

MEETING NOTICE

The **City of Stoughton** will hold a joint meeting of the **Planning Commission and Business Park North Committee** on **Monday, August 8, 2011 at 5:30 pm**, in the **Council Chambers**, Second Floor, **Public Safety Building**, 321 S. Fourth Street, Stoughton WI.

AGENDA:

1. Call to Order
2. Elect Chair and Vice-Chair.
3. Discuss meeting times and dates.
4. Consider approval of the Business Park North Committee meeting minutes of February 14, 2011; June 13, 2011; and July 11, 2011.
5. Request by Ryan Harkins of Trantow Properties, LLC for Certified Survey Map approval at 100 Business Park Circle.
 - Recommendation to Council
6. Request by Ryan Harkins of Trantow Properties, LLC to install a solar array for private use at 100 Business Park Circle.
7. Discuss Business Park North Committee role and membership on the Committee.
8. Future agenda items.
9. Adjournment.

Donna Olson, Mayor – Chair, Planning Commission
Randy McLaury – Chair, Business Park North Committee

7/28/11mps

Packets sent to:

Planning Commission

Mayor Donna Olson, Chair
Eric Hohol, Council member & Vice-Chair
Ron Christianson, Council member
Dave McKichan, Council member
Troy Wieser
Todd Krcma
Rollie Odland

Business Park North Committee

Randy McLaury, Chamber Rep., Chair
Keith Comstock, Vice-Chair
Dave Phillips, Chamber Executive Director
Mike Sasse, Chamber Rep.
Planning Director Rodney Scheel
Finance Director Laurie Sullivan
Ross Scovotti, Council member
Carl Chenoweth, Council member

cc: Zoning Administrator Michael Stacey (2 Packets)

Utilities Director Bob Kardasz (Packet)

Stoughton Newspapers (fax)

City Attorney Matt Dregne (e-mail)

Department Heads & Council Members (e-mail)

Pili Hougan (e-mail)

Area Towns (e-mail)

Derek Westby (email)

Trantow Properties, LLC, Ryan Harkins, 100 Business Park Circle, Stoughton

**“IF YOU ARE DISABLED AND IN NEED OF ASSISTANCE, PLEASE CALL 608-873-6677 PRIOR TO THIS MEETING.”
AN EXPANDED MEETING MAY CONSTITUTE A QUORUM OF THE COUNCIL.**

Business Park North Committee Meeting Minutes

Monday, February 14, 2011 - 9:00 a.m.

Public Safety Building, Council Chambers, Second Floor, 321 S. Fourth Street, Stoughton, WI.

Members Present: Randy McLaury, Chair; Keith Comstock, Vice-Chair; Dave Phillips; and Rodney Scheel.

Absent and Excused: Dick Entwistle; Laurie Sullivan; Dave McKichan; and Eric Olstad.

Staff: Street Superintendent, Karl Manthe; Zoning Administrator, Michael Stacey; Utilities Director, Bob Kardasz; Police Chief, Greg Leck and Mayor, Donna Olson.

Guests: Mike Sasse, Ted DeGroff and Mark Halverson.

- 1. Call to order.** McLaury called the meeting to order at 9:00 a.m.
- 2. Safety and security with the street lights.** Kardasz provided information regarding the policy for installation of street lighting. The group discussed pedestrian safety and possible modification of the street lighting at the southwest curve of the Business Park. Kardasz noted if the group decides they want to modify any of the street lighting, a request should be made to him and the request would go to the Utilities Committee and Council. Kardasz checked with his staff and found the lighting in the southwest curve of the Business Park is not the box type rather the lighting currently installed does illuminate farther out.
- 3. Snow plowing.** McLaury stated he has heard the snowplowing has improved. Manthe explained how streets are categorized for snow removal and noted the business park typically gets plowed sooner than where they are on the list. Comstock suggested the snow be plowed back farther toward the curb. Manthe stated he would talk to his plow driver about the timing of plowing the park and plowing closer to the curb.
- 4. Update on the City's overall marketing of the remaining lot and proposed business park expansion.** Mayor Olson stated there are ongoing discussions with the Moe family to expand the Park. The City has the remaining lot for sale and there are currently no offers. The group discussed the marketing history of the Business Park. Phillips stated he will seek including the vacant lot on the Chamber website.
- 5. Update on the Storage Shop property relating to the minimum asset value versus the actual assessment. What are the plans for this site going forward?** Scheel explained that due to the timing of the transition of the Finance Director position and new City Attorney, he believes the condition to require a minimum asset value for this property was missed on the purchase agreement.
- 6. Update on Stellar Services (fill dirt).** Scheel explained they have until May 30, 2011 to remove the pile of dirt as per the Dane County Land Conservation review.
- 7. Signage improvement for the Park.** The group discussed the need to spruce up the area around the sign for the Business Park. Manthe stated his staff can trim back the shrubbery and trees this spring.

- 8. Parking on the streets.** Scheel explained the final plat for the business park includes a path on both sides of the street which prohibits parking. Scheel stated the final plat would have to be amended to allow parking and an ordinance would also have to be approved for parking. Scheel also found the business park covenants may also need to be amended. Leck stated if a business has a special need for temporary parking, the business should contact him directly and work out arrangements. A lengthy discussion took place regarding parking in the street. After the meeting, Scheel found a bike lane is delineated on the southern portion of business park circle. Motion by **McLaury** to allow Comstock to contact the business park owners regarding allowing parking in the street within the park, 2nd by **Sasse**. Motion carried unanimously.

Planning Department Staff findings after the meeting.

Ordinance 70-176(47) prohibits parking at all times on both sides of Business Park Circle, Commerce Road and Progress Lane.

The Business Park North Plat identifies a bike lane on the south side of Business Park Circle (except the north leg that runs east and west), the east side of Progress Lane and the east side of Commerce Road.

The Covenants for Business Park North don't specifically state parking is not allowed on the streets contained within, however, it states the following: "All present and future vehicular parking, including trucks, trailers, employee and visitor parking shall be provided on the premises and shall comply with all the provisions of the applicable Stoughton City Zoning regulations."

- 9. Mike Sasse joining the committee in place of Dick Entwistle.** A discussion took place regarding the process to replace Entwistle with Sasse. Mayor Olson stated a letter of resignation is expected from Entwistle. Motion by **Phillips** to have Sasse join the business park north committee, 2nd by **Comstock**. Motion carried unanimously.
- 10. Any other business as deemed necessary.** None
- 11. Adjournment.** Motion by **Phillips** to adjourn, 2nd by **Comstock**.

MINUTES OF THE JOINT MEETING OF THE BUSINESS PARK NORTH COMMITTEE AND PLANNING COMMISSION

Monday June 13, 2011 – 5:30 P.M.
Council Chamber, Public Safety Building
321 S. Fourth Street, Stoughton, WI.

Present:

Business Park North Committee: Keith Comstock, Vice-Chair; Director of Planning & Development, Rodney Scheel; Dave Phillips; and Ross Scovotti.

Planning Commission: Mayor Donna Olson, Chair; Ron Christianson; Todd Krcma and Rollie Odland.

Absent and Excused: Mike Sasse; Randy McLaury; Eric Hohol; Troy Wieser; Laurie Sullivan; and Carl Chenoweth

Guests: John Bieno and Ted Cone

Press: Mark Ignatowski

Staff: Director of Planning & Development Rodney Scheel and Zoning Administrator Michael Stacey.

1. **Call to Order:** Mayor Olson called the meeting to order at 5:50 p.m.
2. **Elect Chair and Vice-Chair.** Motion by **Scheel** to **Table** until the next meeting, 2nd by **Comstock.** Motion carried unanimously.
3. **Discuss meeting times and dates.** Motion by **Scheel** to **Table** until the next meeting, 2nd by **Comstock.** Motion carried unanimously.
4. **Consider approval of the Business Park North Committee meeting minutes of February 14, 2011.** Motion by **Scheel** to **Table** until the next meeting, 2nd by **Comstock.** Motion carried unanimously.
5. **Request by TJK Design Build, representing Heckman & Associates, Inc. to approve construction of a new building at Park Place, 160 Business Park Circle.**
Scheel introduced the request. John Bieno of TJK Design Build explained the request.

