

March 3, 2003

RIrving-17L.doc

R.W. Tomlinson Limited
5597 Power Road, RR#6
Ottawa, Ontario, K1G 3N4

Attention: Richard Irving, P.Eng.
Vice President, Highway Division

Subject: Grading, Drainage, Granular Base, Hot Mix Paving and Two Structures
M.T.O. 2001-0002, Your Order No. 2002-060-16, Our File No. 0203CS250
Progress Report – Preloading of Falsework Foundation Area

Dear Richard,

On August 7, 2002 we submitted Report 8 entitled "Falsework Foundation Design, Regional Road 22, MTO 2001-0002." The report provided details of the following three items.

- 1) Design of falsework foundation
- 2) Develop and implement monitoring programme, and,
- 3) Outline procedures and monitoring requirements of preloading, unloading and reloading of an area within the falsework zone to confirm the settlement characteristics of the subsurface soils under cycles of loading and unloading.

Since the submittal of Report 8, the following relevant activities took place.

- 1) Between August 19 and 21, 2002, six vibrating wire Piezometers, six settlement plates, three vibrating wire settlement cells, and 2 magnetic settlement profilers were installed.
- 2) Between August 27 and 29, 2002, preloading was placed per Report 8 requirements.
- 3) Since August 19, 2002 data are being collected from all the installed instruments per Report 8 requirements.

In compliance with the project Specifications, the design presented in Report 8 utilizes preloading as a mean of satisfying the following MTO Specified Performance Requirement.

"The settlement of the falsework between the time of the initial set of the concrete and the completion of the longitudinal stressing of the structure shall not exceed 12 mm."

The purpose of this progress report is to assess the performance of the soils in the falsework foundation zone due to the applied surcharge in terms of development and dissipation of excess pore water pressure. That is, can the unloading reloading procedures described in Section 6 of Report 8 start sooner than anticipated at the design stage? The assessment is based on comparing measured and target excess pore water pressure based on Report 8. Before the preload removal, the excess pore water pressure in all six piezometers must be equal or smaller than the target values.

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Figure A provides the As-Built instrumentation layout. Preloading magnitude and extent are per Report 8 requirements.

The excess pore water pressure at the tips of the six piezometers is provided in Tables 1 through 3 and presented graphically in Figures B through D. Each figure presents response of two piezometers; one at Station 22-FW1 and the other at Station 22-FW2. The two piezometers are placed at approximately the same tip Elevation.

The measured excess pore water pressure on February 24, 2003 (the most recent survey) and corresponding target excess pore water pressure for the six piezometers are shown in Table 4. The results indicate that for the six piezometers, the measured excess pore water pressure is equal or smaller than the corresponding target excess pore water pressure. That is, the design conditions are met and the design verification unloading reloading procedures could be started sooner than anticipated.

Based on the above assessment and to comply with the project Specifications and the requirements of Report 8, we recommend the following.

- ❑ Proceed with the unloading reloading procedures outlined in Section 6 of Report 8. The ground within the falsework area must not be frozen at the time of the unloading reloading.
- ❑ The staging described in Section 6 of Report 8 will be followed closely (without the need to wait for ten months as indicated in Stage 1). The unloading reloading will be at the location indicated as Alternative 2 in Figure FW4a of Report 8.
- ❑ Based on our assessment of data from all instruments during and following the unloading reloading process and MTO review and approval, the surcharge could be removed.

We hope that this progress report addresses your immediate needs. Please contact us should you have any questions regarding the above.

Best regards,
Urkkada Technology Ltd.

Ameir Altaee, Ph.D., P.Eng.
Principal

**Table 1: Deep Vibrating Wire Piezometers
Preloading of Falsework Foundation Area**

VWPFW1 North Abutment, El. 83.52m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
20-Aug-02	1760.40	0.6		0.6	0.6	
21-Aug-02	1704.66	79.0		79.0	79.0	
21-Aug-02	1682.13	109.9		109.9	109.9	
23-Aug-02	1649.12	154.6	101.1	154.8	154.8	
23-Aug-02	1649.12	154.6	101.1	154.8	154.8	
25-Aug-02	1648.50	155.4	100.9	155.8	155.8	0.0
26-Aug-02	1648.28	155.7	100.9	156.1	156.1	0.3
27-Aug-02	1640.93	165.5	100.6	166.2	166.2	10.4
28-Aug-02	1637.07	170.6	101.5	170.4	170.4	14.6
29-Aug-02	1633.94	174.8	100.9	175.2	175.2	19.4
5-Sep-02	1637.25	170.4	101.0	170.7	170.7	14.9
13-Sep-02	1637.56	170.0	99.9	171.4	170.2	14.4
20-Sep-02	1637.14	170.5	99.6	172.2	170.1	14.3
27-Sep-02	1636.48	171.4	99.8	172.9	170.1	14.3
11-Oct-02	1634.40	174.2	101.5	174.0	170.0	14.2
23-Oct-02	1633.89	174.8	101.5	174.6	170.0	14.2
14-Nov-02	1634.40	174.2	99.6	175.9	169.6	13.8
2-Dec-02	1633.60	175.2	100.0	176.5	169.1	13.4
23-Dec-02	1634.55	174.0	99.2	176.1	168.8	13.0
9-Jan-03	1634.80	173.6	98.8	176.1	168.7	12.9
29-Jan-03	1633.71	175.1	100.9	175.5	168.2	12.4
10-Feb-03	1635.38	172.9	99.2	175.0	167.8	12.0
24-Feb-03	1633.96	174.8	102.1	174.0	167.6	11.8

VWPFW4 South Abutment, El. 84.40m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
19-Aug-02	1856.43	0.6		0.6	0.6	
20-Aug-02	1749.01	142.3		142.3	142.3	
21-Aug-02	1746.02	146.1		146.1	146.1	
23-Aug-02	1739.17	154.9	101.1	155.1	155.1	
23-Aug-02	1739.31	154.7	101.1	154.9	154.9	
25-Aug-02	1739.34	154.6	100.9	155.0	155.0	0.0
26-Aug-02	1739.25	154.8	100.9	155.2	155.2	0.1
27-Aug-02	1730.84	165.4	100.6	166.1	166.1	11.1
28-Aug-02	1725.45	172.3	101.5	172.1	172.1	17.0
29-Aug-02	1724.31	173.7	100.9	174.1	174.1	19.1
5-Sep-02	1725.95	171.6	101.0	171.9	171.9	16.9
13-Sep-02	1725.70	171.9	99.9	173.3	172.2	17.1
20-Sep-02	1725.13	172.7	99.6	174.4	172.2	17.1
27-Sep-02	1724.67	173.2	99.8	174.7	172.0	16.9
11-Oct-02	1722.55	175.9	101.5	175.7	171.7	16.7
23-Oct-02	1722.19	176.4	101.5	176.2	171.5	16.4
14-Nov-02	1722.61	175.8	99.6	177.5	171.3	16.2
2-Dec-02	1721.39	177.4	100.0	178.7	171.3	16.3
23-Dec-02	1722.30	176.2	99.2	178.3	171.1	16.1
9-Jan-03	1722.67	175.8	98.8	178.3	170.8	15.8
29-Jan-03	1721.08	177.8	100.9	178.2	170.9	15.8
10-Feb-03	1722.52	176.0	99.2	178.1	170.9	15.9
24-Feb-03	1721.01	177.9	102.1	177.1	170.7	15.7

