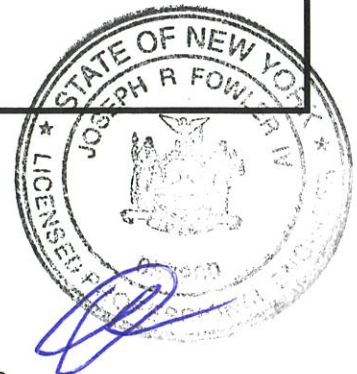




Hydraulic Calculations by HydraCALC

Hydratec Incorporated
64 Haverhill Road
Route 111
Windham, NH 03087
603-434-0502

Job Name : LINCOLN EQUITIES
Drawing : HIGH PILED STORAGE
Location : NY312 & PUGSLEY RD, BREWSTER, NY 10509
Remote Area : SYSTEM 2
Contract : 5031092
Data File : Lincoln Equities - BLDG A SYS 2 K25 8.23.23.WXF



08/20/23

Hydraulic Design Information Sheet

Name - LINCOLN EQUITIES SOUTHEAST Date - 8.23.23
Location - NY312 & PUGSLEY RD, BREWSTER, NY 10509
Building - HIGH PILED STORAGE System No. - SYSTEM 2
Contractor - SA COMUNALE Contract No. - 5031092
Calculated By - JUSTIN BEOUGHER Drawing No. - PG.5
Construction: () Combustible (X) Non-Combustible Ceiling Height - 44'-6
Occupancy - ESFR

S (X) NFPA 13 () Lt. Haz. Ord.Haz.Gp. () 1 () 2 () 3 () Ex.Haz.
Y () Figure Curve

S Other

T Specific Ruling

Made By

Date

M	Number of ESFR Sprinklers	- 12	System Type	Sprinkler/Nozzle
	End Head Pressure (PSI)	- 45	(X) Wet	Make TYCO
D	ESFR K-Factor	- 25.2	() Dry	Model ESFR-25
E	Elevation at Highest Outlet	- 45'-2	() Deluge	Size 1"
S	Hose Allowance - Inside	- 100	() Preaction	K-Factor 25.2
I	Rack Sprinkler Allowance	- NA	() Other	Temp.Rat.165
G	Hose Allowance - Outside	- 150		

N Note

Calculation Flow Required - 2287.91 Press Required - 135.346
Summary C-Factor Used: 120 Overhead 150 Underground

W	Water Flow Test:	Pump Data:	Tank or Reservoir:
A	Date of Test -		Cap. -
T	Time of Test -	Rated Cap.- 2000	Elev.-
E	Static Press -	@ Press - 149	
R	Residual Press -	Elev. - 2	Well
	Flow -		Proof Flow
S	Elevation -		

U Location - PUMP

P WATER STORAGE TANK

L Source of Information -

Y

C	Commodity GROUP A CARTONED UNEXP.	Class 1-4	Location
O	Storage Ht. 40 FT	Area	Aisle W.
M	Storage Method:	Solid Piled %	Palletized % Rack
M	() Single Row	() Conven. Pallet	() Auto. Storage () Encap.
S	() Double Row	() Slave Pallet	() Solid Shelf () Non
T	() Mult. Row		() Open Shelf

R	K	Flue Spacing	Clearance:Storage to Ceiling
A		Longitudinal	Transverse

E Horizontal Barriers Provided:

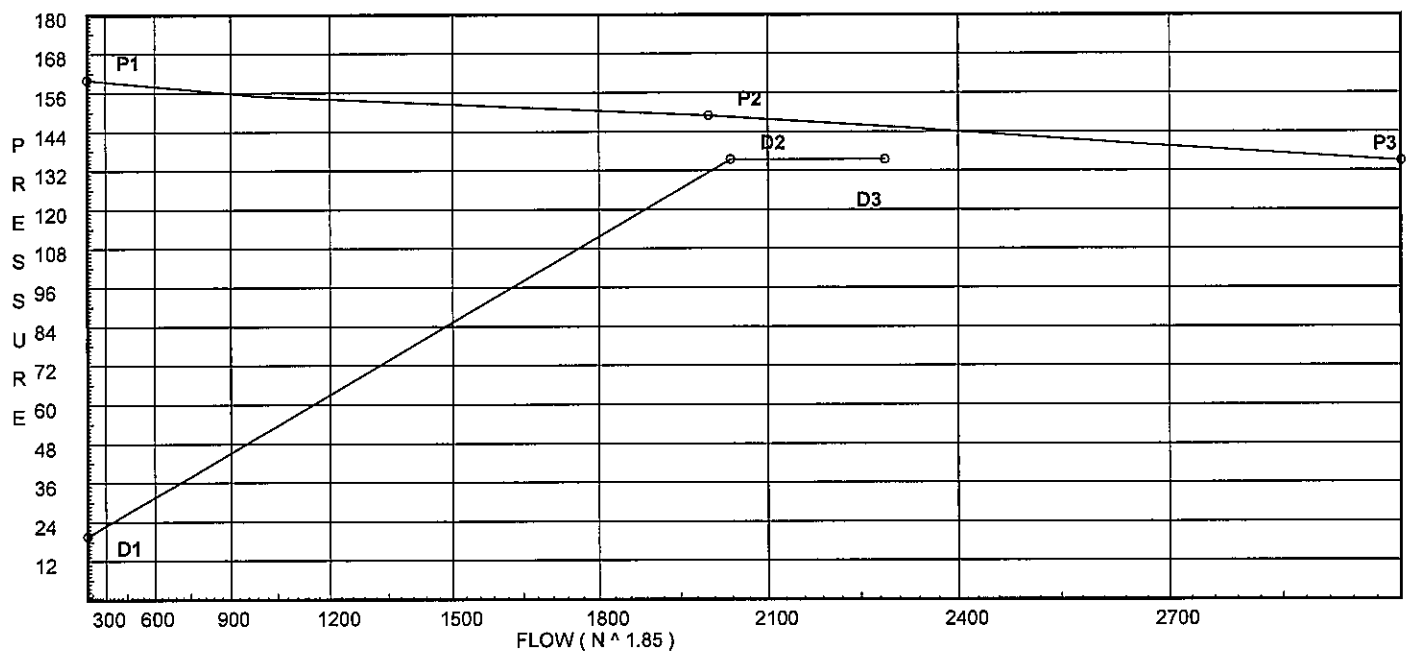
Water Supply Curve C

Hydratec Incorporated
LINCOLN EQUITIES

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Pump Data:
P1 - Pump Churn Pressure : 160
P2 - Pump Rated Pressure : 149
P2 - Pump Rated Flow : 2000
P3 - Pump Pressure @ Max Flow : 135
P3 - Pump Max Flow : 3000

Demand:
D1 - Elevation : 19.490
D2 - System Flow : 2037.92
D2 - System Pressure : 135.346
Hose (Demand) : 250
D3 - System Demand : 2287.92
Safety Margin : 10.226



Fittings Used Summary

Hydratec Incorporated
LINCOLN EQUITIES

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Fitting Legend		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12	14	16	18	20	24
Abbrev.	Name																				
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
F	NFPA 13 45° Elbow	1	1	1	1	2	2	3	3	3	4	5	7	9	11	13	17	19	21	24	28
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
L	NFPA 13 Long Turn Elbow	0.5	1	2	2	2	3	4	5	5	6	8	9	13	16	18	24	27	30	34	40
S	NFPA 13 Swing Check	0	0	5	7	9	11	14	16	19	22	27	32	45	55	65					
T	NFPA 13 90° Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121
V	90° Ell Firelock #001	0	0	0	0	0	3.5	4.3	5	0	6.8	8.5	10	13	4.5	5.1	0	0	0	0	0
X	90° Tee-Branch Firelock 002	0	0	0	0	0	8.5	10.8	13	0	16	21	25	33	9.3	11	0	0	0	0	0

Units Summary

Diameter Units	Inches
Length Units	Feet
Flow Units	US Gallons per Minute
Pressure Units	Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Flow Summary - NFPA

Hydratec Incorporated
LINCOLN EQUITIES

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
PO	See Information on Pump Curve			145.572	2287.92	135.346