Motion by **Phillips** to approve the construction of a new building at 160 Business Park North contingent on the staff review letter dated June 7, 2011, 2nd by **Comstock.** Motion carried 8 - 0.
6. **Any other business as deemed necessary.** None discussed
7. **Adjournment:** Motion by **Scheel** to adjourn at 6:00 pm, 2nd by **Comstock.** Motion carried 8 – 0.

Respectfully submitted,
Michael Stacey

MINUTES OF THE BUSINESS PARK NORTH COMMITTEE
Monday July 11, 2011 – 5:30 P.M.
Council Chamber, Public Safety Building
321 S. Fourth Street, Stoughton, WI.

Present:

Business Park North Committee: Randy McLaury, Chair; Keith Comstock, Vice-Chair; and Laurie Sullivan

Absent and Excused: Mike Sasse; Rodney Scheel; Dave Phillips; Carl Chenoweth and Ross Scovotti.

Guests: Ron Christianson

Press: None

Staff: Zoning Administrator Michael Stacey.

Meeting was cancelled due to lack of a quorum at 5:45 pm.

Respectfully submitted,
Michael Stacey

Good morning Michael,

Just wanted to give you another update regarding our project. We are planning to propose moving the dividing lot line between our two lots to allow for the solar system. I have a surveyor coming Wednesday, and we are aiming to have the CSM to you by Friday, July 8th.

The lot line will only be moved some 12' or so, which will make our project work, and still have the South lot meet the required minimum size of at least 1 acre. I will drop off a check to City Hall for both fees on Tuesday of next week.

The elevation drawings of the solar array are in progress, and I will provide those when I have them in hand. The system will be shorter than originally mentioned, with the high side being only around 9 feet tall.

Also, this request is NOT from Thermal Design, Inc. Thermal Design is just a tenant of the Troll Way Centre office building. The request is from Trantow Properties, LLC.

Thanks a lot for your guidance on this. We look forward to moving this project ahead, and promoting green energy here in the City of Stoughton.

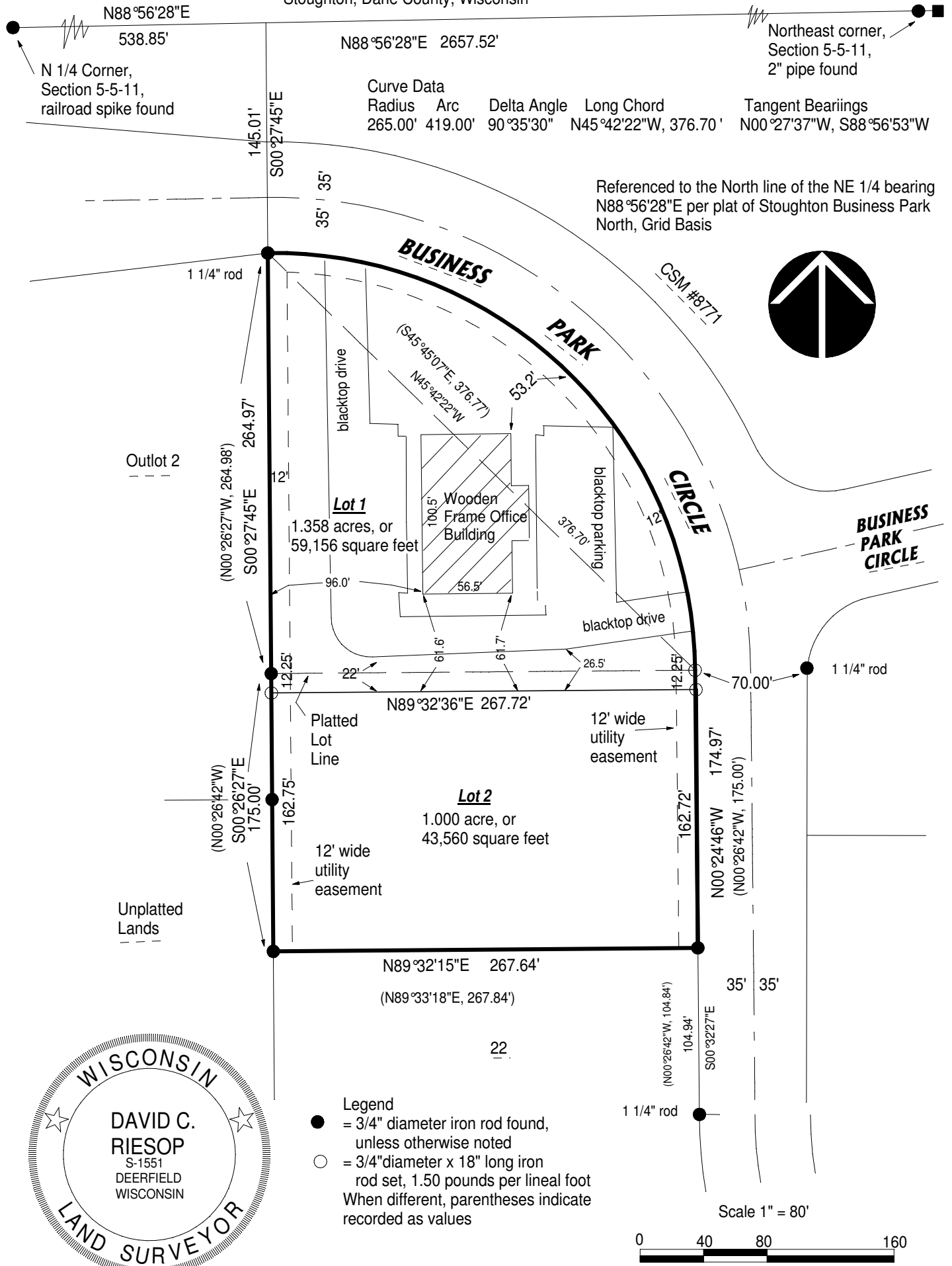
Ryan Harkins

Work: (608) 873-8170

Cell: (608) 712-7862

Certified Survey Map

Lots 23 and 24, Stoughton Business Park North, being in the NW 1/4 of the NE 1/4 of Section 5, T.5N., R.11E., City of Stoughton, Dane County, Wisconsin



Wisconsin Mapping, LLC
 * surveying and mapping services
 306 West Quarry Street, Deerfield, Wisconsin 53531
 (608) 764-5602

Dwg. No. 4078-11 Date 7/06/2011
 Sheet 1 of 2
 Document No. _____
 C. S. M. No. _____ V. _____ P. _____

Certified Survey Map

Owner's Certificate

As owner, I hereby certify that I have caused the land described on this certified survey to be surveyed, divided, and mapped as represented on this certified survey map.

Trantow Properties LLC: by

Dan Harkins, Managing Member

STATE OF WISCONSIN)
COUNTY OF DANE)ss.

Personally came before me this ____ day of _____, 2011, the above named owner to me known to be the person who executed the foregoing instrument and acknowledged the same.

Notary Public, Dane County, Wisconsin
my commission expires _____.

Surveyor's Certificate

I hereby certify that in full compliance with the provisions of Chapter 236.34 of the Wisconsin Statutes and the subdivision regulations of the City of Stoughton, and by the direction of Ryan Harkins, agent for, the owner, I have surveyed, divided and mapped the lands described hereon, and that such map correctly represents the exterior boundaries of the lands surveyed, and that this land is located within and more fully described to wit:

Lots 23 and 24, Stoughton Business Park North, being in the NW 1/4 of the NE 1/4 of Section 5, T.5N., R.11E., City of Stoughton, Dane County, Wisconsin, being more fully described as follows:

Commencing at the N 1/4 corner of Section 5; thence N88°56'28"E along the North line of the NE 1/4, 538.85 feet; thence S00°27'45"E, 145.01 feet to the Northwest corner of Lot 24 of the Stoughton Business Park North, and the point of beginning; thence S00°27'45"E, 264.97 feet to the Southwest corner of said lot; thence S00°26'27"E, 175.00 feet to the Southwest corner of Lot 23 of said business park; thence N89°32'15"E, 267.64 feet to the Southeast corner of said lot; thence N00°24'46"W, 174.97 feet to the Northeast corner of said lot and the point of curvature of a curve to the left, said curve having a central angle of 90°35'30" and a radius of 265.00 feet, the long chord of which bears N45°42'22"W, 376.70 feet; thence Northwesterly along the arc of said curve, 419.00 feet to the point of beginning. The above described containing 2.358 acres, or 102,716 square feet.