**Tab 2: Mid Depth Vibrating Wire Piezometers
Preloading of Falsework Foundation Area**

VWPFW2 North Abutment, El. 90.88m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
20-Aug-02	1922.51	0.9		0.9	0.9	
21-Aug-02	1821.20	72.3		72.3	72.3	
21-Aug-02	1812.60	78.2		78.2	78.2	
23-Aug-02	1795.77	89.6	101.1	89.8	89.8	
23-Aug-02	1795.53	89.7	101.1	89.9	89.9	
25-Aug-02	1794.32	90.6	100.9	91.0	91.0	0.0
26-Aug-02	1773.57	104.5	100.9	104.9	104.9	13.9
27-Aug-02	1767.51	108.5	100.6	109.2	109.2	18.3
28-Aug-02	1757.32	115.3	101.5	115.1	115.1	24.1
29-Aug-02	1745.17	123.3	100.9	123.7	123.7	32.8
5-Sep-02	1740.20	126.6	101.0	126.9	126.9	35.9
13-Sep-02	1738.20	127.9	99.9	129.3	128.1	37.2
20-Sep-02	1754.31	117.3	99.6	119.0	116.8	25.9
27-Sep-02	1753.18	118.0	99.8	119.5	116.8	25.8
11-Oct-02	1756.22	116.0	101.5	115.8	111.9	20.9
23-Oct-02	1753.64	117.7	101.5	117.5	112.9	21.9
14-Nov-02	1751.30	119.3	99.6	121.0	114.7	23.8
2-Dec-02	1753.49	117.8	100.0	119.1	111.8	20.8
23-Dec-02	1754.18	117.4	99.2	119.5	112.2	21.3
9-Jan-03	1753.91	117.6	98.8	120.1	112.6	21.6
29-Jan-03	1752.44	118.5	100.9	118.9	111.6	20.6
10-Feb-03	1754.57	117.1	99.2	119.2	112.1	21.1
24-Feb-03	1754.63	117.1	102.1	116.3	110.0	19.0

VWPFW5 South Abutment, El. 90.94m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
20-Aug-02	1973.79	0.0		0.0	0.0	
20-Aug-02	1902.65	49.0		49.0	49.0	
21-Aug-02	1872.06	69.5	0.0	69.5	69.5	
23-Aug-02	1855.34	80.5	101.1	80.7	80.7	
23-Aug-02	1854.93	80.8	101.1	81.0	81.0	
25-Aug-02	1852.57	82.3	100.9	82.7	82.7	0.0
26-Aug-02	1852.33	82.5	100.9	82.9	82.9	0.2
27-Aug-02	1830.78	96.6	100.6	97.3	97.3	14.5
28-Aug-02	1812.94	108.1	101.5	107.9	107.9	25.2
29-Aug-02	1801.31	115.6	100.9	116.0	116.0	33.2
5-Sep-02	1798.47	117.4	101.0	117.7	117.7	35.0
13-Sep-02	1800.30	116.2	99.9	117.6	116.5	33.7
20-Sep-02	1800.75	116.0	99.6	117.7	115.5	32.7
27-Sep-02	1799.51	116.7	99.8	118.2	115.5	32.7
11-Oct-02	1805.64	112.8	101.5	112.6	108.6	25.9
23-Oct-02	1799.67	116.6	101.5	116.4	111.8	29.0
14-Nov-02	1805.51	112.9	99.6	114.6	108.3	25.6
2-Dec-02	1803.51	114.2	100.0	115.5	108.1	25.4
23-Dec-02	1802.49	114.8	99.2	116.9	109.7	27.0
9-Jan-03	1803.06	114.5	98.8	117.0	109.5	26.8
29-Jan-03	1802.06	115.1	100.9	115.5	108.2	25.4
10-Feb-03	1803.17	114.4	99.2	116.5	109.4	26.6
24-Feb-03	1802.44	114.9	102.1	114.1	107.8	25.0

**Table 3: Shallow Vibrating Wire Piezometers
Preloading of Falsework Foundation Area**

VWPFW3 North Abutment, El. 93.96m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
20-Aug-02	1917.20	0.5		0.5	0.5	
21-Aug-02	1845.14	49.0		49.0	49.0	
21-Aug-02	1839.85	52.4		52.4	52.4	
23-Aug-02	1830.62	58.5	101.1	58.7	58.7	
23-Aug-02	1830.35	58.7	101.1	58.9	58.9	
25-Aug-02	1829.82	59.0	100.9	59.4	59.4	0.0
26-Aug-02	1829.53	59.2	100.9	59.6	59.6	0.2
27-Aug-02	1812.47	70.3	100.6	71.0	71.0	11.6
28-Aug-02	1789.80	84.9	101.5	84.7	84.7	25.3
29-Aug-02	1770.19	97.3	100.9	97.7	97.7	38.3
5-Sep-02	1780.88	90.6	101.0	90.9	90.9	31.5
13-Sep-02	1792.10	83.4	99.9	84.8	83.7	24.3
20-Sep-02	1796.86	80.4	99.6	82.1	79.9	20.5
27-Sep-02	1798.85	79.1	99.8	80.6	77.8	18.4
11-Oct-02	1797.37	80.0	101.5	79.8	75.9	16.4
23-Oct-02	1796.33	80.7	101.5	80.5	75.8	16.4
14-Nov-02	1797.32	80.1	99.6	81.8	75.5	16.1
2-Dec-02	1796.64	80.5	100.0	81.8	74.4	15.0
23-Dec-02	1798.34	79.4	99.2	81.5	74.3	14.9
9-Jan-03	1800.39	78.1	98.8	80.6	73.1	13.7
29-Jan-03	1797.88	79.7	100.9	80.1	72.8	13.4
10-Feb-03	1800.12	78.3	99.2	80.4	73.2	13.8
24-Feb-03	1799.49	78.7	102.1	77.9	71.6	12.1

