

## TERMS OF REFERENCE

### COST STUDY UPDATE

#### **1. Alberta Municipal Affairs & Housing Introduction/Goal**

The Regulated Assessment Policy Unit of the Assessment Services Branch (the Branch), Alberta Municipal Affairs & Housing, is responsible for the development and maintenance of property assessment procedures for regulated industrial property. Regulated industrial property is defined in the Municipal Government Act, Section 284 (1).

The assessment procedures for regulated industrial property are based on construction costs and the principles in the 2006 Alberta Construction Cost Reporting Guide. These procedures are included in the 2006 Minister's Guidelines for all regulated industrial property in Alberta.

The procedures are amended each year to include factors to reflect changes in construction costs for a given regulated industrial property. This factor is called the assessment year modifier (AYM).

A key component in the development of the AYM, for any given year, is the Construction Cost Change Study for a specified regulated industrial property. This study reflects the Construction Cost Change for a period July 1 to June 30 of the specified assessment year.

The goal of this project is to provide the Branch with appropriate information about Alberta construction costs changes to June 30, 2007 from professional firm's expert in the field of regulated industrial property.

#### **2. Project Summary**

This project has been initiated to engage industry experts to update the 2006 Construction Cost Change Study to reflect changes for the time period July 1/2006 to June 30/2007, for a specified *Regulated Property Type*.

#### **3. Project Staff**

This project will be carried out under contract with the contractor.

Alberta Municipal Affairs & Housing will support the project by having its own staff, and contracted agents, available to the contractor for consultation and by providing any requested written material.

The Contract Manager for the AMA will be Sheila Young, Director - Regulated Assessment Policy.

#### **4. Project Deliverables and Time Lines**

1. Using the same methodology and information sources (to the degree possible) as in 2004, 2005 and 2006, develop and document the construction cost change for the regulated industrial property type "*Pipeline*", to reflect changes for the period July 1, 2006 to June 30, 2007. This documentation is to be provided to the Branch by July 20, 2007.
2. Provide documentation, as warranted, on current construction practices that are substantially different than those specified in the Branch construction cost models. Documentation to be provided by July 20, 2007.
3. Accommodate up to three (2) days for meetings with Branch staff and/or designates for feedback, review and clarification.

**Note:**

The following documents and directives are available to provide guidance in the development of the construction cost change studies.

- 2006 Ministers Guidelines  
[http://municipalaffairs.gov.ab.ca/as\\_minister\\_guidelines.htm](http://municipalaffairs.gov.ab.ca/as_minister_guidelines.htm)
- 2006 Municipal Government Act  
[http://www.qp.gov.ab.ca/documents/Acts/M26.cfm?frm\\_isbn=0779737822](http://www.qp.gov.ab.ca/documents/Acts/M26.cfm?frm_isbn=0779737822)
- 2006 Construction Cost Reporting Guidelines  
[http://municipalaffairs.gov.ab.ca/as\\_minister\\_guidelines.htm](http://municipalaffairs.gov.ab.ca/as_minister_guidelines.htm)
- Costs based on construction within 50 km of the City of Edmonton Boundary

**5. Project Costs**

Any significant and reasonable project related costs for long-distance travel, communications, reproductions or other items would be addition to the hourly charges.

Payment will be made to the contractor upon submission of an invoice by the Contractor.

**6. Project Assumptions**

Staff and documents of Alberta Municipal Affairs will be available to the consultant as reasonable and necessary to complete the project on schedule.

Alberta Municipal Affairs will not dictate the place of work or the hours of work, just the delivery date for the final project.

## Summary of Pipeline

	<b>Factor</b>	<b>% Increase</b>	<b>ACC</b>
<b>ANSI150</b>	<b>1.063</b>	<b>6.28</b>	<b>PL100</b>
<b>ANSI300</b>	<b>1.065</b>	<b>6.46</b>	<b>PL110</b>
<b>ANSI400</b>	<b>1.067</b>	<b>6.74</b>	<b>PL120</b>
<b>ANSI600</b>	<b>1.045</b>	<b>4.48</b>	<b>PL130</b>
<b>ANSI600 300km</b>	<b>1.034</b>	<b>3.41</b>	<b>PL131</b>
<b>ANSI900</b>	<b>1.089</b>	<b>8.89</b>	<b>PL140</b>
<b>ANSI900 300km</b>	<b>1.034</b>	<b>3.43</b>	<b>PL141</b>
<b>MDPE</b>	<b>1.042</b>	<b>4.24</b>	<b>PL200</b>
<b>HDPE</b>	<b>1.029</b>	<b>2.92</b>	<b>PL200</b>
<b>PVC</b>	<b>1.087</b>	<b>8.66</b>	<b>PL300</b>
<b>Aluminium</b>	<b>1.000</b>	<b>0.00</b>	<b>PL400</b>
<b>Fibreglass</b>	<b>1.064</b>	<b>6.35</b>	<b>PL500</b>
<b>Overall Median Value</b>	<b>1.054</b>	<b>5.38</b>	

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	2.8	2.8	2.8	2.8	3.2	4	4.4	4.8	4.8	4.8	5.6	5.6
Imperial O.D (inches)	2.37	3.5	4.5	6.63	8.63	10.75	12.75	14	16	18	20	22
Metric O.D (mm)	60.3	88.9	114.3	168.3	219.1	273.1	323.9	355.6	406.4	457	508	559
land - entry fee/m	1.85	1.85	1.85	1.85	2.47	2.47	2.47	3.09	3.09	3.09	3.09	3.09
land - damages/m	2.82	2.82	2.82	2.82	4.52	4.52	4.52	6.67	6.67	6.67	6.67	6.67
land - acquisition/m	4.45	4.45	4.45	4.45	6.91	6.91	6.91	9.27	9.27	9.27	9.27	9.27
<b>Subtotal Land Costs (\$/m)</b>	<b>4.67</b>	<b>4.67</b>	<b>4.67</b>	<b>4.67</b>	<b>6.99</b>	<b>6.99</b>	<b>6.99</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>
Preliminary engineering	0.63	0.63	0.63	0.63	0.63	0.63	0.88	0.88	0.88	0.88	0.88	0.88
Route Reconnaissance	0.13	0.13	0.13	0.13	0.13	0.13	0.16	0.16	0.16	0.16	0.16	0.16
Environmental	0.78	0.78	0.78	0.78	0.78	0.78	0.89	0.89	0.89	0.89	0.89	0.89
Archeological	0.56	0.56	0.56	0.56	0.56	0.56	0.63	0.63	0.63	0.63	0.63	0.63
Geotechnical	0.47	0.47	0.47	0.47	0.47	0.47	0.69	0.69	0.69	0.69	0.69	0.69
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.16	0.16	0.16	0.16	0.16	0.16	0.25	0.25	0.25	0.25	0.25	0.25
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's,Procure.	0.77	0.77	0.77	0.77	0.77	0.77	0.95	0.95	0.95	0.95	0.95	0.95
Drainage Drawings	0.22	0.22	0.22	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27	0.27
Drawings	1.51	1.51	1.51	1.51	1.51	1.51	2.20	2.20	2.20	2.20	2.20	2.20
Construction Management	1.29	1.29	1.29	1.29	1.29	1.29	1.72	1.72	1.72	1.72	1.72	1.72
Inspection	3.02	3.02	3.02	3.02	3.02	3.02	3.43	3.43	3.43	3.43	3.43	3.43
Construction Surveying	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
<b>Subtotal Eng. Costs (\$/m)</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>
<b>Man-Made Crossings</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>
Radiography	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.63	2.63	2.63	2.63	2.63
Seeding	0.14	0.14	0.14	0.14	0.21	0.21	0.21	0.26	0.26	0.26	0.26	0.26
100 Swamp Weights (500m wet)	0.16	0.16	0.16	0.16	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Posts,Test Leads,Signs	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>3.58</b>	<b>3.58</b>	<b>3.58</b>	<b>3.58</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>
Pipe costs	7.53	10.17	12.98	19.28	29.84	44.69	59.31	72.22	82.69	93.20	120.76	133.02
External Coating-YJ1 or FBE	3.06	3.85	4.81	7.40	9.70	12.35	14.49	18.01	15.30	17.22	19.12	21.02
Cost of A/G Assemblies	3.10	3.19	3.30	3.49	3.80	4.33	5.66	6.55	7.34	8.50	9.42	10.31
Heavy Wall Pipe for crossings	0.01	0.03	0.03	0.04	0.12	0.22	0.09	0.22	0.13	0.52	0.26	0.29
<b>SubTotal Material Costs (\$/m)</b>	<b>13.71</b>	<b>17.24</b>	<b>21.11</b>	<b>30.21</b>	<b>43.46</b>	<b>61.59</b>	<b>79.54</b>	<b>97.00</b>	<b>105.46</b>	<b>119.44</b>	<b>149.56</b>	<b>164.65</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>26.70</b>	<b>29.69</b>	<b>30.64</b>	<b>39.34</b>	<b>55.74</b>	<b>70.57</b>	<b>86.19</b>	<b>126.48</b>	<b>167.68</b>	<b>223.67</b>	<b>255.68</b>	<b>276.33</b>
<b>Total Assessable Costs per M</b>	<b>60.46</b>	<b>66.98</b>	<b>71.80</b>	<b>89.60</b>	<b>121.69</b>	<b>154.65</b>	<b>190.17</b>	<b>251.00</b>	<b>300.66</b>	<b>370.64</b>	<b>432.77</b>	<b>468.50</b>
<b>AY2006 Total Assessable Cost per M</b>	<b>\$56.67</b>	<b>\$63.11</b>	<b>\$67.90</b>	<b>\$85.12</b>	<b>\$115.20</b>	<b>\$147.15</b>	<b>\$181.25</b>	<b>\$236.17</b>	<b>\$287.41</b>	<b>\$350.51</b>	<b>\$409.82</b>	<b>\$443.71</b>
<b>Increase Factor</b>	<b>1.067</b>	<b>1.061</b>	<b>1.058</b>	<b>1.053</b>	<b>1.056</b>	<b>1.051</b>	<b>1.049</b>	<b>1.063</b>	<b>1.046</b>	<b>1.057</b>	<b>1.056</b>	<b>1.056</b>

