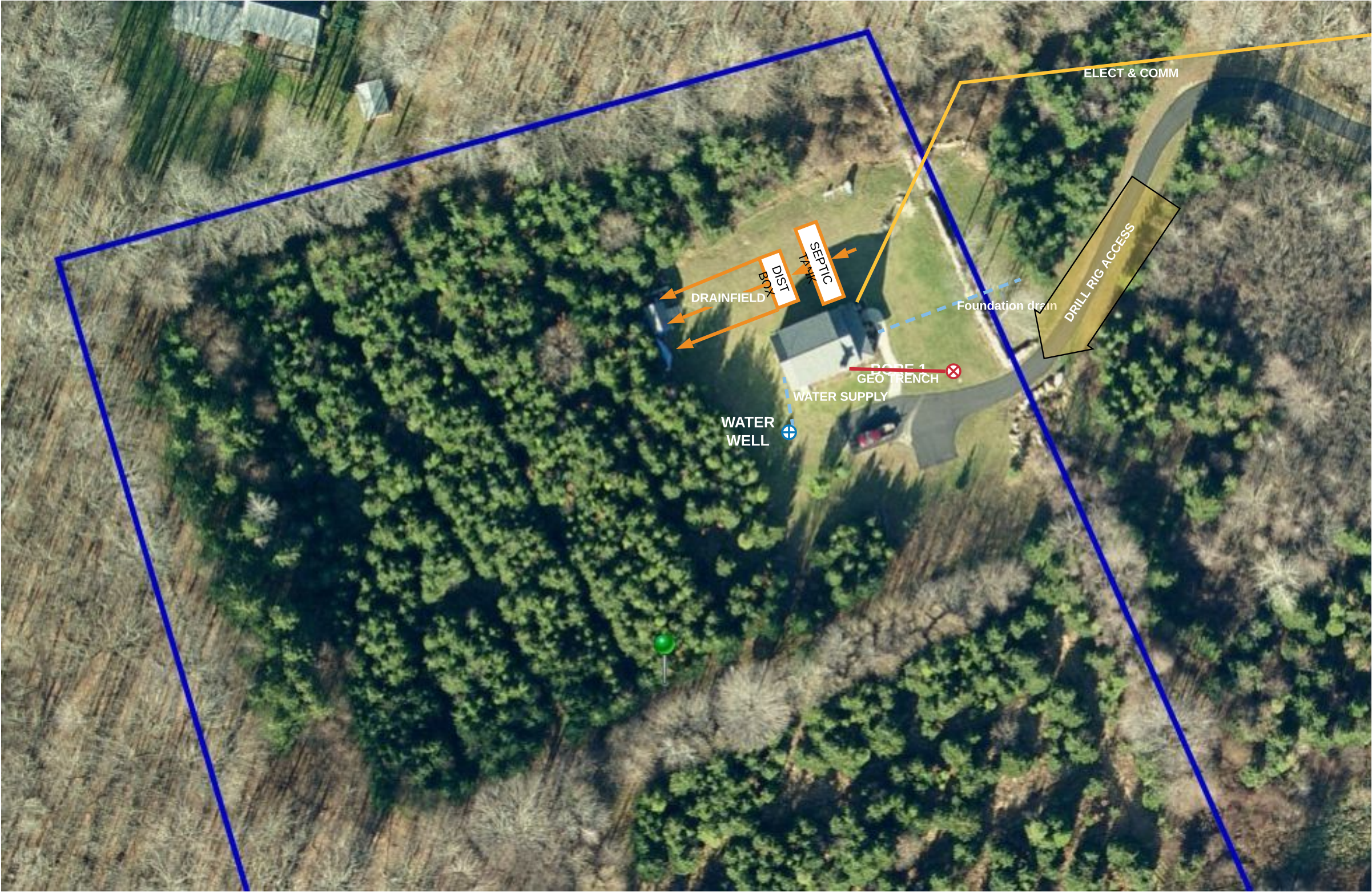
AUTHORIZED REPRESENTATIVE

B. M. Cane

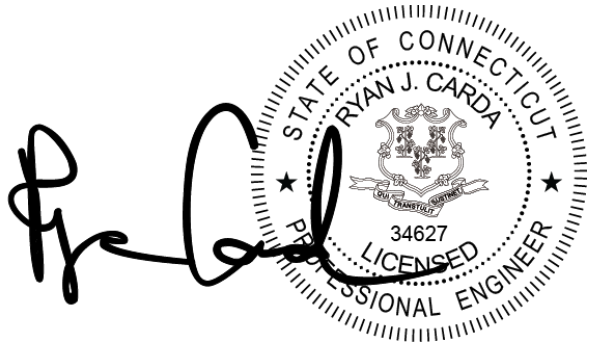
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ACORD 25 (2016/03)

(This certificate replaces certificate# 14818815 issued on 2/12/2020)



- NOTES:
1. PRIOR TO DRILLING OR EXCAVATION, PROVIDE UTILITY SURVEY AND MARK LOCATIONS OF ALL WATER, SEWER, ELECTRICITY, GAS, COMMUNICATIONS, SPRINKLER SYSTEMS, AND ALL OTHER UTILITIES.
 2. LOOPS, CIRCUIT PIPING, HEADERS, GROUND LOOP MANIFOLD, ETC. SHALL BE INSTALLED BY A CONTRACTOR CERTIFIED IN SUCH WORK BY IGSHPA AND IN ACCORDANCE WITH LOCAL CODES REGULATING SUCH INSTALLATION.
 3. UPON COMPLETION OF GROUND LOOP, CONTRACTOR SHALL SUBMIT AN AS-BUILT PLAN VIEW OF THE FIELD COMPLETE WITH ACCURATE DIMENSIONS FOR EACH BORE IN ADDITION TO THE LOCATION OF THE GROUND LOOP PIPING BUILDING ENTRY POINT.
 4. DRILLING CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO MAINTAIN THE WORKING PLATFORM AND MITIGATE RISK OF DAMAGES TO THE SURROUNDING PROPERTY. PROTECTIVE MEASURES MAY INCLUDE, BUT NOT BE LIMITED TO HOARDINGS, SAFETY BARRIERS, SPLASH BARRIERS, STATUTORY WARNINGS, SILT TRAPS, TREAD MATS, OUTRIGGER PADS AND THE LIKE, AS NECESSARY TO PROTECT THE WORKS, PLANT, MATERIALS, PERSONNEL, THIRD PARTY PROPERTY AND THE GENERAL PUBLIC. THE EXTENT AND METHOD OF PLATFORM STABILIZATION SHALL BE A FUNCTION OF THE PLANT AND EQUIPMENT ALLOCATED TO THE PROJECT, AND THE SAFE BEARING CAPACITY OF THE DRILLING PLATFORM.
 5. BORE LOCATIONS APPROXIMATE AS SHOWN.
 6. IN ACCORDANCE WITH ARTICLE 145, PROFESSIONAL ENGINEERING AND LAND SURVEYING 7209 (2), IT IS A VIOLATION FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DRAWING IN ANY WAY.



CONTRACTOR NAME:	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION:	PAGE:
DANDELION ENERGY INC.	Kamis, Jay	104 West St, Andover, CT 06232	SITE PLAN	1 OF 1
VERSION V2019.09	PROJECT ID: 21-062-0055	DATE: 2021-4-27	SCALE: SEE NTS SIZE: ISO_B_11X17	



Dandelion Air

Geothermal heat pump



- Vertical air supply with left or right side return
- 2-stage compressor with 3 speed ECM blower
- COP 4.4 / 24.6 EER
- Built-in flow center for pressurized ground loop piping
- Pre-installed auxiliary heating
- Domestic water preheating with integrated pump
- MERV 10 air filter
- Aluminum microchannel air coil
- Aluminium cabinet for reduced weight
- Real-time performance monitoring with cellular connectivity
- 10-year parts and 5-year labor limited warranty
- Made in USA

