

HOLZFASTER'S EQUIPMENT INC.

SEPTEMBER 25, 2025

WISH-119617

CUSTOMER : MARQUARDT FOUNDATION

LINDSAY 9500 - 90
7 TOWER - 1286.13 FT
SYSTEM 680 GPM @ 23 PSI

LEGAL : NE 1/4 23-11-44

NELSON D3000 SPRAY NOZZLES
NELSON 10 PSI REGULATORS
NELSON R65i #80 GREEN
ELEVATION 5 FT UP, 10 FT DOWN

FIELD : PIVOT #3
SN: LE30708

701 SOUTH HIGHWAY 61
OGALLALA, NEBRASKA 69153
(308)284-3343

WARRANTY

WATER APPLICATION UNIFORMITY OBTAINED WITH THIS SYSTEM CAN BE ADVERSELY AFFECTED BY MANY VARIABLES INCLUDING THE IMPROPER MAKEUP OR INSTALLATION OF THE SPRINKLER OR SPRAY NOZZLE PACKAGE, OBSTRUCTED NOZZLES, MAINTAINING INCORRECT PIVOT PRESSURE, UNFAVORABLE CLIMATIC CONDITIONS, TIGHT AND/OR SLOPING SOILS, IMPROPER END GUN ARC SETTINGS, ERRATIC AND IMPROPER OPERATING SPEED OF THE SYSTEM, POOR QUALITY OF WATER WITH ABRASIVES, CORROSIVES, AND/OR SOLIDS WHICH CAN CAUSE PLUGGING AND JAMMING, AS WELL AS INHERENT VARIABLES IN THE MANY COMPONENTS COMPRISING THE SYSTEM. THEREFORE WESTERN IRRIGATION SUPPLY HOUSE, INC., MAKES NO WARRANTY AS TO THE UNIFORMITY OF COVERAGE OBTAINED FROM THIS WATER APPLICATION PRINTOUT OTHER THAN ITS MATHEMATICAL ACCURACY.

IT IS THE RESPONSIBILITY OF THE END USER TO DETERMINE IF ANY INCOMPATIBILITY EXISTS BETWEEN THE WATER DISTRIBUTION DEVICES AND THE CROP, THE SOIL, AND THE PHYSICAL STRUCTURE OF THE MECHANICAL MOVE SYSTEM. WESTERN IRRIGATION SUPPLY HOUSE, INC., THEREFORE, DISCLAIMS ANY LIABILITY FOR DAMAGES DUE TO FAILURE OF THE SYSTEM TO PERFORM AS CONTEMPLATED.

FIGURES PRESENTED ON THIS COMPUTER PRINTOUT ARE BASED ON THE FOLLOWING:

1. DATA FURNISHED TO WESTERN IRRIGATION SUPPLY HOUSE, INC., ON PIPE LENGTH, DIAMETER, SURFACE FINISH, OUTLET SPACINGS, WATER FLOW, PIVOT PRESSURE AND ALL OTHER APPLICABLE INFORMATION.
2. THERE IS 100% WATER APPLICATION EFFICIENCY (ZERO WIND VELOCITY AND NO EVAPORATION).
3. PIVOT PRESSURE IS MEASURED ON THE MAIN HORIZONTAL DISTRIBUTION PIPE JUST AFTER THE LAST ELBOW.
4. MAIN PIPE PRESSURE IS CALCULATED AS IF THE PIVOT IS ALWAYS ON LEVEL GROUND.
5. SPRINKLER OR SPRAY NOZZLE BASE PRESSURE MAY BE LESS THAN MAIN LINE PIPE PRESSURE DUE TO THE USE OF PRESSURE REGULATORS. WHERE DROP PIPES ARE USED THE STATIC HEAD IS ADDED TO AND FRICTION LOSS IS SUBTRACTED FROM THE MAIN LINE PIPE PRESSURE TO DETERMINE INLET PSI. REGULATORS ARE CONSIDERED MOUNTED AT THE SAME HEIGHT AS THE SPRINKLING DEVICE UNLESS NOTED.

LINDSAY 9500 - 90

SEPTEMBER 25, 2025

WISH-119617

DEALER

HOLZFASTER'S EQUIPMENT INC.
 701 SOUTH HIGHWAY 61
 OGALLALA, NEBRASKA 69153

IRRIGATOR

MARQUARDT FOUNDATION
 NE 1/4 23-11-44

				SPAN #	LENGTH	PIPE I.D.	# OF HEADS
TOTAL TARGET GPM	680.00	FRICTION FACTOR USED	138				
TOP OF PIVOT PRESSURE	23.00	TOTAL LENGTH	1286.13	1	167.26	6.395	20
ENDGUN TARGET GPM	44.28	NUMBER OF TOWERS	7	2	179.00	6.395	24
NUMBER OF OUTLETS	181	NUMBER OF SPRINKLERS	170	3	179.00	6.395	24
				4	179.00	6.395	24
NELSON D3000 SPRAY NOZZLES - MULTI-TRAJECTORY ORANGE 21 COARSE GROOVE PLATES FIRST SPAN			5	179.00	6.395	24	
NELSON A3000 ACCELERATORS - D6 GOLD PLATES BALANCE			6	179.00	6.395	24	
NELSON BLUE TOP 10 PSI INTEGRAL SERIES REGULATORS			7	179.00	6.395	24	
POLYDROPS® AVERAGE 7.5 FT			OH	44.87	5.369		6
ELEVATION IS 5 FT UP AND 10 FT DOWN							

CAUTIONS AND WARNINGS

1. Inadequate crop clearance and/or structural interference may cause poor water distribution, resulting in decreased uniformity and possible streaking.
2. Over watering at beginning of system due to practical limitations on smallest nozzle sizes available and/or allowable for proper operation.
3. This system designed for minimum pressure. Failure to deliver indicated pressure at the top of pivot point will adversely affect regulator and/or sprinkler/spray performance. Elevations, pipe sizes and type of drop pipe must be as shown.