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	6.4	7.1	7.1	7.9	8.7	8.7	9.5	11.1	12.7	14.3	15.9
Imperial O.D (inches)	24	26	28	30	32	34	36	41	48	56	60
Metric O.D (mm)	610	660	711	762	813	864	914	1067	1219	1422	1524
land - entry fee/m	3.09	3.71	3.71	3.71	3.71	3.71	3.71	4.32	4.32	4.32	4.32
land - damages/m	6.67	9.41	9.41	9.41	9.41	9.41	9.41	12.64	12.64	12.64	12.64
land - acquisition/m	9.27	11.86	11.86	11.86	11.86	11.86	11.86	14.71	14.71	14.71	14.71
<b>Subtotal Land Costs (\$/m)</b>	<b>9.76</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	<b>16.96</b>	<b>16.96</b>	<b>16.96</b>	<b>16.96</b>
Preliminary engineering	0.88	1.52	1.52	1.52	1.52	1.52	1.52	2.10	2.10	2.10	2.10
Route Reconnaissance	0.16	0.22	0.22	0.22	0.22	0.22	0.22	0.35	0.35	0.35	0.35
Environmental	0.89	1.05	1.05	1.05	1.05	1.05	1.05	1.44	1.44	1.44	1.44
Archeological	0.63	0.69	0.69	0.69	0.69	0.69	0.69	1.00	1.00	1.00	1.00
Geotechnical	0.69	0.93	0.93	0.93	0.93	0.93	0.93	1.44	1.44	1.44	1.44
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.25	0.38	0.38	0.38	0.38	0.38	0.38	0.56	0.56	0.56	0.56
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's,Procure.	0.95	1.29	1.29	1.29	1.29	1.29	1.29	2.51	2.51	2.51	2.51
Drainage Drawings	0.27	0.44	0.44	0.44	0.44	0.44	0.44	0.60	0.60	0.60	0.60
Drawings	2.20	2.61	2.61	2.61	2.61	2.61	2.61	3.16	3.16	3.16	3.16
Construction Management	1.72	2.14	2.14	2.14	2.14	2.14	2.14	2.61	2.61	2.61	2.61
Inspection	3.43	3.84	3.84	3.84	3.84	3.84	3.84	4.25	4.25	4.25	4.25
Construction Surveying	2.33	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61
<b>Subtotal Eng. Costs (\$/m)</b>	<b>13.25</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>
<b>Man-Made Crossings</b>	<b>5.05</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>10.38</b>	<b>10.38</b>	<b>10.38</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.49</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.88</b>	<b>1.88</b>	<b>1.88</b>
Radiography	2.63	3.12	3.12	3.12	3.12	3.12	3.12	3.39	3.39	3.39	3.39
Seeding	0.26	0.31	0.31	0.31	0.31	0.31	0.31	0.36	0.38	0.38	0.38
100 Swamp Weights (500m wet)	0.27	0.33	0.33	0.33	0.33	0.33	0.33	0.39	0.39	0.39	0.40
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Posts,Test Leads,Signs	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>4.02</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.88</b>	<b>4.99</b>	<b>5.01</b>	<b>5.01</b>	<b>5.03</b>
Pipe costs	165.80	198.60	214.13	258.29	303.39	322.62	367.29	500.99	638.89	872.74	1039.60
External Coating-YJ1 or FBE	22.92	24.92	26.65	28.67	30.58	32.29	34.34	40.29	45.50	53.12	61.43
Cost of A/G Assemblies	11.33	12.78	14.75	16.55	18.85	21.23	24.13	28.95	34.69	45.53	52.94
Heavy Wall Pipe for crossings	0.04	0.06	0.29	0.31	0.31	0.04	0.06	0.07	0.09	0.13	0.31
<b>SubTotal Material Costs (\$/m)</b>	<b>200.10</b>	<b>236.36</b>	<b>255.81</b>	<b>303.82</b>	<b>353.13</b>	<b>376.18</b>	<b>425.82</b>	<b>570.30</b>	<b>719.17</b>	<b>971.54</b>	<b>1154.29</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>279.13</b>	<b>301.05</b>	<b>373.37</b>	<b>398.51</b>	<b>412.86</b>	<b>431.02</b>	<b>491.37</b>	<b>574.95</b>	<b>677.20</b>	<b>809.73</b>	<b>982.27</b>
<b>Total Assessable Costs per M</b>	506.76	571.44	663.22	736.36	800.03	841.23	951.50	1186.32	1438.32	1823.21	2178.53
<b>AY2006 Total Assessable Cost per M</b>	<b>\$482.81</b>	<b>\$534.59</b>	<b>\$609.74</b>	<b>\$679.22</b>	<b>\$740.63</b>	<b>\$778.98</b>	<b>\$873.72</b>	<b>\$1,095.54</b>	<b>\$1,331.26</b>	<b>\$1,695.07</b>	<b>\$2,023.98</b>
<b>Increase Factor</b>	1.050	1.069	1.088	1.084	1.080	1.080	1.089	1.083	1.080	1.076	1.076
										Median	<b>1.063</b>

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	2.8	2.8	2.8	2.8	3.2	4	4.4	4.8	4.8	4.8	5.6	5.6	6.4
Imperial O.D (inches)	2.37	3.5	4.5	6.63	8.63	10.75	12.75	14	16	18	20	22	24
Metric O.D (mm)	60.3	88.9	114.3	168.3	219.1	273.1	323.9	355.6	406.4	457	508	559	610
land - entry fee/m	1.85	1.85	1.85	1.85	2.47	2.47	2.47	1.85	1.85	1.85	1.85	2.47	2.47
land - damages/m	2.82	2.82	2.82	2.82	4.52	4.52	4.52	2.82	2.82	2.82	2.82	4.52	4.52
land - acquisition/m	4.45	4.45	4.45	4.45	6.91	6.91	6.91	4.45	4.45	4.45	4.45	6.91	6.91
<b>Subtotal Land Costs (\$/m)</b>	<b>4.67</b>	<b>4.67</b>	<b>4.67</b>	<b>4.67</b>	<b>6.99</b>	<b>6.99</b>	<b>6.99</b>	<b>4.67</b>	<b>4.67</b>	<b>4.67</b>	<b>4.67</b>	<b>6.99</b>	<b>6.99</b>
Preliminary engineering	0.63	0.63	0.63	0.63	0.63	0.63	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Route Reconnaissance	0.13	0.13	0.13	0.13	0.13	0.13	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Environmental	0.78	0.78	0.78	0.78	0.78	0.78	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Archeological	0.56	0.56	0.56	0.56	0.56	0.56	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Geotechnical	0.47	0.47	0.47	0.47	0.47	0.47	0.69	0.69	0.69	0.69	0.69	0.69	0.69
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.16	0.16	0.16	0.16	0.16	0.16	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's,Procure.	0.77	0.77	0.77	0.77	0.77	0.77	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Drainage Drawings	0.22	0.22	0.22	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Drawings	1.51	1.51	1.51	1.51	1.51	1.51	2.20	2.20	2.20	2.20	2.20	2.20	2.20
Construction Management	1.29	1.29	1.29	1.29	1.29	1.29	1.72	1.72	1.72	1.72	1.72	1.72	1.72
Inspection	3.02	3.02	3.02	3.02	3.02	3.02	3.43	3.43	3.43	3.43	3.43	3.43	3.43
Construction Surveying	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
<b>Subtotal Eng. Costs (\$/m)</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>
<b>Man-Made Crossings</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>
Radiography	2.46	2.49	2.53	2.53	2.49	2.49	2.49	2.70	2.70	2.51	2.51	2.51	2.51
Seeding	0.15	0.15	0.15	0.15	0.21	0.21	0.21	0.26	0.26	0.26	0.26	0.26	0.26
100 Swamp Weights (500m wet)	0.19	0.19	0.19	0.19	0.25	0.25	0.25	0.31	0.31	0.31	0.31	0.31	0.31
Sack Breakers (1500 Sand Bags)	0.71	0.71	0.73	0.73	0.71	0.71	0.71	0.71	0.71	0.66	0.66	0.66	0.66
Posts,Test Leads,Signs	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>3.69</b>	<b>3.72</b>	<b>3.77</b>	<b>3.77</b>	<b>3.84</b>	<b>3.84</b>	<b>3.84</b>	<b>4.18</b>	<b>4.18</b>	<b>3.94</b>	<b>3.94</b>	<b>3.94</b>	<b>3.94</b>
Pipe costs	7.53	10.17	13.20	19.28	29.84	44.69	59.31	72.22	82.69	93.20	120.76	133.02	165.80
External Coating-YJ1 or FBE	3.06	3.85	4.81	7.40	9.70	12.35	14.49	18.01	15.30	17.22	19.12	21.02	22.92
Cost of A/G Assemblies	3.23	3.29	3.39	3.61	4.00	4.62	6.50	7.72	8.58	10.07	11.74	13.72	17.89
Heavy Wall Pipe for crossings	0.01	0.03	0.03	0.04	0.12	0.22	0.09	0.22	0.13	0.49	0.26	0.29	0.04
<b>SubTotal Material Costs (\$/m)</b>	<b>13.84</b>	<b>17.33</b>	<b>21.43</b>	<b>30.34</b>	<b>43.66</b>	<b>61.88</b>	<b>80.38</b>	<b>98.17</b>	<b>106.70</b>	<b>120.98</b>	<b>151.88</b>	<b>168.06</b>	<b>206.66</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>26.70</b>	<b>30.06</b>	<b>32.92</b>	<b>39.35</b>	<b>55.75</b>	<b>70.58</b>	<b>86.20</b>	<b>126.48</b>	<b>167.68</b>	<b>223.68</b>	<b>255.69</b>	<b>276.34</b>	<b>279.14</b>
<b>Total Assessable Costs per M</b>	<b>\$60.69</b>	<b>\$67.57</b>	<b>\$74.59</b>	<b>\$89.93</b>	<b>\$122.04</b>	<b>\$155.09</b>	<b>\$191.17</b>	<b>\$247.25</b>	<b>\$296.98</b>	<b>\$367.00</b>	<b>\$429.92</b>	<b>\$469.07</b>	<b>\$510.47</b>
<b>AY2006 Total Assessable Cost p</b>	<b>\$56.88</b>	<b>\$63.65</b>	<b>\$70.49</b>	<b>\$85.41</b>	<b>\$115.51</b>	<b>\$147.54</b>	<b>\$182.12</b>	<b>\$232.25</b>	<b>\$283.55</b>	<b>\$346.68</b>	<b>\$406.68</b>	<b>\$443.84</b>	<b>\$485.67</b>
<b>Increase Factor</b>	1.067	1.061	1.058	1.053	1.057	1.051	1.050	1.065	1.047	1.059	1.057	1.057	1.051

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	
Wall Thickness	7.1	7.1	7.9	8.7	8.7	9.5	11.1	12.7	14.3	15.9		
Imperial O.D (inches)	26	28	30	32	34	36	41	48	56	60		
Metric O.D (mm)	660	711	762	813	864	914	1067	1219	1422	1524		
land - entry fee/m	2.47	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.71	3.71	3.71	
land - damages/m	4.52	6.67	6.67	6.67	6.67	6.67	6.67	6.67	9.41	9.41	9.41	
land - acquisition/m	6.91	9.27	9.27	9.27	9.27	9.27	9.27	9.27	11.86	11.86	11.86	
<b>Subtotal Land Costs (\$/m)</b>	<b>6.99</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	
Preliminary engineering	1.52	1.52	1.52	1.52	1.52	1.52	2.10	2.10	2.10	2.10	2.10	
Route Reconnaissance	0.22	0.22	0.22	0.22	0.22	0.22	0.35	0.35	0.35	0.35	0.35	
Environmental	1.05	1.05	1.05	1.05	1.05	1.05	1.44	1.44	1.44	1.44	1.44	
Archeological	0.69	0.69	0.69	0.69	0.69	0.69	1.00	1.00	1.00	1.00	1.00	
Geotechnical	0.93	0.93	0.93	0.93	0.93	0.93	1.44	1.44	1.44	1.44	1.44	
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	
Commissioning	0.38	0.38	0.38	0.38	0.38	0.38	0.56	0.56	0.56	0.56	0.56	
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	
Design, Spec's,Procure.	1.29	1.29	1.29	1.29	1.29	1.29	2.51	2.51	2.51	2.51	2.51	
Drainage Drawings	0.44	0.44	0.44	0.44	0.44	0.44	0.60	0.60	0.60	0.60	0.60	
Drawings	2.61	2.61	2.61	2.61	2.61	2.61	3.16	3.16	3.16	3.16	3.16	
Construction Management	2.14	2.14	2.14	2.14	2.14	2.14	2.61	2.61	2.61	2.61	2.61	
Inspection	3.84	3.84	3.84	3.84	3.84	3.84	4.25	4.25	4.25	4.25	4.25	
Construction Surveying	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	
<b>Subtotal Eng. Costs (\$/m)</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>	
<b>Man-Made Crossings</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>10.38</b>	<b>10.38</b>	<b>10.38</b>	<b>10.38</b>	
<b>Subtotal Natural Crossings (\$/m)</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.88</b>	<b>1.88</b>	<b>1.88</b>	<b>1.88</b>	
Radiography	2.97	2.97	2.97	2.97	2.97	3.26	3.26	3.11	3.23	3.23	3.23	
Seeding	0.29	0.29	0.29	0.29	0.29	0.29	0.34	0.36	0.36	0.36	0.36	
100 Swamp Weights (500m wet)	0.37	0.37	0.37	0.37	0.37	0.37	0.44	0.44	0.44	0.44	0.46	
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.67	0.64	0.66	0.66	0.66	
Posts,Test Leads,Signs	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>4.49</b>	<b>4.49</b>	<b>4.49</b>	<b>4.49</b>	<b>4.49</b>	<b>4.79</b>	<b>4.90</b>	<b>4.74</b>	<b>4.89</b>	<b>4.89</b>	<b>4.90</b>	
Pipe costs	198.60	238.27	258.29	303.39	322.62	370.79	505.76	638.89	872.74	1039.60		
External Coating-YJ1 or FBE	24.92	26.65	28.67	30.58	32.29	34.34	40.29	45.50	53.12	61.43		
Cost of A/G Assemblies	21.88	26.41	29.09	30.95	33.34	42.49	54.17	65.81	73.49	83.95		
Heavy Wall Pipe for crossings	0.06	0.29	0.31	0.31	0.04	0.06	0.07	0.09	0.13	0.31		
<b>SubTotal Material Costs (\$/m)</b>	<b>245.47</b>	<b>291.62</b>	<b>316.36</b>	<b>365.24</b>	<b>388.30</b>	<b>447.68</b>	<b>600.29</b>	<b>750.29</b>	<b>999.50</b>	<b>1185.30</b>		
<b>Subtotal Installation Costs (\$/m)</b>	<b>301.06</b>	<b>378.18</b>	<b>394.51</b>	<b>407.49</b>	<b>436.38</b>	<b>491.38</b>	<b>587.69</b>	<b>688.12</b>	<b>811.69</b>	<b>1002.29</b>		
<b>Total Assessable Costs per M</b>	<b>\$574.31</b>	<b>\$700.35</b>	<b>\$741.42</b>	<b>\$803.28</b>	<b>\$855.23</b>	<b>\$969.91</b>	<b>\$1,221.76</b>	<b>\$1,476.25</b>	<b>\$1,849.17</b>	<b>\$2,225.59</b>		
<b>AY2006 Total Assessable Cost</b>	<b>\$536.28</b>	<b>\$644.74</b>	<b>\$683.17</b>	<b>\$743.01</b>	<b>\$790.71</b>	<b>\$889.74</b>	<b>\$1,125.85</b>	<b>\$1,363.56</b>	<b>\$1,717.11</b>	<b>\$2,064.10</b>		
<b>Increase Factor</b>	1.071	1.086	1.085	1.081	1.082	1.090	1.085	1.083	1.077	1.078	1.065	