David C. Riesop S-1551



City Approval

This Certified Survey Map, having been approved by Plan Commission action of _____ and Common Council action of _____, is hereby approved for recording.

City Clerk, City of Stoughton

Register of Deeds Certificate

Received for recording this ____ day of _____, 2011 at _____ o'clock ____ M. and recorded in Volume _____ of Certified Surveys, Pages _____.

Kristi Chlebowski, Register of Deeds

Wisconsin Mapping, LLC

* *surveying and mapping services*
306 West Quarry Street, Deerfield, Wisconsin 53531
(608) 764-5602

Dwg. No. 4078-11 Date 7/06/2011

Sheet 1 of 2

Document No. _____

C. S. M. No. _____ V. _____ P. _____

CITY OF STOUGHTON, 381 E. MAIN STREET, STOUGHTON, WISCONSIN

RESOLUTION OF THE PLAN COMMISSION

Approving a Certified Survey Map (CSM) for Trantow Properties, LLC at 100 Business Park Circle, Stoughton, Wisconsin.

Committee Action:

Fiscal Impact: None.

File Number: R- -2011

Date Introduced: August 23, 2011

WHEREAS, on August 8, 2011, the City of Stoughton Planning Commission reviewed the Certified Survey Map approval request by Trantow Properties, LLC for property located at 100 Business Park Circle, Stoughton, Wisconsin; and

WHEREAS, this Certified Survey Map was reviewed by the City Director of Planning & Development and Zoning Administrator and found to be in compliance with the Business Park North Covenants, City Zoning ordinance and Land Division ordinance; and

WHEREAS, the City Zoning Administrator has confirmed the Certified Survey Map will not interfere with and is consistent with the City's Comprehensive Plan; now therefore

BE IT RESOLVED by the Common Council of the City of Stoughton that the Certified Survey Map request by Trantow Properties, LLC for property located at 100 Business Park Circle, Stoughton, Wisconsin, is hereby approved, as presented.