OUTLET NO.	LAST OUTLET	DISTANCE TO PIVOT	GPM NEED	GPM DEL.	PIPE PSI	NOZZLE PSI	SPRINKLER LABEL AND NOZZLE SIZE	SPRK NO.	REG SIZE	PLUG NO.	DROP LENGTH
1		2.92	-	-	-	-	-	-	-	-	1
2		7.76	-	-	-	-	-	-	-	-	2
3		15.26	-	-	-	-	-	-	-	-	3
4	22.59	22.59	0.27	0.47	22.77	11.54	D3000 9 LT BL/BEIGE	1	NNB10LF	84	
5	7.34	29.93	0.17	0.47	22.69	11.54	D3000 9 LT BL/BEIGE	2	NNB10LF	90	
6	7.33	37.26	0.21	0.47	22.61	11.54	D3000 9 LT BL/BEIGE	3	NNB10LF	90	
7	7.50	44.76	0.25	0.47	22.54	11.55	D3000 9 LT BL/BEIGE	4	NNB10LF	96	
8		49.49	-	-	-	-	-	-	-	-	4
9	7.33	52.09	0.29	0.47	22.46	11.54	D3000 9 LT BL/BEIGE	5	NNB10LF	96	
10		54.69	-	-	-	-	-	-	-	-	5
11	7.33	59.42	0.34	0.47	22.39	11.55	D3000 9 LT BL/BEIGE	6	NNB10LF	102	
12	7.50	66.92	0.38	0.47	22.31	11.54	D3000 9 LT BL/BEIGE	7	NNB10LF	102	
13	7.33	74.25	0.41	0.47	22.23	11.54	D3000 9 LT BL/BEIGE	8	NNB10LF	102	
14	7.17	81.42	0.46	0.47	22.16	11.54	D3000 9 LT BL/BEIGE	9	NNB10LF	102	
15	7.50	88.92	0.51	0.47	22.08	11.54	D3000 9 LT BL/BEIGE	10	NNB10LF	102	
16	7.33	96.25	0.54	0.58	22.01	11.51	D3000 10 BEIGE	11	NNB10LF	102	
17	7.34	103.59	0.58	0.58	21.93	11.51	D3000 10 BEIGE	12	NNB10LF	102	
18	7.33	110.92	0.63	0.58	21.86	11.50	D3000 10 BEIGE	13	NNB10LF	96	
19	7.50	118.42	0.66	0.70	21.78	11.47	D3000 11 BEIGE/GOLD	14	NNB10LF	96	
20	7.00	125.42	0.70	0.70	21.71	11.47	D3000 11 BEIGE/GOLD	15	NNB10LF	96	
21	7.50	132.92	0.76	0.70	21.63	11.46	D3000 11 BEIGE/GOLD	16	NNB10LF	90	
22	7.33	140.25	0.79	0.84	21.56	11.42	D3000 12 GOLD	17	NNB10LF	84	
23	7.34	147.59	0.83	0.84	21.49	11.42	D3000 12 GOLD	18	NNB10LF	84	
24	7.33	154.92	0.88	0.84	21.41	11.41	D3000 12 GOLD	19	NNB10LF	78	
25	7.50	162.42	1.09	1.13	21.34	11.35	D3000 14 LIME	20	NNB10LF	72	
TOWER 1	167.26	167.26	-	-	-	-	-	-	-	-	
26		168.25	-	-	-	-	-	-	-	-	6
27	10.00	172.42	1.15	1.13	21.24	11.34	A3000 14 LIME	21	NNB10LF	72	
28	7.50	179.92	1.02	0.98	21.06	11.37	A3000 13 GOLD/LIME	22	NNB10LF	78	
29	7.33	187.25	1.05	0.98	20.82	11.37	A3000 13 GOLD/LIME	23	NNB10LF	84	
30	7.34	194.59	1.09	1.13	20.61	11.34	A3000 14 LIME	24	NNB10LF	84	
31	7.33	201.92	1.15	1.13	20.41	11.34	A3000 14 LIME	25	NNB10LF	90	
32	7.50	209.42	1.16	1.13	20.22	11.33	A3000 14 LIME	26	NNB10LF	90	
33	7.00	216.42	1.20	1.13	20.06	11.33	A3000 14 LIME	27	NNB10LF	96	
34	7.50	223.92	1.27	1.31	19.91	11.30	A3000 15 LIME/LAV	28	NNB10LF	96	
35	7.33	231.25	1.30	1.31	19.77	11.30	A3000 15 LIME/LAV	29	NNB10LF	102	
36	7.34	238.59	1.34	1.31	19.65	11.30	A3000 15 LIME/LAV	30	NNB10LF	102	
37	7.33	245.92	1.40	1.49	19.55	11.26	A3000 16 LAVENDER	31	NNB10LF	102	
38	7.50	253.42	1.41	1.49	19.47	11.26	A3000 16 LAVENDER	32	NNB10LF	102	
39	7.00	260.42	1.45	1.49	19.40	11.26	A3000 16 LAVENDER	33	NNB10LF	102	
40	7.50	267.92	1.52	1.49	19.35	11.26	A3000 16 LAVENDER	34	NNB10LF	102	
41	7.33	275.25	1.55	1.49	19.31	11.26	A3000 16 LAVENDER	35	NNB10LF	102	
42	7.34	282.59	1.59	1.67	19.29	11.23	A3000 17 LAV/GRAY	36	NNB10LF	102	
43	7.33	289.92	1.65	1.67	19.29	11.22	A3000 17 LAV/GRAY	37	NNB10LF	96	
44	7.50	297.42	1.65	1.67	19.30	11.22	A3000 17 LAV/GRAY	38	NNB10LF	96	
45	7.00	304.42	1.69	1.67	19.33	11.21	A3000 17 LAV/GRAY	39	NNB10LF	90	
46	7.50	311.92	1.77	1.85	19.38	11.19	A3000 18 GRAY	40	NNB10LF	90	
47	7.33	319.25	1.80	1.85	19.45	11.18	A3000 18 GRAY	41	NNB10LF	84	