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	2.8	2.8	2.8	2.8	3.2	4	4.4	4.8	4.8	4.8	5.6	5.6	6.4	7.1	7.1
Imperial O.D (inches)	2.37	3.5	4.5	6.63	8.63	10.75	12.75	14	16	18	20	22	24	26	28
Metric O.D (mm)	60.3	88.9	114.3	168.3	219.1	273.1	323.9	355.6	406.4	457	508	559	610	660	711
land - entry fee/m	1.85	1.85	1.85	1.85	2.47	2.47	2.47	3.09	3.09	3.09	3.09	1.85	1.85	1.85	1.85
land - damages/m	2.56	2.56	2.56	2.56	4.11	4.11	4.11	6.06	6.06	6.06	6.06	2.82	2.82	2.82	2.82
land - acquisition/m	4.45	4.45	4.45	4.45	6.91	6.91	6.91	9.27	9.27	9.27	9.27	4.45	4.45	4.45	4.45
<b>Subtotal Land Costs (\$/m)</b>	<b>4.41</b>	<b>4.41</b>	<b>4.41</b>	<b>4.41</b>	<b>6.58</b>	<b>6.58</b>	<b>6.58</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>4.67</b>	<b>4.67</b>	<b>4.67</b>	<b>4.67</b>
Preliminary engineering	0.63	0.63	0.63	0.63	0.63	0.63	0.88	0.88	0.88	0.88	0.88	0.88	0.88	1.52	1.52
Route Reconnaissance	0.13	0.13	0.13	0.13	0.13	0.13	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.22	0.22
Environmental	0.78	0.78	0.78	0.78	0.78	0.78	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.05	1.05
Archeological	0.56	0.56	0.56	0.56	0.56	0.56	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.69	0.69
Geotechnical	0.47	0.47	0.47	0.47	0.47	0.47	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.93	0.93
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.16	0.16	0.16	0.16	0.16	0.16	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.38	0.38
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's, Procure.	0.77	0.77	0.77	0.77	0.77	0.77	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.29	1.29
Drainage Drawings	0.22	0.22	0.22	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.44	0.44
Drawings	1.51	1.51	1.51	1.51	1.51	1.51	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.61	2.61
Construction Management	1.29	1.29	1.29	1.29	1.29	1.29	1.72	1.72	1.72	1.72	1.72	1.72	1.72	2.14	2.14
Inspection	3.02	3.02	3.02	3.02	3.02	3.02	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.84	3.84
Construction Surveying	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.61	2.61
<b>Subtotal Eng. Costs (\$/m)</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>15.29</b>	<b>15.29</b>
<b>Man-Made Crossings</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>7.48</b>	<b>7.48</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>1.02</b>	<b>1.02</b>
Radiography	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.63	2.63	2.63	2.63	2.63	2.63	3.12	3.12
Seeding	0.14	0.14	0.14	0.14	0.21	0.21	0.21	0.26	0.26	0.26	0.26	0.26	0.26	0.31	0.31
100 Swamp Weights (500m wet)	0.16	0.16	0.16	0.16	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27	0.27	0.33	0.33
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Posts, Test Leads, Signs	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>3.58</b>	<b>3.58</b>	<b>3.58</b>	<b>3.58</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.61</b>	<b>4.61</b>
Pipe costs	7.53	10.17	13.21	20.55	29.84	44.69	63.64	72.22	89.60	124.58	137.78	167.11	167.40	200.96	240.81
External Coating-YJ1 or FBE	3.06	3.85	4.81	7.40	9.70	12.35	14.49	18.01	15.30	17.22	19.12	21.02	22.92	24.92	26.65
Cost of A/G Assemblies	3.30	3.43	3.63	4.45	5.49	6.37	9.07	11.48	13.05	16.22	17.78	19.56	22.58	25.44	29.82
Heavy Wall Pipe for crossings	0.01	0.03	0.03	0.04	0.12	0.22	0.09	0.22	0.13	0.49	0.26	0.29	0.04	0.06	0.28
<b>SubTotal Material Costs (\$/m)</b>	<b>13.91</b>	<b>17.48</b>	<b>21.67</b>	<b>32.44</b>	<b>45.15</b>	<b>63.64</b>	<b>87.29</b>	<b>101.93</b>	<b>118.08</b>	<b>158.51</b>	<b>174.94</b>	<b>207.99</b>	<b>212.95</b>	<b>251.38</b>	<b>297.57</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>26.70</b>	<b>30.06</b>	<b>32.92</b>	<b>39.35</b>	<b>55.75</b>	<b>70.58</b>	<b>86.20</b>	<b>130.48</b>	<b>163.02</b>	<b>216.79</b>	<b>244.80</b>	<b>264.43</b>	<b>284.37</b>	<b>310.41</b>	<b>382.15</b>
<b>Total Assessable Costs per M</b>	<b>\$60.40</b>	<b>\$67.32</b>	<b>\$74.38</b>	<b>\$91.58</b>	<b>\$122.98</b>	<b>\$156.29</b>	<b>\$197.52</b>	<b>\$259.33</b>	<b>\$308.02</b>	<b>\$402.22</b>	<b>\$446.66</b>	<b>\$494.85</b>	<b>\$519.75</b>	<b>\$587.37</b>	<b>\$705.29</b>
<b>AY2006 Total Assessable Cost</b>	56.586	63.402	70.269	85.708	116.271	148.521	188.288	243.496	294.449	381.829	423.790	470.127	493.773	547.866	648.707
<b>Increase Factor</b>	1.06744	1.061849	1.058483	1.068556	1.057705	1.052312	1.049034	1.06502	1.0460773	1.053414	1.0539732	1.052589	1.052614	1.0721074	1.08723

Pipeline Costs with 2006 percentage increase applied

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	7.9	8.7	8.7	9.5	11.1	12.7	14.3	15.9	
Imperial O.D (inches)	30	32	34	36	41	48	56	60	
Metric O.D (mm)	762	813	864	914	1067	1219	1422	1524	
land - entry fee/m	2.47	2.47	2.47	3.09	3.09	3.09	3.09	3.09	3.09
land - damages/m	4.52	4.52	4.52	6.67	6.67	6.67	6.67	6.67	6.67
land - acquisition/m	6.91	6.91	6.91	9.27	9.27	9.27	9.27	9.27	9.27
<b>Subtotal Land Costs (\$/m)</b>	<b>6.99</b>	<b>6.99</b>	<b>6.99</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>
Preliminary engineering	1.52	1.52	1.52	1.52	2.10	2.10	2.10	2.10	2.10
Route Reconnaissance	0.22	0.22	0.22	0.22	0.35	0.35	0.35	0.35	0.35
Environmental	1.05	1.05	1.05	1.05	1.44	1.44	1.44	1.44	1.44
Archeological	0.69	0.69	0.69	0.69	1.00	1.00	1.00	1.00	1.00
Geotechnical	0.93	0.93	0.93	0.93	1.44	1.44	1.44	1.44	1.44
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.38	0.38	0.38	0.38	0.56	0.56	0.56	0.56	0.56
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's,Procure.	1.29	1.29	1.29	1.29	2.51	2.51	2.51	2.51	2.51
Drainage Drawings	0.44	0.44	0.44	0.44	0.60	0.60	0.60	0.60	0.60
Drawings	2.61	2.61	2.61	2.61	3.16	3.16	3.16	3.16	3.16
Construction Management	2.14	2.14	2.14	2.14	2.61	2.61	2.61	2.61	2.61
Inspection	3.84	3.84	3.84	3.84	4.25	4.25	4.25	4.25	4.25
Construction Surveying	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61
<b>Subtotal Eng. Costs (\$/m)</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>
<b>Man-Made Crossings</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>10.38</b>	<b>10.38</b>	<b>10.38</b>	<b>10.38</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.88</b>	<b>1.88</b>	<b>1.88</b>	<b>1.88</b>
Radiography	3.12	3.12	3.12	3.39	3.39	3.39	3.39	3.39	3.39
Seeding	0.31	0.31	0.31	0.31	0.36	0.38	0.38	0.38	0.38
100 Swamp Weights (500m wet)	0.33	0.33	0.33	0.33	0.39	0.39	0.39	0.39	0.40
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Posts, Test Leads, Signs	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.88</b>	<b>4.99</b>	<b>5.01</b>	<b>5.01</b>	<b>5.01</b>	<b>5.03</b>
Pipe costs	258.29	303.39	325.77	376.94	514.13	644.87	880.90	1084.08	
External Coating-YJ1 or FBE	28.67	30.58	32.29	34.34	40.29	45.50	53.12	61.43	
Cost of A/G Assemblies	32.85	38.07	44.40	48.89	65.15	79.02	104.12	129.23	
Heavy Wall Pipe for crossings	0.31	0.31	0.04	0.06	0.07	0.09	0.13	0.32	
<b>SubTotal Material Costs (\$/m)</b>	<b>320.12</b>	<b>372.35</b>	<b>402.50</b>	<b>460.23</b>	<b>619.64</b>	<b>769.48</b>	<b>1038.28</b>	<b>1275.06</b>	
<b>Subtotal Installation Costs (\$/m)</b>	<b>403.91</b>	<b>434.92</b>	<b>448.73</b>	<b>501.83</b>	<b>599.65</b>	<b>696.38</b>	<b>823.50</b>	<b>1020.60</b>	
<b>Total Assessable Costs per M</b>	<b>\$751.93</b>	<b>\$835.17</b>	<b>\$879.13</b>	<b>\$993.00</b>	<b>\$1,253.16</b>	<b>\$1,500.61</b>	<b>\$1,896.53</b>	<b>\$2,330.43</b>	
<b>AY2006 Total Assessable Cost</b>	691.959	770.386	811.551	910.475	1154.071	1384.982	1758.742	2160.360	
<b>Increase Factor</b>	1.0866707	1.0840983	1.0832764	1.0906446	1.08585817	1.08348852	1.07834268	1.07872164	1.06744