VWPFW6 South Abutment, El. 94.05m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
19-Aug-02	1985.17	0.8		0.8	0.8	
20-Aug-02	1934.31	38.2		38.2	38.2	
21-Aug-02	1918.80	49.4		49.4	49.4	
23-Aug-02	1909.11	56.3	101.1	56.5	56.5	
23-Aug-02	1908.81	56.5	101.1	56.7	56.7	
25-Aug-02	1907.19	57.7	100.9	58.1	58.1	0.0
26-Aug-02	1906.59	58.1	100.9	58.5	58.5	0.4
27-Aug-02	1893.61	67.4	100.6	68.1	68.1	10.0
28-Aug-02	1873.09	81.9	101.5	81.7	81.7	23.6
29-Aug-02	1859.31	91.5	100.9	91.9	91.9	33.8
5-Sep-02	1864.74	87.7	101.0	88.0	88.0	29.9
13-Sep-02	1873.80	81.4	99.9	82.8	81.6	23.5
20-Sep-02	1876.20	79.7	99.6	81.4	79.2	21.1
27-Sep-02	1877.41	78.8	99.8	80.3	77.6	19.5
11-Oct-02	1876.71	79.3	101.5	79.1	75.2	17.1
23-Oct-02	1876.13	79.7	101.5	79.5	74.9	16.8
14-Nov-02	1876.35	79.6	99.6	81.3	75.0	16.9
2-Dec-02	1876.08	79.8	100.0	81.1	73.7	15.6
23-Dec-02	1877.17	79.0	99.2	81.1	73.9	15.8
9-Jan-03	1878.45	78.1	98.8	80.6	73.2	15.1
29-Jan-03	1875.49	80.2	100.9	80.6	73.3	15.2
10-Feb-03	1877.38	78.9	99.2	81.0	73.8	15.7
24-Feb-03	1877.11	79.1	102.1	78.3	71.9	13.8

Grading, Drainage, Granular Base, Hot Paving, and Two Structures
 At HWY 417 - From Regional Road 29 (Formerly) HWY 15 and
 HWY 17 Intersection, Easterly 4.7 km to Regional Road 22

MTO 2001-0002
 Tomlinson 2002-060-16
 Urkkada 0203CS250

**Table 4: Comparison of Current Excess Pore Water Pressure Readings to Targets
 Preloading of Falsework Foundation Area**

Monitoring Station	Instrument ID	Tip Elevation (m)	Tip Depth Below Original Ground (m)	Target Excess Pore Pressure (kPa)	Excess Pore Pressure as of Feb 24, 2003 (kPa)
22-FW1	VWPFW1	83.52	16.98	24	11.8
	VWPFW2	90.88	9.62	25	19.0
	VWPFW3	93.96	6.54	28	12.1
22-FW2	VWPFW4	84.40	16.10	24	15.7
	VWPFW5	90.94	9.56	25	25.0
	VWPFW6	94.05	6.45	28	13.8

Figure A: As-Built Instrumentation Layout, Falsework Foundation, Regional Road 22

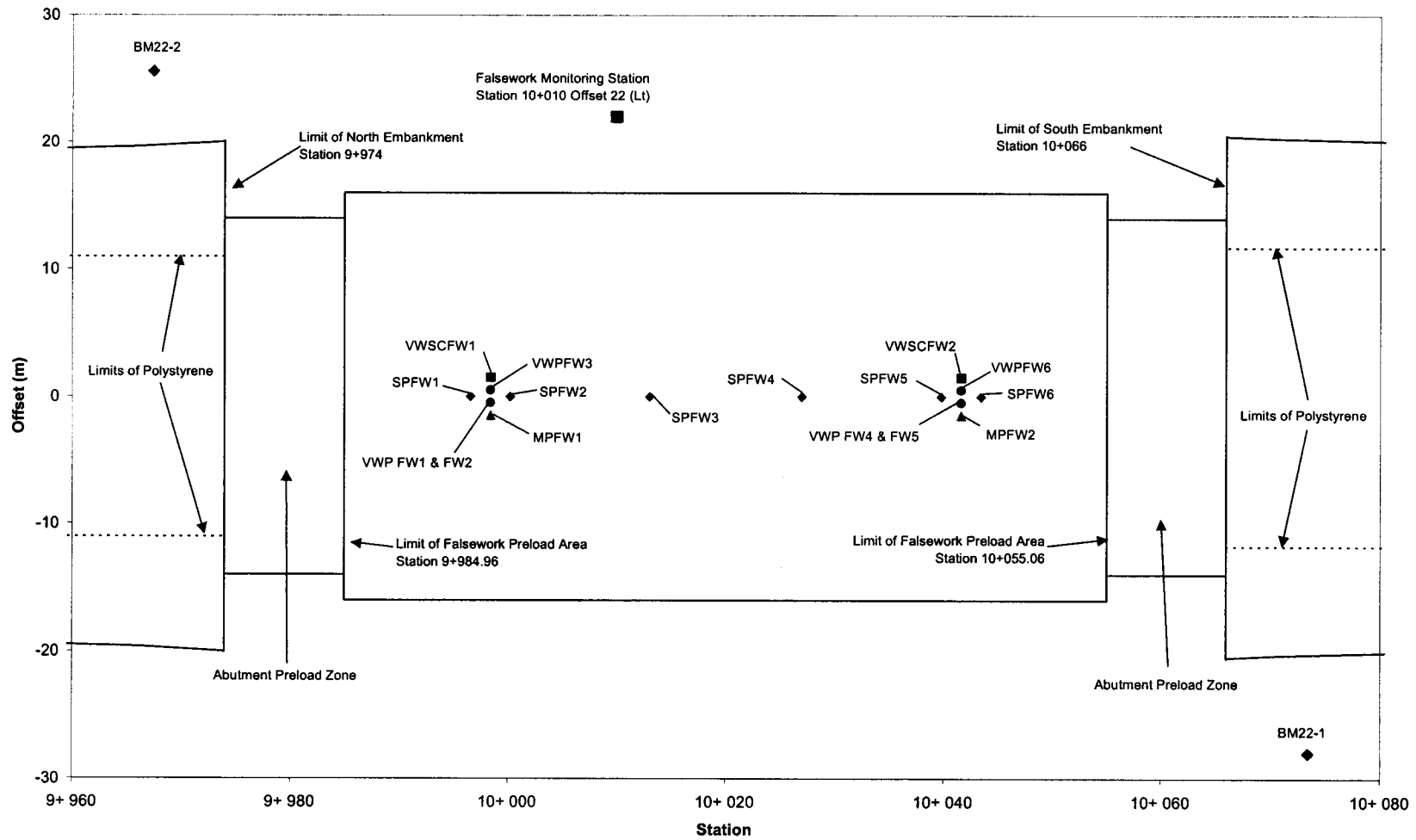
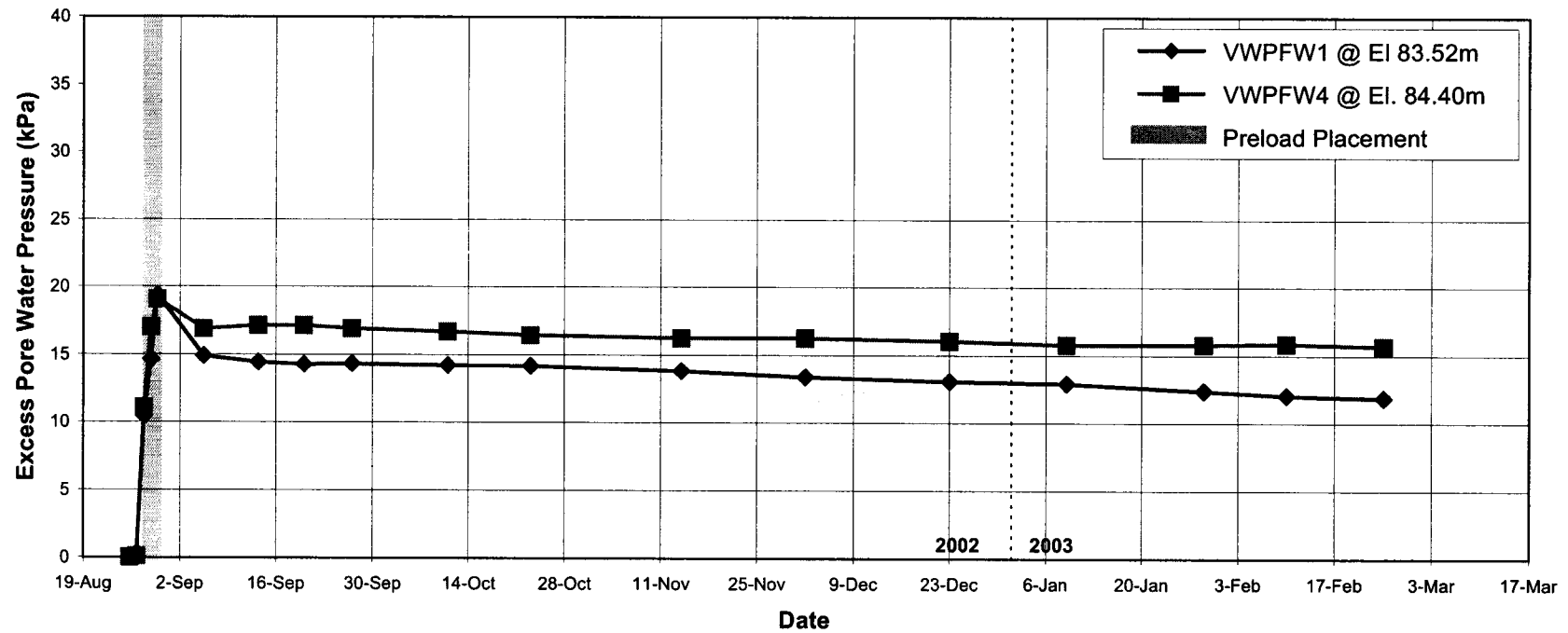