OUTLET NO.	LAST OUTLET	DISTANCE TO PIVOT	GPM NEED	GPM DEL.	PIPE PSI	NOZZLE PSI	SPRINKLER LABEL AND NOZZLE SIZE	SPRK NO.	REG SIZE	PLUG NO.	DROP LENGTH
48	7.34	326.59	1.84	1.85	19.53	11.19	A3000 18 GRAY	42	NNB10LF		84
49	7.33	333.92	1.90	1.85	19.62	11.18	A3000 18 GRAY	43	NNB10LF		78
50	7.50	341.42	2.29	2.31	19.61	11.11	A3000 20 TURQUOISE	44	NNB10LF		72
TOWER 2	179.00	346.26									
51		347.25	-	-	-	-	-	-	-	-	7
52	10.00	351.42	2.35	2.31	19.52	11.10	A3000 20 TURQUOISE	45	NNB10LF		72
53	7.50	358.92	2.04	2.08	19.35	11.14	A3000 19 GRAY/TURQ	46	NNB10LF		78
54	7.33	366.25	2.06	2.08	19.13	11.14	A3000 19 GRAY/TURQ	47	NNB10LF		84
55	7.34	373.59	2.10	2.08	18.92	11.14	A3000 19 GRAY/TURQ	48	NNB10LF		84
56	7.33	380.92	2.17	2.08	18.72	11.14	A3000 19 GRAY/TURQ	49	NNB10LF		90
57	7.50	388.42	2.16	2.08	18.55	11.13	A3000 19 GRAY/TURQ	50	NNB10LF		90
58	7.00	395.42	2.20	2.31	18.39	11.10	A3000 20 TURQUOISE	51	NNB10LF		96
59	7.50	402.92	2.29	2.31	18.25	11.10	A3000 20 TURQUOISE	52	NNB10LF		96
60	7.33	410.25	2.31	2.31	18.12	11.10	A3000 20 TURQUOISE	53	NNB10LF		102
61	7.34	417.59	2.35	2.31	18.01	11.09	A3000 20 TURQUOISE	54	NNB10LF		102
62	7.33	424.92	2.42	2.50	17.92	11.06	A3000 21 TURQ/YEL	55	NNB10LF		102
63	7.50	432.42	2.40	2.31	17.84	11.09	A3000 20 TURQUOISE	56	NNB10LF		102
64	7.00	439.42	2.44	2.50	17.79	11.06	A3000 21 TURQ/YEL	57	NNB10LF		102
65	7.50	446.92	2.54	2.50	17.74	11.06	A3000 21 TURQ/YEL	58	NNB10LF		102
66	7.33	454.25	2.56	2.50	17.72	11.06	A3000 21 TURQ/YEL	59	NNB10LF		102
67	7.34	461.59	2.60	2.50	17.71	11.06	A3000 21 TURQ/YEL	60	NNB10LF		102
68	7.33	468.92	2.67	2.77	17.71	11.02	A3000 22 YELLOW	61	NNB10LF		96
69	7.50	476.42	2.65	2.77	17.74	11.02	A3000 22 YELLOW	62	NNB10LF		96
70	7.00	483.42	2.69	2.77	17.78	11.01	A3000 22 YELLOW	63	NNB10LF		90
71	7.50	490.92	2.79	2.77	17.84	11.02	A3000 22 YELLOW	64	NNB10LF		90
72	7.33	498.25	2.80	2.77	17.91	11.01	A3000 22 YELLOW	65	NNB10LF		84
73	7.34	505.59	2.84	2.77	18.00	11.01	A3000 22 YELLOW	66	NNB10LF		84
74	7.33	512.92	2.92	3.00	18.11	10.98	A3000 23 YEL/RED	67	NNB10LF		78
75	7.50	520.42	3.50	3.55	18.11	10.86	A3000 25 RED/WHITE	68	NNB10LF		72
TOWER 3	179.00	525.26									
76		526.25	-	-	-	-	-	-	-	-	8
77	10.00	530.42	3.55	3.55	18.04	10.86	A3000 25 RED/WHITE	69	NNB10LF		72
78	7.50	537.92	3.06	3.00	17.88	10.98	A3000 23 YEL/RED	70	NNB10LF		78
79	7.33	545.25	3.07	3.00	17.66	10.98	A3000 23 YEL/RED	71	NNB10LF		84
80	7.34	552.59	3.11	3.00	17.47	10.98	A3000 23 YEL/RED	72	NNB10LF		84
81	7.33	559.92	3.18	3.30	17.29	10.93	A3000 24 RED	73	NNB10LF		90
82	7.50	567.42	3.15	3.30	17.12	10.93	A3000 24 RED	74	NNB10LF		90
83	7.00	574.42	3.19	3.30	16.98	10.93	A3000 24 RED	75	NNB10LF		96
84	7.50	581.92	3.31	3.30	16.84	10.93	A3000 24 RED	76	NNB10LF		96
85	7.33	589.25	3.31	3.30	16.73	10.93	A3000 24 RED	77	NNB10LF		102
86	7.34	596.59	3.35	3.30	16.63	10.93	A3000 24 RED	78	NNB10LF		102
87	7.33	603.92	3.43	3.55	16.55	10.85	A3000 25 RED/WHITE	79	NNB10LF		102
88	7.50	611.42	3.40	3.30	16.49	10.93	A3000 24 RED	80	NNB10LF		102
89	7.00	618.42	3.44	3.55	16.45	10.85	A3000 25 RED/WHITE	81	NNB10LF		102
90	7.50	625.92	3.56	3.55	16.42	10.85	A3000 25 RED/WHITE	82	NNB10LF		102
91	7.33	633.25	3.56	3.55	16.40	10.85	A3000 25 RED/WHITE	83	NNB10LF		102
92	7.34	640.59	3.60	3.55	16.41	10.85	A3000 25 RED/WHITE	84	NNB10LF		102
93	7.33	647.92	3.68	3.55	16.43	10.85	A3000 25 RED/WHITE	85	NNB10LF		96