Pipeline Costs with 2006 percentage increase applied

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	2.8	2.8	2.8	2.8	3.2	4	4.4	4.8	4.8	4.8	5.6	5.6
Imperial O.D (inches)	2.37	3.5	4.5	6.63	8.63	10.75	12.75	14	16	18	20	22
Metric O.D (mm)	60.3	88.9	114.3	168.3	219.1	273.1	323.9	355.6	406.4	457	508	559
land - entry fee/m	1.85	1.85	1.85	1.85	2.47	2.47	2.47	3.09	3.09	3.09	3.09	3.09
land - damages/m	2.82	2.82	2.82	2.82	4.52	4.52	4.52	6.67	6.67	6.67	6.67	6.67
land - acquisition/m	4.45	4.45	4.45	4.45	6.91	6.91	6.91	9.27	9.27	9.27	9.27	9.27
<b>Subtotal Land Costs (\$/m)</b>	<b>4.67</b>	<b>4.41</b>	<b>4.41</b>	<b>4.41</b>	<b>6.58</b>	<b>6.58</b>	<b>6.58</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>
Preliminary engineering	0.63	0.63	0.63	0.63	0.63	0.63	0.88	0.88	0.88	0.88	0.88	0.88
Route Reconnaissance	0.13	0.13	0.13	0.13	0.13	0.13	0.16	0.16	0.16	0.16	0.16	0.16
Environmental	0.78	0.78	0.78	0.78	0.78	0.78	0.89	0.89	0.89	0.89	0.89	0.89
Archeological	0.56	0.56	0.56	0.56	0.56	0.56	0.63	0.63	0.63	0.63	0.63	0.63
Geotechnical	0.47	0.47	0.47	0.47	0.47	0.47	0.69	0.69	0.69	0.69	0.69	0.69
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.16	0.16	0.16	0.16	0.16	0.16	0.25	0.25	0.25	0.25	0.25	0.25
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's,Procure.	0.77	0.77	0.77	0.77	0.77	0.77	0.95	0.95	0.95	0.95	0.95	0.95
Drainage Drawings	0.22	0.22	0.22	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27	0.27
Drawings	1.51	1.51	1.51	1.51	1.51	1.51	2.20	2.20	2.20	2.20	2.20	2.20
Construction Management	1.29	1.29	1.29	1.29	1.29	1.29	1.72	1.72	1.72	1.72	1.72	1.72
Inspection	3.02	3.02	3.02	3.02	3.02	3.02	3.43	3.43	3.43	3.43	3.43	3.43
Construction Surveying	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
<b>Subtotal Eng. Costs (\$/m)</b>	<b>11.50</b>	<b>9.68</b>	<b>9.68</b>	<b>9.68</b>	<b>9.68</b>	<b>9.68</b>	<b>11.16</b>	<b>11.16</b>	<b>11.16</b>	<b>11.16</b>	<b>11.16</b>	<b>11.16</b>
<b>Man-Made Crossings</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>
Radiography	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.63	2.63	2.63	2.63	2.63
Seeding	0.14	0.14	0.14	0.14	0.21	0.21	0.21	0.26	0.26	0.26	0.26	0.26
100 Swamp Weights (500m wet)	0.16	0.16	0.16	0.16	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Posts,Test Leads,Signs	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>3.58</b>	<b>3.58</b>	<b>3.58</b>	<b>3.58</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>
Pipe costs	7.53	10.17	12.98	21.43	34.96	56.51	83.98	95.67	133.42	158.25	197.02	214.49
External Coating-YJ1 or FBE	3.06	3.85	4.81	7.40	9.70	12.35	14.49	18.01	15.30	17.22	19.12	21.02
Cost of A/G Assemblies	3.38	3.49	3.70	4.51	5.55	6.42	9.18	11.53	13.10	16.28	17.83	19.62
Heavy Wall Pipe for crossings	0.03	0.03	0.04	0.04	0.04	0.06	0.07	0.07	0.13	0.13	0.13	0.20
<b>SubTotal Material Costs (\$/m)</b>	<b>13.99</b>	<b>17.53</b>	<b>21.53</b>	<b>33.38</b>	<b>50.25</b>	<b>75.35</b>	<b>107.72</b>	<b>125.28</b>	<b>161.96</b>	<b>191.88</b>	<b>234.10</b>	<b>255.33</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>26.68</b>	<b>31.19</b>	<b>33.66</b>	<b>43.21</b>	<b>54.14</b>	<b>67.35</b>	<b>83.59</b>	<b>124.26</b>	<b>163.02</b>	<b>216.79</b>	<b>246.49</b>	<b>266.74</b>
<b>Total Assessable Costs per M</b>	<b>\$60.72</b>	<b>\$66.69</b>	<b>\$73.16</b>	<b>\$94.56</b>	<b>\$124.65</b>	<b>\$162.95</b>	<b>\$213.23</b>	<b>\$274.36</b>	<b>\$349.80</b>	<b>\$433.49</b>	<b>\$505.41</b>	<b>\$546.89</b>
<b>AY2006 Total Assessable Cost</b>	56.900	63.727	70.028	90.789	119.299	156.958	206.125	260.294	337.427	414.297	483.554	523.114
<b>Increase Factor</b>	1.067145	1.046562	1.044784	1.041503	1.044833	1.038204						
						1.045						

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	6.4	7.1	7.1	7.9	8.7	8.7	9.5	11.1	12.7	14.3	15.9
Imperial O.D (inches)	24	26	28	30	32	34	36	41	48	56	60
Metric O.D (mm)	610	660	711	762	813	864	914	1067	1219	1422	1524
land - entry fee/m	3.09	3.71	3.71	3.71	3.71	3.71	3.71	4.32	4.32	4.32	4.32
land - damages/m	6.67	9.41	9.41	9.41	9.41	9.41	9.41	12.64	12.64	12.64	12.64
land - acquisition/m	9.27	11.86	11.86	11.86	11.86	11.86	11.86	14.71	14.71	14.71	14.71
<b>Subtotal Land Costs (\$/m)</b>	<b>9.15</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>15.81</b>	<b>15.81</b>	<b>15.81</b>	<b>15.81</b>
Preliminary engineering	0.88	1.52	1.52	1.52	1.52	1.52	1.52	2.10	2.10	2.10	2.10
Route Reconnaissance	0.16	0.22	0.22	0.22	0.22	0.22	0.22	0.35	0.35	0.35	0.35
Environmental	0.89	1.05	1.05	1.05	1.05	1.05	1.05	1.44	1.44	1.44	1.44
Archeological	0.63	0.69	0.69	0.69	0.69	0.69	0.69	1.00	1.00	1.00	1.00
Geotechnical	0.69	0.93	0.93	0.93	0.93	0.93	0.93	1.44	1.44	1.44	1.44
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.25	0.38	0.38	0.38	0.38	0.38	0.38	0.56	0.56	0.56	0.56
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's,Procure.	0.95	1.29	1.29	1.29	1.29	1.29	1.29	2.51	2.51	2.51	2.51
Drainage Drawings	0.27	0.44	0.44	0.44	0.44	0.44	0.44	0.60	0.60	0.60	0.60
Drawings	2.20	2.61	2.61	2.61	2.61	2.61	2.61	3.16	3.16	3.16	3.16
Construction Management	1.72	2.14	2.14	2.14	2.14	2.14	2.14	2.61	2.61	2.61	2.61
Inspection	3.43	3.84	3.84	3.84	3.84	3.84	3.84	4.25	4.25	4.25	4.25
Construction Surveying	2.33	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61
<b>Subtotal Eng. Costs (\$/m)</b>	<b>11.16</b>	<b>12.87</b>	<b>12.87</b>	<b>12.87</b>	<b>12.87</b>	<b>12.87</b>	<b>12.87</b>	<b>15.23</b>	<b>15.23</b>	<b>15.23</b>	<b>15.23</b>
<b>Man-Made Crossings</b>	<b>5.05</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>10.38</b>	<b>10.38</b>	<b>10.38</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.49</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.88</b>	<b>1.88</b>	<b>1.88</b>
Radiography	2.63	3.12	3.12	3.12	3.12	3.12	3.39	3.39	3.39	3.39	3.39
Seeding	0.26	0.31	0.31	0.31	0.31	0.31	0.31	0.36	0.38	0.38	0.38
100 Swamp Weights (500m wet)	0.27	0.33	0.33	0.33	0.33	0.33	0.33	0.39	0.39	0.39	0.40
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Posts,Test Leads,Signs	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>4.02</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.88</b>	<b>4.99</b>	<b>5.01</b>	<b>5.01</b>	<b>5.03</b>
Pipe costs	246.94	268.00	291.84	339.06	367.82	392.30	447.47	568.78	675.31	922.48	1098.85
External Coating-YJ1 or FBE	22.92	24.92	26.65	28.67	30.58	32.29	34.34	40.29	45.50	53.12	61.43
Cost of A/G Assemblies	22.63	25.50	29.82	32.96	38.07	44.40	48.95	65.26	79.19	104.30	129.40
Heavy Wall Pipe for crossings	0.20	0.19	0.25	0.25	0.25	0.33	0.32	0.32	0.37	0.38	0.38
<b>SubTotal Material Costs (\$/m)</b>	<b>292.70</b>	<b>318.60</b>	<b>348.56</b>	<b>400.94</b>	<b>436.72</b>	<b>469.31</b>	<b>531.08</b>	<b>674.65</b>	<b>800.36</b>	<b>1080.29</b>	<b>1290.07</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>285.45</b>	<b>310.41</b>	<b>382.15</b>	<b>403.91</b>	<b>434.92</b>	<b>448.73</b>	<b>513.04</b>	<b>607.00</b>	<b>709.08</b>	<b>848.98</b>	<b>1058.24</b>
<b>Total Assessable Costs per M</b>	<b>\$602.97</b>	<b>\$659.77</b>	<b>\$761.47</b>	<b>\$835.61</b>	<b>\$902.40</b>	<b>\$948.80</b>	<b>\$1,075.15</b>	<b>\$1,318.71</b>	<b>\$1,547.38</b>	<b>\$1,967.21</b>	<b>\$2,386.25</b>
<b>AY2006 Total Assessable Cost</b>	578.072	621.652	706.273	777.010	839.002	882.608	992.375	1220.185	1431.532	1827.345	2212.341
<b>Increase Factor</b>											

Model Used	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	4.4	4.8	4.8	4.8	5.6	5.6	6.4	7.1	7.1	7.9	8.7	8.7	9.5	
Imperial O.D (inches)	12.75	14	16	18	20	22	24	26	28	30	32	34	36	
Metric O.D (mm)	323.9	355.6	406.4	457	508	559	610	660	711	762	813	864	914	
land - entry fee/m	2.47	3.09	3.09	3.09	3.09	3.09	3.09	3.71	3.71	3.71	3.71	3.71	3.71	3.71
land - damages/m	4.52	6.67	6.67	6.67	6.67	6.67	6.67	9.41	9.41	9.41	9.41	9.41	9.41	9.41
land - acquisition/m	6.91	9.27	9.27	9.27	9.27	9.27	9.27	11.86	11.86	11.86	11.86	11.86	11.86	11.86
<b>Subtotal Land Costs (\$/m)</b>	<b>6.99</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>	<b>13.12</b>
Preliminary engineering	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Route Reconnaissance	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Environmental	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Archeological	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Geotechnical	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.57	0.57	0.57	0.57	0.57	0.57	0.57
As-Built Drawings	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Commissioning	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Legal Surveying	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Design, Spec's,Procure.	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Drainage Drawings	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Drawings	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Construction Management	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Inspection	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Construction Surveying	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.65	1.65	1.65	1.65	1.65	1.65	1.65
<b>Subtotal Eng. Costs (\$/m)</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>9.28</b>	<b>9.28</b>	<b>9.28</b>	<b>9.28</b>	<b>9.28</b>	<b>9.28</b>	<b>9.28</b>
<b>Man-Made Crossings</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>6.02</b>	<b>6.02</b>	<b>6.02</b>	<b>6.02</b>	<b>6.02</b>	<b>6.02</b>	<b>6.02</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>2.82</b>	<b>2.82</b>	<b>2.82</b>	<b>2.82</b>	<b>2.82</b>	<b>2.82</b>	<b>2.82</b>
Radiography	2.13	2.28	2.28	2.28	2.28	2.28	2.28	2.65	2.65	2.65	2.65	2.65	2.65	2.85
Seeding	0.19	0.23	0.23	0.23	0.23	0.23	0.23	0.30	0.30	0.30	0.30	0.30	0.30	0.30
100 Swamp Weights (500m wet)	0.23	0.28	0.28	0.28	0.28	0.28	0.28	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Sack Breakers (1500 Sand Bags)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Posts,Test Leads,Signs	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>3.44</b>	<b>3.68</b>	<b>3.68</b>	<b>3.68</b>	<b>3.68</b>	<b>3.68</b>	<b>3.68</b>	<b>4.19</b>	<b>4.19</b>	<b>4.19</b>	<b>4.19</b>	<b>4.19</b>	<b>4.19</b>	<b>4.39</b>
Pipe costs	78.06	86.10	120.08	142.42	177.32	193.04	222.26	241.20	262.66	305.16	331.03	353.07	402.72	
External Coating-YJ1 or FBE	11.94	14.82	13.22	15.17	16.52	18.17	19.80	20.50	22.05	23.65	25.21	26.52	28.34	
Cost of A/G Assemblies	1.84	2.19	2.50	3.05	3.39	3.98	4.45	5.22	5.99	6.57	7.67	8.80	9.60	
Heavy Wall Pipe for crossings	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
<b>SubTotal Material Costs (\$/m)</b>	<b>91.86</b>	<b>103.13</b>	<b>135.82</b>	<b>160.65</b>	<b>197.25</b>	<b>215.20</b>	<b>246.53</b>	<b>266.93</b>	<b>290.71</b>	<b>335.39</b>	<b>363.93</b>	<b>388.40</b>	<b>440.67</b>	
<b>Subtotal Installation Costs (\$/m)</b>	<b>65.21</b>	<b>96.96</b>	<b>127.21</b>	<b>169.86</b>	<b>193.13</b>	<b>208.99</b>	<b>223.65</b>	<b>238.43</b>	<b>294.12</b>	<b>310.89</b>	<b>333.65</b>	<b>344.24</b>	<b>394.08</b>	
<b>Total Assessable Costs per M</b>	<b>\$176.87</b>	<b>\$222.90</b>	<b>\$285.83</b>	<b>\$353.32</b>	<b>\$413.19</b>	<b>\$447.00</b>	<b>\$492.99</b>	<b>\$534.78</b>	<b>\$614.25</b>	<b>\$675.69</b>	<b>\$726.98</b>	<b>\$762.06</b>	<b>\$864.36</b>	
<b>AY2006 Total Assessable Cost per M</b>	174.187	219.527	285.774	350.983	410.427	443.975	490.436	523.444	592.743	653.014	702.675	736.907	829.069	
<b>Increase Factor</b>	1.0154077	1.0153639	1.0001989	1.006651	1.0067217	1.0068099	1.005203	1.0216488	1.0362773	1.0347252	1.0345931	1.0341272	1.0425649	