Performance Ratings

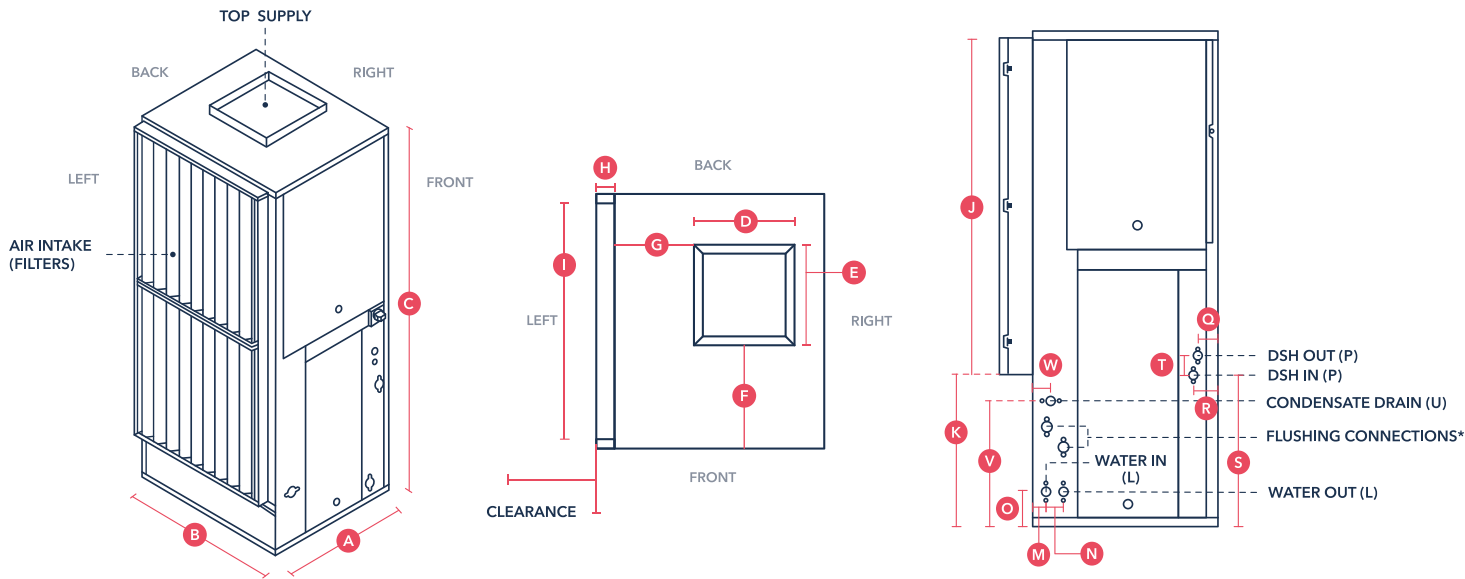
MODEL	LOAD	AIRFLOW (CFM)	FLUID FLOW (GPM)	Heating			Cooling		
				CAPACITY (BTU/HR)	COP	AUXILIARY HEAT (KW)	CAPACITY (BTU/HR)	EER	FUSE SIZE (AMPS)
24	Full	800	6.0	16,700	3.8	5	26,900	18.1	30 heat pump
	Part	600	4.0	12,500	4.0		19,900	22.7	30 aux heat
36	Full	1,200	9.0	27,500	3.9	10	37,400	16.7	40 heat pump
	Part	950	6.0	22,700	4.4		29,100	24.6	60 aux heat
48	Full	1,600	12.2	41,000	3.9	10	49,800	17.5	50 heat pump
	Part	1,250	9.3	33,100	4.0		38,200	21.5	60 aux heat
60	Full	2,000	15.0	47,900	4.2	10	61,500	16.9	60 heat pump
	Part	1,600	12.0	39,400	4.3		48,000	23.8	60 aux heat

Tested to AHRI/ISO 13256-1
All ratings based on 208.230V-60Hz-1ph operation
AHRI Certified

Heating capacity based on 68.0°F DB/59.0°F WB EAT
Cooling capacity based on 80.6°F DB/66.2°F WB EAT
Single-stage ground loop pump (24,36,48,60)
Additional ground loop pump with multi-stage adjustment (48,60)



Dimensions



		Air					Fluid													
MODEL	CABINET	SUPPLY			RETURN		GROUND LOOP				DESUPERHEATER				CONDENSATE			WEIGHT		
	A x B x C	D x E	F	G	H x I x J	K	L Ø	M	N	O	P Ø	Q	R	S	T	U Ø	V	W	(preliminary)	
24	21½ x 25½ x 58	9⅞ x 9⅜	9½	10¾	3⅞ x 25¼ x 39½	tbd	½ FPT	1¾	2	4	½ FPT	2⅝	2⅝	17¾	2¼	¾ FPT	14⅝	1⅞	98 lbs.	
36	21½ x 25½ x 58	11½ x 10¾	8¾	9⅞	3⅞ x 25¼ x 39½	17¾	¾ FPT	1¾	2	4¼	½ FPT	2⅝	2⅝	17¾	2¼	¾ FPT	5⅞	2	115 lbs.	
48	24 x 29 x 60	11½ x 10¾	12¼	9⅞	3⅞ x 25¼ x 47⅝	10⅞	¾ FPT	1¾	2	4	½ FPT	2⅝	2⅝	19¼	2½	¾ FPT	9	1¾	221 lbs.	
60	24 x 29 x 60	11½ x 10¾	12¼	9⅞	3⅞ x 25¼ x 47⅝	10⅞	1 FPT	1¾	2	4	½ FPT	2⅝	2⅝	19¼	2½	¾ FPT	9	1¾	229 lbs.	

All dimensions in inches.
Images show left side return, dimensions are mirrored for right side return.
Clearance for all models measures 24" front and 12" side.

* 2, 3, and 4 ton flushing connections 3/4" FPT. 5 ton flushing connections 1" FPT.
* 2 ton flushing connections accessible on the heat pump exterior.
* 3, 4, and 5 ton flushing connections accessible inside the lower access panel.

Performance Monitoring

The Dandelion Air comes with real-time monitoring and controls built in at no extra cost to provide the installer and homeowner with remote insight into system performance and streamline troubleshooting. An upcoming custom integration with the Nest Learning Thermostat and homeowner portal will enhance homeowner's visibility into their energy savings.

Reach out to a representative to learn more at info@dandelionenergy.com

MARKETPLACE

Dashboard

Sales

Installation

Monitoring

Inactive

Resources

Account Info

Dashboard

Monitoring

PROJECT	CITY	PHONE #	CURRENT TASK
John Anderson 12/09/2017 - 8:45 AM	Rhinebeck	(917) 920-9020	Proposal 12/08/2017 - 8:45 AM
Michelle Moynihan 12/13/2017 - 9:00 AM	Beacon	(917) 920-9020	Proposal 12/12/2017 - 9:00 AM
Joseph Dell 01/02/2018 - 1:27 PM	Rhinebeck	(917) 920-9020	Sales Contract 01/02/2018 - 1:27 PM
Stephanie Matthews 02/14/2018 - 2:00 PM	Poughkeepsie	(917) 920-9020	Sales Contract 02/14/2018 - 2:00 PM
Christopher Kim 3 days ago - 2:00 PM	Rhinebeck	(917) 920-9020	Sales Contract 3 days ago - 2:00 PM

DANDELION

July 23, 2020

RE: Insulation requirements for shallow header trench installations

To whom it may concern:

Dandelion requires excavation and header pipe installation to a minimum depth of 4 ft. below grade, and that depth be maintained from the ground loop location to the building entry point. This requirement is consistent with industry-accepted best practices.

However, there are cases where the minimum trench depth cannot be achieved without excessive complication, labor or cost. Dandelion has developed an alternative procedure for such cases, which is outlined in our Design & Installation Standards:

When the site conditions prevent the header trench from being excavated to the minimum 4 ft. depth, the exterior header piping shall be insulated with closed-cell pipe insulation. Additionally, foam board insulation (min. R10) shall be installed directly above and along the outer edges of the piping in the bottom of the trench for additional freeze protection. The width of the foam board insulation shall be sufficient to completely cover the header piping so that it cannot be seen from above prior to backfill.

The thermal conductivity of subsoil is typically on the order of 0.50-1.00 Btu/hr-ft-°F, depending on composition, density and moisture content. The thermal resistance of foam board insulation is $R=5 \text{ hr-ft}^2\text{-°F/Btu}$ (per inch of thickness). Using the steady-state conduction equation to calculate thermal equivalence ($R = L/kA$), it can be shown that adding 2 inch (R10) foam board insulation is comparable to adding 60 inches of soil depth, at minimum.