OUTLET NO.	LAST OUTLET	DISTANCE TO PIVOT	GPM NEED	GPM DEL.	PIPE PSI	NOZZLE PSI	SPRINKLER LABEL AND NOZZLE SIZE	SPRK NO.	REG SIZE	PLUG NO.	DROP LENGTH
94	7.50	655.42	3.64	3.55	16.47	10.85	A3000 25 RED/WHITE	86	NNB10LF		96
95	7.00	662.42	3.68	3.55	16.52	10.84	A3000 25 RED/WHITE	87	NNB10LF		90
96	7.50	669.92	3.81	3.84	16.59	10.75	A3000 26 WHITE	88	NNB10LF		90
97	7.33	677.25	3.81	3.84	16.68	10.75	A3000 26 WHITE	89	NNB10LF		84
98	7.34	684.59	3.85	3.84	16.78	10.75	A3000 26 WHITE	90	NNB10LF		84
99	7.33	691.92	3.93	3.84	16.90	10.75	A3000 26 WHITE	91	NNB10LF		78
100	7.50	699.42	4.70	4.73	16.92	10.46	A3000 29 BLUE/DK BRN	92	NNB10LF		72
TOWER 4	179.00	704.26									
101		705.25	-	-	-	-	-	-	-	-	9
102	10.00	709.42	4.76	4.73	16.86	10.46	A3000 29 BLUE/DK BRN	93	NNB10LF		72
103	7.50	716.92	4.08	4.10	16.72	10.66	A3000 27 WHITE/BLUE	94	NNB10LF		78
104	7.33	724.25	4.07	4.10	16.52	10.66	A3000 27 WHITE/BLUE	95	NNB10LF		84
105	7.34	731.59	4.12	4.10	16.34	10.66	A3000 27 WHITE/BLUE	96	NNB10LF		84
106	7.33	738.92	4.20	4.10	16.17	10.66	A3000 27 WHITE/BLUE	97	NNB10LF		90
107	7.50	746.42	4.15	4.10	16.02	10.66	A3000 27 WHITE/BLUE	98	NNB10LF		90
108	7.00	753.42	4.19	4.10	15.89	10.66	A3000 27 WHITE/BLUE	99	NNB10LF		96
109	7.50	760.92	4.33	4.44	15.77	10.54	A3000 28 BLUE	100	NNB10LF		96
110	7.33	768.25	4.32	4.44	15.68	10.55	A3000 28 BLUE	101	NNB10LF		102
111	7.34	775.59	4.36	4.44	15.59	10.55	A3000 28 BLUE	102	NNB10LF		102
112	7.33	782.92	4.45	4.44	15.53	10.55	A3000 28 BLUE	103	NNB10LF		102
113	7.50	790.42	4.39	4.44	15.48	10.54	A3000 28 BLUE	104	NNB10LF		102
114	7.00	797.42	4.43	4.44	15.45	10.54	A3000 28 BLUE	105	NNB10LF		102
115	7.50	804.92	4.58	4.44	15.43	10.55	A3000 28 BLUE	106	NNB10LF		102
116	7.33	812.25	4.57	4.44	15.44	10.55	A3000 28 BLUE	107	NNB10LF		102
117	7.34	819.59	4.61	4.72	15.45	10.45	A3000 29 BLUE/DK BRN	108	NNB10LF		102
118	7.33	826.92	4.70	4.72	15.49	10.45	A3000 29 BLUE/DK BRN	109	NNB10LF		96
119	7.50	834.42	4.64	4.72	15.54	10.45	A3000 29 BLUE/DK BRN	110	NNB10LF		96
120	7.00	841.42	4.68	4.72	15.61	10.45	A3000 29 BLUE/DK BRN	111	NNB10LF		90
121	7.50	848.92	4.83	4.72	15.70	10.45	A3000 29 BLUE/DK BRN	112	NNB10LF		90
122	7.33	856.25	4.82	4.72	15.80	10.45	A3000 29 BLUE/DK BRN	113	NNB10LF		84
123	7.34	863.59	4.86	4.72	15.92	10.45	A3000 29 BLUE/DK BRN	114	NNB10LF		84
124	7.33	870.92	4.96	5.03	16.06	10.35	A3000 30 DK BROWN	115	NNB10LF		78
125	7.50	878.42	5.90	6.01	16.09	10.03	A3000 33 ORN/DK GRN	116	NNB10LF		72
TOWER 5	179.00	883.26									
126		884.25	-	-	-	-	-	-	-	-	10
127	10.00	888.42	5.96	6.01	16.06	10.04	A3000 33 ORN/DK GRN	117	NNB10LF		72
128	7.50	895.92	5.10	5.03	15.93	10.35	A3000 30 DK BROWN	118	NNB10LF		78
129	7.33	903.25	5.08	5.03	15.74	10.35	A3000 30 DK BROWN	119	NNB10LF		84
130	7.34	910.59	5.13	5.03	15.57	10.35	A3000 30 DK BROWN	120	NNB10LF		84
131	7.33	917.92	5.23	5.31	15.42	10.26	A3000 31 DK BRN/ORN	121	NNB10LF		90
132	7.50	925.42	5.15	5.03	15.29	10.35	A3000 30 DK BROWN	122	NNB10LF		90
133	7.00	932.42	5.19	5.31	15.18	10.25	A3000 31 DK BRN/ORN	123	NNB10LF		96
134	7.50	939.92	5.35	5.31	15.07	10.26	A3000 31 DK BRN/ORN	124	NNB10LF		96
135	7.33	947.25	5.33	5.31	14.99	10.26	A3000 31 DK BRN/ORN	125	NNB10LF		102
136	7.34	954.59	5.38	5.31	14.92	10.26	A3000 31 DK BRN/ORN	126	NNB10LF		102
137	7.33	961.92	5.48	5.31	14.87	10.26	A3000 31 DK BRN/ORN	127	NNB10LF		102
138	7.50	969.42	5.40	5.31	14.84	10.26	A3000 31 DK BRN/ORN	128	NNB10LF		102
139	7.00	976.42	5.44	5.31	14.82	10.26	A3000 31 DK BRN/ORN	129	NNB10LF		102

