1. All joints within length "L" must be restrained. Use retainer gland at mechanical joints and harness with push-on pipe per city specification.

2. For test pressures and laying conditions see section on general notes for use of restrained joint lengths.

<table>
<thead>
<tr>
<th>Pipe Size (inches)</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
<th>16</th>
<th>18</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>62</td>
<td>82</td>
<td>99</td>
<td>118</td>
<td>135</td>
<td>153</td>
<td>169</td>
<td>187</td>
<td></td>
</tr>
</tbody>
</table>

**Restained Lengths, 'L' (in feet)**

**Restained Joint Lengths Usage General Notes**

Restained length calculations are based on the following design typically used with backfill in St. George.

1. Three (3) feet minimum depth of cover.
2. A safety factor of 1.5
3. Soil type sandy clay
4. Type 5 trench compaction from four (4) inches minimum under the pipe to the center line of the pipe, and compacted granular or selected material from the center line of the pipe to the top of the pipe (90 percent standard proctor density, AASHTO T-99).
5. 200 psi test pressures for four (4) through sixteen (16) inch size pipes.

If actual conditions differ from those listed above or the required restrained length cannot be met, the restrained joint length shall be determined by the water and power engineer.