Figure B: Excess Pore Pressure at Deep Instruments
Preloading of Falsework Foundation Area



**Figure C: Excess Pore Pressure at Mid Depth Instruments
Preloading of Falsework Foundation Area**

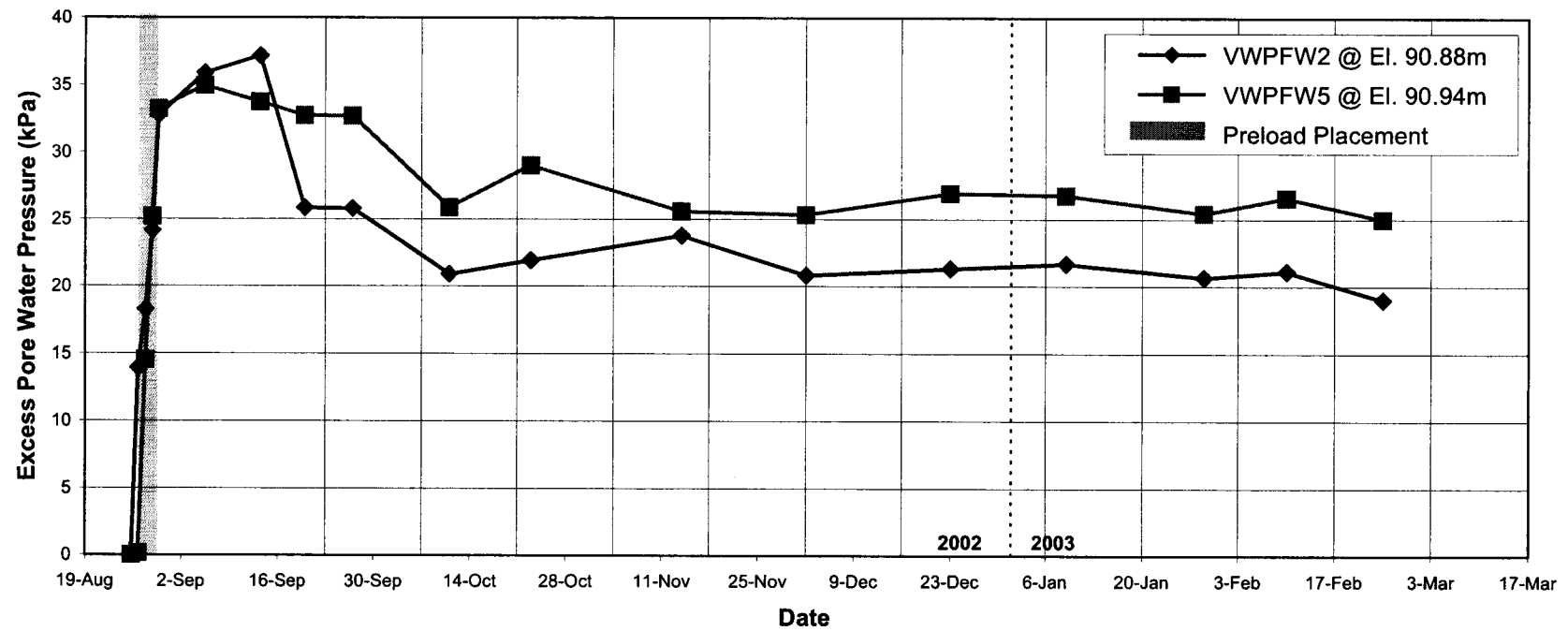


Figure A provides the As-Built instrumentation layout. Preloading magnitude and extent are per Report 8 requirements.

The excess pore water pressure at the tips of the six piezometers is provided in Tables 1 through 3 and presented graphically in Figures B through D. Each figure presents response of two piezometers; one at Station 22-FW1 and the other at Station 22-FW2. The two piezometers are placed at approximately the same tip Elevation.

The measured excess pore water pressure on February 24, 2003 (the most recent survey) and corresponding target excess pore water pressure for the six piezometers are shown in Table 4. The results indicate that for the six piezometers, the measured excess pore water pressure is equal or smaller than the corresponding target excess pore water pressure. That is, the design conditions are met and the design verification unloading reloading procedures could be started sooner than anticipated.