OUTLET NO.	LAST OUTLET	DISTANCE TO PIVOT	GPM NEED	GPM DEL.	PIPE PSI	NOZZLE PSI	SPRINKLER LABEL AND NOZZLE SIZE	SPRK NO.	REG SIZE	PLUG NO.	DROP LENGTH
140	7.50	983.92	5.61	5.67	14.82	10.14	A3000 32 ORANGE	130	NNB10LF		102
141	7.33	991.25	5.59	5.67	14.84	10.14	A3000 32 ORANGE	131	NNB10LF		102
142	7.34	998.59	5.63	5.67	14.88	10.14	A3000 32 ORANGE	132	NNB10LF		102
143	7.33	1005.92	5.73	5.67	14.93	10.14	A3000 32 ORANGE	133	NNB10LF		96
144	7.50	1013.42	5.65	5.67	15.00	10.14	A3000 32 ORANGE	134	NNB10LF		96
145	7.00	1020.42	5.69	5.67	15.08	10.14	A3000 32 ORANGE	135	NNB10LF		90
146	7.50	1027.92	5.86	6.01	15.18	10.03	A3000 33 ORN/DK GRN	136	NNB10LF		90
147	7.33	1035.25	5.83	5.67	15.30	10.14	A3000 32 ORANGE	137	NNB10LF		84
148	7.34	1042.59	5.88	6.01	15.43	10.03	A3000 33 ORN/DK GRN	138	NNB10LF		84
149	7.33	1049.92	5.98	6.01	15.58	10.03	A3000 33 ORN/DK GRN	139	NNB10LF		78
150	7.50	1057.42	7.11	7.01	15.63	9.86	A3000 36 PURPLE	140	NNB10LF		72
TOWER 6	179.00	1062.26									
151		1063.25	-	-	-	-	-	-	-	-	11
152	10.00	1067.42	7.17	7.01	15.61	9.86	A3000 36 PURPLE	141	NNB10LF		72
153	7.50	1074.92	6.13	6.01	15.50	10.04	A3000 33 ORN/DK GRN	142	NNB10LF		78
154	7.33	1082.25	6.11	6.01	15.33	10.04	A3000 33 ORN/DK GRN	143	NNB10LF		84
155	7.34	1089.59	6.15	6.01	15.17	10.03	A3000 33 ORN/DK GRN	144	NNB10LF		84
156	7.33	1096.92	6.27	6.35	15.04	9.92	A3000 34 DK GREEN	145	NNB10LF		90
157	7.50	1104.42	6.17	6.01	14.92	10.03	A3000 33 ORN/DK GRN	146	NNB10LF		90
158	7.00	1111.42	6.21	6.34	14.82	9.92	A3000 34 DK GREEN	147	NNB10LF		96
159	7.50	1118.92	6.39	6.35	14.73	9.92	A3000 34 DK GREEN	148	NNB10LF		96
160	7.33	1126.25	6.37	6.35	14.66	9.93	A3000 34 DK GREEN	149	NNB10LF		102
161	7.34	1133.59	6.41	6.35	14.60	9.93	A3000 34 DK GREEN	150	NNB10LF		102
162	7.33	1140.92	6.52	6.67	14.57	9.85	A3000 35 DK GRN/PUR	151	NNB10LF		102
163	7.50	1148.42	6.41	6.35	14.55	9.93	A3000 34 DK GREEN	152	NNB10LF		102
164	7.00	1155.42	6.46	6.35	14.54	9.93	A3000 34 DK GREEN	153	NNB10LF		102
165	7.50	1162.92	6.65	6.67	14.56	9.85	A3000 35 DK GRN/PUR	154	NNB10LF		102
166	7.33	1170.25	6.62	6.67	14.58	9.85	A3000 35 DK GRN/PUR	155	NNB10LF		102
167	7.34	1177.59	6.66	6.67	14.63	9.85	A3000 35 DK GRN/PUR	156	NNB10LF		102
168	7.33	1184.92	6.77	6.67	14.69	9.85	A3000 35 DK GRN/PUR	157	NNB10LF		96
169	7.50	1192.42	6.67	6.67	14.77	9.85	A3000 35 DK GRN/PUR	158	NNB10LF		96
170	7.00	1199.42	6.71	6.67	14.87	9.84	A3000 35 DK GRN/PUR	159	NNB10LF		90
171	7.50	1206.92	6.91	7.01	14.98	9.86	A3000 36 PURPLE	160	NNB10LF		90
172	7.33	1214.25	6.87	7.01	15.11	9.86	A3000 36 PURPLE	161	NNB10LF		84
173	7.34	1221.59	6.89	7.01	15.25	9.86	A3000 36 PURPLE	162	NNB10LF		84
174	7.33	1228.92	7.00	7.01	15.42	9.86	A3000 36 PURPLE	163	NNB10LF		78
175	7.50	1236.42	7.93	7.92	15.47	9.89	A3000 38 BLACK	164	NNB10LF		72
TOWER 7	179.00	1241.26									
			PIPE ID CHANGES FROM 6.395 TO 5.369								
176	9.21	1245.63	7.99	7.92	15.47	9.88	A3000 38 BLACK	165	NNB10LF		72
177	7.50	1253.13	7.15	7.01	15.46	9.86	A3000 36 PURPLE	166	NNB10LF		72
178	7.33	1260.46	7.15	7.01	15.46	9.86	A3000 36 PURPLE	167	NNB10LF		72
179	7.34	1267.80	7.23	7.01	15.46	9.86	A3000 36 PURPLE	168	NNB10LF		72
180	7.33	1275.13	7.47	7.49	15.46	9.87	A3000 37 PUR/BLK	169	NNB10LF		72
181	7.50	1282.63	7.53	7.49	15.46	9.87	A3000 37 PUR/BLK	170	NNB10LF		72
OVERHANG	44.87	1286.13	44.69	ENDGUN	(1)	NELSON R65i #80 GREEN					