Council Action: **Adopted** **Failed** **Vote** _____

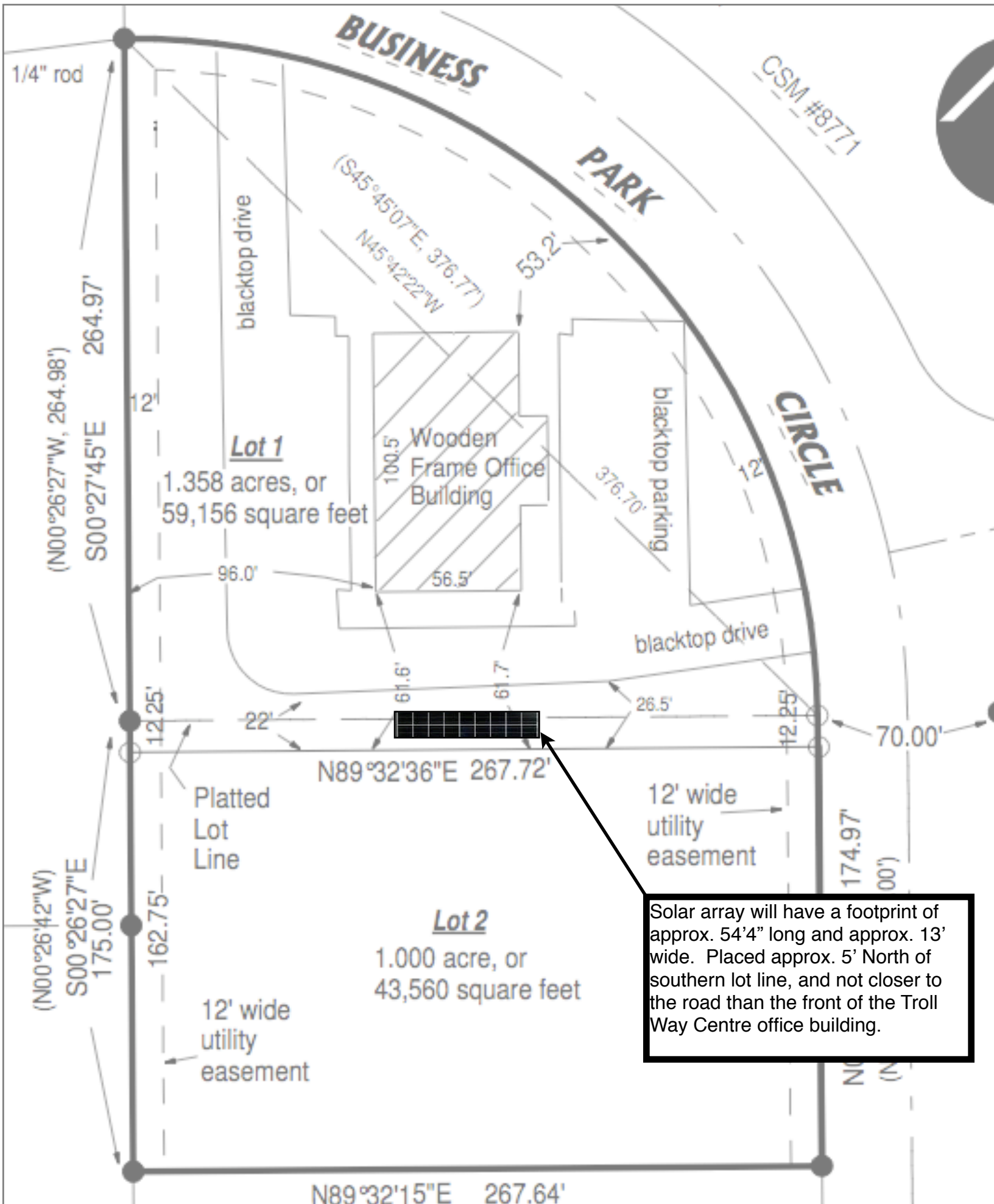
Mayoral Action: **Accept** **Veto**

Donna Olson, Mayor

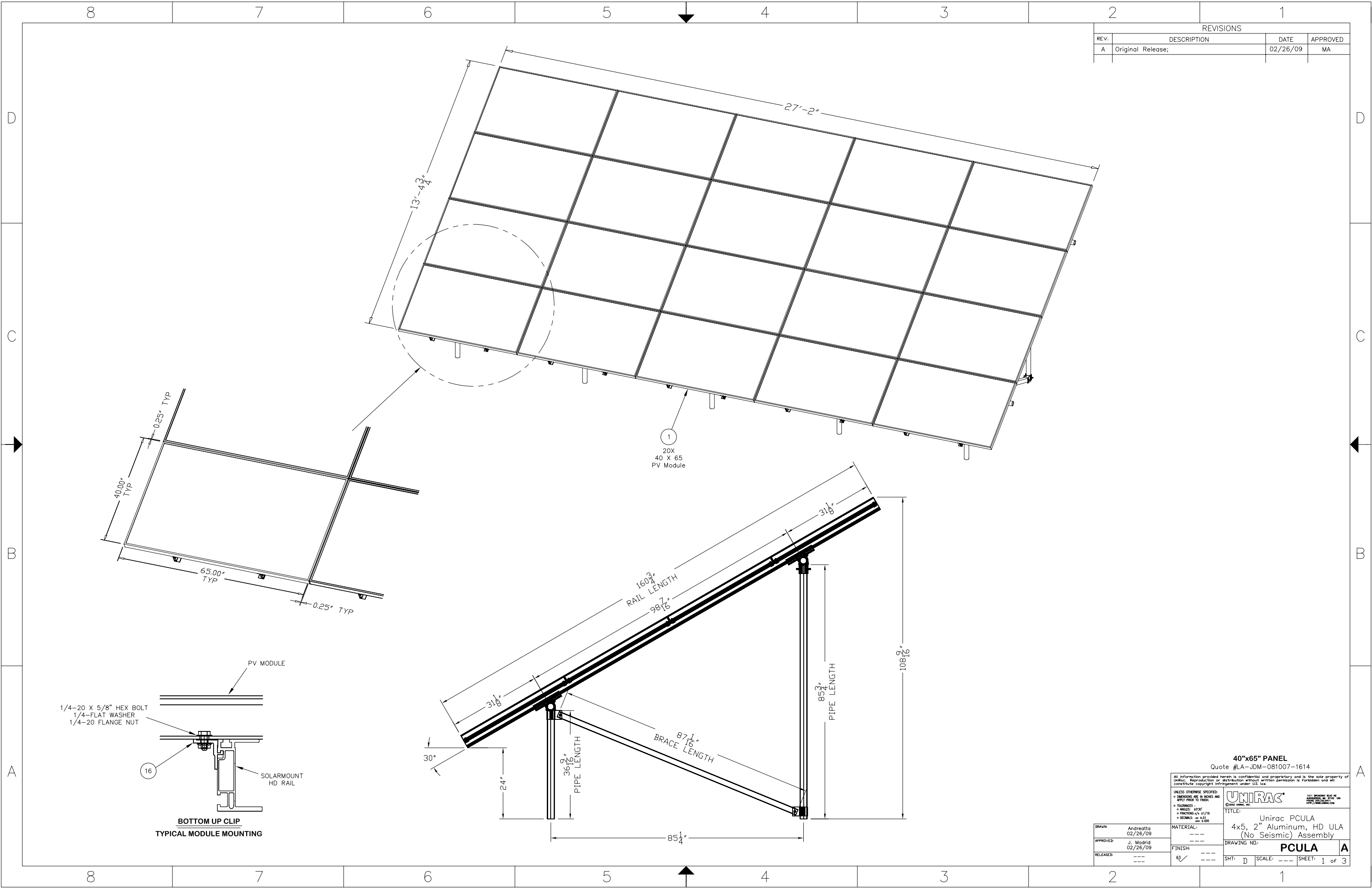
Date

Council Action: _____ **Override** **Vote** _____

Troll Way Centre Proposed Solar Project Plan



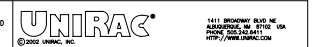
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	Original Release,	02/26/09	MA



40"x65" PANEL
Quote #LA-JDM-081007-1614

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UNLESS OTHERWISE SPECIFIED:
 • DIMENSIONS ARE IN INCHES AND APPLY PRIOR TO FINISH.
 • TOLERANCES:
 • ANGLES: ±0.30°
 • FRACTIONS: 1/16" ±0.015
 • DECIMALS: ±0.01 and ±0.005



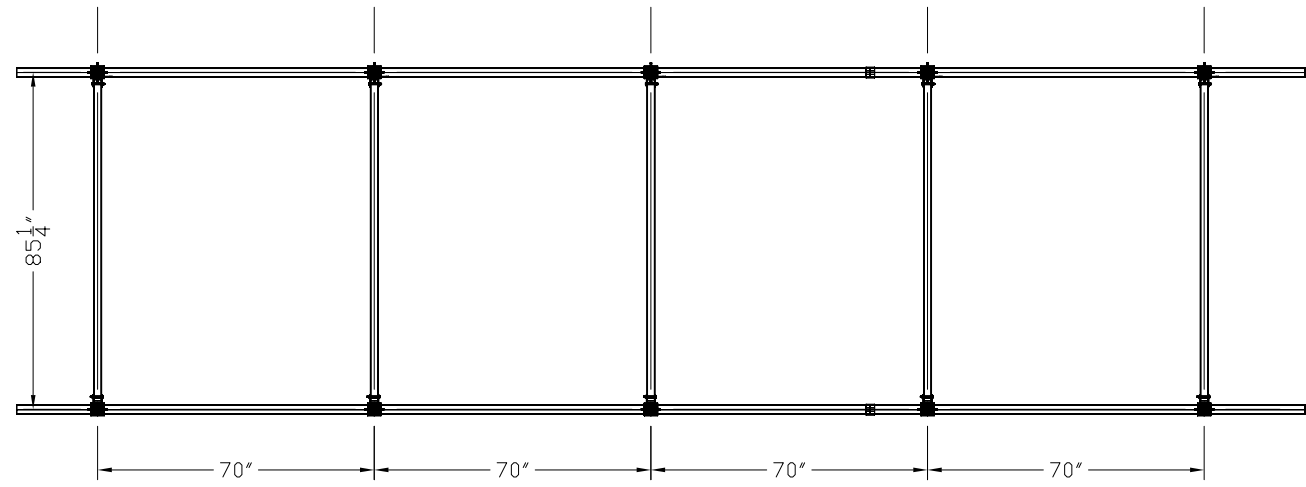
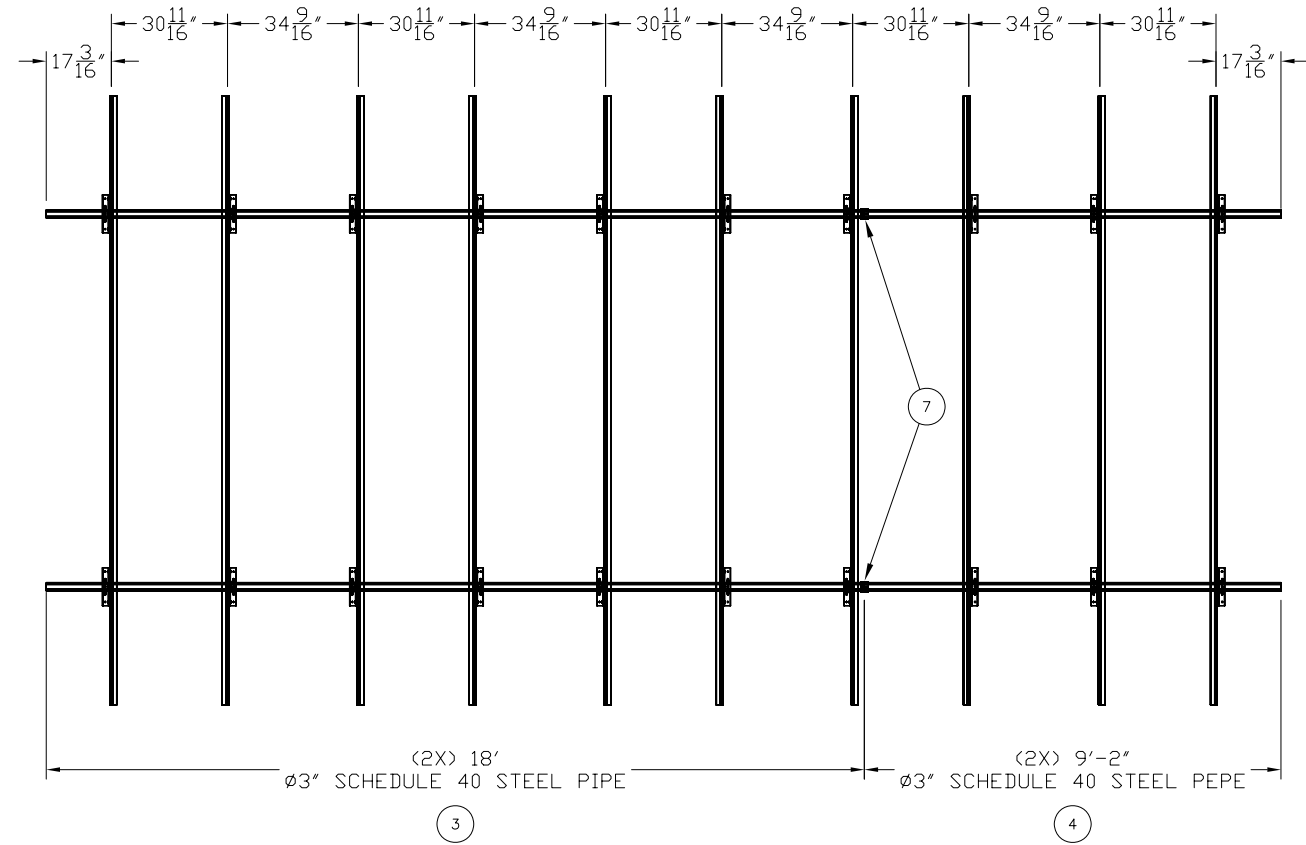
TITLE: Unirac PCULA
4x5, 2" Aluminum, HD ULA
(No Seismic) Assembly

DRAWN: Andreatta
02/26/09
APPROVED: J. Madrid
02/26/09
RELEASED: ---

MATERIAL: ---
FINISH: ---
63 ✓

DRAWING NO: PCULA
SHT: D SCALE: --- SHEET: 1 of 3

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	Original Release,	02/26/09	MA