Although it is not ideal to install header piping at depths less than 4 ft. from the surface, the installation of foam board insulation in accordance with our Design & Installation Standards will compensate for the deficiency from a thermal performance and more importantly, from a freeze protection standpoint.

If you have any questions, feel free to contact me at rcarda@dandelionenergy.com.

Sincerely,

Ryan Carda, P.E.
Principal Engineer
Dandelion Energy, Inc.


July 23, 2020





335 Madison Ave, 4th Floor
New York, NY 10017

DANDELION

July 23, 2020

RE: Compliance with applicable codes and regulations

To whom it may concern:

Dandelion requires that all design and installation methods and materials comply with all applicable codes and standards, including ANSI/CSA/IGSHPA C448 Series-16 (*Design and installation of ground source heat pump systems for commercial and residential buildings*), M2105 of the 2015 International Residential Code (*Ground Source Heat Pump system Loop Piping*) and 2015 IECC Residential Provisions (*as cited by 2018 Connecticut State Building Code*).

We provide a set of internal Design & Installation Standards, Permit Drawings, and Master Service Agreements to enforce this requirement with third party contractors and internal installation crews alike.

Therefore, to the best of my knowledge, belief and personal judgment, our permit drawings, design and installation requirements, and scope of work comply with M2105 of the 2015 International Residential Code and 2015 CT IECC Residential Provisions.

If you have any questions, feel free to contact me at rcarda@dandelionenergy.com.

Sincerely,

Ryan Carda, P.E.
Principal Engineer
Dandelion Energy, Inc.


July 23, 2020





DANDELION

Re: Sediment control practices for permit application to install a ground loop as part of a geothermal heating and cooling system installation

To whom it may concern:

This letter summarizes Dandelion Energy's sediment control practices as part of our permit application for geothermal heating and cooling system installation. Dandelion implements industry accepted sediment control methods during drilling and trenching activities in general accordance with New York State Department of Conservation Standard Specifications for Erosion and Sediment Control.

The sediment control method(s) implemented on each project vary depending on site-specific conditions, but include one or more of the following measures:

- Mud Processor - Equipment used to manage and process drilling spoils by separating solid and fluid materials removed from the borehole.
- Containers - Drilling spoils are typically discharged directly into containers such as heavy-duty woven polypropylene sacks, impermeable 3-ply plastic pools, geotextile filter bags or lined roll-off containers during drilling.
- Stockpile Methods - In some instances, drilling spoils or excavated materials from trenching may be temporarily stockpiled and contained using silt fences and/or straw bale dikes to prevent runoff. Excavated material is typically returned to the trench on the same day.
- Dust Control - Water is sprayed to wet drilling spoils or excavated materials for dust control as needed.

These practices have been developed and are employed to ensure that the highest level of environmental protection is achieved as a normal part of system installation.

Thanks in advance for your consideration.

Sincerely,


July 23, 2020



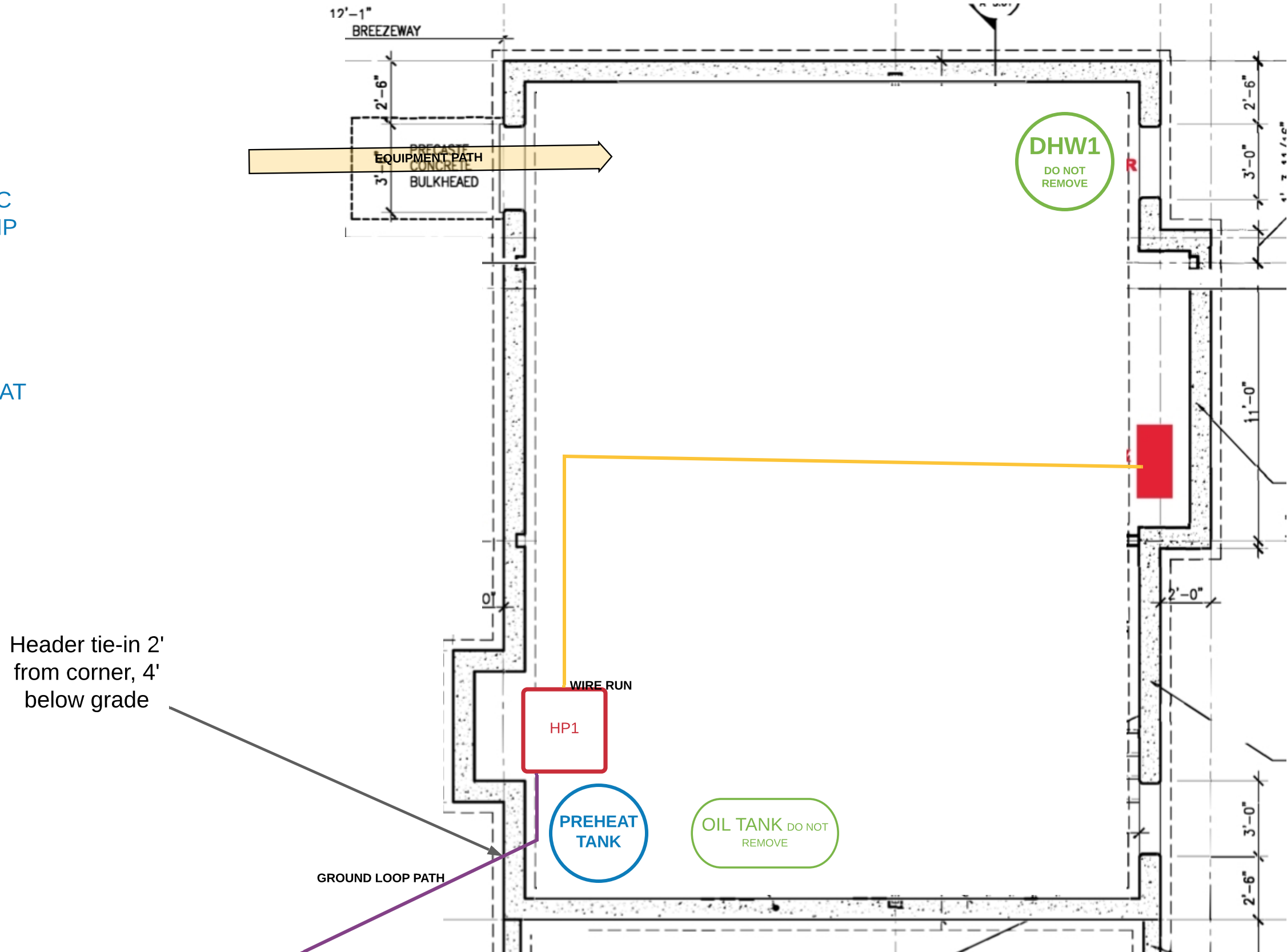
Ryan Carda, P.E.
Principal Engineer
Dandelion Energy, Inc.



335 Madison Ave, 4th Floor
New York, NY 10017

NEW EQUIPMENT TO BE INSTALLED

- HP1: DANDELION AIR HEAT PUMP P-4TLV
 - SUPPLY AIR: VERTICAL
 - RETURN AIR: LEFT SIDE
 - ELECTRICAL: 40AMP, 240VAC
 - AUXILIARY HEAT: YES, 60AMP 240VAC
 - DESUPERHEATER: YES, 50 GALLON STORAGE
 - THERMOSTAT: ECOBEE
 - DUCT ZONING: NONE
- PHT1: GEOTHERMAL PRE-HEAT TANK, 50 GALLON STORAGE



CONTRACTOR NAME: DANDELION ENERGY INC.	PROJECT NAME: Kamis, Jay	PROJECT ADDRESS: 104 West St, Andover, CT 06232	DESCRIPTION: EQUIPMENT INSTALL PLAN		PAGE: 1 OF 1
VERSION V2021.01	PROJECT ID: 21-062-0055	DATE: 2021-6-17	SCALE: SEE NTS	SIZE: ISO_B_11X17	

STATE OF CONNECTICUT ♦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

DANDELION ENERGY INC
1 CORPORATE DR
PEEKSKILL, NY 10566-1846

has satisfied the qualifications required by law and is hereby registered as a

HOME IMPROVEMENT CONTRACTOR

Registration # HIC.0659037

Effective: 12/01/2020

Expiration: 11/30/2021



Michelle Seagull, Commissioner

STATE OF CONNECTICUT

DEPARTMENT OF CONSUMER PROTECTION

450 Columbus Boulevard ♦ Hartford Connecticut 06103

Attached is your Home Improvement Contractor registration. This registration is not transferable. The Department of Consumer Protection must be notified of any changes to your registration within thirty (30) days of such change. Questions regarding this registration can be directed to the License Services Division at (860) 713-6000 or email dcp.licenseservices@ct.gov.