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- ☐ Proceed with the unloading reloading procedures outlined in Section 6 of Report 8. The ground within the falsework area must not be frozen at the time of the unloading reloading.
- ☐ The staging described in Section 6 of Report 8 will be followed closely (without the need to wait for ten months as indicated in Stage 1). The unloading reloading will be at the location indicated as Alternative 2 in Figure FW4a of Report 8.
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We hope that this progress report addresses your immediate needs. Please contact us should you have any questions regarding the above.

Best regards,
Urkkada Technology Ltd.

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Principal

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Preloading of Falsework Foundation Area**

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23-Aug-02	1649.12	154.6	101.1	154.8	154.8	
23-Aug-02	1649.12	154.6	101.1	154.8	154.8	
25-Aug-02	1648.50	155.4	100.9	155.8	155.8	0.0
26-Aug-02	1648.28	155.7	100.9	156.1	156.1	0.3
27-Aug-02	1640.93	165.5	100.6	166.2	166.2	10.4
28-Aug-02	1637.07	170.6	101.5	170.4	170.4	14.6
29-Aug-02	1633.94	174.8	100.9	175.2	175.2	19.4
5-Sep-02	1637.25	170.4	101.0	170.7	170.7	14.9
13-Sep-02	1637.56	170.0	99.9	171.4	170.2	14.4
20-Sep-02	1637.14	170.5	99.6	172.2	170.1	14.3
27-Sep-02	1636.48	171.4	99.8	172.9	170.1	14.3
11-Oct-02	1634.40	174.2	101.5	174.0	170.0	14.2
23-Oct-02	1633.89	174.8	101.5	174.6	170.0	14.2
14-Nov-02	1634.40	174.2	99.6	175.9	169.6	13.8
2-Dec-02	1633.60	175.2	100.0	176.5	169.1	13.4
23-Dec-02	1634.55	174.0	99.2	176.1	168.8	13.0
9-Jan-03	1634.80	173.6	98.8	176.1	168.7	12.9
29-Jan-03	1633.71	175.1	100.9	175.5	168.2	12.4
10-Feb-03	1635.38	172.9	99.2	175.0	167.8	12.0
24-Feb-03	1633.96	174.8	102.1	174.0	167.6	11.8

VWPFW4 South Abutment, El. 84.40m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
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19-Aug-02	1856.43	0.6		0.6	0.6	
20-Aug-02	1749.01	142.3		142.3	142.3	
21-Aug-02	1746.02	146.1		146.1	146.1	
23-Aug-02	1739.17	154.9	101.1	155.1	155.1	
23-Aug-02	1739.31	154.7	101.1	154.9	154.9	
25-Aug-02	1739.34	154.6	100.9	155.0	155.0	0.0
26-Aug-02	1739.25	154.8	100.9	155.2	155.2	0.1
27-Aug-02	1730.84	165.4	100.6	166.1	166.1	11.1
28-Aug-02	1725.45	172.3	101.5	172.1	172.1	17.0
29-Aug-02	1724.31	173.7	100.9	174.1	174.1	19.1
5-Sep-02	1725.95	171.6	101.0	171.9	171.9	16.9
13-Sep-02	1725.70	171.9	99.9	173.3	172.2	17.1
20-Sep-02	1725.13	172.7	99.6	174.4	172.2	17.1
27-Sep-02	1724.67	173.2	99.8	174.7	172.0	16.9
11-Oct-02	1722.55	175.9	101.5	175.7	171.7	16.7
23-Oct-02	1722.19	176.4	101.5	176.2	171.5	16.4
14-Nov-02	1722.61	175.8	99.6	177.5	171.3	16.2
2-Dec-02	1721.39	177.4	100.0	178.7	171.3	16.3
23-Dec-02	1722.30	176.2	99.2	178.3	171.1	16.1
9-Jan-03	1722.67	175.8	98.8	178.3	170.8	15.8
29-Jan-03	1721.08	177.8	100.9	178.2	170.9	15.8
10-Feb-03	1722.52	176.0	99.2	178.1	170.9	15.9
24-Feb-03	1721.01	177.9	102.1	177.1	170.7	15.7

**Tab 2: Mid Depth Vibrating Wire Piezometers
Preloading of Falsework Foundation Area**

VWPFW2 North Abutment, El. 90.88m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
20-Aug-02	1922.51	0.9		0.9	0.9	
21-Aug-02	1821.20	72.3		72.3	72.3	
21-Aug-02	1812.60	78.2		78.2	78.2	
23-Aug-02	1795.77	89.6	101.1	89.8	89.8	
23-Aug-02	1795.53	89.7	101.1	89.9	89.9	
25-Aug-02	1794.32	90.6	100.9	91.0	91.0	0.0
26-Aug-02	1773.57	104.5	100.9	104.9	104.9	13.9
27-Aug-02	1767.51	108.5	100.6	109.2	109.2	18.3
28-Aug-02	1757.32	115.3	101.5	115.1	115.1	24.1
29-Aug-02	1745.17	123.3	100.9	123.7	123.7	32.8
5-Sep-02	1740.20	126.6	101.0	126.9	126.9	35.9
13-Sep-02	1738.20	127.9	99.9	129.3	128.1	37.2
20-Sep-02	1754.31	117.3	99.6	119.0	116.8	25.9
27-Sep-02	1753.18	118.0	99.8	119.5	116.8	25.8
11-Oct-02	1756.22	116.0	101.5	115.8	111.9	20.9
23-Oct-02	1753.64	117.7	101.5	117.5	112.9	21.9
14-Nov-02	1751.30	119.3	99.6	121.0	114.7	23.8
2-Dec-02	1753.49	117.8	100.0	119.1	111.8	20.8
23-Dec-02	1754.18	117.4	99.2	119.5	112.2	21.3
9-Jan-03	1753.91	117.6	98.8	120.1	112.6	21.6
29-Jan-03	1752.44	118.5	100.9	118.9	111.6	20.6
10-Feb-03	1754.57	117.1	99.2	119.2	112.1	21.1
24-Feb-03	1754.63	117.1	102.1	116.3	110.0	19.0