40"x65" PANEL
Quote #LA-JDM-081007-1614

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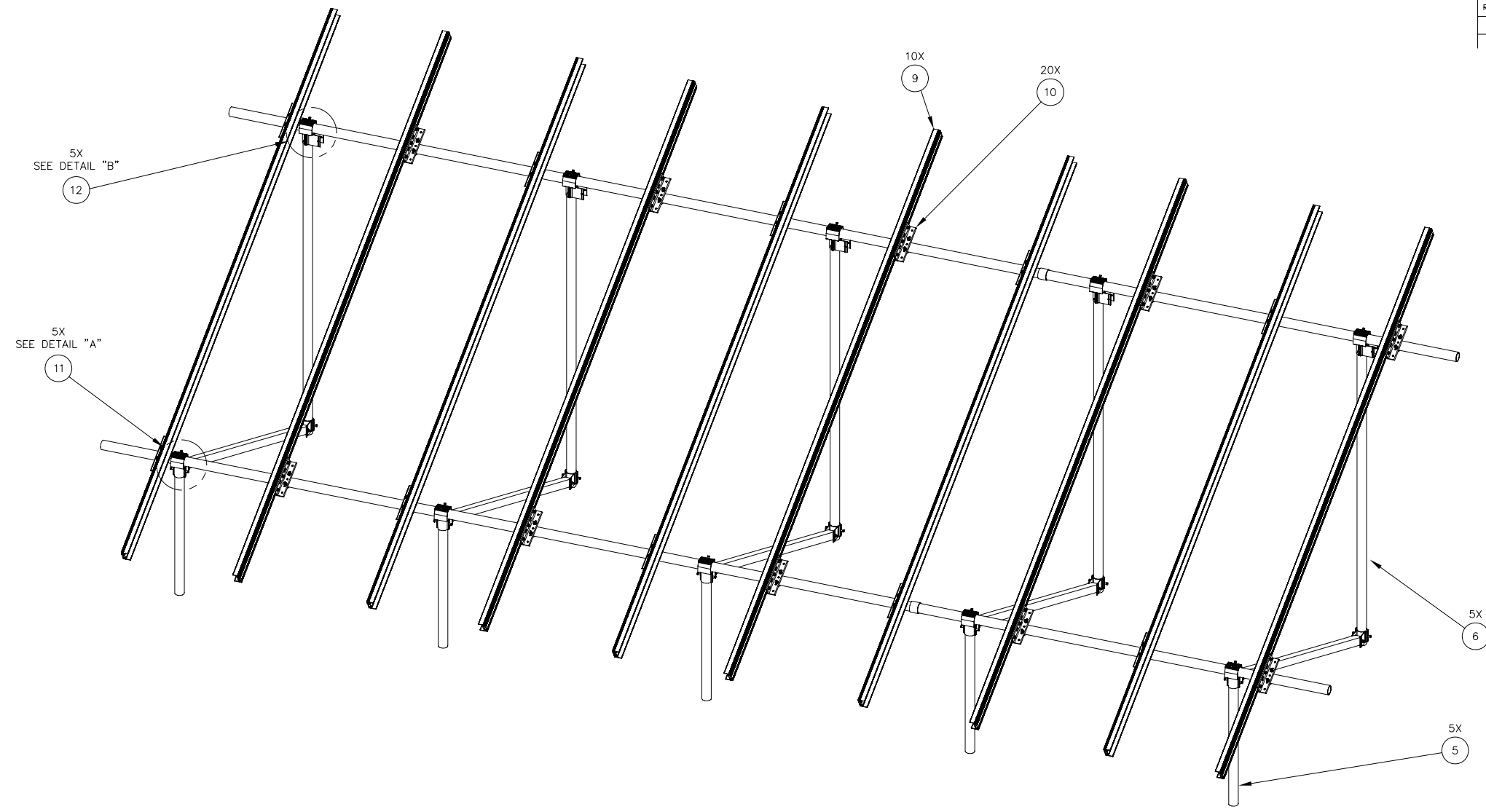
UNLESS OTHERWISE SPECIFIED:
 • DIMENSIONS ARE IN INCHES AND APPLY PRIOR TO FINISH.
 • TOLERANCES:
 ° ANGLES: ±0.3°
 • FRACTIONS: 1/16
 • DECIMALS: ±0.01 and ±0.05

UNIRAC
1411 BROADWAY SUITE 400
ROSELAND, NJ 07068
TEL: 973.224.4477
WWW.UNIRAC.COM

TITLE: Unirac PCULA
4x5, 2" Aluminum, HD ULA
(No Seismic) Assembly

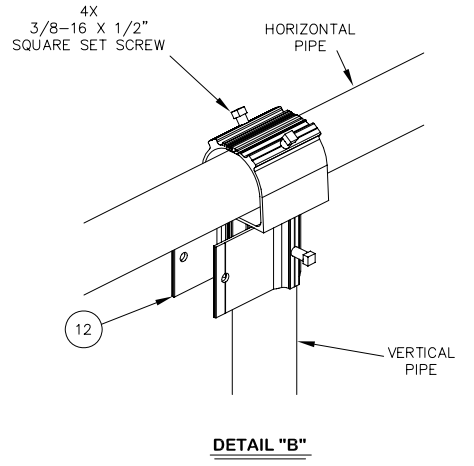
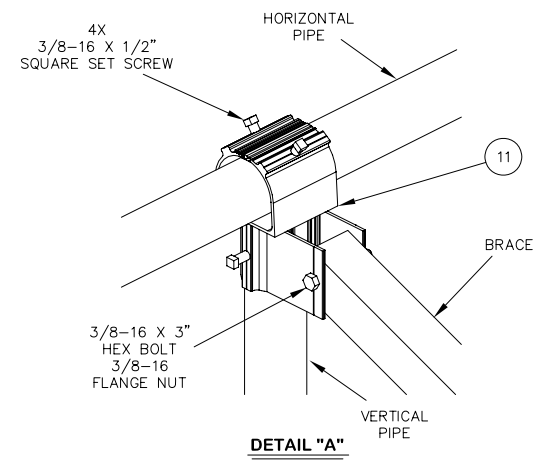
DRAWN: Andreatto 02/26/09	MATERIAL: ---	DRAWING NO: PCULA	SHT: D SCALE: --- SHEET: 2 of 3
APPROVED: J. Madrid 02/26/09	FINISH: ---		
RELEASED: ---	63 ✓		

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	Original Release	02/26/09	MA



NOTES:
 1. 40" X 65" PV MODULES NOT SHOWN FOR CLARITY.
 SEE SHEET 1.

ITEM	PART #	MFG	DESCRIPTION	QTY
1	-----	---	Photovoltaic (PV) Module	20
2	-----	---		
3	-----	---	2" Schedule 40 Steel Pipe (18' Long)	2
4	-----	---	2" Schedule 40 Steel Pipe (9' 2" Long)	2
5	-----	---	2" Schedule 40 Steel Pipe (36-9/16" Long)	5
6	-----	---	2" Schedule 40 Steel Pipe (85-3/4" Long)	5
7	-----	---	2" Steel Pipe Coupler	2
8				
9	301011	UniRac	SolarMount HD Rail 168" (Cut to 160-3/4")	10
10	330104	UniRac	SolarMount ULA 2" Rail Mounting Bracket	20
11	330019	UniRac	ULA 2" Aluminum Front Cap	5
12	330020	UniRac	ULA 2" Aluminum Rear Cap	5
13	330021	UniRac	ULA 2" Aluminum Slider	5
14				
15	330102	UniRac	ULA 2" Aluminum Square Brace (10.5')	5
16	321001	UniRac	SolarMount Bottom Up Clip w/Hardware	80
17				



40"x65" PANEL
 Quote #LA-JDM-081007-1614

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UNIRAC
UNIRAC, INC. 1411 BROADWAY SUITE 400
 FORT COLLINS, CO 80526 USA
 WWW.UNIRAC.COM

