

Table I: 2006 RECLAMATION TABLE OF E' VALUES

E' values are shown in lbs/in<sup>2</sup> (MPa) [See Notes 1, 2, & 3]

Soil Classification of Embedment (See Notes 4, 5, & 6)	Degree of Compaction of Pipe Embedment (See Note 7)			
	<b>DUMPED</b>	<b>SLIGHT</b> <85% P <40% RD	<b>MODERATE</b> 85-95% P 40%-70% RD	<b>HIGH</b> >95% P >70% RD
Highly compressible, plastic, or <u>organic</u> clays/silts, peat, topsoil  <b>CH, MH, OH, OL, Pt</b>				
<u>Clays and Silts</u> with less than 30% sand and/or gravel  <b>CL, ML</b>	<b>50</b> (0.3)	<b>200</b> (1.4)	<b>400</b> (2.8)	<del>1000</del> <b>1500</b> (10)
Sandy or Gravelly <u>Silts and Clays</u> with 30% or more sand and/or gravel <b>CL, ML</b>  <u>Sands and Gravels</u> with 13% or more fines  <b>GC, GM, SC, SM</b>	<del>100</del> <b>150</b> (1.1)	<b>400</b> (2.8)	<b>1000</b> (7)	<del>2000</del> <b>2500</b> (17)
<u>Sands and Gravels</u> with 12% or less fines  <b>GW, GP, SW, SP</b> (See Note 8)	<b>200</b> (1.4)	<del>1000</del> <b>700</b> (5)	<b>2000</b> (14)	<del>3000</del> <b>4000</b> (28)
	<b>Uncompacted</b>		<b>Compacted</b>	
<u>Crushed Rock</u> With less than 25% passing 3/8-inch sieve and less than 12% fines (See Note 9)	<b>1000</b> (7)		<del>3000</del> <b>6000</b> (42)	

NOTES:

1. Values only valid for pipe cover of 50 ft (15 m) or less.
2. The E' values shown are only valid when used with a prism load.
3. Using these E' values will give an estimated **initial average** pipe vertical deflection.  
Time-lag factors must be used for long term deflection.  
The actual deflection should agree with the estimated deflection within:
  - ± 0.5% percentage points for high degree of compaction
  - ± 1% percentage points for moderate degree of compaction
  - ± 2% percentage points for dumped/slight degree of compaction
4. Unified Soil Classification based on ASTM D2487 or D2488.
5. "Soil Classification of Embedment" also applies to dual symbol or borderline soils beginning with the symbol shown in column.
6. Fines are soil particles that pass a No. 200 (75 micrometer) sieve (clays and silts).
7. "P" is standard Proctor density (ASTM D 698, AASHTO T-99) and "RD" is Relative Density (ASTM D 4253 and D 4254)
8. Does not apply to SP soils containing more than 50% fine sand (passing No 40 sieve) Consider these soils as ML soil for the purposes of this table.
9. All faces of "Crushed Rock" should be fractured.