VWPFW5 South Abutment, El. 90.94m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
20-Aug-02	1973.79	0.0		0.0	0.0	
20-Aug-02	1902.65	49.0		49.0	49.0	
21-Aug-02	1872.06	69.5	0.0	69.5	69.5	
23-Aug-02	1855.34	80.5	101.1	80.7	80.7	
23-Aug-02	1854.93	80.8	101.1	81.0	81.0	
25-Aug-02	1852.57	82.3	100.9	82.7	82.7	0.0
26-Aug-02	1852.33	82.5	100.9	82.9	82.9	0.2
27-Aug-02	1830.78	96.6	100.6	97.3	97.3	14.5
28-Aug-02	1812.94	108.1	101.5	107.9	107.9	25.2
29-Aug-02	1801.31	115.6	100.9	116.0	116.0	33.2
5-Sep-02	1798.47	117.4	101.0	117.7	117.7	35.0
13-Sep-02	1800.30	116.2	99.9	117.6	116.5	33.7
20-Sep-02	1800.75	116.0	99.6	117.7	115.5	32.7
27-Sep-02	1799.51	116.7	99.8	118.2	115.5	32.7
11-Oct-02	1805.64	112.8	101.5	112.6	108.6	25.9
23-Oct-02	1799.67	116.6	101.5	116.4	111.8	29.0
14-Nov-02	1805.51	112.9	99.6	114.6	108.3	25.6
2-Dec-02	1803.51	114.2	100.0	115.5	108.1	25.4
23-Dec-02	1802.49	114.8	99.2	116.9	109.7	27.0
9-Jan-03	1803.06	114.5	98.8	117.0	109.5	26.8
29-Jan-03	1802.06	115.1	100.9	115.5	108.2	25.4
10-Feb-03	1803.17	114.4	99.2	116.5	109.4	26.6
24-Feb-03	1802.44	114.9	102.1	114.1	107.8	25.0

**Table 3: Shallow Vibrating Wire Piezometers
Preloading of Falsework Foundation Area**

VWPFW3 North Abutment, El. 93.96m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
20-Aug-02	1917.20	0.5		0.5	0.5	
21-Aug-02	1845.14	49.0		49.0	49.0	
21-Aug-02	1839.85	52.4		52.4	52.4	
23-Aug-02	1830.62	58.5	101.1	58.7	58.7	
23-Aug-02	1830.35	58.7	101.1	58.9	58.9	
25-Aug-02	1829.82	59.0	100.9	59.4	59.4	0.0
26-Aug-02	1829.53	59.2	100.9	59.6	59.6	0.2
27-Aug-02	1812.47	70.3	100.6	71.0	71.0	11.6
28-Aug-02	1789.80	84.9	101.5	84.7	84.7	25.3
29-Aug-02	1770.19	97.3	100.9	97.7	97.7	38.3
5-Sep-02	1780.88	90.6	101.0	90.9	90.9	31.5
13-Sep-02	1792.10	83.4	99.9	84.8	83.7	24.3
20-Sep-02	1796.86	80.4	99.6	82.1	79.9	20.5
27-Sep-02	1798.85	79.1	99.8	80.6	77.8	18.4
11-Oct-02	1797.37	80.0	101.5	79.8	75.9	16.4
23-Oct-02	1796.33	80.7	101.5	80.5	75.8	16.4
14-Nov-02	1797.32	80.1	99.6	81.8	75.5	16.1
2-Dec-02	1796.64	80.5	100.0	81.8	74.4	15.0
23-Dec-02	1798.34	79.4	99.2	81.5	74.3	14.9
9-Jan-03	1800.39	78.1	98.8	80.6	73.1	13.7
29-Jan-03	1797.88	79.7	100.9	80.1	72.8	13.4
10-Feb-03	1800.12	78.3	99.2	80.4	73.2	13.8
24-Feb-03	1799.49	78.7	102.1	77.9	71.6	12.1

VWPFW6 South Abutment, El. 94.05m

Date	Reading	Pressure	Atmospheric Pressure	Pressure Corrected to 101.3 kPa	Pressure Corrected for GWT	Excess Pore Water Pressure
	(Hz)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)
19-Aug-02	1985.17	0.8		0.8	0.8	
20-Aug-02	1934.31	38.2		38.2	38.2	
21-Aug-02	1918.80	49.4		49.4	49.4	
23-Aug-02	1909.11	56.3	101.1	56.5	56.5	
23-Aug-02	1908.81	56.5	101.1	56.7	56.7	
25-Aug-02	1907.19	57.7	100.9	58.1	58.1	0.0
26-Aug-02	1906.59	58.1	100.9	58.5	58.5	0.4
27-Aug-02	1893.61	67.4	100.6	68.1	68.1	10.0
28-Aug-02	1873.09	81.9	101.5	81.7	81.7	23.6
29-Aug-02	1859.31	91.5	100.9	91.9	91.9	33.8
5-Sep-02	1864.74	87.7	101.0	88.0	88.0	29.9
13-Sep-02	1873.80	81.4	99.9	82.8	81.6	23.5
20-Sep-02	1876.20	79.7	99.6	81.4	79.2	21.1
27-Sep-02	1877.41	78.8	99.8	80.3	77.6	19.5
11-Oct-02	1876.71	79.3	101.5	79.1	75.2	17.1
23-Oct-02	1876.13	79.7	101.5	79.5	74.9	16.8
14-Nov-02	1876.35	79.6	99.6	81.3	75.0	16.9
2-Dec-02	1876.08	79.8	100.0	81.1	73.7	15.6
23-Dec-02	1877.17	79.0	99.2	81.1	73.9	15.8
9-Jan-03	1878.45	78.1	98.8	80.6	73.2	15.1
29-Jan-03	1875.49	80.2	100.9	80.6	73.3	15.2
10-Feb-03	1877.38	78.9	99.2	81.0	73.8	15.7
24-Feb-03	1877.11	79.1	102.1	78.3	71.9	13.8

**Table 4: Comparison of Current Excess Pore Water Pressure Readings to Targets
 Preloading of Falsework Foundation Area**

Monitoring Station	Instrument ID	Tip Elevation (m)	Tip Depth Below Original Ground (m)	Target Excess Pore Pressure (kPa)	Excess Pore Pressure as of Feb 24, 2003 (kPa)
22-FW1	VWPFW1	83.52	16.98	24	11.8
	VWPFW2	90.88	9.62	25	19.0
	VWPFW3	93.96	6.54	28	12.1
22-FW2	VWPFW4	84.40	16.10	24	15.7
	VWPFW5	90.94	9.56	25	25.0
	VWPFW6	94.05	6.45	28	13.8

Figure A: As-Built Instrumentation Layout, Falsework Foundation, Regional Road 22