In an effort to be more efficient and Go Green, the department asks that you keep your email information with our office current to receive correspondence. You can access your account at www.elicense.ct.gov to verify, add or change your email address.

Visit our web site at www.ct.gov/dcp to verify registrations, download applications and the booklet for The Connecticut Contractor for Home Improvement and New Home Construction.

DANDELION ENERGY INC
1 CORPORATE DR
PEEKSKILL, NY 10566-1846

STATE OF CONNECTICUT

DEPARTMENT OF CONSUMER PROTECTION

HOME IMPROVEMENT CONTRACTOR

DANDELION ENERGY INC
1 CORPORATE DR
PEEKSKILL, NY 10566-1846

Registration #	Effective	Expiration
HIC.0659037	12/01/2020	11/30/2021

SIGNED

Dandelion Energy

GSHP Design Report

Project: Jay Kamins (Project ID:26460)
Prepared: 17-Jun-2021

Prepared By: Joe Venditti



System Loads

System Loads or Peak Loads are calculated based on a variety of details for an individual residence. Assumed occupancy levels, the number of appliances operating, the number of doors & windows and the tightness of the construction all contribute to the amount of energy required to maintain the thermostat set points given the historical extreme weather conditions in your area.

The peak loads used in this report were provided as listed in the following table.

1 kBtu/hr = 1,000 Btu/hr

Zone	Total Heating Load (kBtu/hr)	Total Cooling Load (kBtu/hr)	Zone SHF
Zone 1	42.05	26.57	0.900
Total	42.05	26.57	

Equipment Schedule

Based on the provided loads, the recommended heat pump schedule for this system is as follows:

High Cap.

Low Cap.

1 kBtu/hr = 1,000 Btu/hr

Zone	GSHP	QTY	Heat ¹ Cap. (kBtu/hr)	Cool ¹ Cap. (kBtu/hr)	Water ² Flow (GPM)	Air ³ Flow (CFM)
Zone 1	Dandelion Energy - Air 048	1	41.30	49.50	12.0	1,600
			31.20	40.27		
High Capacity Totals			41.30	49.50	12.0	
Low Capacity Totals			31.20	40.27	-	

- 1. All capacities shown are total.
- 2. When applicable, hydronic source and load water flows are assumed equal.
- 3. Air flow rates are reported on a per heat pump basis. For total air flow in a zone, multiply the reported air flow by quantity.

Equipment Efficiencies

The following efficiencies are for air systems, hot water generation efficiencies can be found on the hot water generation page.

NOTE: GSHP efficiencies shown below are system wide averages which include pumping and applicable resistance energy. Efficiencies for individual GSHP zones can be found on the zone pages.

Heating

GSHP (COP_{AVG})	3.54
Electric Resistance (COP_H)	1.00
ASHP (HSPF)	6.00
Natural Gas (AFUE)	88.00%
Propane (AFUE)	90.00%
Fuel Oil (AFUE)	80.00%
Old GSHP (COP)	2.80

Cooling

GSHP (EER_{AVG})	17.40
A/C (SEER)	15.00
ASHP (SEER)	15.00
Old GSHP (EER)	10.00

Zone 1

Zone Details

The peak loads for each individual zone are used to calculate the total amount of heating & cooling capacity required for a space based on the set points and the climate data for your area.

Peak Heating Load	42,045 Btu/hr	Peak Cooling Load	26,574 Btu/hr
Heating Set Point	70 °F	Cooling Set Point	75 °F
Heating Offset	0 Btu/hr	Space SHF	0.900

GSHP Selection

The ground source heat pump below has been selected to maintain comfortable heating & cooling for this zone.

Manufacturer Dandelion Energy
Model Air 048

Heat Pump Type Water to Air Capacity Dual Capacity # Heat Pumps 1

Installed Capacity Check

The installed capacity check describes the efficiency and total heating/cooling capacity of the selected ground source heat pump system. This information is used to ensure proper sizing of equipment based on the load represented by this zone.

Heating (High Capacity)

Heating Capacity 41,300 Btu/hr
% Sizing 98.2%
% Energy From Geo 99.5%
Installed COP 3.42
Balance Point Temp. 9.7 °F

Heating (Low Capacity)

Heating Capacity 31,200 Btu/hr
% Sizing 74.2%

Installed COP 3.84

Cooling (High Capacity)

Total Cooling Capacity 49,500 Btu/hr
Sensible Cooling Capacity 37,125 Btu/hr

% Oversizing 55.2%
Installed EER 13.81

Cooling (Low Capacity)

Total Cooling Capacity 40,265 Btu/hr
Sensible Cooling Capacity 30,198 Btu/hr

% Oversizing 26.3%
Installed EER 22.41

Zone 1

Zone Operating Summary

The Zone Operating Summary describes equipment runtime and the total annual power consumption for the GSHP operating in this zone.

Heating

High Capacity Runtime 507 hrs
Low Capacity Runtime 2,190 hrs
Supplemental Bin Hours 99 hrs
Dual Fuel Bin Hours 0 hrs
Heat Pump Energy Use 7,038 kWh
Pumping Energy Use 654 kWh
Supplemental Energy Use 135 kWh
Dual Fuel Energy Use 0 kWh

Cooling

High Capacity Runtime 0 hrs
Low Capacity Runtime 674 hrs

Heat Pump Energy Use 1,283 kWh
Pumping Energy Use 163 kWh

GSHP Operating Cost Breakdown for Zone Name

Based on the annual power consumption of the system and the price per kilowatt hour in your area the estimated cost to maintain the set points for this zone are as follows:

Heating

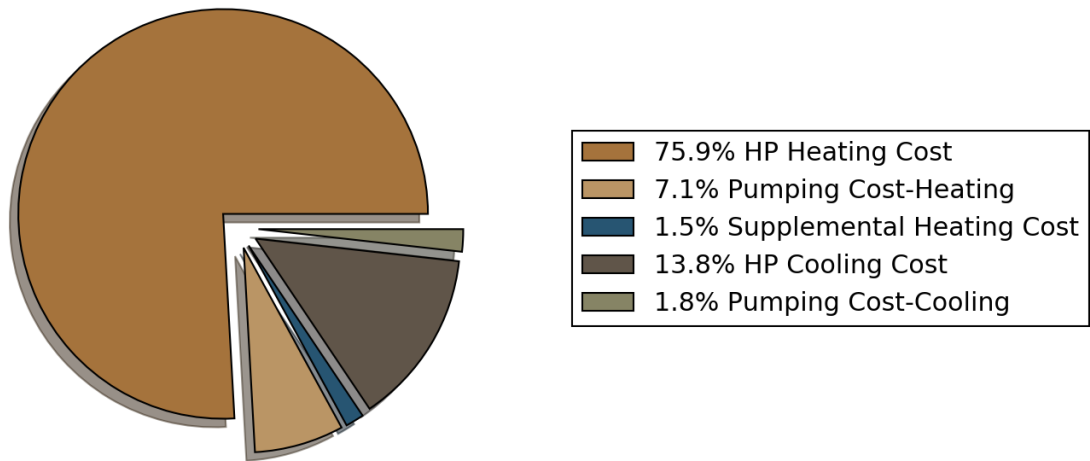
HP Cost \$1,689.36
Supplemental Cost \$32.48
Dual Fuel Cost \$0.00
Pumping Cost \$157.12