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>
R13	47.0		71.39		
1	47.0	25.2	45.77	170.49	
2	47.0	25.2	45.0	169.05	
3	47.0	25.2	45.0	169.05	
4	47.0	25.2	45.75	170.45	
R14	47.0		71.42		
5	47.0	25.2	45.79	170.53	
6	47.0	25.2	45.02	169.08	
7	47.0	25.2	45.02	169.08	
8	47.0	25.2	45.77	170.49	
R15	47.0		71.53		
9	47.0	25.2	45.86	170.66	
10	47.0	25.2	45.09	169.21	
11	47.0	25.2	45.09	169.21	
12	47.0	25.2	45.84	170.62	
R16	47.0		81.16		
R17	47.0		81.4		
R18	47.0		81.63		
R19	47.0		81.83		
R20	47.0		82.01		
R21	47.0		82.17		
R22	47.0		82.32		
R23	47.0		82.45		
R24	47.0		82.57		
R25	47.0		82.68		
R26	47.0		82.79		
R27	47.0		82.88		
R28	47.0		82.98		
R29	47.0		75.24		
R30	47.0		75.27		
R31	47.0		75.38		
R32	47.0		84.07		
R33	47.0		84.36		
R34	47.0		84.67		
R35	47.0		85.02		
R36	47.0		85.39		
R37	47.0		85.8		
R38	47.0		86.25		
R39	47.0		86.74		

Flow Summary - NFPA

Hydratec Incorporated
LINCOLN EQUITIES

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NODE ANALYSIS (cont.)

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
R40	47.0		87.28		
R41	47.0		87.86		
R42	47.0		88.51		
R43	47.0		89.21		
R44	47.0		89.99		
13	47.0		80.34		
14	47.0		80.37		
15	47.0		80.49		
16	47.0		80.76		
17	47.0		80.99		
18	47.0		81.2		
19	47.0		81.38		
20	47.0		81.54		
21	47.0		81.67		
22	47.0		81.77		
23	47.0		81.85		
24	47.0		81.92		
25	47.0		81.96		
26	47.0		81.99		
27	47.0		82.0		
29	47.0		84.06		
30	47.0		84.1		
31	47.0		84.22		
32	47.0		84.48		
33	47.0		84.77		
34	47.0		85.1		
35	47.0		85.46		
36	47.0		85.87		
37	47.0		86.31		
38	47.0		86.8		
39	47.0		87.34		
40	47.0		87.94		
41	47.0		88.59		
42	47.0		89.31		
43	47.0		90.1		
44	47.0		90.97		
FMJ	47.0		92.54		
TR1	47.0		94.41		
BR1	2.0		117.25	100.0	
FLG	2.0		117.35		
UG1	-5.0		123.52		
UG2	-5.0		127.85		
UG3	-5.0		132.48		
UG4	-5.0		131.04	150.0	
UG5	-5.0		131.01		
UG6	-5.0		136.61		
PUMP	2.0		134.0		
PO	2.0		135.35		

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
R13 to 1	47 47		-340.80 -340.8	2.5 2.635		0.0 0.0 0.0	92.042 0.0 92.042	120 -0.2783	71.391 0.0 -25.619		Vel = 20.05	
1 to 2	47 47	25.20	170.48 -170.32	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 -0.0772	45.772 0.0 -0.772		Vel = 10.02	
2 to 3	47 47	25.20	169.05 -1.27	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 0	45.000 0.0 0.0		Vel = 0.07	
3 to 4	47 47	25.20	169.05 167.78	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 0.0750	45.000 0.0 0.750		Vel = 9.87	
4 to R29	47 47	25.20	170.45 338.23	2.5 2.635		0.0 0.0 0.0	107.458 0.0 107.458	120 0.2745	45.750 0.0 29.494		Vel = 19.90	
R29			0.0 338.23						75.244		K Factor = 38.99	
R14 to 5	47 47		-340.88 -340.88	2.5 2.635		0.0 0.0 0.0	92.042 0.0 92.042	120 -0.2785	71.422 0.0 -25.631		Vel = 20.06	
5 to 6	47 47	25.20	170.52 -170.36	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 -0.0771	45.791 0.0 -0.771		Vel = 10.02	
6 to 7	47 47	25.20	169.09 -1.27	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 -0.0001	45.020 0.0 -0.001		Vel = 0.07	
7 to 8	47 47	25.20	169.08 167.81	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 0.0751	45.019 0.0 0.751		Vel = 9.87	
8 to R30	47 47	25.20	170.49 338.3	2.5 2.635		0.0 0.0 0.0	107.458 0.0 107.458	120 0.2746	45.770 0.0 29.504		Vel = 19.90	
R30			0.0 338.30						75.274		K Factor = 38.99	
R15 to 9	47 47		-341.16 -341.16	2.5 2.635		0.0 0.0 0.0	92.042 0.0 92.042	120 -0.2789	71.532 0.0 -25.670		Vel = 20.07	
9 to 10	47 47	25.20	170.65 -170.51	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 -0.0773	45.862 0.0 -0.773		Vel = 10.03	
10 to 11	47 47	25.20	169.22 -1.29	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 0	45.089 0.0 0.0		Vel = 0.08	
11 to 12	47 47	25.20	169.21 167.92	2.5 2.635		0.0 0.0 0.0	10.000 0.0 10.000	120 0.0752	45.089 0.0 0.752		Vel = 9.88	
12 to R31	47 47	25.20	170.62 338.54	2.5 2.635		0.0 0.0 0.0	107.458 0.0 107.458	120 0.2749	45.841 0.0 29.544		Vel = 19.92	