THERE IS NO BOOSTER PUMP

FRICTION LOSS THROUGH ENDGUN VALVE IS 0.12 PSI - ENDGUN PRESSURE IS 15.34 PSI

TOTAL GPM = 680.58

GPA = 5.33

MINIMUM RECOMMENDED REGULATOR INLET PRESSURE IS 15.00 PSI

WITH GRADUATED ELEVATION OF 5.00 FT THE INLET PRESSURE IS 15.39 PSI FOR SPRINKLER 170

THIS POSITION IS THE CLOSEST TO THE MINIMUM RECOMMENDED INLET PRESSURE

HYDRAULICS SUMMARY

TOWER NUMBER	ACRES UNDER SPAN	GPM NEED	ACTUAL GPM	PERCENT DEVIATION	GPM PER ACRE	AVERAGE IN. PER HR DELIVERED UNDER SPAN	AVERAGE IN. DELIVERED FOR REVOLUTION TIME		
							36 HR	48 HR	60 HR
1	2.02	10.75	12.20	13%	6.04	0.013	0.48	0.64	0.80
2	6.63	35.33	35.34	0%	5.33	0.012	0.42	0.57	0.71
3	11.25	59.96	59.91	0%	5.32	0.012	0.42	0.56	0.71
4	15.87	84.58	84.13	-1%	5.30	0.012	0.42	0.56	0.70
5	20.49	109.21	108.88	0%	5.31	0.012	0.42	0.56	0.70
6	25.12	133.84	133.28	0%	5.31	0.012	0.42	0.56	0.70
7	29.74	158.47	158.43	0%	5.33	0.012	0.42	0.57	0.71
OVERHANG	8.18	43.58	43.73	0%	5.35	0.012	0.43	0.57	0.71
ENDGUN	6.05	44.28	44.69	39%	7.39				
TOTAL	125.35	680.00	680.58		5.43				

SUMMARY OF SPRINKLERS

10 D3000 9 LT BL/BEIGE
3 D3000 10 BEIGE
3 D3000 11 BEIGE/GOLD
3 D3000 12 GOLD
1 D3000 14 LIME
2 A3000 13 GOLD/LIME
5 A3000 14 LIME
3 A3000 15 LIME/LAV
5 A3000 16 LAVENDER
4 A3000 17 LAV/GRAY
4 A3000 18 GRAY
5 A3000 19 GRAY/TURQ
7 A3000 20 TURQUOISE
5 A3000 21 TURQ/YEL
6 A3000 22 YELLOW
4 A3000 23 YEL/RED
7 A3000 24 RED
10 A3000 25 RED/WHITE
4 A3000 26 WHITE
6 A3000 27 WHITE/BLUE
8 A3000 28 BLUE
9 A3000 29 BLUE/DK BRN
5 A3000 30 DK BROWN
8 A3000 31 DK BRN/ORN
7 A3000 32 ORANGE
9 A3000 33 ORN/DK GRN
7 A3000 34 DK GREEN
7 A3000 35 DK GRN/PUR
9 A3000 36 PURPLE
2 A3000 37 PUR/BLK
2 A3000 38 BLACK

SUMMARY OF DROPS

19 72 IN DROP
13 78 IN DROP
27 84 IN DROP
27 90 IN DROP
29 96 IN DROP
55 102 IN DROP

SUMMARY OF REGULATORS

170 Nelson Blue Int Uni Flo 10 psi

11 PLUGS**TOTAL OF 170 DROPS****TOTAL OF 170 REGULATORS**

NOZZLE POSITION CHART

D3000 9 LT BL/BEIGE	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
D3000 10 BEIGE	11, 12, 13
D3000 11 BEIGE/GOLD	14, 15, 16
D3000 12 GOLD	17, 18, 19
D3000 14 LIME	20
A3000 13 GOLD/LIME	22, 23
A3000 14 LIME	21, 24, 25, 26, 27
A3000 15 LIME/LAV	28, 29, 30
A3000 16 LAVENDER	31, 32, 33, 34, 35
A3000 17 LAV/GRAY	36, 37, 38, 39
A3000 18 GRAY	40, 41, 42, 43
A3000 19 GRAY/TURQ	46, 47, 48, 49, 50
A3000 20 TURQUOISE	44, 45, 51, 52, 53, 54, 56
A3000 21 TURQ/YEL	55, 57, 58, 59, 60
A3000 22 YELLOW	61, 62, 63, 64, 65, 66
A3000 23 YEL/RED	67, 70, 71, 72
A3000 24 RED	73, 74, 75, 76, 77, 78, 80
A3000 25 RED/WHITE	68, 69, 79, 81, 82, 83, 84, 85, 86, 87
A3000 26 WHITE	88, 89, 90, 91
A3000 27 WHITE/BLUE	94, 95, 96, 97, 98, 99
A3000 28 BLUE	100, 101, 102, 103, 104, 105, 106, 107
A3000 29 BLUE/DK BRN	92, 93, 108, 109, 110, 111, 112, 113, 114
A3000 30 DK BROWN	115, 118, 119, 120, 122
A3000 31 DK BRN/ORN	121, 123, 124, 125, 126, 127, 128, 129
A3000 32 ORANGE	130, 131, 132, 133, 134, 135, 137
A3000 33 ORN/DK GRN	116, 117, 136, 138, 139, 142, 143, 144, 146
A3000 34 DK GREEN	145, 147, 148, 149, 150, 152, 153
A3000 35 DK GRN/PUR	151, 154, 155, 156, 157, 158, 159
A3000 36 PURPLE	140, 141, 160, 161, 162, 163, 166, 167, 168
A3000 37 PUR/BLK	169, 170
A3000 38 BLACK	164, 165

HOLZFASTER'S EQUIPMENT INC.