Total Cost \$1,878.96

Cooling

HP Cost \$308.03
Pumping Cost \$39.27

Total Cost \$347.30

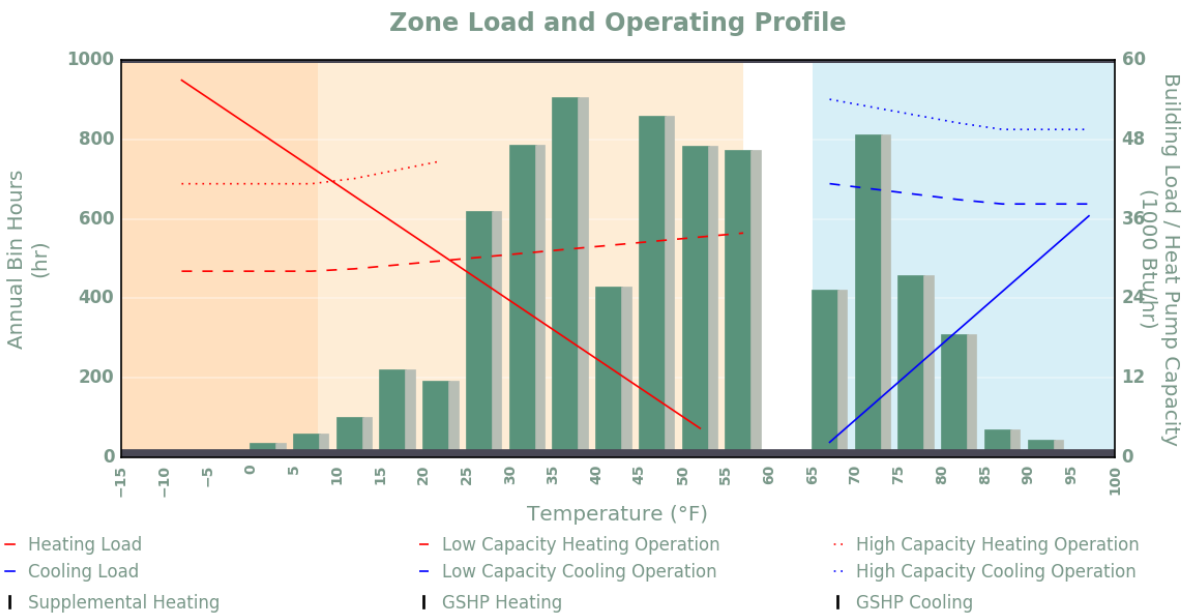


Back-Up System Details

Supplemental System Details

Supplemental systems operate at the same time as the geothermal heat pump and provide additional heat when the space load is greater than the system capacity.

Supplemental System Type Electric Resistance COP 1.0



Heating

Heating Start OAT 57.0 °F
High Capacity Runtime 507 hr
Low Capacity Runtime 2,190 hr
Supplemental Bin Hours 99 hr

Cooling

Cooling Start OAT 65.0 °F
High Capacity Runtime 0 hr
Low Capacity Runtime 674 hr

Hot Water Generation

System Options

Method of Operation Desuperheater

GSHP System

Zone(s) used in hot water generation.

Zone 1

GSHP Design Month Percentage of Total Hot Water 50%

GSHP Annual Percentage of Total Hot Water 40%

Conventional Hot Water System Details

The hot water generation system for this residence utilizes GSHPs that have already been defined for space conditioning purposes. Hot water generation does affect the loads for these zones and has been accounted for in the zone summaries.

Type Electrical Resistance COP 1.0 Fuel Cost \$0.24

Hot Water Generation Savings

The savings calculated are based solely on the operating cost comparison between the hot water generation system specified and a conventional hot water system.

Conventional System Annual Cost \$955.06

GSHP Annual Cost \$672.93

Annual Savings with GSHP \$282.13

Single Bore

Earth Temperature Data Location

Deep earth (below 20ft) temperature is a function of the average annual air temperature in your region and remains relatively constant regardless of season.

Deep Earth Temp (T_G) 54.0 °F

Formation Details

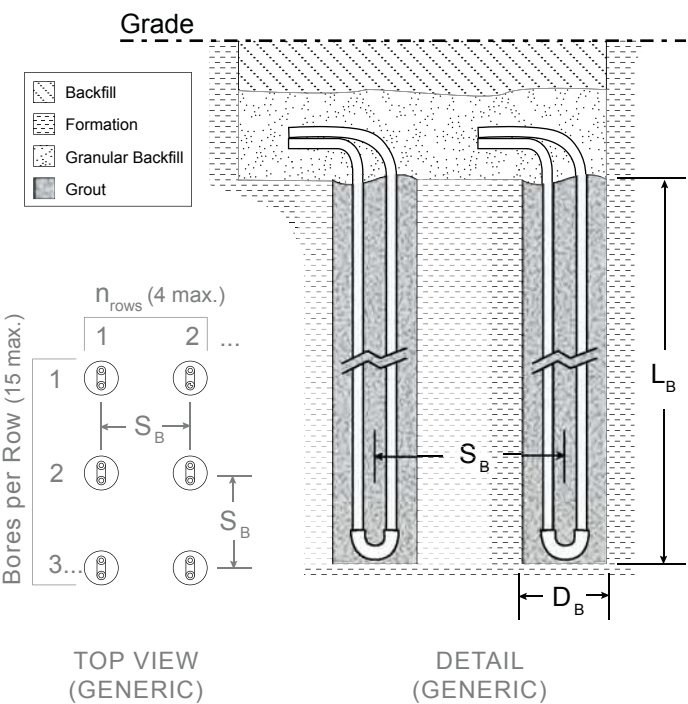
The thermal properties of your formation are based on the formation’s composition and have a direct impact on the scale of your loopfield.

Thermal Conductivity 1.64 Btu/hr ft °F

GHEX Summary

Heating is dominant.

Grout is used inside of all bores in order to protect the deep earth environment from surface contaminants and to provide a more effective contact surface with GHEX piping that optimizes heat transfer between the fluid pumped through your GSHP and the earth.



Grout T.C.	1.20 Btu/hr ft °F
$EW_{T_{MIN}}$	30.0 °F
$EW_{T_{MAX}}$	80.0 °F
Bore Diameter (D_B)	5.00 in
GHEX Pipe	1.25" DR 11.0 HDPE 4710
Bores in Series (N_{BIS})	1
Layout Rows (n_{rows})	1
Bores per Row	1
Number of Bores	1
Bore Spacing (S_B)	15.0 ft
Design Depth (L_B)	423 ft
Header Pipe	1.50" DR 11.0 HDPE 4710

Project Information

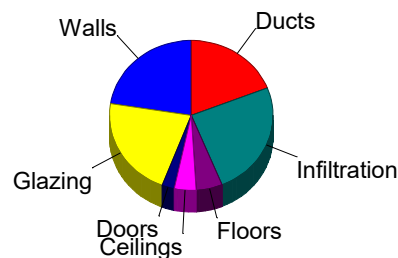
For: Jay Kamins
104 West St, Andover, CT 06232

Design Conditions

Location:		Indoor:		Heating	Cooling
Windham AP, CT, US		Indoor temperature (°F)		72	75
Elevation: 247 ft		Design TD (°F)		63	12
Latitude: 42°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		28.1	30.0
Outdoor:		Heating	Cooling		
Dry bulb (°F)		9	87		
Daily range (°F)		-	20 (M)		
Wet bulb (°F)		-	72		
Wind speed (mph)		15.0	7.5		
		Infiltration:			
		Method		Simplified	
		Construction quality		Average	
		Fireplaces		1 (Loose)	

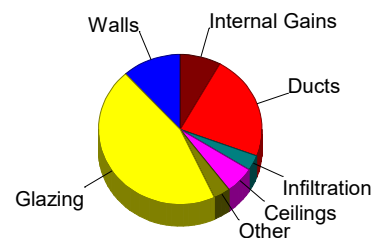
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	5.7	9437	22.4
Glazing	35.7	9149	21.8
Doors	24.5	1027	2.4
Ceilings	2.0	1822	4.3
Floors	2.4	2186	5.2
Infiltration	5.3	10422	24.8
Ducts		8002	19.0
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		42045	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.6	2724	11.6
Glazing	41.3	10572	45.2
Doors	9.0	378	1.6
Ceilings	1.5	1354	5.8
Floors	0.4	401	1.7
Infiltration	0.4	779	3.3
Ducts		5294	22.6
Ventilation		0	0
Internal gains		1890	8.1
Blower		0	0
Adjustments		0	0
Total		23393	100.0



Latent Cooling Load = 3181 Btuh
Overall U-value = 0.103 Btuh/ft²-°F

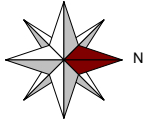
Data entries checked.