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
R31			0.0 338.54						75.385		K Factor = 38.99	
R16 to R32	47 47		64.15 64.15	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0127	81.164 0.0 2.907		Vel = 3.77	
R32			0.0 64.15						84.071		K Factor = 7.00	
R17 to R33	47 47		64.69 64.69	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0129	81.405 0.0 2.953		Vel = 3.81	
R33			0.0 64.69						84.358		K Factor = 7.04	
R18 to R34	47 47		65.79 65.79	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0133	81.627 0.0 3.047		Vel = 3.87	
R34			0.0 65.79						84.674		K Factor = 7.15	
R19 to R35	47 47		67.45 67.45	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0139	81.828 0.0 3.190		Vel = 3.97	
R35			0.0 67.45						85.018		K Factor = 7.32	
R20 to R36	47 47		69.64 69.64	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0147	82.010 0.0 3.384		Vel = 4.10	
R36			0.0 69.64						85.394		K Factor = 7.54	
R21 to R37	47 47		72.34 72.34	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0158	82.174 0.0 3.631		Vel = 4.26	
R37			0.0 72.34						85.805		K Factor = 7.81	
R22 to R38	47 47		75.51 75.51	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0171	82.321 0.0 3.932		Vel = 4.44	
R38			0.0 75.51						86.253		K Factor = 8.13	
R23 to R39	47 47		79.14 79.14	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0187	82.454 0.0 4.288		Vel = 4.66	
R39			0.0 79.14						86.742		K Factor = 8.50	
R24 to R40	47 47		83.19 83.19	2.5 2.635		0.0 0.0 0.0	229.500 0.0 229.500	120 0.0205	82.574 0.0 4.703		Vel = 4.89	
			0.0									

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
R40			83.19					87.277		K Factor = 8.90	
R25 to R41	47 47		87.65	2.5	0.0 0.0	229.500 0.0	120	82.684 0.0			
			87.65	2.635	0.0	229.500	0.0226	5.180		Vel = 5.16	
R41			0.0 87.65					87.864		K Factor = 9.35	
R26 to R42	47 47		92.48	2.5	0.0 0.0	229.500 0.0	120	82.786 0.0			
			92.48	2.635	0.0	229.500	0.0249	5.720		Vel = 5.44	
R42			0.0 92.48					88.506		K Factor = 9.83	
R27 to R43	47 47		97.66	2.5	0.0 0.0	229.500 0.0	120	82.884 0.0			
			97.66	2.635	0.0	229.500	0.0276	6.327		Vel = 5.75	
R43			0.0 97.66					89.211		K Factor = 10.34	
R28 to R44	47 47		103.17	2.5	0.0 0.0	229.500 0.0	120	82.983 0.0			
			103.17	2.635	0.0	229.500	0.0305	7.003		Vel = 6.07	
R44			0.0 103.17					89.986		K Factor = 10.88	
R13 to 13	47 47		340.80	2.5	X T	14.827 16.474	0.833	71.391 0.0			
			340.8	2.635	0.0	32.134	0.2784	8.945		Vel = 20.05	
13			0.0 340.80					80.336		K Factor = 38.02	
R14 to 14	47 47		340.88	2.5	X T	14.827 16.474	0.833	71.422 0.0			
			340.88	2.635	0.0	32.134	0.2785	8.948		Vel = 20.06	
14			0.0 340.88					80.370		K Factor = 38.02	
R15 to 15	47 47		341.16	2.5	X T	14.827 16.474	0.833	71.532 0.0			
			341.16	2.635	0.0	32.134	0.2789	8.962		Vel = 20.07	
15			0.0 341.16					80.494		K Factor = 38.03	
R16 to 16	47 47		-64.15	2.5	X T	14.827 16.474	0.833	81.164 0.0			
			-64.15	2.635	0.0	32.134	-0.0127	-0.408		Vel = 3.77	
16			0.0 -64.15					80.756		K Factor = -7.14	
R17 to 17	47 47		-64.69	2.5	X T	14.827 16.474	0.833	81.405 0.0			
			-64.69	2.635	0.0	32.134	-0.0129	-0.413		Vel = 3.81	
17			0.0 -64.69					80.992		K Factor = -7.19	