TITLE: Unirac PCULA
 4x5, 2" Aluminum, HD ULA
 (No Seismic) Assembly

DRAWING NO: **PCULA**

DRAWN: Andreatto 02/26/09
 APPROVED: J. Madrid 02/26/09
 RELEASED: ---

MATERIAL: ---
 FINISH: ---

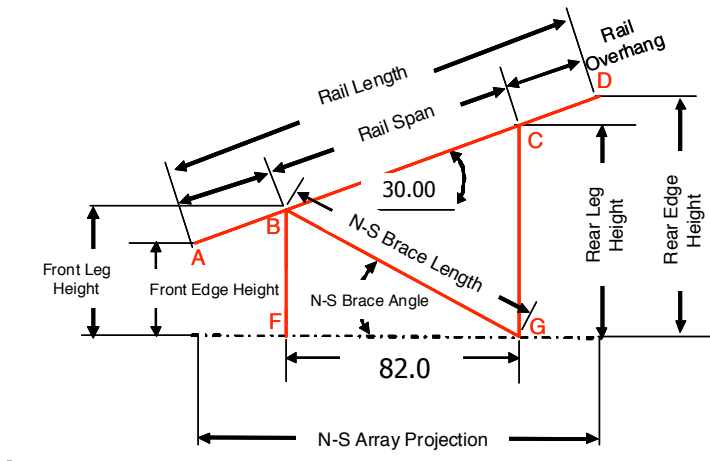
SHT: D SCALE: --- SHEET: 3 of 3

Project Troll Way Centre		Quote DRB-LA-110701-1047	
Project Id: WEB-	Customer: Thermal Design Inc	Contact: Ryan Harkins	Revision 0
Address1:	Address:	Phone: (608) 873-8170	Preparer danb
Address2:	Address2:	Phone2:	
City, ST, Zip: , 53589	City, ST, Zip: Stoughton, WI53589	Email: ryanh@thermaldesign.com	

ULA Geometry

Complete

Module Specification				Sub-Array Configuration				ULA Totals	
Kyocera - KD215GX-LPU				# Rows:	4	Column N-S Length (in):	157	# SubArrays:	1
N-S Dim (in):	39	N-S Spacing (in):	0.25	# Columns:	12	Array E-W Dimension (in):	712	Total Modules:	48
E-W Dim (in):	59.1	E-W Spacing (in):	0.25	SubArray Modules:	48	Array N-S Projection (in):	136	ULA Power Rating (kW):	10.32
Thickness (in):	1.8	Power Rating (W):	215	Rails Per Module:	2				
Orientation:	L	Weight (lbs):	39.7	Extended Rail (in):	0				



Member Description	Variables	Standard	Revised	Units
Rail Length (in):	AD	157	157	in
Tilt Angle (deg):	θ	30	30	degrees
Rail Span:	BC	94.2	94.69	in
Rail Overhang:	AB, CD	31.4	31.16	in
Front Edge Height:	AE	24	24	in
Rear Edge Height:	DH	102.5	102.5	in
Front Leg Length:	BF	39.7	39.58	in
Rear Leg Length:	CG	86.8	86.92	in
N-S Cross Brace Length:	BG	141.65	91.05	in
N-S Cross Brace Angle:	β	16.28	25.77	degrees
N-S Leg Spacing:	FG	135.97	82	in

Project Troll Way Centre

Quote DRB-LA-110701-1047

Project Id: WEB-

Customer: Thermal Design Inc

Contact: Ryan Harkins

Revision 0

Address1:

Address:

Phone: (608) 873-8170

Preparer danb

Address2:

Address2:

Phone2:

City, ST, Zip: , 53589

City, ST, Zip: Stoughton, WI53589

Email: ryanh@thermaldesign.com

Wind Load Calculations

Complete

Wind Load Variables

Tilt Angle (deg):	30
Array Height above ground:	0
Exposure Category:	B
Basic Wind Speed, V (mph):	90.00
Importance Factor:	0.87
Roof Zone Multiplier:	1

MWFRS Wind Load Calculation

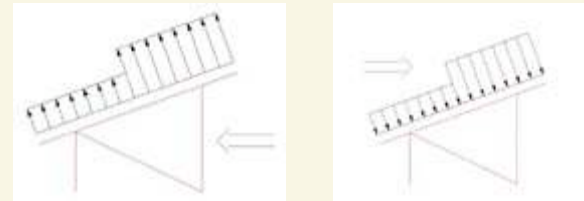
$$q_h = 0.00256K_z K_{zt} K_d V^2 I (lb / ft^2)$$

Adjustment Factor for height and Exposure Category	Kz:	0.57
Topographic Factor (assumed to be 1 for level ground)	Kzt:	1
Directionality Factor	Kd:	0.85
Wind Load (psf)	qh:	8.74

Maximum Loads (psf)

	Uplift	Down Force
Front Leg:	-13.37	19.32
Rear Leg:	-18.57	15.6

ASCE 7-05 Open Building Unobstructed Wind Flow Coefficients, Cn



	Load Case A	Load Case B	Load Case A	Load Case B
Front Leg	-1.8	-0.5	2.1	2.6
Rear Leg	-1.8	-2.5	2.1	1
Average	-1.8	-1.5	2.1	1.8

ASCE 7-05 MWFRS Open Buildings Wind Load

Gust Effect Factor (G): 0.85 $p = q_h G C_n$

	Load Case A	Load Case B	Load Case A	Load Case B
Cn (Front Leg):	-13.37	-10	15.6	19.32
Cn (Rear Leg):	-13.37	-18.57	15.6	10
Cn (Avg):	-13.37	-11.14	15.6	13.37

Project Troll Way Centre	Quote DRB-LA-110701-1047		
Project Id: WEB-	Customer: Thermal Design Inc	Contact: Ryan Harkins	Revision 0
Address1:	Address:	Phone: (608) 873-8170	Preparer danb
Address2:	Address2:	Phone2:	
City, ST, Zip: , 53589	City, ST, Zip: Stoughton, WI53589	Email: ryanh@thermaldesign.com	

Combination Load Analysis

Complete

Load Combination Variable (psf)	
Dead Load:	6.06 Assumed
Snow Load:	14.3

Max Load Results (psf)		
	Down Force	Uplift
Front Leg:	32.22	-9.17
Rear Leg:	29.43	-14.37
Max (Absolute):	29.43	

Load Combination Factors			
	Dead Load	Snow Load	Wind Load
Load Case 1 (downforce):	1	1	0
Load Case 2 (downforce):	1	0	1
Load Case 3 (downforce):	1	0.75	0.75
Load Case 4 (uplift):	0.6		1

Front Leg Load Combinations (psf)		
	Wind Load Case A	Wind Load Case B
Load Case 1 (downforce):	21.3	21.3
Load Case 2 (downforce):	22.6	26.32
Load Case 3 (downforce):	29.43	32.22
Max Downforce:	29.43	32.22
Load Case 4 (uplift):	-9.17	-5.8

Rear Leg Load Combinations (psf)		
	Wind Load Case A	Wind Load Case B
Load Case 1 (downforce):	21.3	21.3
Load Case 2 (downforce):	22.6	17
Load Case 3 (downforce):	29.43	25.23
Max Downforce:	29.43	25.23
Load Case 4 (uplift):	-9.17	-14.37

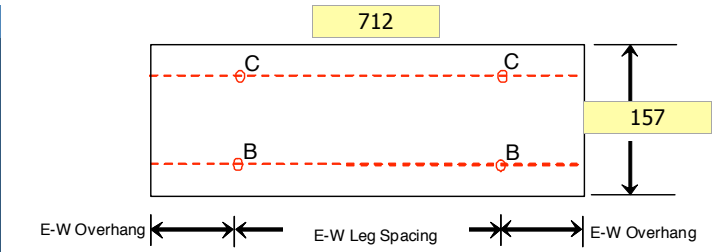
Project Troll Way Centre		Quote DRB-LA-110701-1047	
Project Id: WEB-	Customer: Thermal Design Inc	Contact: Ryan Harkins	Revision 0
Address1:	Address:	Phone: (608) 873-8170	Preparer danb
Address2:	Address2:	Phone2:	
City, ST, Zip: , 53589	City, ST, Zip: Stoughton, WI53589	Email: ryanh@thermaldesign.com	

Horizontal Pipe Design

Complete

Pipe Design Inputs	
Pipe Span (E-W Leg Spacing):	74
Number of Leg Pairs:	10
Horizontal Pipe Overhang (in):	24.53 ₀