...\\Home\Desktop\customers\Jay Kamins\heatload.rup Calc = MJ8 Front Door faces: E

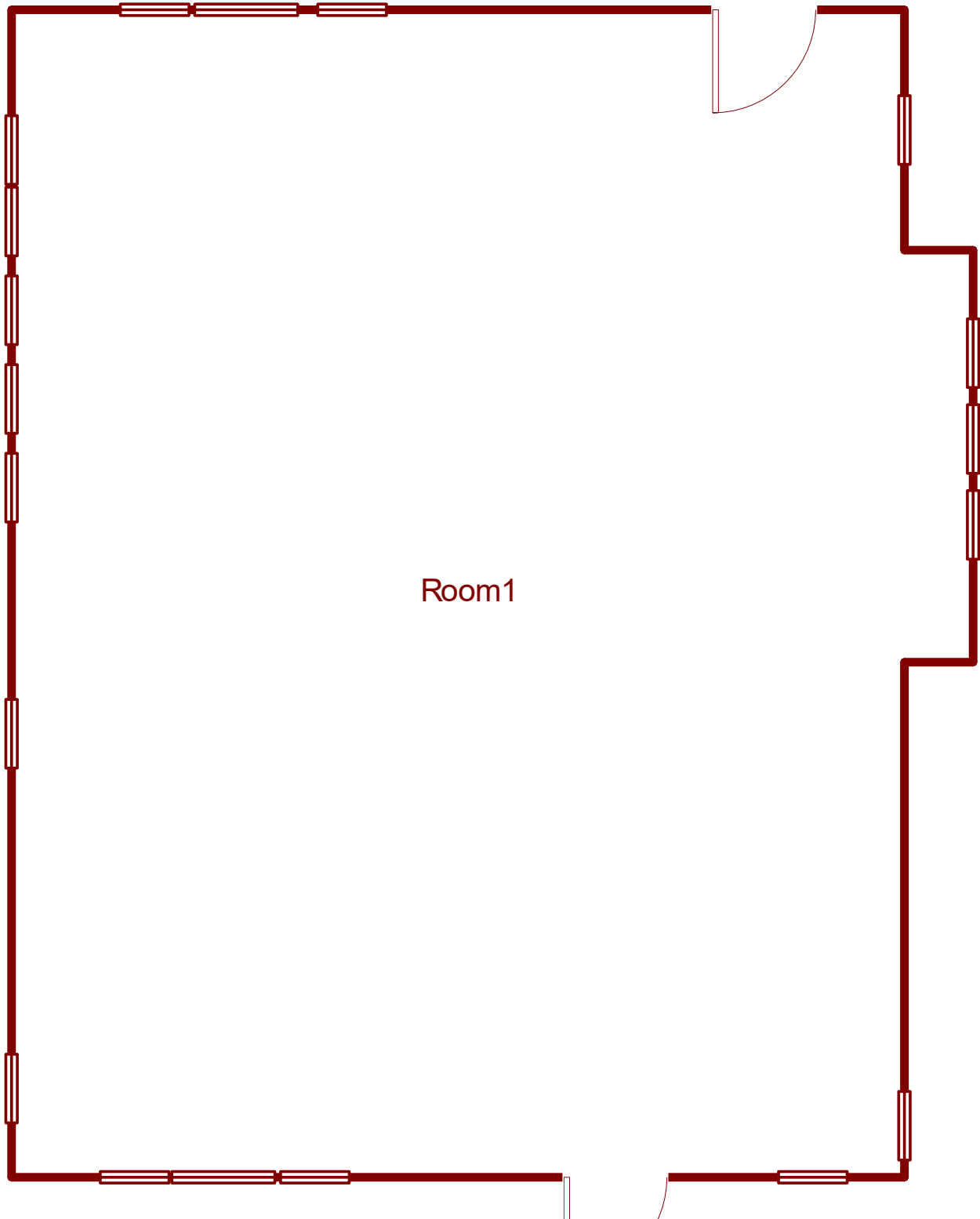
335 Madison Ave, 4th Floor, New York, NY 10017 Phone: 833-GEO-4ALL Email: design@dandelionenergy.com Web: www.dandelionenergy.com

1	Name of Room					Room2							
2	Running Feet of Exposed Wall					120.0 ft							
3	Ceiling Ht (Ft) and Gross Wall Area (SqFt)					8.0 ft 960.0 ft²							
4	Room Dimensions (Ft) and Floor Plan Area (SqFt)					26.0 x 34.0 ft 884.0 ft²							
5	Ceiling Slope (Deg.) and Gross Ceiling Area (SqFt)					0 ° 884.0 ft²							
Type of Exposure		Const., Number	Panel Faces	HTM		Area or Length	Btuh			Area or Length	Btuh		
				Htg.	Clg.		Heating	S-Clg	L-Clg		Heating	S-Clg	L-Clg
6 . . . 11	Wall	12C-0sw	n	5.71	1.65	272	1421	410					
	Glaz	1D-c2ov	n	35.74	17.28	23	822	397					
	Wall	12C-0sw	e	5.71	1.65	208	1050	303					
	Glaz	1D-c2ov	e	35.74	59.18	24	858	1420					
	Door	11D0	e	24.45	9.01	0	0	0					
	Wall	12C-0sw	s	5.71	1.65	272	1386	400					
	Glaz	1D-c2ov	s	35.74	30.65	29	1036	889					
	Wall	12C-0sw	w	5.71	1.65	208	1050	303					
	Glaz	1D-c2ov	w	35.74	59.18	24	858	1420					
	Door	11D0	w	24.45	9.01	0	0	0					
	Ceil	16B-30ad	-	2.01	1.49	884	1774	1318					
Flor	19A-19bswp	-	2.41	0.44	0	0	0						
12	Infiltration	Heating Load (Btuh)		Effect ACH	0.64	WAR 0.49	5126						
		Sensible Load (Btuh)			0.26			383					
		Latent Load (Btuh)											
13	Internal	a Occupants at 230 and 200 Btuh b Scenario number c Default Adjustments d Custom Appliances e Plants				3		690 0 0 0 0	600				
14	Subtotals	Sum lines 6 through 12					15380	7934					
15	Duct Loads	EHLF & ESGF		0.235	0.293		6101	4824					
		ELG							703				
16	Ventilation Loads	Vent Cfm	0	E Cfm	0								
17	Winter Humidification Load				Gal/Day	0							
18	Piping Load												
19	Blower Heat												
20	AED Excursion & Latent Moisture Migration Load							0					
21	Total Load					Sum lines 13 through 19			21482	12758			