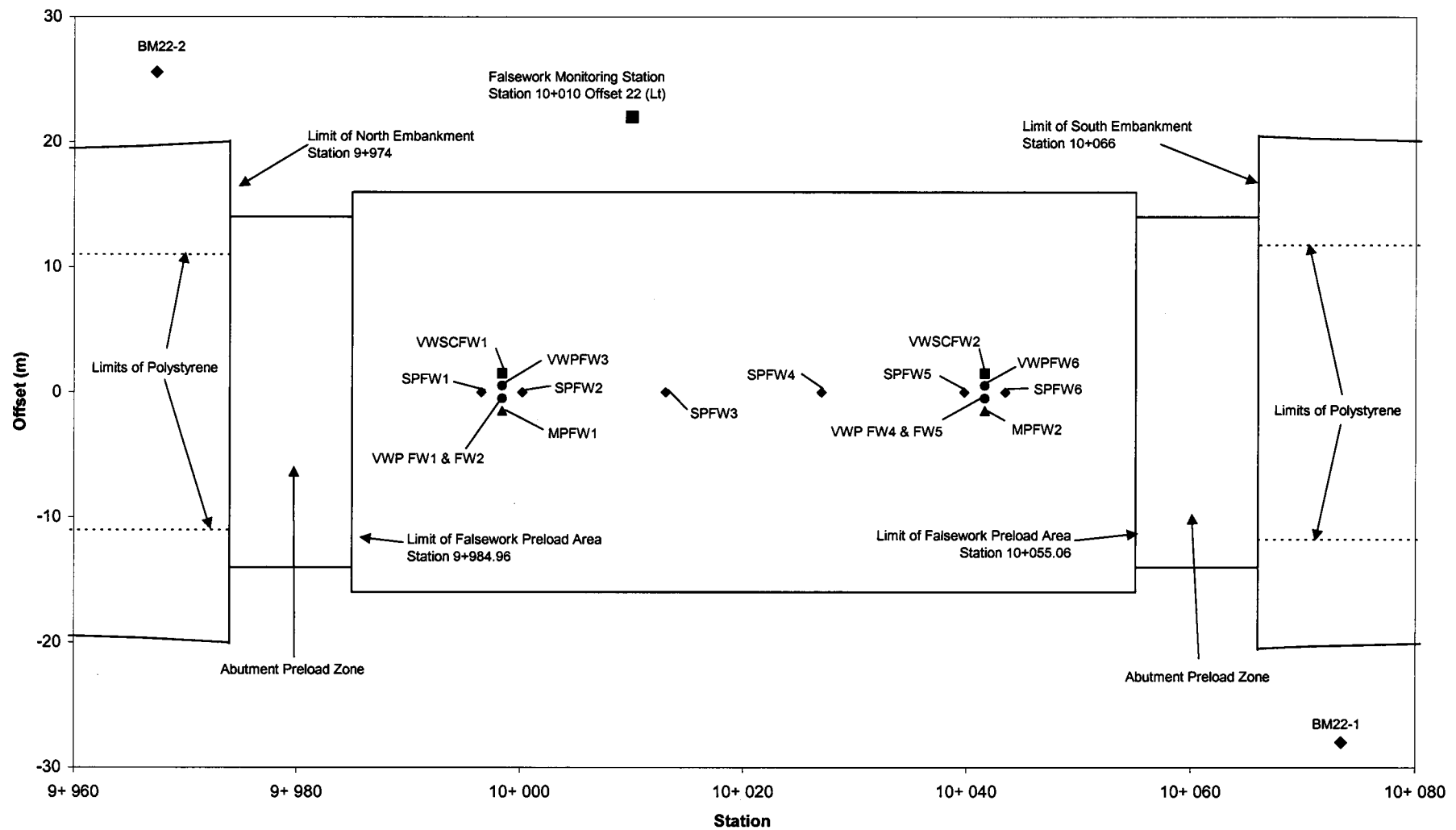


Figure B: Excess Pore Pressure at Deep Instruments
Preloading of Falsework Foundation Area

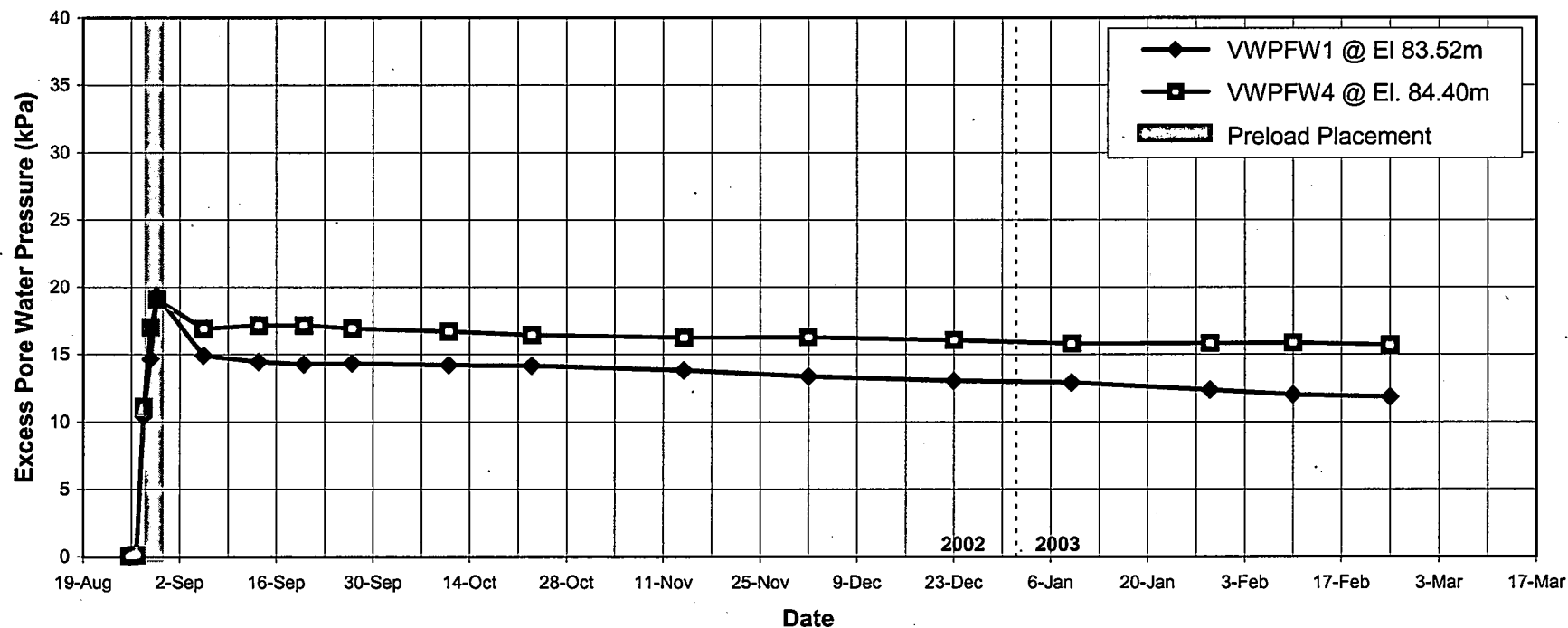


Figure C: Excess Pore Pressure at Mid Depth Instruments
Preloading of Falsework Foundation Area