Pipe Design Loads (psf)	
Front Leg (psf):	32.22
Rear Leg (psf):	29.43
Maximum absolute value of Load Combination Loads	



Pipe Material Specifications	
Pipe Selection:	2 in. Schedule 40
Modulus of Elasticity, E (psf):	4.18E+09
Moment of Intertia, I (ft^4):	0.0000302
Section Modulus, Z (ft^3):	0.000413
Yield Stress, Fy (psf):	5040000
Array Width (in):	712
Rail Length (in):	157

Description	Front Horizontal Pipe		Rear Horizontal Pipe	
	Max	Revised	Max	Revised
Max Distributed Load (plf):	210.77	210.77	192.52	192.52
Pipe Span (in):	82.54	73.66	82.54	73.66
Allowable Bending Moment (lb-ft):	1246.42	1246.42	1246.42	1246.42
Actual Bending Moment (lb-ft):	1246.48	992.7	1138.55	906.75
Actual/Allowable Moment:	100%	80%	91%	73%
Allowable Total Deflection L/70 (in):	1.18	1.05	1.18	1.05
Actual Deflection (in):	0.58	0.37	0.53	0.34
Actual/Allowable Deflection:	49%	35%	45%	32%

Project Troll Way Centre		Quote DRB-LA-110701-1047	
Project Id: WEB-	Customer: Thermal Design Inc	Contact: Ryan Harkins	Revision 0
Address1:	Address:	Phone: (608) 873-8170	Preparer danb
Address2:	Address2:	Phone2:	
City, ST, Zip: , 53589	City, ST, Zip: Stoughton, WI53589	Email: ryanh@thermaldesign.com	

Rail Bending

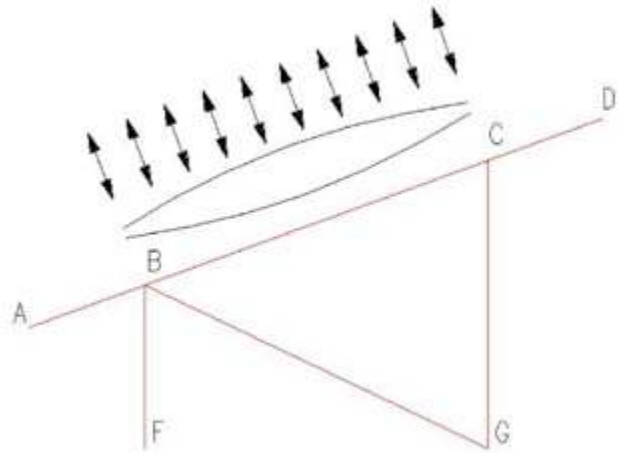
Complete

Rail Design Variables	
Rail Length (in):	157
Rail Overhang (in):	31.16
Rail Span (in):	94.69

Rail Distributed Load Calculation	
Maximum Average Design Load (psf):	29.43
Module Dim Perpendicular to Rails (in):	59.1
Rails Per Module:	2
Distributed Load (plf):	72.47

Rail Material Specifications	
Rail Selection: SolarMount HD	
E (psf):	1.45E+09
I (ft^4):	0.0000697
Z (ft^3):	0.000522
Fy (psf):	2736000

Rail Bending Calculations	
Allowable Bending Moment (lb-ft):	1428.19
Actual Bending Moment (lb-ft):	564.05
Actual/Allowable Moment:	39%
Allowable Deflection (in):	1.35
Actual Deflection (in):	0.43
Actual/Allowable Deflection:	32%



Project Troll Way Centre

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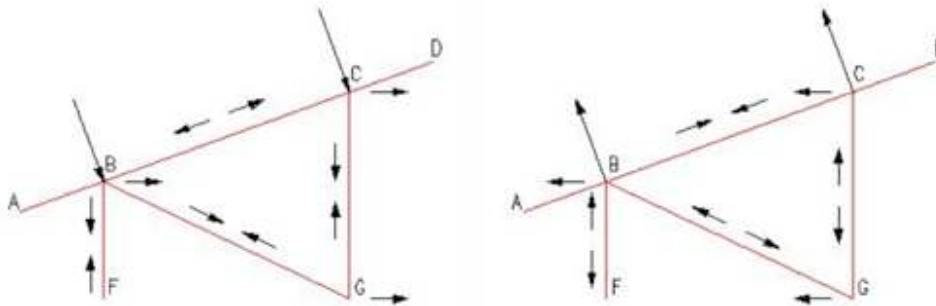
Email: ryanh@thermaldesign.com

Force Analysis

Complete

Angles		Design Loads				
Tilt Angle (deg):	30	Downforce		Uplift		
Cross Brace Angle (deg):	25.77	Front Leg (psf / kip):	32.22	1.29	-9.17	-0.37
E-W Leg Spacing)	74	Rear Leg (psf / kip):	29.43	1.18	-14.37	-0.58
Rail Length:	157					

Maximum Component Forces (kips)		
	Down Force	Uplift
Axial Force in Front Leg:	1.12	-0.32
Axial Force in Front Cap:	2.41	-0.51
Shear Force Front Cap:	1.29	Max Magnitude
Axial Force in Rear Leg:	1.02	-0.5
Axial Force in Rear Cap:	0.43	-0.21
Shear Force Rear Cap:	0.59	Max Magnitude
Shear Force Rear Foot:	1.29	Max Magnitude
Axial Force in N-S Brace:	1.29	-0.19
Resultant Shear N-S Brace:	1.16	Max Magnitude
Resultant Axial N-S Brace:	0.56	-0.08
Axial Force Rail:	0.59	-0.29
Resultant Shear Rail:	0.3	Max Magnitude
Resultant Axial Rail:	0.51	-0.25



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Email: ryanh@thermaldesign.com

Column Buckling Analysis

Complete

Front Leg Design	Rear Leg Design	Rail Design	N-S - Cross Brace Design
Pipe Selection: 2 in. Schedule 40 E (ksi): 29 Fy (ksi): 35 r (in): 0.791	Pipe Selection: 2 in. Schedule 40 E (ksi): 29 Fy (ksi): 35 r (in): 0.791	Rail Selection: SolarMount HD E (ksi): 10.1 Fy (ksi): 19 r (in): 1.1679 Rails per EW Leg: 2.48	Cross Brace Selection: 2" x 2" Aluminum Square Tube E (ksi): 10.1 Fy (ksi): 19 r (in): 0.7672
Front Leg Column Calculations	Rear Leg Column Calculations	Rail Column Calculations	Cross Brace Column Calculations
Length: 39.58 Eff. Column Len. Fac: 1 Eff. Column Length: 39.58 Slenderness Ratio: 50.04 Critical Force: 18.44 Actual Force: 1.12 Ratio To Allowable: 6.07%	Length: 86.92 Eff. Column Len. Fac: 1 Eff. Column Length: 86.92 Slenderness Ratio: 109.89 Critical Force: 11.31 Actual Force: 1.02 Ratio To Allowable: 9.02%	Length: 94.69 Eff. Column Len. Fac: 1 Eff. Column Length: 94.69 Slenderness Ratio: 81.08 Critical Force: 8.23 Actual Force: 0.59 Ratio To Allowable: 7.17%	Length: 91.05 Eff. Column Len. Fac: 1 Eff. Column Length: 91.05 Slenderness Ratio: 118.68 Critical Force: 3.39 Actual Force: 1.29 Ratio To Allowable: 38.05%