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



First Floor

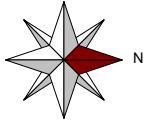


Room1

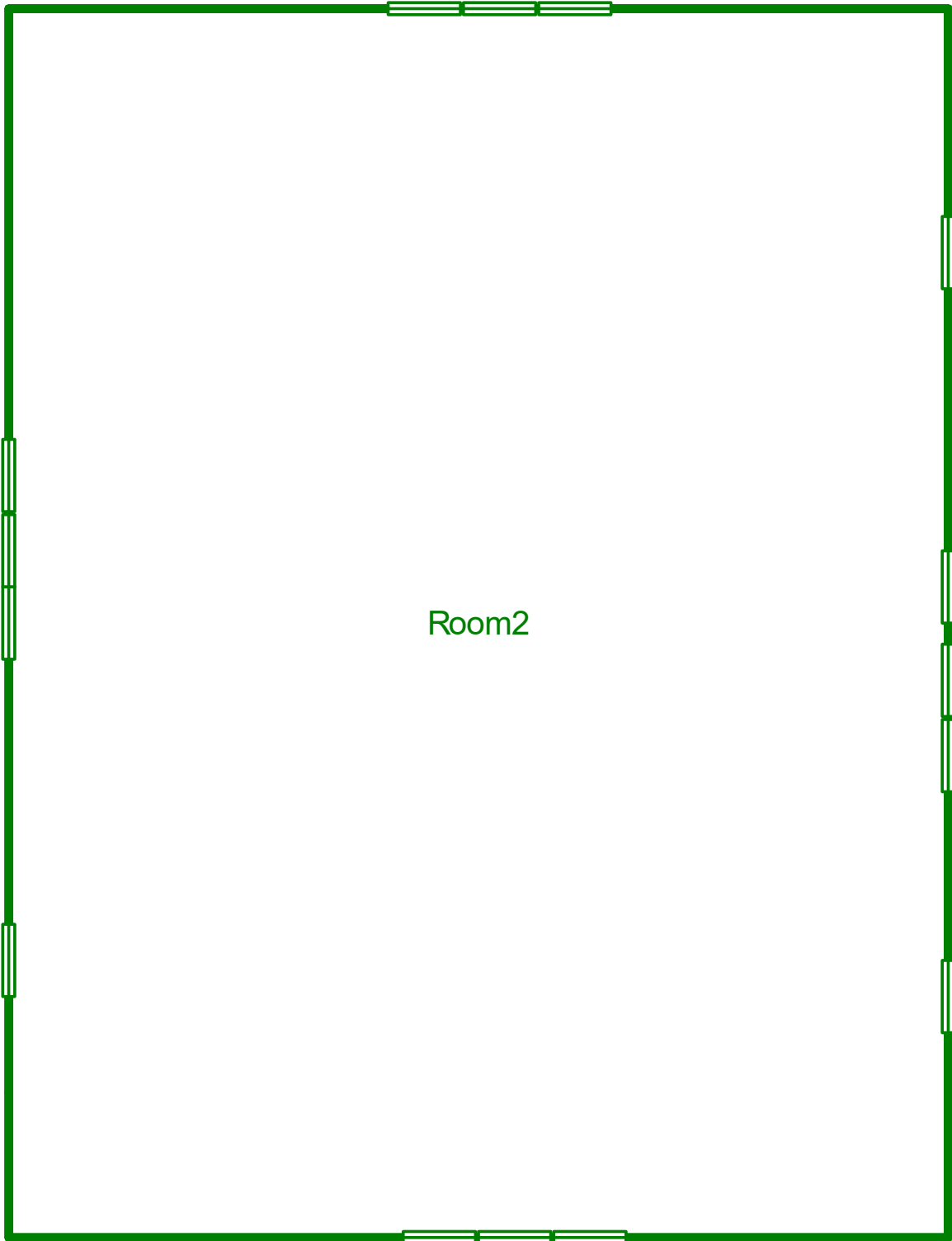
Job #: 21-062-0055
Performed for:
Jay Kamins
104 West St
Andover, CT 06232

Dandelion Energy
335 Madison Ave, 4th Floor
New York NY 10017
Phone: 833-GEO-4ALL
www.dandelionenergy.com design@dandelionenergy.com

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Page 1
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Second Floor



Job #: 21-062-0055
Performed for:
Jay Kamins
104 West St
Andover, CT 06232

Dandelion Energy
335 Madison Ave, 4th Floor
New York NY 10017
Phone: 833-GEO-4ALL
www.dandelionenergy.com design@dandelionenergy.com

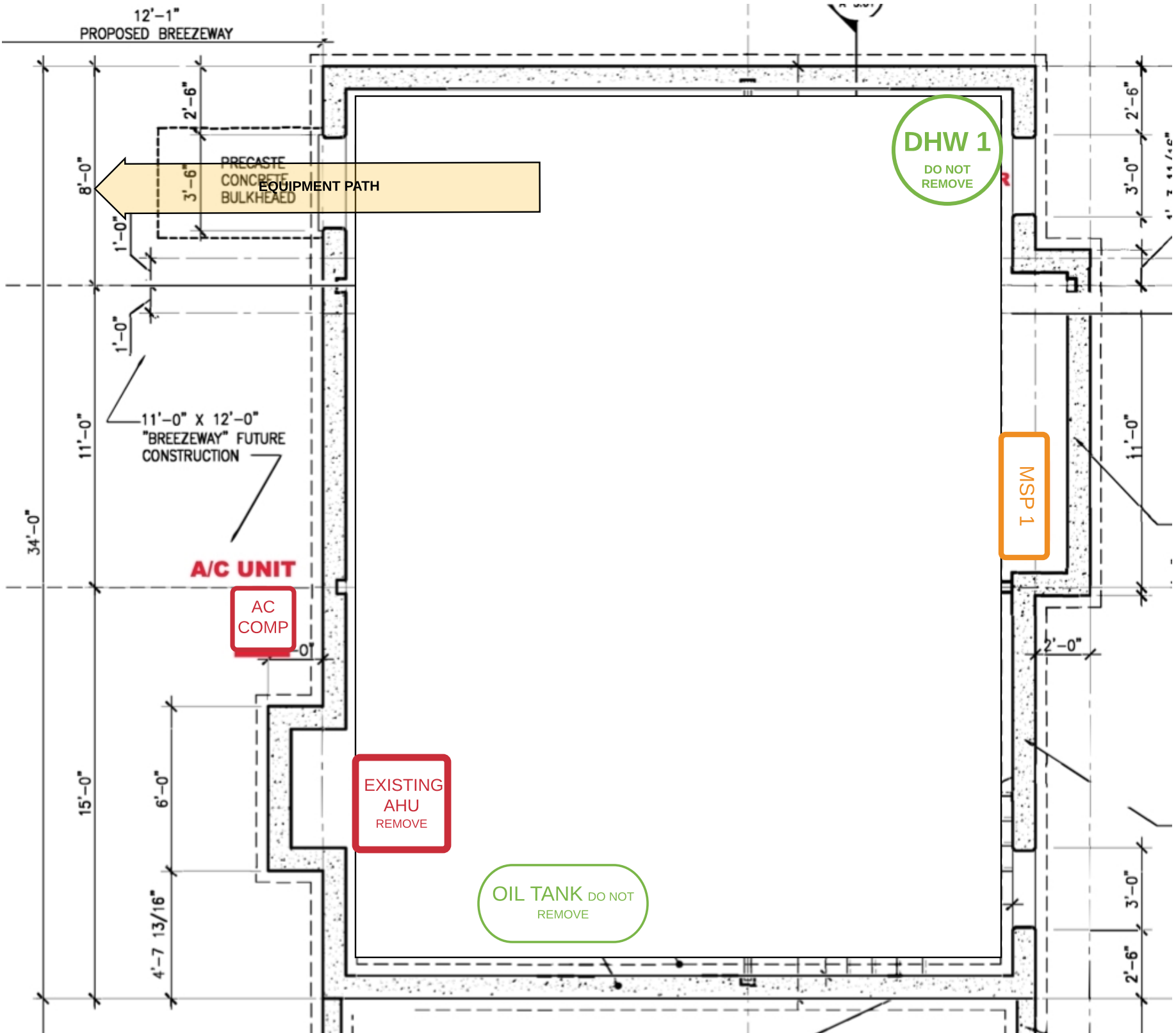
Scale: 1 : 53
Page 2
Right-Suite@Universal 2021
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2021-Jun-17 13:17:41
...customers\Jay_Kamins_heatload.rup

EXISTING EQUIPMENT TO BE REMOVED

- F1: EXISTING FURNACE
 - FUEL TYPE: FUEL OIL
- AC1: EXISTING AIR CONDITIONER CONDENSER AND EVAP COIL
 - REFRIGERANT TYPE: R-22