Model Used	300 km	300 km	300 km	300 km	
Material	Steel	Steel	Steel	Steel	
Wall Thickness	11.1	12.7	14.3	15.9	
Imperial O.D (inches)	41	48	56	60	
Metric O.D (mm)	1067	1219	1422	1524	
land - entry fee/m	4.32	4.32	4.32	4.32	
land - damages/m	12.64	12.64	12.64	12.64	
land - acquisition/m	14.71	14.71	14.71	14.71	
<b>Subtotal Land Costs (\$/m)</b>	<b>16.96</b>	<b>16.96</b>	<b>16.96</b>	<b>16.96</b>	
Preliminary engineering	1.26	1.26	1.26	1.26	
Route Reconnaissance	0.21	0.21	0.21	0.21	
Environmental	0.86	0.86	0.86	0.86	
Archeological	0.60	0.60	0.60	0.60	
Geotechnical	1.20	1.20	1.20	1.20	
As-Built Drawings	0.19	0.19	0.19	0.19	
Commissioning	0.30	0.30	0.30	0.30	
Legal Surveying	1.41	1.41	1.41	1.41	
Design, Spec's,Procure.	1.51	1.51	1.51	1.51	
Drainage Drawings	0.36	0.36	0.36	0.36	
Drawings	1.89	1.89	1.89	1.89	
Construction Management	1.56	1.56	1.56	1.56	
Inspection	2.61	2.61	2.61	2.61	
Construction Surveying	1.65	1.65	1.65	1.65	
<b>Subtotal Eng. Costs (\$/m)</b>	<b>10.99</b>	<b>10.99</b>	<b>10.99</b>	<b>10.99</b>	
<b>Man-Made Crossings</b>	<b>6.02</b>	<b>8.44</b>	<b>8.44</b>	<b>8.44</b>	
<b>Subtotal Natural Crossings (\$/m)</b>	<b>2.82</b>	<b>5.09</b>	<b>5.09</b>	<b>5.09</b>	
Radiography	2.85	2.85	2.85	2.85	
Seeding	0.33	0.33	0.33	0.33	
100 Swamp Weights (500m wet)	0.41	0.41	0.41	0.42	
Sack Breakers (1500 Sand Bags)	0.70	0.70	0.70	0.70	
Posts,Test Leads,Signs	0.19	0.19	0.19	0.19	
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>4.48</b>	<b>4.48</b>	<b>4.48</b>	<b>4.49</b>	
Pipe costs	511.90	607.77	830.24	988.97	
External Coating- YJ1 or FBE	33.49	37.42	43.60	50.44	
Cost of A/G Assemblies	12.12	15.29	19.55	21.77	
Heavy Wall Pipe for crossings	0.02	0.01	0.02	0.02	
<b>SubTotal Material Costs (\$/m)</b>	<b>557.53</b>	<b>660.50</b>	<b>893.41</b>	<b>1061.19</b>	
<b>Subtotal Installation Costs (\$/m)</b>	<b>466.25</b>	<b>544.66</b>	<b>652.13</b>	<b>812.86</b>	
<b>Total Assessable Costs per M</b>	<b>\$1,059.03</b>	<b>\$1,242.68</b>	<b>\$1,583.05</b>	<b>\$1,911.59</b>	
<b>AY2006 Total Assessable Cost per M</b>	1017.292	1193.841	1524.791	1839.759	
<b>Increase Factor</b>	1.041032	1.04090636	1.03821111	1.03904144	1.034

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	2.8	2.8	2.8	2.8	3.2	4	4.4	4.8	4.8	4.8	5.6	5.6
Imperial O.D (inches)	2.37	3.5	4.5	6.63	8.63	10.75	12.75	14	16	18	20	22
Metric O.D (mm)	60.3	88.9	114.3	168.3	219.1	273.1	323.9	355.6	406.4	457	508	559
land - entry fee/m	1.85	1.85	1.85	1.85	2.47	2.47	2.47	3.09	3.09	3.09	3.09	3.09
land - damages/m	2.82	2.82	2.82	2.82	4.52	4.52	4.52	6.67	6.67	6.67	6.67	6.67
land - acquisition/m	4.45	4.45	4.45	4.45	6.91	6.91	6.91	9.27	9.27	9.27	9.27	9.27
<b>Subtotal Land Costs (\$/m)</b>	<b>4.41</b>	<b>4.41</b>	<b>4.41</b>	<b>4.41</b>	<b>6.58</b>	<b>6.58</b>	<b>6.58</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>
Preliminary engineering	0.63	0.63	0.63	0.63	0.63	0.63	0.88	0.88	0.88	0.88	0.88	0.88
Route Reconnaissance	0.13	0.13	0.13	0.13	0.13	0.13	0.16	0.16	0.16	0.16	0.16	0.16
Environmental	0.78	0.78	0.78	0.78	0.78	0.78	0.89	0.89	0.89	0.89	0.89	0.89
Archeological	0.56	0.56	0.56	0.56	0.56	0.56	0.63	0.63	0.63	0.63	0.63	0.63
Geotechnical	0.47	0.47	0.47	0.47	0.47	0.47	0.69	0.69	0.69	0.69	0.69	0.69
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.16	0.16	0.16	0.16	0.16	0.16	0.25	0.25	0.25	0.25	0.25	0.25
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's,Procure.	0.77	0.77	0.77	0.77	0.77	0.77	0.95	0.95	0.95	0.95	0.95	0.95
Drainage Drawings	0.22	0.22	0.22	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27	0.27
Drawings	1.51	1.51	1.51	1.51	1.51	1.51	2.20	2.20	2.20	2.20	2.20	2.20
Construction Management	1.29	1.29	1.29	1.29	1.29	1.29	1.72	1.72	1.72	1.72	1.72	1.72
Inspection	3.02	3.02	3.02	3.02	3.02	3.02	3.43	3.43	3.43	3.43	3.43	3.43
Construction Surveying	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
<b>Subtotal Eng. Costs (\$/m)</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>11.50</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>	<b>13.25</b>
<b>Man-Made Crossings</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>3.66</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>	<b>5.05</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.27</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.29</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>	<b>0.49</b>
Radiography	2.42	2.42	2.42	2.42	2.42	2.42	2.42	2.63	2.63	2.63	2.63	2.63
Seeding	0.14	0.14	0.14	0.14	0.21	0.21	0.21	0.26	0.26	0.26	0.26	0.26
100 Swamp Weights (500m wet)	0.16	0.16	0.16	0.16	0.22	0.22	0.22	0.27	0.27	0.27	0.27	0.27
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Posts, Test Leads, Signs	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>3.58</b>	<b>3.58</b>	<b>3.58</b>	<b>3.58</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>	<b>4.02</b>
Pipe costs	7.53	10.17	14.43	26.90	41.76	69.28	94.57	117.76	155.86	276.64	224.46	251.50
External Coating-YJ1 or FBE	3.06	3.85	4.81	7.40	9.70	12.35	14.49	18.01	15.30	17.22	19.12	21.02
Cost of A/G Assemblies	3.94	4.11	4.38	5.62	6.68	7.83	11.68	15.11	18.21	22.17	25.37	28.87
Heavy Wall Pipe for crossings	0.03	0.03	0.04	0.04	0.04	0.06	0.07	0.07	0.14	0.20	0.13	0.20
<b>SubTotal Material Costs (\$/m)</b>	<b>14.56</b>	<b>18.15</b>	<b>23.66</b>	<b>39.97</b>	<b>58.18</b>	<b>89.52</b>	<b>120.81</b>	<b>150.94</b>	<b>189.52</b>	<b>316.23</b>	<b>269.08</b>	<b>301.59</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>26.68</b>	<b>32.91</b>	<b>34.39</b>	<b>43.90</b>	<b>57.89</b>	<b>80.45</b>	<b>108.73</b>	<b>137.92</b>	<b>186.40</b>	<b>236.92</b>	<b>263.02</b>	<b>288.60</b>
<b>Total Assessable Costs per M</b>	<b>\$61.01</b>	<b>\$70.85</b>	<b>\$77.83</b>	<b>\$103.66</b>	<b>\$138.14</b>	<b>\$192.05</b>	<b>\$253.57</b>	<b>\$315.78</b>	<b>\$402.84</b>	<b>\$580.07</b>	<b>\$559.02</b>	<b>\$617.11</b>
<b>AY2006 Total Assessable Cost</b>	<b>\$54.90</b>	<b>\$64.37</b>	<b>\$71.10</b>	<b>\$95.71</b>	<b>\$127.87</b>	<b>\$179.72</b>	<b>\$237.69</b>	<b>\$292.45</b>	<b>\$379.22</b>	<b>548.2648</b>	<b>523.8347</b>	<b>578.3384</b>
<b>Increase Factor</b>	1.111	1.101	1.095	1.083	1.080	1.069	1.067	1.080	1.062	#REF!	#REF!	#REF!
						1.089						