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
R18 to 18	47 47		-65.79 -65.79	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0133	81.627 0.0 -0.427		Vel = 3.87	
18			0.0 -65.79						81.200		K Factor = -7.30	
R19 to 19	47 47		-67.45 -67.45	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0139	81.828 0.0 -0.447		Vel = 3.97	
19			0.0 -67.45						81.381		K Factor = -7.48	
R20 to 20	47 47		-69.64 -69.64	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0148	82.010 0.0 -0.474		Vel = 4.10	
20			0.0 -69.64						81.536		K Factor = -7.71	
R21 to 21	47 47		-72.34 -72.34	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0158	82.174 0.0 -0.509		Vel = 4.26	
21			0.0 -72.34						81.665		K Factor = -8.00	
R22 to 22	47 47		-75.51 -75.51	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0171	82.321 0.0 -0.550		Vel = 4.44	
22			0.0 -75.51						81.771		K Factor = -8.35	
R23 to 23	47 47		-79.14 -79.14	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0187	82.454 0.0 -0.600		Vel = 4.66	
23			0.0 -79.14						81.854		K Factor = -8.75	
R24 to 24	47 47		-83.19 -83.19	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0205	82.574 0.0 -0.658		Vel = 4.89	
24			0.0 -83.19						81.916		K Factor = -9.19	
R25 to 25	47 47		-87.65 -87.65	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0226	82.684 0.0 -0.725		Vel = 5.16	
25			0.0 -87.65						81.959		K Factor = -9.68	
R26 to 26	47 47		-92.48 -92.48	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0249	82.786 0.0 -0.801		Vel = 5.44	
26			0.0 -92.48						81.985		K Factor = -10.21	
R27 to 27	47 47		-97.66 -97.66	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0276	82.884 0.0 -0.886		Vel = 5.75	

Final Calculations : Hazen-Williams

Hydratec Incorporated
LINCOLN EQUITIES

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
27			0.0 -97.66						81.998		K Factor = -10.78	
R28 to 28	47 47		-103.17 -103.17	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 -0.0305	82.983 0.0 -0.981		Vel = 6.07	
28			0.0 -103.17						82.002		K Factor = -11.39	
R29 to 29	47 47		338.23 338.23	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.2745	75.244 0.0 8.820		Vel = 19.90	
29			0.0 338.23						84.064		K Factor = 36.89	
R30 to 30	47 47		338.30 338.3	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.2746	75.274 0.0 8.824		Vel = 19.90	
30			0.0 338.30						84.098		K Factor = 36.89	
R31 to 31	47 47		338.54 338.54	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.2749	75.385 0.0 8.835		Vel = 19.92	
31			0.0 338.54						84.220		K Factor = 36.89	
R32 to 32	47 47		64.15 64.15	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0127	84.071 0.0 0.408		Vel = 3.77	
32			0.0 64.15						84.479		K Factor = 6.98	
R33 to 33	47 47		64.69 64.69	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0129	84.358 0.0 0.413		Vel = 3.81	
33			0.0 64.69						84.771		K Factor = 7.03	
R34 to 34	47 47		65.79 65.79	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0133	84.674 0.0 0.426		Vel = 3.87	
34			0.0 65.79						85.100		K Factor = 7.13	
R35 to 35	47 47		67.45 67.45	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0139	85.018 0.0 0.447		Vel = 3.97	
35			0.0 67.45						85.465		K Factor = 7.30	
R36 to 36	47 47		69.64 69.64	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0148	85.394 0.0 0.474		Vel = 4.10	
			0.0									

