MAXIMUM PRECIPITATION RATES and WIRE SIZING

The following chart represents the maximum wire length recommended for valve installation. Recommendations are based on wire sizes used for valve field (control) wires and common wires. All lengths listed assume the use of one Nelson valve per zone and have been proven to operate the solenoid despite minimal voltage and high in-rush (worst case scenario).

To use chart, find the gauge of your common wire and the gauge of your control wire. The number that joins the two gauge sizes on the chart is the maximum number of feet of wire that can be used for installation. For example, if you use a 12 gauge common wire combined with an 18 gauge wire to control the valves, a 1,504 foot wire run is acceptable. (Based on a 20 VA transformer)

	Control Wire Size (ft)									
Common Wire Size (ft)	SIZE	4	6	8	10	12	14	16	18	20	22
	4	24,000	18,461	13,333	9,600	6,522	4,332	2,721	1,807	1,159	729
	6	18,462	15,000	11,429	8.571	6,030	4,110	2,632	1,767	1,143	723
	8	13,333	11,429	9,231	7,273	5,357	3,785	2,495	1,705	1,116	712
	10	9,600	8,571	7,278	6,000	4,633	3,409	2,326	1,624	1,081	968
	12	6,522	6,030	5,357	4,633	3,774	2,920	2,087	1,504	1,027	675
	14	4,332	4,110	3,785	3,409	2,920	2,381	1,796	1,347	951	641
	16	2,721	2,632	2,495	2,326	2,087	1,796	1,442	1,137	842	589
	18	1,807	1,767	1,705	1,624	1,504	1,347	1,137	939	728	531
	20	1,159	1,143	1,116	1,081	1,027	951	842	728	594	456
	22	729	723	712	698	675	641	589	531	456	370

The maximum PR values listed below are as suggested by the United States Department of Agriculture. The values are average and may vary with respect to actual soil and ground cover condition.

Soil Texture	Maximum Precipitation Rates: Inches Per Hour							
	0 to 5% slope		5 to 8% slope		8 to 12% slope		12% + slope	
	Cover	Bare	Cover	Bare	Cover	Bare	Cover	Bare
Course sandy soils	2.00	2.00	2.00	1.50	1.50	1.0	1.0	0.50
Course sandy soils over compact subsoils	1.75	1.50	1.25	1.00	1.00	0.75	0.75	0.40
Light sandy loams uniform	1.75	1.00	1.25	0.80	1.00	0.60	0.75	0.40
Light sandy loams over compact subsoils	1.25	0.75	1.00	0.50	0.75	0.40	0.50	0.30
Uniform silt loams	1.00	0.50	0.80	0.40	0.60	0.30	0.40	0.20
Silt loams over compact subsoil	0.60	0.30	0.50	0.25	0.40	0.15	0.30	0.10
Heavy clay or clay loam	0.20	0.15	0.15	0.10	0.12	0.08	0.10	0.06