Model Used	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km	32 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	6.4	7.1	7.1	7.9	8.7	8.7	9.5	11.1	12.7	14.3	15.9
Imperial O.D (inches)	24	26	28	30	32	34	36	41	48	56	60
Metric O.D (mm)	610	660	711	762	813	864	914	1067	1219	1422	1524
land - entry fee/m	3.09	3.71	3.71	3.71	3.71	3.71	3.71	4.32	4.32	4.32	4.32
land - damages/m	6.67	9.41	9.41	9.41	9.41	9.41	9.41	12.64	12.64	12.64	12.64
land - acquisition/m	9.27	11.86	11.86	11.86	11.86	11.86	11.86	14.71	14.71	14.71	14.71
<b>Subtotal Land Costs (\$/m)</b>	<b>9.15</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>15.81</b>	<b>15.81</b>	<b>15.81</b>	<b>15.81</b>
Preliminary engineering	0.88	1.52	1.52	1.52	1.52	1.52	1.52	2.10	2.10	2.10	2.10
Route Reconnaissance	0.16	0.22	0.22	0.22	0.22	0.22	0.22	0.35	0.35	0.35	0.35
Environmental	0.89	1.05	1.05	1.05	1.05	1.05	1.05	1.44	1.44	1.44	1.44
Archeological	0.63	0.69	0.69	0.69	0.69	0.69	0.69	1.00	1.00	1.00	1.00
Geotechnical	0.69	0.93	0.93	0.93	0.93	0.93	0.93	1.44	1.44	1.44	1.44
As-Built Drawings	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Commissioning	0.25	0.38	0.38	0.38	0.38	0.38	0.38	0.56	0.56	0.56	0.56
Legal Surveying	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36
Design, Spec's,Procure.	0.95	1.29	1.29	1.29	1.29	1.29	1.29	2.51	2.51	2.51	2.51
Drainage Drawings	0.27	0.44	0.44	0.44	0.44	0.44	0.44	0.60	0.60	0.60	0.60
Drawings	2.20	2.61	2.61	2.61	2.61	2.61	2.61	3.16	3.16	3.16	3.16
Construction Management	1.72	2.14	2.14	2.14	2.14	2.14	2.14	2.61	2.61	2.61	2.61
Inspection	3.43	3.84	3.84	3.84	3.84	3.84	3.84	4.25	4.25	4.25	4.25
Construction Surveying	2.33	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61
<b>Subtotal Eng. Costs (\$/m)</b>	<b>13.25</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>15.29</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>	<b>18.10</b>
<b>Man-Made Crossings</b>	<b>5.05</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>7.48</b>	<b>10.38</b>	<b>10.38</b>	<b>10.38</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.49</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.88</b>	<b>1.88</b>	<b>1.88</b>
Radiography	2.63	3.12	3.12	3.12	3.12	3.12	3.39	3.39	3.39	3.39	3.39
Seeding	0.26	0.31	0.31	0.31	0.31	0.31	0.31	0.36	0.38	0.38	0.38
100 Swamp Weights (500m wet)	0.27	0.33	0.33	0.33	0.33	0.33	0.33	0.39	0.39	0.39	0.40
Sack Breakers (1500 Sand Bags)	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Posts, Test Leads, Signs	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>4.02</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.61</b>	<b>4.88</b>	<b>4.99</b>	<b>5.01</b>	<b>5.01</b>	<b>5.03</b>
Pipe costs	336.45	369.94	395.64	431.10	498.84	513.44	524.55	726.46	886.59	1151.75	1388.33
External Coating-YJ1 or FBE	22.92	24.92	26.65	28.67	30.58	32.29	34.34	40.29	45.50	53.12	61.43
Cost of A/G Assemblies	33.00	37.96	43.67	49.44	55.45	63.73	70.23	92.46	114.05	155.51	184.15
Heavy Wall Pipe for crossings	0.20	0.19	0.25	0.25	0.25	0.32	0.32	0.32	0.38	0.40	0.40
<b>SubTotal Material Costs (\$/m)</b>	<b>392.57</b>	<b>433.01</b>	<b>466.21</b>	<b>509.45</b>	<b>585.12</b>	<b>609.78</b>	<b>629.44</b>	<b>859.52</b>	<b>1046.52</b>	<b>1360.78</b>	<b>1634.31</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>307.52</b>	<b>333.31</b>	<b>406.52</b>	<b>428.81</b>	<b>462.84</b>	<b>483.72</b>	<b>585.75</b>	<b>638.07</b>	<b>821.21</b>	<b>956.36</b>	<b>1178.83</b>
<b>Total Assessable Costs per M</b>	<b>\$727.01</b>	<b>\$799.50</b>	<b>\$905.92</b>	<b>\$971.44</b>	<b>\$1,081.14</b>	<b>\$1,126.68</b>	<b>\$1,248.64</b>	<b>\$1,537.51</b>	<b>\$1,908.53</b>	<b>\$2,357.94</b>	<b>\$2,853.95</b>
<b>AY2006 Total Assessable Cost</b>	<b>685.8495</b>	<b>748.6452</b>	<b>836.312</b>	<b>897.2512</b>	<b>1000.831</b>	<b>1041.632</b>	<b>1139.579</b>	<b>1414.284</b>	<b>1753.167</b>	<b>2172.015</b>	<b>2627.373</b>
<b>Increase Factor</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>	<b>#REF!</b>

Model Used	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	4.4	4.8	4.8	4.8	5.6	5.6	6.4	7.1	7.1
Imperial O.D (inches)	12.75	14	16	18	20	22	24	26	28
Metric O.D (mm)	323.9	355.6	406.4	457	508	559	610	660	711
land - entry fee/m	2.47	3.09	3.09	3.09	3.09	3.09	3.09	3.71	3.71
land - damages/m	4.52	6.67	6.67	6.67	6.67	6.67	6.67	9.41	9.41
land - acquisition/m	6.91	9.27	9.27	9.27	9.27	9.27	9.27	11.86	11.86
<b>Subtotal Land Costs (\$/m)</b>	<b>6.58</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>9.15</b>	<b>12.27</b>	<b>12.27</b>
Preliminary engineering	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.91	0.91
Route Reconnaissance	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.13	0.13
Environmental	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.63	0.63
Archeological	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.41	0.41
Geotechnical	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.57	0.57
As-Built Drawings	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Commissioning	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.23	0.23
Legal Surveying	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Design, Spec's,Procure.	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.77	0.77
Drainage Drawings	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.26	0.26
Drawings	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.56	1.56
Construction Management	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.29	1.29
Inspection	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.33	2.33
Construction Surveying	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.65	1.65
<b>Subtotal Eng. Costs (\$/m)</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>8.05</b>	<b>9.28</b>	<b>9.28</b>
<b>Man-Made Crossings</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>3.80</b>	<b>6.02</b>	<b>6.02</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>1.31</b>	<b>2.82</b>	<b>2.82</b>
Radiography	2.13	2.28	2.28	2.28	2.28	2.28	2.28	2.65	2.65
Seeding	0.19	0.23	0.23	0.23	0.23	0.23	0.23	0.30	0.30
100 Swamp Weights (500m wet)	0.23	0.28	0.28	0.28	0.28	0.28	0.28	0.36	0.36
Sack Breakers (1500 Sand Bags)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Posts,Test Leads,Signs	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>3.44</b>	<b>3.68</b>	<b>3.68</b>	<b>3.68</b>	<b>3.68</b>	<b>3.68</b>	<b>3.68</b>	<b>4.19</b>	<b>4.19</b>
Pipe costs	87.87	105.98	140.28	265.14	202.01	226.34	303.78	332.95	356.07
External Coating-YJ1 or FBE	11.94	14.97	13.22	14.88	16.52	18.17	19.80	20.50	22.05
Cost of A/G Assemblies	2.26	2.81	3.41	4.14	4.80	5.73	6.44	7.65	8.69
Heavy Wall Pipe for crossings	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02
<b>SubTotal Material Costs (\$/m)</b>	<b>102.09</b>	<b>123.78</b>	<b>156.94</b>	<b>284.18</b>	<b>223.34</b>	<b>250.26</b>	<b>330.05</b>	<b>361.11</b>	<b>386.82</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>84.85</b>	<b>107.62</b>	<b>145.44</b>	<b>186.98</b>	<b>205.20</b>	<b>226.12</b>	<b>240.95</b>	<b>256.03</b>	<b>312.89</b>
<b>Total Assessable Costs per M</b>	<b>\$206.34</b>	<b>\$253.59</b>	<b>\$324.58</b>	<b>\$493.36</b>	<b>\$450.74</b>	<b>\$498.58</b>	<b>\$593.19</b>	<b>\$645.70</b>	<b>\$728.27</b>
AY2006 Total Assessable Cost per M	200.161	246.170	319.973	485.394	442.166	489.048	583.558	631.152	702.817
Increase Factor	1.0308573	1.03015934	1.01439717	1.01641024	1.01940019	1.0194929	1.01651095	1.02304416	1.03621224

Pipeline costs with 2006 percentage increases applied

ANSI 900 (300 km)

Model Used	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km	300 km
Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wall Thickness	7.9	8.7	8.7	9.5	11.1	12.7	14.3	15.9	
Imperial O.D (inches)	30	32	34	36	41	48	56	60	
Metric O.D (mm)	762	813	864	914	1067	1219	1422	1524	
land - entry fee/m	3.71	3.71	3.71	3.71	4.32	4.32	4.32	4.32	
land - damages/m	9.41	9.41	9.41	9.41	12.64	12.64	12.64	12.64	
land - acquisition/m	11.86	11.86	11.86	11.86	14.71	14.71	14.71	14.71	
<b>Subtotal Land Costs (\$/m)</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>12.27</b>	<b>15.81</b>	<b>15.81</b>	<b>15.81</b>	<b>15.81</b>	
Preliminary engineering	0.91	0.91	0.91	0.91	1.26	1.26	1.26	1.26	
Route Reconnaissance	0.13	0.13	0.13	0.13	0.21	0.21	0.21	0.21	
Environmental	0.63	0.63	0.63	0.63	0.86	0.86	0.86	0.86	
Archeological	0.41	0.41	0.41	0.41	0.60	0.60	0.60	0.60	
Geotechnical	0.57	0.57	0.57	0.57	1.20	1.20	1.20	1.20	
As-Built Drawings	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Commissioning	0.23	0.23	0.23	0.23	0.30	0.30	0.30	0.30	
Legal Surveying	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	
Design, Spec's,Procure.	0.77	0.77	0.77	0.77	1.51	1.51	1.51	1.51	
Drainage Drawings	0.26	0.26	0.26	0.26	0.36	0.36	0.36	0.36	
Drawings	1.56	1.56	1.56	1.56	1.89	1.89	1.89	1.89	
Construction Management	1.29	1.29	1.29	1.29	1.56	1.56	1.56	1.56	
Inspection	2.33	2.33	2.33	2.33	2.61	2.61	2.61	2.61	
Construction Surveying	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	
<b>Subtotal Eng. Costs (\$/m)</b>	<b>9.28</b>	<b>9.28</b>	<b>9.28</b>	<b>9.28</b>	<b>10.99</b>	<b>10.99</b>	<b>10.99</b>	<b>10.99</b>	
<b>Man-Made Crossings</b>	<b>6.02</b>	<b>6.02</b>	<b>6.02</b>	<b>6.02</b>	<b>6.02</b>	<b>8.44</b>	<b>8.44</b>	<b>8.44</b>	
<b>Subtotal Natural Crossings (\$/m)</b>	<b>2.82</b>	<b>2.82</b>	<b>2.82</b>	<b>2.82</b>	<b>2.82</b>	<b>5.09</b>	<b>5.09</b>	<b>5.09</b>	
Radiography	2.65	2.65	2.65	2.85	2.85	2.85	2.85	2.85	
Seeding	0.30	0.30	0.30	0.30	0.33	0.33	0.33	0.33	
100 Swamp Weights (500m wet)	0.36	0.36	0.36	0.36	0.41	0.41	0.41	0.42	
Sack Breakers (1500 Sand Bags)	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	
Posts,Test Leads,Signs	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>4.19</b>	<b>4.19</b>	<b>4.19</b>	<b>4.39</b>	<b>4.48</b>	<b>4.48</b>	<b>4.48</b>	<b>4.49</b>	
Pipe costs	387.99	448.96	462.10	472.09	653.81	797.94	1036.57	1249.49	
External Coating-YJ1 or FBE	23.65	25.21	26.52	28.34	33.49	37.42	43.60	50.44	
Cost of A/G Assemblies	9.73	10.97	12.37	13.52	17.26	22.32	29.69	32.01	
Heavy Wall Pipe for crossings	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
<b>SubTotal Material Costs (\$/m)</b>	<b>421.38</b>	<b>485.15</b>	<b>501.01</b>	<b>513.96</b>	<b>704.59</b>	<b>857.69</b>	<b>1109.89</b>	<b>1331.96</b>	
<b>Subtotal Installation Costs (\$/m)</b>	<b>329.76</b>	<b>355.07</b>	<b>371.08</b>	<b>449.93</b>	<b>490.11</b>	<b>630.79</b>	<b>734.61</b>	<b>905.48</b>	
<b>Total Assessable Costs per M</b>	<b>\$779.70</b>	<b>\$868.78</b>	<b>\$900.64</b>	<b>\$992.65</b>	<b>\$1,228.80</b>	<b>\$1,524.85</b>	<b>\$1,880.86</b>	<b>\$2,273.82</b>	
AY2006 Total Assessable Cost per M	752.860	839.949	870.655	949.178	1180.396	1463.991	1809.576	2187.300	
Increase Factor	1.03565	1.0343215	1.0344414	1.04579921	1.041008094	1.041567896	1.039394037	1.039555417	1.034

Pipeline costs with 2006 percentage increases applied

ANSI 900 (300 km)