701 SOUTH HIGHWAY 61

OGALLALA, NEBRASKA 69153

SEPTEMBER 25, 2025

WISH-119617

MARQUARDT FOUNDATION

NE 1/4 23-11-44

680 GPM @ 23 PSI

LINDSAY 9500 - 90

NELSON D3000 SPRAY NOZZLES

NELSON 10 PSI REGULATORS

POLYDROPS®

NELSON R65i #80 GREEN

Rotation time at 100% = 9.33 Hours Or 560 minutes

Installation Chart

Page 1

Out #	Drop Len	Sprk #	Noz Size	Reg	Out #	Drop Len	Sprk #	Noz Size	Reg	Out #	Drop Len	Sprk #	Noz Size	Reg	Out #	Drop Len	Sprk #	Noz Size	Reg
1	PLUG				9	96	52	20	10LF	17	102	108	29	10LF	25	72	164	38	10LF
2	PLUG				10	102	53	20	10LF	18	96	109	29	10LF	1	72	165	38	10LF
3	PLUG				11	102	54	20	10LF	19	96	110	29	10LF	2	72	166	36	10LF
4	84	1	9	10LF	12	102	55	21	10LF	20	90	111	29	10LF	3	72	167	36	10LF
5	90	2	9	10LF	13	102	56	20	10LF	21	90	112	29	10LF	4	72	168	36	10LF
6	90	3	9	10LF	14	102	57	21	10LF	22	84	113	29	10LF	5	72	169	37	10LF
7	96	4	9	10LF	15	102	58	21	10LF	23	84	114	29	10LF	6	72	170	37	10LF
8	PLUG				16	102	59	21	10LF	24	78	115	30	10LF					
9	96	5	9	10LF	17	102	60	21	10LF	25	72	116	33	10LF					
10	PLUG				18	96	61	22	10LF						PLUG				
11	102	6	9	10LF	19	96	62	22	10LF	1	72	117	33	10LF					
12	102	7	9	10LF	20	90	63	22	10LF	2	72	118	30	10LF					
13	102	8	9	10LF	21	90	64	22	10LF	3	78	119	30	10LF					
14	102	9	9	10LF	22	84	65	22	10LF	4	84	120	30	10LF					
15	102	10	9	10LF	23	84	66	22	10LF	5	84	121	31	10LF					
16	102	11	10	10LF	24	78	67	23	10LF	6	90	122	30	10LF					
17	102	12	10	10LF	25	72	68	25	10LF	7	90	123	31	10LF					
18	96	13	10	10LF						8	96	124	31	10LF					
19	96	14	11	10LF	1	PLUG				9	96	125	31	10LF					
20	96	15	11	10LF	2	72	69	25	10LF	10	102	126	31	10LF					
21	90	16	11	10LF	3	78	70	23	10LF	11	102	127	31	10LF					
22	84	17	12	10LF	4	84	71	23	10LF	12	102	128	31	10LF					
23	84	18	12	10LF	5	84	72	23	10LF	13	102	129	31	10LF					
24	78	19	12	10LF	6	90	73	24	10LF	14	102	130	32	10LF					
25	72	20	14	10LF	7	90	74	24	10LF	15	102	131	32	10LF					
	TOWER 1				8	96	75	24	10LF	16	102	132	32	10LF					
1	PLUG				9	96	76	24	10LF	17	102	133	32	10LF					
2	72	21	14	10LF	10	102	77	24	10LF	18	96	134	32	10LF					
3	78	22	13	10LF	11	102	78	24	10LF	19	96	135	32	10LF					
4	84	23	13	10LF	12	102	79	25	10LF	20	90	136	33	10LF					
5	84	24	14	10LF	13	102	80	24	10LF	21	90	137	32	10LF					
6	90	25	14	10LF	14	102	81	25	10LF	22	84	138	33	10LF					
7	90	26	14	10LF	15	102	82	25	10LF	23	84	139	33	10LF					
8	96	27	14	10LF	16	102	83	25	10LF	24	78	140	36	10LF					
9	96	28	15	10LF	17	102	84	25	10LF	25	72	141	34	10LF					
10	102	29	15	10LF	18	96	85	25	10LF						TOWER 6				
11	102	30	15	10LF	19	96	86	25	10LF	1	PLUG								
12	102	31	16	10LF	20	90	87	25	10LF	2	72	142	33	10LF					
13	102	32	16	10LF	21	90	88	26	10LF	3	78	143	33	10LF					
14	102	33	16	10LF	22	84	89	26	10LF	4	84	144	33	10LF					
15	102	34	16	10LF	23	84	90	26	10LF	5	84	145	34	10LF					
16	102	35	16	10LF	24	78	91	26	10LF	6	90	146	33	10LF					
17	102	36	17	10LF	25	72	92	29	10LF	7	90	147	34	10LF					
18	96	37	17	10LF						8	96	148	34	10LF					
19	96	38	17	10LF	1	PLUG				9	96	149	34	10LF					
20	90	39	17	10LF	2	72	93	29	10LF	10	102	150	34	10LF					
21	90	40	18	10LF	3	78	94	27	10LF	11	102	151	35	10LF					
22	84	41	18	10LF	4	84	95	27	10LF	12	102	152	34	10LF					
23	84	42	18	10LF	5	84	96	27	10LF	13	102	153	34	10LF					
24	78	43	18	10LF	6	90	97	27	10LF	14	102	154	35	10LF					
25	72	44	20	10LF	7	90	98	27	10LF	15	102	155	35	10LF					
	TOWER 2				8	96	99	27	10LF	16	102	156	35	10LF					
1	PLUG				9	96	100	28	10LF	17	102	157	35	10LF					
2	72	45	20	10LF	10	102	101	28	10LF	18	96	158	35	10LF					
3	78	46	19	10LF	11	102	102	28	10LF	19	96	159	35	10LF					
4	84	47	19	10LF	12	102	103	28	10LF	20	90	160	36	10LF					
5	84	48	19	10LF	13	102	104	28	10LF	21	90	161	36	10LF					
6	90	49	19	10LF	14	102	105	28	10LF	22	84	162	36	10LF					
7	90	50	19	10LF	15	102	106	28	10LF	23	84	163	36	10LF					
8	96	51	20	10LF	16	102	107	28	10LF	24	78	164	36	10LF					

PRECIPITATION CHART FOR FULL CIRCLE

WISH-119617

SEPTEMBER 25, 2025

DEALER - HOLZFASTER'S EQUIPMENT INC.