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
36			69.64						85.868		K Factor = 7.52	
R37 to 37	47 47		72.34 72.34	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0158	85.805 0.0 0.508		Vel = 4.26	
37			0.0 72.34						86.313		K Factor = 7.79	
R38 to 38	47 47		75.51 75.51	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0171	86.253 0.0 0.550		Vel = 4.44	
38			0.0 75.51						86.803		K Factor = 8.10	
R39 to 39	47 47		79.14 79.14	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0187	86.742 0.0 0.600		Vel = 4.66	
39			0.0 79.14						87.342		K Factor = 8.47	
R40 to 40	47 47		83.19 83.19	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0205	87.277 0.0 0.659		Vel = 4.89	
40			0.0 83.19						87.936		K Factor = 8.87	
R41 to 41	47 47		87.65 87.65	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0226	87.864 0.0 0.725		Vel = 5.16	
41			0.0 87.65						88.589		K Factor = 9.31	
R42 to 42	47 47		92.48 92.48	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0249	88.506 0.0 0.801		Vel = 5.44	
42			0.0 92.48						89.307		K Factor = 9.79	
R43 to 43	47 47		97.66 97.66	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0276	89.211 0.0 0.886		Vel = 5.75	
43			0.0 97.66						90.097		K Factor = 10.29	
R44 to 44	47 47		103.17 103.17	2.5 2.635	X T	14.827 16.474 0.0	0.833 31.301 32.134	120 0.0305	89.986 0.0 0.980		Vel = 6.07	
44			0.0 103.17						90.966		K Factor = 10.82	
13 to 14	47 47		340.80 340.8	6 6.357		0.0 0.0 0.0	9.000 0.0 9.000	120 0.0038	80.336 0.0 0.034		Vel = 3.44	
14 to 15	47 47		340.89 681.69	6 6.357		0.0 0.0 0.0	9.000 0.0 9.000	120 0.0138	80.370 0.0 0.124		Vel = 6.89	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftns Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
15 to 16	47 47		341.16 1022.85	6 6.357		0.0 0.0	9.000 9.000	120 0.0291	80.494 0.0 0.262		Vel = 10.34	
16 to 17	47 47		-64.15 958.7	6 6.357		0.0 0.0	9.083 9.083	120 0.0260	80.756 0.0 0.236		Vel = 9.69	
17 to 18	47 47		-64.68 894.02	6 6.357		0.0 0.0	9.167 9.167	120 0.0227	80.992 0.0 0.208		Vel = 9.04	
18 to 19	47 47		-65.80 828.22	6 6.357		0.0 0.0	9.167 9.167	120 0.0197	81.200 0.0 0.181		Vel = 8.37	
19 to 20	47 47		-67.45 760.77	6 6.357		0.0 0.0	9.167 9.167	120 0.0169	81.381 0.0 0.155		Vel = 7.69	
20 to 21	47 47		-69.64 691.13	6 6.357		0.0 0.0	9.167 9.167	120 0.0141	81.536 0.0 0.129		Vel = 6.99	
21 to 22	47 47		-72.33 618.8	6 6.357		0.0 0.0	9.167 9.167	120 0.0116	81.665 0.0 0.106		Vel = 6.26	
22 to 23	47 47		-75.52 543.28	6 6.357		0.0 0.0	9.167 9.167	120 0.0091	81.771 0.0 0.083		Vel = 5.49	
23 to 24	47 47		-79.14 464.14	6 6.357		0.0 0.0	9.167 9.167	120 0.0068	81.854 0.0 0.062		Vel = 4.69	
24 to 25	47 47		-83.19 380.95	6 6.357		0.0 0.0	9.167 9.167	120 0.0047	81.916 0.0 0.043		Vel = 3.85	
25 to 26	47 47		-87.65 293.3	6 6.357		0.0 0.0	9.167 9.167	120 0.0028	81.959 0.0 0.026		Vel = 2.96	
26 to 27	47 47		-92.47 200.83	6 6.357		0.0 0.0	9.167 9.167	120 0.0014	81.985 0.0 0.013		Vel = 2.03	
27 to 28	47 47		-97.66 103.17	6 6.357		0.0 0.0	9.167 9.167	120 0.0004	81.998 0.0 0.004		Vel = 1.04	
28			0.0 103.17						82.002		K Factor = 11.39	
29 to 30	47 47		338.23 338.23	6 6.357		0.0 0.0	9.000 9.000	120 0.0038	84.064 0.0 0.034		Vel = 3.42	
30 to 31	47 47		338.29 676.52	6 6.357		0.0 0.0	9.000 9.000	120 0.0136	84.098 0.0 0.122		Vel = 6.84	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
31 to 32	47 47		338.55 1015.07	6 6.357	0.0 0.0 0.0	9.000 0.0 9.000	120 0.0288	84.220 0.0 0.259		Vel = 10.26	
32 to 33	47 47		64.15 1079.22	6 6.357	0.0 0.0 0.0	9.083 0.0 9.083	120 0.0321	84.479 0.0 0.292		Vel = 10.91	
33 to 34	47 47		64.68 1143.9	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0359	84.771 0.0 0.329		Vel = 11.56	
34 to 35	47 47		65.80 1209.7	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0398	85.100 0.0 0.365		Vel = 12.23	
35 to 36	47 47		67.45 1277.15	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0440	85.465 0.0 0.403		Vel = 12.91	
36 to 37	47 47		69.64 1346.79	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0485	85.868 0.0 0.445		Vel = 13.61	
37 to 38	47 47		72.33 1419.12	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0535	86.313 0.0 0.490		Vel = 14.35	
38 to 39	47 47		75.51 1494.63	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0588	86.803 0.0 0.539		Vel = 15.11	
39 to 40	47 47		79.14 1573.77	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0648	87.342 0.0 0.594		Vel = 15.91	
40 to 41	47 47		83.20 1656.97	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0712	87.936 0.0 0.653		Vel = 16.75	
41 to 42	47 47		87.65 1744.62	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0783	88.589 0.0 0.718		Vel = 17.64	
42 to 43	47 47		92.47 1837.09	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0862	89.307 0.0 0.790		Vel = 18.57	
43 to 44	47 47		97.66 1934.75	6 6.357	0.0 0.0 0.0	9.167 0.0 9.167	120 0.0948	90.097 0.0 0.869		Vel = 19.56	
44 to FMJ	47 47		103.17 2037.92	6 6.357	V 0.0 0.0	12.573 0.0 15.031	2.458 12.573 0.1045	120 0.0 1.570		Vel = 20.60	
FMJ			0.0 2037.92					92.536		K Factor = 211.85	
FMJ to TR1	47 47		2037.92	8 8.249	2V 0.0 0.0	30.537 0.0 63.829	33.292 30.537 0.0294	120 0.0 1.874		Vel = 12.23	