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Seismic Design and Analysis

Complete

Seismic Analysis Inputs		Seismic Analysis Results		E-W - Cross Brace Design		
Latitude: <input type="text"/>	ASCE7-05 Methodology	Sms: <input type="text" value="0"/> Eq # 16 -37		Cross Brace Selection:		
Longitude: <input type="text" value="0"/>		Sm1: <input type="text" value="0"/> Eq # 16 - 38		<input 2"="" aluminum="" square="" td="" tube<="" type="text" value="2" x=""/>		
Site Class: <input type="text" value="A"/>		Sds: <input type="text" value="0"/> Eq # 16 -39		E (ksi): <input type="text" value="10.1"/>		
Importance Factor: <input type="text" value="0"/>		Sd1: <input type="text" value="0"/> Eq # 16 -40		Fy (ksi): <input type="text" value="19"/>		
Roof Height: <input type="text" value="0"/>		Ap, Rp: <input type="text" value="1.0, 1.5"/> Table 13.6 - 1		r (in): <input type="text" value="0.7672"/>		
Component Height: <input type="text" value="0"/>		Fp LRFD: <input type="text" value="0"/> Eq 13.3 - 1		Area (sq in): <input type="text" value="0.9375"/>		
Ss: <input type="text" value="0"/> Mapped Accel. Parameter		Fp ASD: <input type="text" value="0"/> per 13.1.7		Cross Brace Column Calculations		
S1: <input type="text" value="0"/> Mapped Accel. Parameter				Max CB Length: <input type="text" value="113.93"/>		
Fa: <input type="text" value="0"/> Table 1613.5.3(1)				Eff. Column Len. Fac: <input type="text" value="2"/>		
Fv: <input type="text" value="0"/> Table 1613.5.3(2)				Eff. Column Length: <input type="text" value="227.86"/>		
- OR - Seismic Zone: <input type="text"/>	Direct Methodology	Fp ASD: <input type="text" value="0"/>		Slenderness Ratio: <input type="text" value="148.5"/>		
Cross Brace Pairs: <input type="text" value="0"/>		Array Weight: <input type="text" value="5434"/>		Critical Force: <input type="text" value="3.39"/> Kip		
		Total Axial Force: <input type="text" value="0"/> lbs		Actual Force: <input type="text" value="0.00"/> Kip		
				Margin Ratio: <input type="text" value="0.0%"/>		

Project Troll Way Centre

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Footing Design

Complete

Footing Design Inputs

Footing Diameter: in.

Footing Depth: in.

Concrete Density: Kcf

Soil Density: KcF

Footing Design Calculations

Max Uplift Force: Kip

Safety Factor:

Required Resisting Force: Kip

Concrete Volume: cf

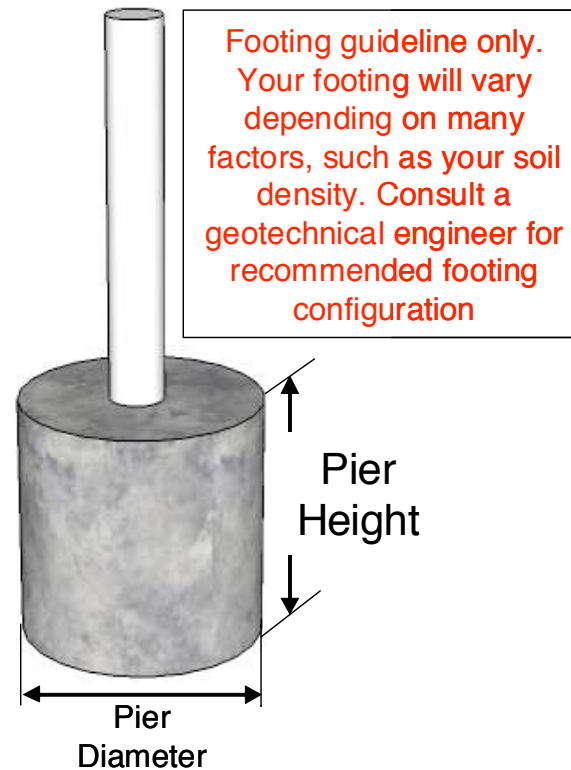
Concrete Weight: Kip

Soil Volume: cf

Soil Weight: Kip

Total Weight: Kip

Margin Ratio:



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Cap and Foot Design

Complete

Front Cap Design			
Cap Selection:	Aluminum- 2" Front Cap		
Pipe Selection:	2 in. Schedule 40		
	Axial Compression (kip)	Axial Tension (kip)	Shear (kip)
Allowable:	7.272	-2.4	2.424
Actual:	2.41	-0.51	1.29
Margin Ratio:	33.14%	21.25%	53.22%

Rear Cap Design			
Cap Selection:	Aluminum- 2" Front Cap		
	Axial Compression (kip)	Axial Tension (kip)	Shear (kip)
Allowable:	7.272	-2.4	2.424
Actual:	1.02	-0.5	0.59
Margin Ratio:	14.03%	20.83%	24.34%

Front Foot Design			
	Axial Compression (kip)	Axial Tension (kip)	Shear (kip)
Actual:	2.41	-0.51	0

Rear Foot Design			
	Axial Compression (kip)	Axial Tension (kip)	Shear (kip)
Actual:	1.02	-0.5	1.29

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Design Margin Ratios

Design Specifications and Ratios			
Horizontal Pipe:	2 in. Schedule 40		
	Front		Rear
Pipe Moment:	80%	Pipe Moment:	73%
Pipe Deflection:	35%	Pipe Deflection:	32%

Rail Specification, Beam and Column Design Ratios	
Rail Selection:	SolarMount HD
Rail Bending Moment:	39%
Rail Bending Deflection:	32%
Rail Buckling:	7.17%

Vertical Pipe Specifications and Column Design Ratios	
Front Leg Buckling:	6.07%
Rear Leg Buckling:	9.02%
N-S Brace Buckling:	38.05%

Seismic Design Ratios	Footing Design Ratios
Margin Ratio:	0.0%
	Margin Ratio:
	59.64%

Connection Specifications and Design Ratios			
Cap Selection:	Aluminum- 2" Front Cap		
	Front		Rear
Axial Compression:	33.14%	Axial Compression:	14.03%
Axial Tension:	21.25%	Axial Tension:	20.83%
Shear:	53.22%	Shear:	24.34%



CITY OF STOUGHTON
DEPARTMENT OF PLANNING & DEVELOPMENT
381 East Main Street, Stoughton, WI. 53589
www.cityofstoughton.com/planning

RODNEY J. SCHEEL
DIRECTOR
(608) 873-6619
fax: (608) 873-5519

July 15, 2011

Trantow Properties LLC
Ryan Harkins
100 Business Park Circle
Stoughton, WI. 53589

Dear Mr. Harkins:

I have completed a review of the proposed Certified Survey Map (CSM) and freestanding solar array at Troll Way Centre, 100 Business Park Circle - Plan submitted 7/14/11. As noted, additional information may be required to be provided or shown on the plan. The Business Park North Committee and Planning Commission will review your request on August 8, 2011 and will forward a recommendation to the Common Council related to the CSM. The Council should act on the CSM resolution at the August 23, 2011 meeting.

Zoning Code Requirements:

1. The property at 100 Business Park Circle is zoned PI – Planned Industrial. **Solar energy systems are permitted as an accessory structure.**
2. The minimum lot size for the Planned Industrial district is 20,000 square feet. **Both lots will meet this requirement.**
3. The minimum lot width for the Planned Industrial district is 100 feet. **Both lots will meet this requirement.**
4. Accessory structure setback requirements are as follows: minimum of 4 feet from the side and rear lot lines. Accessory uses or structures shall not be located between a principal building and a street frontage on the same lot, nor within any required front yard. **The solar array is proposed to not be closer to the street than the front of the Troll Way Centre building which meets this requirement.**
5. Accessory structures may not be placed within any easements. **The solar array is not proposed to be within the 12-foot easement along the front and rear of the property.**
6. The Comprehensive Plan, planned land use map designates this property as General Industrial. **The planned land use map is used as a guide for the general pattern of permanent zoning as determined by the Planning Commission and Common Council. The planned land use map should be updated in the future to match the existing Planned Industrial use.**
7. **A building permit will be necessary prior to construction of the solar array.**
8. **If approved, the CSM will need to be recorded with Dane County Register of Deeds and a copy will need to be provided to the Stoughton Department of Planning & Development.**

Business Park Covenants:

The following items are contained in the Business Park Covenants and will need to be addressed as noted:

1. Development Standards.

“All electrical and air conditioning structures, including towers and air handling units, regardless of location and whether on the roof or otherwise, shall be concealed by landscaping or by decorative screening materials which form an integral part of the design.” **Within reason and not to interfere with the solar array effectiveness, screening will need to be provided/delineated on the plan.**

2. Size of Lot.

“No site shall be less than one (1) acre in area.” **The lots meet this requirement.**

3. Any other information considered pertinent by the Committee.

If you have any questions, please contact me at 608-646-0421

Sincerely,
City of Stoughton

Michael P. Stacey

Michael P. Stacey
Zoning Administrator/Assistant Planner

cc. Planning Commissioners
Business Park North Committee



010107