IRRIGATOR - MARQUARDT FOUNDATION
FIELD - NE 1/4 23-11-44

TOTAL LENGTH PIPE = 1286.13 SYSTEM PRESSURE = 23 PSI
 GPM UNDER PIPE = 635.89 TOTAL GPM = 680.58
 ACRES UNDER PIPE = 119.30
 RANGE OF ENDGUN = 32.20 RUN FOR MINIMUM PRESSURE
 GPM OF ENDGUN = 44.69
 ACRES UNDER ENDGUN = 6.05
 WATERING LENGTH = 1318.33

MOTOR SIZE (HP) = 3/4
 LOADED MOTOR RPM = 1750
 CENTER GEAR BOX RATIO = 40
 WHEEL GEAR BOX RATIO = 50
 TIRE SIZE = 12.4 X 38
 LAST TOWER SPEED (FPM) = 13.93

PRECIPITATION DATA FIGURED WITH ENDGUN RUNNING

PRECIPITATION BASED

% TIMER BASED

PRECIPITATION INCHES	% TIMER SETTING	TIME HOURS	% TIMER SETTING	PRECIPITATION INCHES	TIME HOURS
.11	100.00	9.33 - 560(min)	100.00	.11	9.33 - 560(min)
.20	54.95	16.98	90.00	.12	10.37
.25	43.96	21.23	80.00	.14	11.66
.30	36.63	25.47	70.00	.16	13.33
.40	27.48	33.96	60.00	.18	15.55
.50	21.98	42.45	50.00	.22	18.66
.60	18.32	50.94	45.00	.24	20.74
.70	15.70	59.43	40.00	.27	23.33
.75	14.65	63.68	35.00	.31	26.66
.80	13.74	67.93	30.00	.37	31.10
.90	12.21	76.42	25.00	.44	37.33
1.00	10.99	84.91	20.00	.55	46.66
1.25	8.79	106.13	15.00	.73	62.21
1.50	7.33	127.36	10.00	1.10	93.31
1.75	6.28	148.59	5.00	2.20	186.63

CAUTION: The relationship between precipitation rate, timer setting, and hours per revolution provided above are theoretical numbers based on the data list at the top of the page. Actual precipitation rates may vary due to the following field and machine conditions: wind drift; evaporation; tire slippage, tire loaded radius; drive train efficiency; elevation changes; soil type. Due to these varying field and machine conditions the above chart should be used as a guide only.

DEALER - HOLZFASTER'S EQUIPMENT INC.

IRRIGATOR - MARQUARDT FOUNDATION
FIELD - NE 1/4 23-11-44

<u>SPAN 1 POS/LEN</u>	<u>SPAN 2 POS/LEN</u>	<u>SPAN 3 POS/LEN</u>	<u>SPAN 4 POS/LEN</u>	<u>SPAN 5 POS/LEN</u>	<u>SPAN 6 POS/LEN</u>	<u>SPAN 7 POS/LEN</u>	<u>ENDBOOM POS/LEN</u>
1 - 84	21 - 72	45 - 72	69 - 72	93 - 72	117 - 72	141 - 72	165 - 72
2 - 90	22 - 78	46 - 78	70 - 78	94 - 78	118 - 78	142 - 78	166 - 72
3 - 90	23 - 84	47 - 84	71 - 84	95 - 84	119 - 84	143 - 84	167 - 72
4 - 96	24 - 84	48 - 84	72 - 84	96 - 84	120 - 84	144 - 84	168 - 72
5 - 96	25 - 90	49 - 90	73 - 90	97 - 90	121 - 90	145 - 90	169 - 72
6 - 102	26 - 90	50 - 90	74 - 90	98 - 90	122 - 90	146 - 90	170 - 72
7 - 102	27 - 96	51 - 96	75 - 96	99 - 96	123 - 96	147 - 96	
8 - 102	28 - 96	52 - 96	76 - 96	100 - 96	124 - 96	148 - 96	
9 - 102	29 - 102	53 - 102	77 - 102	101 - 102	125 - 102	149 - 102	
10 - 102	30 - 102	54 - 102	78 - 102	102 - 102	126 - 102	150 - 102	
11 - 102	31 - 102	55 - 102	79 - 102	103 - 102	127 - 102	151 - 102	
12 - 102	32 - 102	56 - 102	80 - 102	104 - 102	128 - 102	152 - 102	
13 - 96	33 - 102	57 - 102	81 - 102	105 - 102	129 - 102	153 - 102	
14 - 96	34 - 102	58 - 102	82 - 102	106 - 102	130 - 102	154 - 102	
15 - 96	35 - 102	59 - 102	83 - 102	107 - 102	131 - 102	155 - 102	
16 - 90	36 - 102	60 - 102	84 - 102	108 - 102	132 - 102	156 - 102	
17 - 84	37 - 96	61 - 96	85 - 96	109 - 96	133 - 96	157 - 96	
18 - 84	38 - 96	62 - 96	86 - 96	110 - 96	134 - 96	158 - 96	
19 - 78	39 - 90	63 - 90	87 - 90	111 - 90	135 - 90	159 - 90	
20 - 72	40 - 90	64 - 90	88 - 90	112 - 90	136 - 90	160 - 90	
	41 - 84	65 - 84	89 - 84	113 - 84	137 - 84	161 - 84	
	42 - 84	66 - 84	90 - 84	114 - 84	138 - 84	162 - 84	
	43 - 78	67 - 78	91 - 78	115 - 78	139 - 78	163 - 78	
	44 - 72	68 - 72	92 - 72	116 - 72	140 - 72	164 - 72	

SUMMARY OF DROPS

19 - 72 IN DROP
 13 - 78 IN DROP
 27 - 84 IN DROP
 27 - 90 IN DROP
 29 - 96 IN DROP
 55 - 102 IN DROP

TOTAL OF 170 DROPS

POLY SENN GRAY FEMALE X PLASTIC MALE