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
TR1 to BR1	47 2		0.0 2037.92	8 8.249	T	41.108 0.0	38.875 41.108	120	94.410 20.490		* * Fixed Loss = 1 Vel = 12.23	
BR1 to FLG	2 2	H100	100.00 2137.92	12 11.65	L	24.149 0.0	2.000 24.149	150	117.248 0.0		Vel = 6.43	
FLG to UG1	2 -5		0.0 2137.92	8 7.98	L T	19.632 52.855	53.167 72.487	150	117.352 3.032		Vel = 13.71	
UG1 to UG2	-5 -5		-1100.39 1037.53	8 7.98	3F G	40.774 6.041	614.875 46.814	150	123.518 0.0		Vel = 6.66	
UG2 to UG3	-5 -5		0.0 1037.53	8 7.98	3F L T 2G	40.774 19.632 52.855 12.081	580.958 125.343 706.301	150	127.852 0.0		Vel = 6.66	
UG3 to UG4	-5 -5		-2287.92 -1250.39	12 11.65	F G	17.441 8.05	958.917 25.490	150	132.478 0.0		Vel = 3.76	
UG4 to UG5	-5 -5	H150	150.00 -1100.39	12 11.65	G	8.05 0.0	16.167 8.049	150	131.036 0.0		Vel = 3.31	
UG5 to UG1	-5 -5		0.0 -1100.39	8 7.98	5F 2G	67.957 12.081	945.542 80.039	150	131.008 0.0		Vel = 7.06	
UG1			0.0 -1100.39						123.518		K Factor = -99.01	
UG3 to UG6	-5 -5		2287.92 2287.92	12 11.65	6F 2G	104.647 16.1	801.750 120.747	150	132.478 0.0		Vel = 6.89	
UG6 to PUMP	-5 2		0.0 2287.92	12 11.65	2L	48.299 0.0	45.500 48.298	150	136.612 -3.032		Vel = 6.89	
PUMP to PO	2 2		0.0 2287.92	10 10.42	2V S B	10.89 66.551 22.99	15.000 100.431 115.431	120	134.000 0.0		Vel = 8.61	
PO			0.0 2287.92						135.346		K Factor = 196.66	