Model Used	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km
Material	Polyethylene	Polyethylene	Polyethylene	Polyethylene	Polyethylene	Polyethylene	Polyethylene	Polyethylene	Polyethylene	Polyethylene
Wall Thickness	W.T. 2.42	W.T. 3.04	W.T. 3.82	W.T. 4.38	W.T. 5.48	W.T. 8.08	W.T 10.32	W.T 15.28	W.T 19.94	
Imperial O.D (inches)	1.05	1.31	1.66	1.9	2.37	3.5	4.5	6.63	8.63	
Metric O.D (mm)	26.7	33.4	42.2	48.3	60.3	88.9	114.3	168.3	219.1	
land - entry fee/m	0.00	0.00	0.00	0.00	0.00	0.00	1.94	1.94	2.59	
land - damages/m	0.78	0.78	0.78	0.78	0.78	0.78	2.57	2.57	4.12	
<b>land - acquisition/m</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>4.45</b>	<b>4.45</b>	<b>6.91</b>	
<b>Subtotal Land Costs (\$/m)</b>	<b>0.78</b>	<b>0.78</b>	<b>0.78</b>	<b>0.78</b>	<b>0.78</b>	<b>0.78</b>	<b>4.51</b>	<b>4.51</b>	<b>6.71</b>	
<b>Preliminary engineering</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	
<b>Route Reconnaissance</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	
<b>Environmental</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	
<b>Archeological</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
<b>Geotechnical</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	
<b>As-Built Drawings</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	
<b>Commissioning</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	
Legal Surveying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Design, Spec's,Procure.	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.27	1.27	
Drainage Drawings	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	
Drawings	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	
Construction Management	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	
Inspection	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.27	1.27	
Construction Surveying	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	
<b>Subtotal Eng. Costs (\$/m)</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.84</b>	<b>4.84</b>	
<b>Man-Made Crossings</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>3.73</b>	<b>3.73</b>	
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>1.17</b>	<b>1.17</b>	
Radiography	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Seeding	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.23	
20 Swamp Weights (100m wet)	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.28	
Sack Breakers (300 Sand Bags)	0.03	0.03	0.13	0.13	0.84	0.84	0.84	0.84	0.84	
Posts,Test Leads,Signs	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>0.61</b>	<b>0.61</b>	<b>0.71</b>	<b>0.71</b>	<b>1.42</b>	<b>1.42</b>	<b>1.42</b>	<b>1.42</b>	<b>1.56</b>	
Pipe & Coating Costs	0.78	1.17	1.98	2.26	3.51	7.16	11.90	25.02	38.94	
Fittings/Valves-ANSI 300	0.18	0.18	0.24	0.24	0.24	0.24	0.39	0.41	0.41	
High Energy Joining Kit	0.07	0.07	0.08	0.08	0.08	0.14	0.14	0.24	0.36	
Heavy Wall Pipe for crossings	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
<b>SubTotal Material Costs (\$/m)</b>	<b>1.15</b>	<b>1.54</b>	<b>2.42</b>	<b>2.70</b>	<b>3.95</b>	<b>7.66</b>	<b>12.55</b>	<b>25.78</b>	<b>39.82</b>	
<b>Subtotal Installation Costs (\$/m)</b>	<b>3.45</b>	<b>3.58</b>	<b>3.64</b>	<b>3.78</b>	<b>3.79</b>	<b>6.05</b>	<b>8.03</b>	<b>15.47</b>	<b>18.05</b>	
<b>Total Assessable Costs per M</b>	<b>\$10.20</b>	<b>\$10.72</b>	<b>\$11.75</b>	<b>\$12.18</b>	<b>\$14.16</b>	<b>\$20.12</b>	<b>\$30.74</b>	<b>\$53.20</b>	<b>\$72.15</b>	
<b>AY2006 Total Assessable Cost per M</b>	<b>9.59</b>	<b>10.12</b>	<b>11.18</b>	<b>11.61</b>	<b>13.58</b>	<b>19.50</b>	<b>30.25</b>	<b>52.61</b>	<b>78.44</b>	
<b>Increase Factor</b>	1.064	1.059	1.051	1.049	1.042	1.032	1.016	1.011	0.920	1.042

Model Used	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km
Material	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylen
Wall Thickness	2.97	3.71	4.67	5.36	6.7	9.88	12.7	18.69	24.33	30.33	35.99
Imperial O.D (inches)	1.05	1.31	1.66	1.9	2.37	3.5	4.5	6.63	8.63	10.75	12.75
Metric O.D (mm)	26.7	33.4	42.2	48.3	60.3	88.9	114.3	168.3	219.1	273.1	323.9
land - entry fee/m	0.00	0.00	0.00	0.00	0.00	0.00	1.94	1.94	2.59	2.59	2.59
land - damages/m	0.78	0.78	0.78	0.78	0.78	0.78	2.57	2.57	4.12	4.12	4.12
land - acquisition/m	0.00	0.00	0.00	0.00	0.00	0.00	4.45	4.45	6.91	6.91	6.91
<b>Subtotal Land Costs (\$/m)</b>	<b>0.78</b>	<b>0.78</b>	<b>0.78</b>	<b>0.78</b>	<b>0.78</b>	<b>0.78</b>	<b>4.51</b>	<b>4.51</b>	<b>6.71</b>	<b>6.71</b>	<b>6.71</b>
<b>Preliminary engineering</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>
<b>Route Reconnaissance</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>
<b>Environmental</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>
<b>Archeological</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Geotechnical</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>
<b>As-Built Drawings</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>
<b>Commissioning</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>
Legal Surveying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Design, Spec's,Procure.	0.89	0.89	0.89	0.89	0.89	0.89	0.89	1.27	1.27	1.27	1.27
Drainage Drawings	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Drawings	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Construction Management	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Inspection	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.27	1.27	1.27	1.27
Construction Surveying	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
<b>Subtotal Eng. Costs (\$/m)</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.20</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>
<b>Man-Made Crossings</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>2.98</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>1.92</b>	<b>1.92</b>	<b>1.92</b>	<b>1.92</b>
Radiography	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seeding	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.23	0.23	0.23
20 Swamp Weights (100m wet)	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.28	0.28	0.28
Sack Breakers (300 Sand Bags)	0.13	0.13	0.13	0.13	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Posts,Test Leads,Signs	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>0.71</b>	<b>1.42</b>	<b>1.42</b>	<b>1.42</b>	<b>1.42</b>	<b>1.56</b>	<b>1.56</b>	<b>1.56</b>
Pipe & Coating Costs	1.08	1.83	1.44	1.94	3.00	6.53	10.83	23.34	39.69	61.72	86.90
Fittings/Valves-ANSI 300	0.88	0.88	0.88	0.88	0.88	1.05	1.44	1.68	2.23	2.91	3.35
High Energy Joining Kit	0.10	0.10	0.10	0.12	0.12	0.12	0.14	0.22	0.32	0.42	0.48
Heavy Wall Pipe for crossings	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
<b>SubTotal Material Costs (\$/m)</b>	<b>2.17</b>	<b>2.93</b>	<b>2.54</b>	<b>3.06</b>	<b>4.12</b>	<b>7.82</b>	<b>12.54</b>	<b>25.37</b>	<b>42.36</b>	<b>65.16</b>	<b>90.85</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>5.11</b>	<b>7.70</b>	<b>7.70</b>	<b>8.04</b>	<b>8.04</b>	<b>10.27</b>	<b>11.29</b>	<b>17.41</b>	<b>20.09</b>	<b>21.43</b>	<b>23.44</b>
<b>Total Assessable Costs per M</b>	<b>\$12.98</b>	<b>\$16.33</b>	<b>\$15.94</b>	<b>\$16.80</b>	<b>\$18.57</b>	<b>\$24.50</b>	<b>\$33.98</b>	<b>\$55.47</b>	<b>\$77.49</b>	<b>\$101.63</b>	<b>\$129.32</b>
<b>AY2006 Total Assessable Cost per M</b>	<b>\$11.71</b>	<b>\$13.04</b>	<b>\$13.33</b>	<b>\$14.02</b>	<b>\$15.57</b>	<b>\$21.48</b>	<b>\$30.63</b>	<b>\$53.49</b>	<b>\$75.29</b>	<b>\$99.30</b>	<b>\$126.84</b>
<b>Increase Factor</b>	1.108	1.253	1.196	1.198	1.193	1.141	1.109	1.037	1.029	1.023	1.020

Pipeline costs with 2006 percentage increases applied

HDPE

Model Used	5 km	5 km	5 km	5 km	5 km	5 km	
Material	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylen	Polyethylene	
Wall Thickness	16.93	19.35	46.18	69.27	73.88	61.39	
Imperial O.D (inches)	14	16	20	30	32	42	
Metric O.D (mm)	355.6	406.4	508	762	813	1067	
land - entry fee/m	3.24	3.24	3.24	3.90	3.90	4.54	
land - damages/m	6.08	6.08	6.08	8.58	8.58	11.52	
land - acquisition/m	9.27	9.27	9.27	11.86	11.86	14.71	
<b>Subtotal Land Costs (\$/m)</b>	<b>9.32</b>	<b>9.32</b>	<b>9.32</b>	<b>12.47</b>	<b>12.47</b>	<b>16.05</b>	
<b>Preliminary engineering</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	
<b>Route Reconnaissance</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	
<b>Environmental</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	
<b>Archeological</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
<b>Geotechnical</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	
<b>As-Built Drawings</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	
<b>Commissioning</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	
Legal Surveying	0.00	0.00	0.00	0.00	0.00	0.00	
Design, Spec's,Procure.	1.27	1.27	1.27	1.27	1.27	1.27	
Drainage Drawings	0.13	0.13	0.13	0.13	0.13	0.13	
Drawings	0.51	0.51	0.51	0.51	0.51	0.51	
Construction Management	1.02	1.02	1.02	1.02	1.02	1.02	
Inspection	1.27	1.27	1.27	1.27	1.27	1.27	
Construction Surveying	0.64	0.64	0.64	0.64	0.64	0.64	
<b>Subtotal Eng. Costs (\$/m)</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	
<b>Man-Made Crossings</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	
<b>Subtotal Natural Crossings (\$/m)</b>	<b>1.92</b>	<b>1.92</b>	<b>1.92</b>	<b>1.92</b>	<b>1.92</b>	<b>1.92</b>	
Radiography	0.00	0.00	0.00	0.00	0.00	0.00	
Seeding	0.28	0.28	0.28	0.33	0.33	0.39	
20 Swamp Weights (100m wet)	0.28	0.33	0.33	0.39	0.46	0.46	
Sack Breakers (300 Sand Bags)	0.84	0.84	0.84	0.84	0.84	0.84	
Posts,Test Leads,Signs	0.21	0.21	0.27	0.27	0.27	0.27	
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>1.62</b>	<b>1.67</b>	<b>1.73</b>	<b>1.83</b>	<b>1.91</b>	<b>1.96</b>	
Pipe & Coating Costs	25.91	34.14	177.44	399.29	547.49	429.14	
Fittings/Valves-ANSI 300	3.97	4.85	6.14	7.51	9.01	10.37	
High Energy Joining Kit	0.60	0.72	1.91	2.15	2.15	2.27	
Heavy Wall Pipe for crossings	0.12	0.12	0.12	0.12	0.12	0.12	
<b>SubTotal Material Costs (\$/m)</b>	<b>30.59</b>	<b>39.83</b>	<b>185.61</b>	<b>409.07</b>	<b>558.77</b>	<b>441.90</b>	
<b>Subtotal Installation Costs (\$/m)</b>	<b>38.31</b>	<b>40.34</b>	<b>200.90</b>	<b>241.09</b>	<b>267.87</b>	<b>301.36</b>	
<b>Total Assessable Costs per M</b>	<b>\$86.59</b>	<b>\$97.91</b>	<b>\$404.32</b>	<b>\$671.22</b>	<b>\$847.78</b>	<b>\$768.03</b>	
<b>AY2006 Total Assessable Cost per M</b>	<b>\$108.81</b>	<b>\$127.70</b>	<b>\$404.82</b>	<b>\$687.51</b>	<b>\$877.84</b>	<b>\$782.71</b>	
<b>Increase Factor</b>	0.796	0.767	0.999	0.976	0.966	0.981	1.029