EQUIPMENT TO REMAIN IN PLACE

- WH1: EXISTING WATER HEATER
 - FUEL TYPE:ELECTRIC
 - 80 GALLON STORAGE
- MSP1: 200AMP MAIN SERVICE PANEL
- OIL TANK



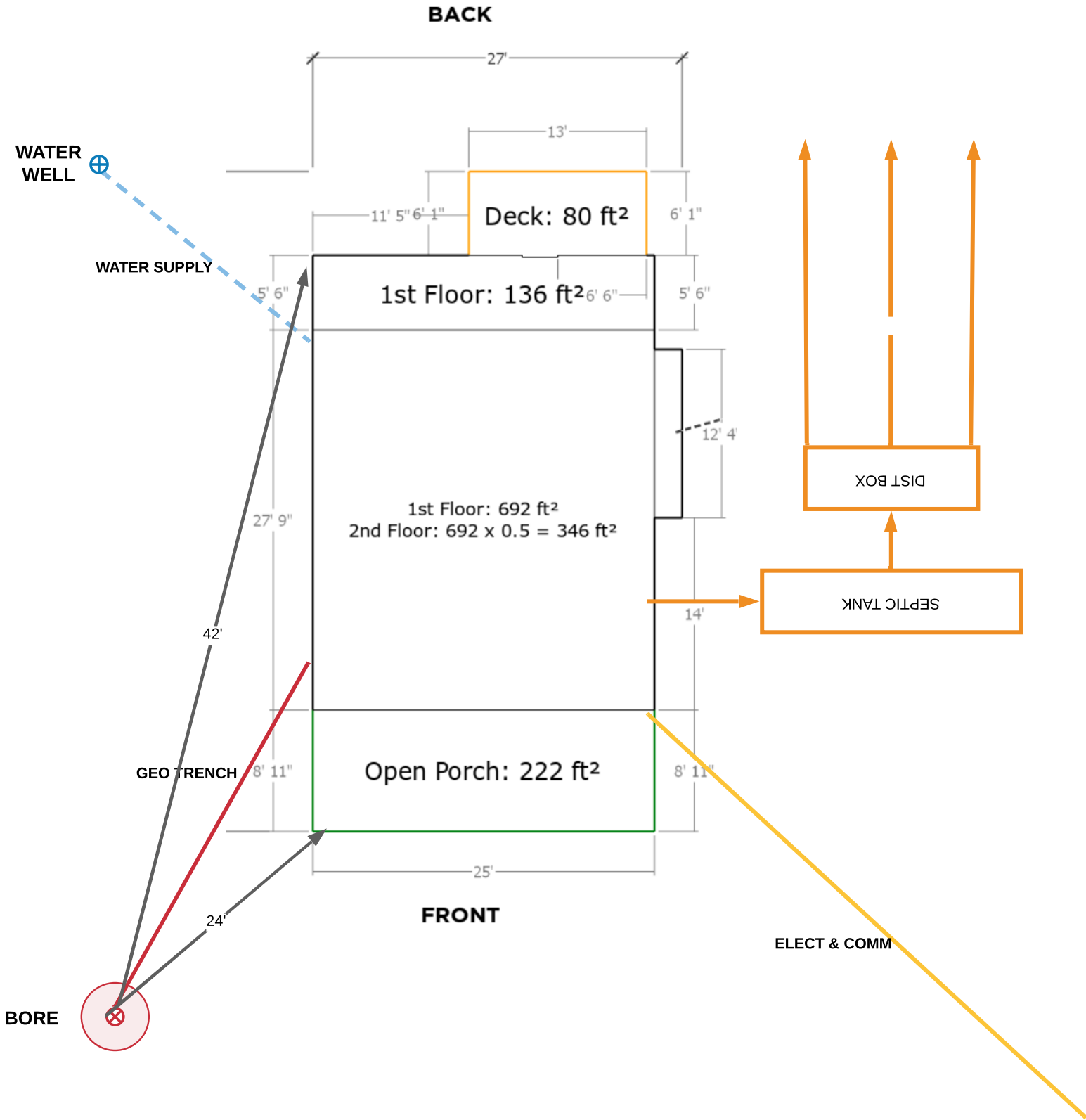
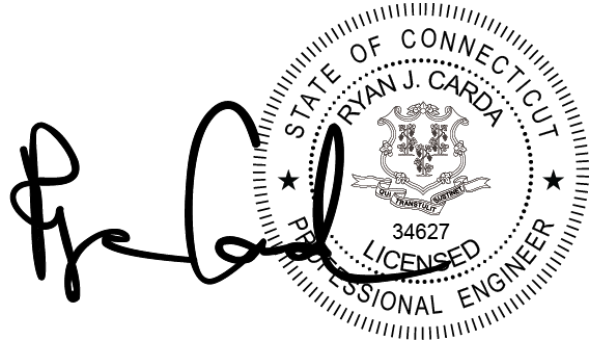
CONTRACTOR NAME: DANDELION ENERGY INC.	PROJECT NAME: Kamis, Jay	PROJECT ADDRESS: 104 West St, Andover, CT 06232	DESCRIPTION: EQUIPMENT REMOVAL PLAN		PAGE: 1 OF 1
VERSION V2021.01	PROJECT ID: 21-062-0055	DATE: 2021-6-17	SCALE: SEE NTS	SIZE: ISO_B_11X17	

DRILLING

- (1) BORES
- 423 FT DEPTH EACH
- 0 FT SPACING
- RIG ACCESS NOTES:
Some tree branches may need trimming on driveway

TRENCHING

- 1-1/2" HDPE EXTERIOR HEADER PIPE
- 40 FT TRENCH PATH



CONTRACTOR NAME: DANDELION ENERGY INC.	PROJECT NAME: Kamis, Jay	PROJECT ADDRESS: 104 West St, Andover, CT 06232	DESCRIPTION: CT SITE DETAIL PLAN		PAGE: 1 OF 1
VERSION V2021.01	PROJECT ID: 21-062-0055	DATE: 2021-6-17	SCALE: SEE NTS	SIZE: ISO_B_11X17	

TOWN OF ANDOVER, CT
BUILDING PERMIT APPLICATION
17 School Road, Andover, CT 06232

Ph: (860) 742-4036 x3 Email: buildingadmin@andoverct.org

DATE RECEIVED

Job Site Address: 104 West St, Andover, CT 06232, USA **Owner name:** Jay Kamins

Owner Address (if other than job site): _____

Owner Email: jaykamins@yahoo.com **Phone:** _____

APPLICANT (if other than owner): Dandelion Energy

Business Name: Dandelion Energy **Contact Name:** John DeVore

Email Address: JDeVore@DandelionEnergy.com **Contact Phone:** (845) 649-6073

Address: 333 North Bedford Road, Suite 220

City: Mount Kisco **State:** NY **Zip:** 10549

Please note that the fee calculation sheet on our website is an estimate. After submitting your application, we will contact you within 2 business days to discuss the permit fee. Please make checks out to "Town of Andover" and put the job site address on the memo line.

Job Estimate: \$13,750 Please include a written estimate

Total Square Footage: _____

Detailed Description of Work to be Done:

Install one 4 ton geothermal heat pump, closed loop system.

Certification: I hereby certify that ☐ I am the owner of record of the above named property or ☐ that the owner of record authorizes the proposed work and/or I have been authorized to make this application as an authorized agent, and we agree to conform to all applicable laws, regulations and ordinances. All information within is true to the best of my knowledge and belief.

Signature: _____ **Printed Name:** John DeVore

WOOD, COAL, PELLET STOVES AND GAS FIREPLACES

Type of Building

☒ Residential

☐ Commercial

☐ Other: _____

Construction

☐ Wood Frame

☐ Masonry

☐ Other: _____

Type of Stove or Insert

☐ Cast Iron

☐ Steel

☐ Shrouded

☐ Unshrouded

☐ Fireplace Insert

☐ Pellet Stove

Location of Stove in Structure: _____

Type of Chimney

☐ New or ☐ Existing Masonry

☐ New or ☐ Existing Metal

☐ Metalbestos

☐ Triple Wall

☐ Other: _____

Specific Clearances of Stove to Combustibles

Top: _____

Sides: _____

Rear: _____

Front: _____

Floor Protection: _____

Does floor protection on fuel loading side of stove extend 18" and 6" on all other sides? ☐ Yes ☐ No

Is stovepipe 18" from combustible materials? ☐ Yes ☐ No

Appliance specification sheets shall be provided for all gas and fireplace inserts

ROOFING PERMITS

Number of square feet of roofing to be installed: _____

Type of roof covering: _____

Material beneath roofing: _____ Number of layers present: _____

Removing layers: ☐ Yes ☐ No Felt Paper: ☐ Yes ☐ No Ice & Water: ☐ Yes ☐ No

Louver or Gable Vents: ☐ Yes ☐ No Ridge Vent: ☐ Yes ☐ No Nails per shingle: _____

SIDING PERMITS

Flashing is required above all structure openings

Type of siding: _____ Manufacturer: _____

Material beneath siding: _____ Sq. Ft. of siding: _____

Will electric meter be removed? ☐ Yes ☐ No Will all structure openings be wrapped? ☐ Yes ☐ No

STATE OF CONNECTICUT ♦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

BRIAN L ZIMMERLY

257 FLATBUSH AVE APT 3R
BROOKLYN, NY 11217-1101

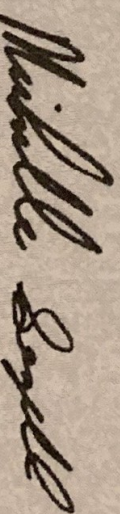
has been certified by the Department of Consumer Protection as a licensed

HEATING, PIPING & COOLING UNLIMITED CONTRACTOR

License # HTG.0409464-S1

Effective: 11/14/2020

Expiration: 08/31/2021



Michelle Seagull, Commissioner