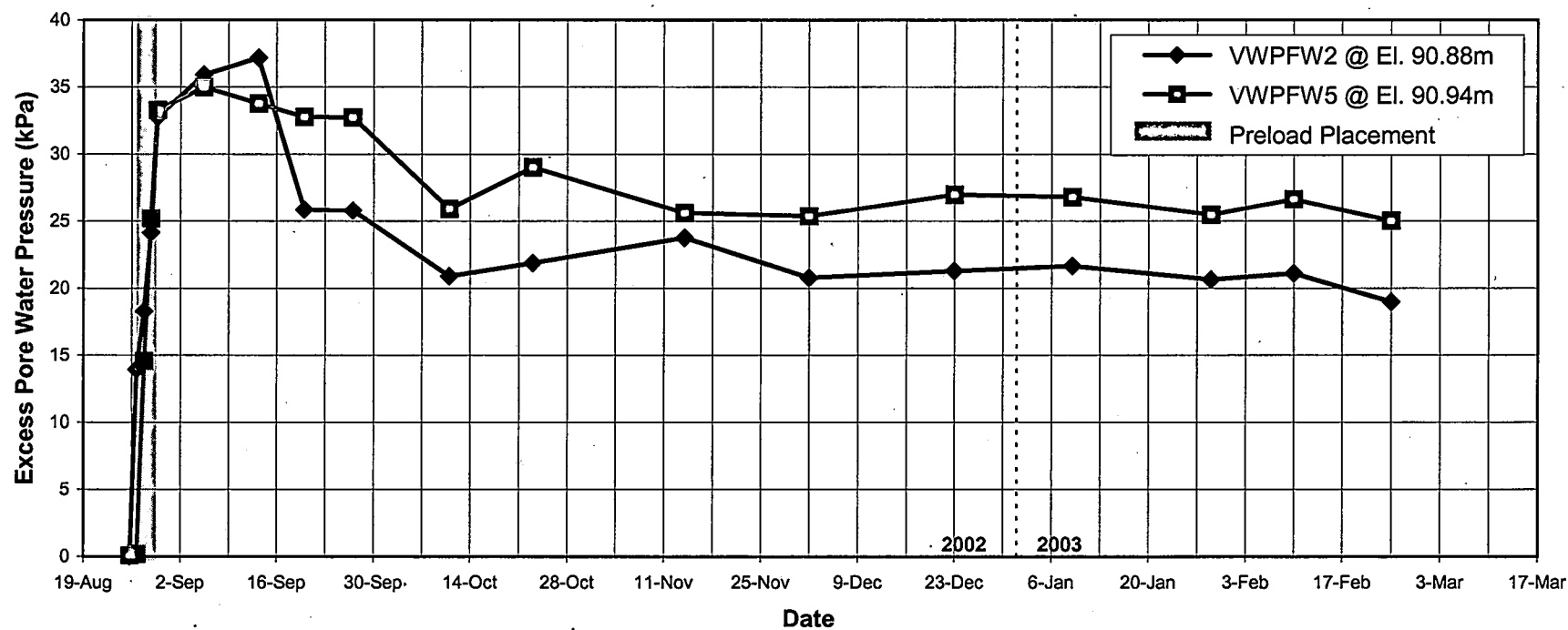
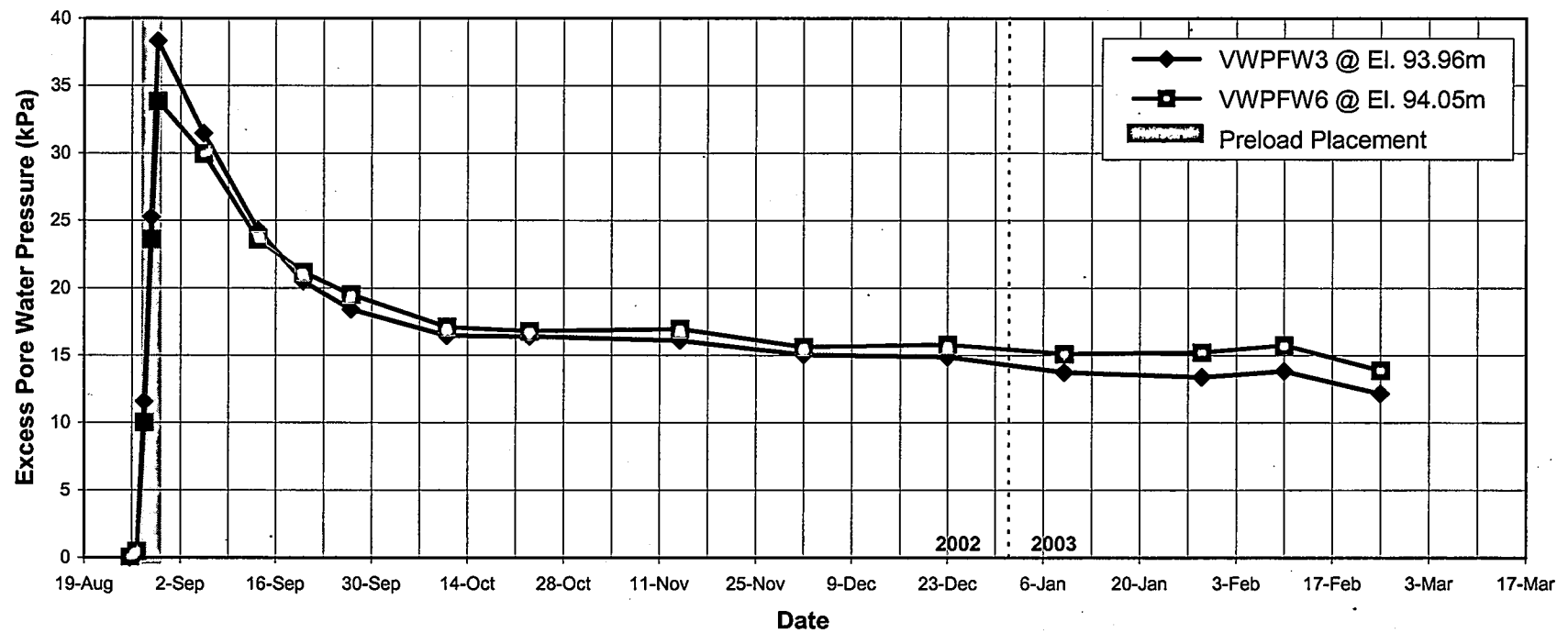


Figure D: Excess Pore Pressure at Shallow Instruments
Preloading of Falsework Foundation Area







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R.W. Tomlinson Limited
5597 Power Road, RR#6
Ottawa, Ontario, K1G 3N4

Attention: Richard Irving, P.Eng.
Vice President, Highway Division

Subject: Grading, Drainage, Granular Base, Hot Mix Paving and Two Structures
M.T.O. 2001-0002,
Your Order No. 2002-060-16
Our File No. 0203CS250

Submittal of Report 8

Dear Richard,

We are pleased to submit two copies of our Report 8 entitled "Falsework Foundation Design, Regional Road 22).

Three additional copies are provided directly to Mr. Neil Birch, P.Eng., of MTO, as per your instructions.

Please contact us should you have any questions regarding the project.

Best regards,
Urkkada Technology Ltd.

Ameir Altaee, Ph.D., P.Eng.

copy to Mr. Neil Birch, MTO with 3 copies of subject report