Pipeline costs with 2006 percentage increases applied

Model Used	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km
Material	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC	PVC
Imperial O.D (inches)	15.9	19.8	25	32.5	19.1	23.7	29.9	38.9	22.2	27.5	34.8
Metric O.D (mm)	750	750	750	750	900	900	900	900	1050	1050	1050
land - entry fee/m	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	4.54	4.54	4.54
land - damages/m	8.58	8.58	8.58	8.58	8.58	8.58	8.58	8.58	11.52	11.52	11.52
<b>land - acquisition/m</b>	<b>11.86</b>	<b>11.86</b>	<b>11.86</b>	<b>11.86</b>	<b>11.86</b>	<b>11.86</b>	<b>11.86</b>	<b>11.86</b>	<b>14.71</b>	<b>14.71</b>	<b>14.71</b>
<b>Subtotal Land Costs (\$/m)</b>	<b>12.47</b>	<b>12.47</b>	<b>12.47</b>	<b>12.47</b>	<b>12.47</b>	<b>12.47</b>	<b>12.47</b>	<b>12.47</b>	<b>16.05</b>	<b>16.05</b>	<b>16.05</b>
<b>Preliminary engineering</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>
<b>Route Reconnaissance</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>
<b>Environmental</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>
<b>Archeological</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Geotechnical</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>
<b>As-Built Drawings</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>
<b>Commissioning</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>
Legal Surveying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Design, Spec's,Procure.	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
Drainage Drawings	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Drawings	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Construction Management	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Inspection	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
Construction Surveying	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
<b>Subtotal Eng. Costs (\$/m)</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>
<b>Man-Made Crossings</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>
<b>Subtotal Natural Crossings (\$/m)</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>	<b>1.02</b>
Radiography	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Seeding	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.39	0.39	0.39
20 Swamp Weights (100m wet)	0.39	0.39	0.39	0.39	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Sack Breakers (300 Sand Bags)	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Posts,Test Leads,Signs	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>1.77</b>	<b>1.77</b>	<b>1.77</b>	<b>1.77</b>	<b>1.85</b>	<b>1.85</b>	<b>1.85</b>	<b>1.85</b>	<b>1.90</b>	<b>1.90</b>	<b>1.90</b>
Pipe & Coating Costs	251.29	276.08	373.93	466.46	357.40	397.39	522.94	684.02	477.58	536.50	749.50
Fittings/Valves-ANSI 300	8.77	8.77	8.77	8.77	9.47	9.47	9.47	9.47	10.18	10.18	10.18
High Energy Joining Kit	1.87	1.87	1.87	1.87	2.11	2.11	2.11	2.11	2.22	2.22	2.22
Heavy Wall Pipe for crossings	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
<b>SubTotal Material Costs (\$/m)</b>	<b>262.05</b>	<b>286.84</b>	<b>384.69</b>	<b>477.22</b>	<b>369.09</b>	<b>409.09</b>	<b>534.63</b>	<b>695.71</b>	<b>490.09</b>	<b>549.02</b>	<b>762.01</b>
<b>Subtotal Installation Costs (\$/m)</b>	<b>318.76</b>	<b>318.76</b>	<b>318.76</b>	<b>318.76</b>	<b>341.04</b>	<b>341.04</b>	<b>341.04</b>	<b>341.04</b>	<b>363.34</b>	<b>363.34</b>	<b>363.34</b>
<b>Total Assessable Costs per M</b>	<b>\$600.91</b>	<b>\$625.71</b>	<b>\$723.55</b>	<b>\$816.09</b>	<b>\$730.31</b>	<b>\$770.31</b>	<b>\$895.85</b>	<b>\$1,056.93</b>	<b>\$877.24</b>	<b>\$936.16</b>	<b>\$1,149.16</b>
<b>AY2006 Total Assessable Cost per M</b>	<b>\$546.36</b>	<b>\$570.22</b>	<b>\$663.16</b>	<b>\$751.29</b>	<b>\$668.09</b>	<b>\$705.86</b>	<b>\$825.90</b>	<b>\$978.22</b>	<b>\$805.61</b>	<b>\$861.67</b>	<b>\$1,064.33</b>
<b>Increase Factor</b>	1.100	1.097	1.091	1.086	1.093	1.091	1.085	1.080	1.089	1.086	1.080

Model Used	5 km	5 km	
Material	PVC	PVC	
Imperial O.D (inches)	25.3	31.5	
Metric O.D (mm)	1200	1200	
land - entry fee/m	4.54	4.54	
land - damages/m	11.52	11.52	
land - acquisition/m	14.71	14.71	
<b>Subtotal Land Costs (\$/m)</b>	<b>16.05</b>	<b>16.05</b>	
Preliminary engineering	0.28	0.28	
Route Reconnaissance	0.15	0.15	
Environmental	0.06	0.06	
Archeological	0.00	0.00	
Geotechnical	0.10	0.10	
As-Built Drawings	0.26	0.26	
Commissioning	0.20	0.20	
Legal Surveying	0.00	0.00	
Design, Spec's,Procure.	1.27	1.27	
Drainage Drawings	0.13	0.13	
Drawings	0.51	0.51	
Construction Management	1.02	1.02	
Inspection	1.27	1.27	
Construction Surveying	0.64	0.64	
<b>Subtotal Eng. Costs (\$/m)</b>	<b>4.84</b>	<b>4.84</b>	
Man-Made Crossings	3.73	3.73	
<b>Subtotal Natural Crossings (\$/m)</b>	<b>1.02</b>	<b>1.02</b>	
Radiography	0.00	0.00	
Seeding	0.39	0.39	
20 Swamp Weights (100m wet)	0.51	0.51	
Sack Breakers (300 Sand Bags)	0.84	0.84	
Posts,Test Leads,Signs	0.21	0.21	
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>1.95</b>	<b>1.95</b>	
Pipe & Coating Costs	626.11	711.03	
Fittings/Valves-ANSI 300	11.11	11.11	
High Energy Joining Kit	2.46	2.46	
Heavy Wall Pipe for crossings	0.12	0.12	
<b>SubTotal Material Costs (\$/m)</b>	<b>639.79</b>	<b>724.72</b>	
<b>Subtotal Installation Costs (\$/m)</b>	<b>421.47</b>	<b>421.47</b>	
<b>Total Assessable Costs per M</b>	<b>\$1,085.13</b>	<b>\$1,170.05</b>	
<b>AY2006 Total Assessable Cost per M</b>	<b>\$998.66</b>	<b>\$1,079.46</b>	
<b>Increase Factor</b>	1.087	1.084	1.087

Model Used	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km
Material	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Wall Thickness	W.T. 2.2	W.T. 2.8	W.T 3.0	W.T. 3.6	W.T 3.18	W.T 6.35	W.T. 6.35	W.T 7.11
Imperial O.D (inches)	1.9	2.37	2.87	3.25	4.5	4.5	6.63	6.63
Metric O.D (mm)	48.3	60.3	73	82.6	114.3	114.3	168.3	168.3

land - entry fee/m
land - damages/m
<b>land - acquisition/m</b>
<b>Subtotal Land Costs (\$/m)</b>
<b>Preliminary engineering</b>
<b>Route Reconnaissance</b>
<b>Environmental</b>
<b>Archeological</b>
<b>Geotechnical</b>
<b>As-Built Drawings</b>
<b>Commissioning</b>
Legal Surveying
Design, Spec's, Procure.
Drainage Drawings
Drawings
Construction Management
Inspection
Construction Surveying
<b>Subtotal Eng. Costs (\$/m)</b>
<b>Man-Made Crossings</b>
<b>Subtotal Natural Crossings (\$/m)</b>
Radiography
Seeding
20 Swamp Weights (100m wet)
Sack Breakers (300 Sand Bags)
Posts, Test Leads, Signs
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>
Pipe & Coating Costs
Fittings/Valves-ANSI 300
High Energy Joining Kit
Heavy Wall Pipe for crossings
<b>SubTotal Material Costs (\$/m)</b>
<b>Subtotal Installation Costs (\$/m)</b>
<b>Total Assessable Costs per M</b>

**NO LONGER APPLICABLE - ALUMINUM PIPE IS NO LONGER PRODUCED OR SOLD**

AY2004 Total Assessable Cost per M  
Increase Factor

ALUMINUM

Model Used	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	5 km	
Material	Fiberglass	Fiberglass	Fiberglass	Fiberglass	Fiberglass	Fiberglass	Fiberglass	Fiberglass	Fiberglass	
Wall Thickness	2	2.8	3.6	5.1	8.9	5.1	5.1	16.25	16.25	
Imperial O.D (inches)	2.37	3.5	4.5	6.63	8.63	10.75	12.75	24	36	
Metric O.D (mm)	60.3	88.9	114.3	168.3	219.1	273.1	323.9	609.6	914.4	
land - entry fee/m	1.94	1.94	1.94	1.94	2.59	2.59	2.59	3.24	3.90	
land - damages/m	2.57	2.57	2.57	2.57	4.12	4.12	4.12	6.08	8.58	
<b>land - acquisition/m</b>	<b>4.45</b>	<b>4.45</b>	<b>4.45</b>	<b>4.45</b>	<b>6.91</b>	<b>6.91</b>	<b>6.91</b>	<b>9.27</b>	<b>11.86</b>	
<b>Subtotal Land Costs (\$/m)</b>	<b>4.51</b>	<b>4.51</b>	<b>4.51</b>	<b>4.51</b>	<b>6.71</b>	<b>6.71</b>	<b>6.71</b>	<b>9.32</b>	<b>12.47</b>	
<b>Preliminary engineering</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	<b>0.28</b>	
<b>Route Reconnaissance</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	<b>0.15</b>	
<b>Environmental</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	
<b>Archeological</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	
<b>Geotechnical</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	<b>0.10</b>	
<b>As-Built Drawings</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	
<b>Commissioning</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	<b>0.20</b>	
Legal Surveying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Design, Spec's,Procure.	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	
Drainage Drawings	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	
Drawings	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	
Construction Management	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	
Inspection	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	
Construction Surveying	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	
<b>Subtotal Eng. Costs (\$/m)</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	<b>4.84</b>	
<b>Man-Made Crossings</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	<b>3.73</b>	
<b>Subtotal Natural Crossings (\$/m)</b>	<b>0.97</b>	<b>0.97</b>	<b>0.97</b>	<b>0.97</b>	<b>0.97</b>	<b>0.97</b>	<b>0.97</b>	<b>0.97</b>	<b>0.97</b>	
Radiography	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Seeding	0.17	0.17	0.17	0.17	0.23	0.23	0.23	0.28	0.33	
20 Swamp Weights (100m wet)	0.21	0.21	0.21	0.21	0.28	0.28	0.28	0.39	0.46	
Sack Breakers (300 Sand Bags)	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Posts,Test Leads,Signs	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	
<b>Subtotal Misc. Mat'l Costs (\$/m)</b>	<b>1.42</b>	<b>1.42</b>	<b>1.42</b>	<b>1.42</b>	<b>1.56</b>	<b>1.56</b>	<b>1.56</b>	<b>1.72</b>	<b>1.85</b>	
Pipe & Coating Costs	11.26	14.74	26.57	49.57	92.22	94.52	123.54	475.65	722.17	
Fittings/Valves-ANSI 300	0.90	1.15	1.48	1.70	1.94	2.19	2.46	2.73	4.56	
High Energy Joining Kit	0.19	0.28	0.38	0.55	0.73	0.91	1.09	1.22	1.22	
Heavy Wall Pipe for crossings	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
<b>SubTotal Material Costs (\$/m)</b>	<b>12.47</b>	<b>16.29</b>	<b>28.55</b>	<b>51.94</b>	<b>95.01</b>	<b>97.73</b>	<b>127.21</b>	<b>479.71</b>	<b>728.06</b>	
<b>Subtotal Installation Costs (\$/m)</b>	<b>12.70</b>	<b>14.43</b>	<b>15.81</b>	<b>30.24</b>	<b>63.90</b>	<b>76.81</b>	<b>96.08</b>	<b>551.78</b>	<b>689.72</b>	
<b>Total Assessable Costs per M</b>	<b>\$36.92</b>	<b>\$42.46</b>	<b>\$56.10</b>	<b>\$93.92</b>	<b>\$172.99</b>	<b>\$188.63</b>	<b>\$237.37</b>	<b>\$1,048.34</b>	<b>\$1,437.92</b>	
<b>AY2006 Total Assessable Cost per M</b>	<b>\$33.85</b>	<b>\$40.99</b>	<b>\$51.69</b>	<b>\$86.54</b>	<b>\$162.66</b>	<b>\$178.45</b>	<b>\$221.87</b>	<b>\$1,132.27</b>	<b>\$1,610.10</b>	
<b>Increase Factor</b>	1.091	1.036	1.085	1.085	1.064	1.057	1.070	0.926	0.893	1.064