



Three Kings Quarry – Permit No 12977

Groundwater Take To Dewater Three Kings Quarry

Quarterly Report

September 2010

QUARTERLY REPORT

Three Kings Quarry – Permit No 12977

The following report is made with regard to Condition 7 of Permit No 12977.

This report contains the groundwater levels within boreholes surrounding the take point

A plan showing the location of boreholes in which groundwater levels were measured is attached.

This report contains records for the period of 1 June 2010 to 31 August 2010.

THREE KINGS GROUNDWATER LEVEL RECORD SHEET

| Date | BH 1B | | BH 2B | | BH 5B | | BH 6A | | BH6B | | BH 6C | | BH 7 | | BH 10a | |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| 16-Jun-10 | 10.82 | 35.40 | 0.51 | 34.74 | 43.55 | 34.71 | 34.35 | 44.44 | 38.80 | 39.99 | 42.93 | 35.86 | 28.08 | 40.53 | 29.85 | 50.91 |
| 21-Jul-10 | 11.00 | 35.22 | 0.69 | 34.56 | 43.73 | 34.53 | 33.85 | 44.94 | 38.68 | 40.11 | 43.09 | 35.70 | 28.25 | 40.36 | 29.85 | 50.91 |
| 23-Aug-10 | 10.71 | 35.51 | 0.39 | 34.86 | 43.41 | 34.85 | 33.03 | 45.76 | 38.37 | 40.42 | 42.92 | 35.87 | 27.75 | 40.86 | 29.39 | 51.37 |

| Date | BH 10b | | BH 11b | | BH 12a | | BH 12b | | BH 13a | | BH13c | | BH 16 | | BH 17 | |
|-----------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|
| 16-Jun-10 | 8.07 | 72.69 | 7.79 | 72.20 | 21.64 | 50.59 | 4.96 | 67.17 | 17.38 | 54.79 | 7.07 | 66.34 | 49.51 | 50.63 | 43.18 | 34.70 |
| 21-Jul-10 | 8.07 | 72.69 | 7.54 | 72.45 | 21.16 | 51.07 | 4.98 | 67.15 | 14.34 | 57.83 | 7.08 | 66.33 | 48.95 | 51.19 | 43.36 | 34.52 |
| 23-Aug-10 | 8.07 | 72.69 | 7.51 | 72.48 | 20.81 | 51.42 | 4.97 | 67.16 | 11.16 | 61.01 | 7.08 | 66.33 | 48.51 | 51.63 | 43.04 | 34.84 |

| Date | BH 18A | | BH 18B | | BH 19A | | BH 19B | | BH 20 | | BH 20a | | BH 21 | | BH 22 | |
|-----------|--------|-------|--------|-------|--------|-------|--------|-------|-------|-------|--------|-------|-------|-------|-------|-------|
| 16-Jun-10 | 48.55 | 35.95 | 39.1 | 45.40 | 45.29 | 34.76 | 41.45 | 38.60 | 2.00 | 54.66 | 6.18 | 50.56 | 33.73 | 38.58 | 34.00 | 41.24 |
| 21-Jul-10 | 48.33 | 36.17 | 38.29 | 46.21 | 45.43 | 34.62 | 41.47 | 38.58 | 1.73 | 54.93 | 5.25 | 51.49 | 33.66 | 38.65 | 34.01 | 41.23 |
| 23-Aug-10 | 48.22 | 36.28 | 37.95 | 46.55 | 45.17 | 34.88 | 41.54 | 38.51 | 1.37 | 55.29 | 4.48 | 52.26 | 32.25 | 40.06 | 34.02 | 41.22 |

| Date | BH 22a | | BH 23 | | BH 23a | | BH 24 | | BH 24a | | BH 25 | | BH 25a | | BH25b1 | |
|-----------|--------|-------|-------|-------|--------|-------|-------|-------|--------|-------|-------|-------|--------|-------|--------|-------|
| 16-Jun-10 | 10.07 | 65.07 | 5.73 | 51.47 | 6.52 | 50.82 | 7.08 | 55.72 | 0.91 | 61.85 | 22.26 | 37.19 | 11.27 | 48.17 | 8.95 | 47.84 |
| 21-Jul-10 | 10.05 | 65.09 | 5.68 | 51.52 | 6.34 | 51.00 | 6.84 | 55.96 | 0.95 | 61.81 | 22.14 | 37.31 | 10.44 | 49.00 | 9.12 | 48.01 |
| 23-Aug-10 | 9.78 | 65.36 | 5.6 | 51.60 | 6.08 | 51.26 | 5.65 | 57.15 | 0.97 | 61.79 | 22.00 | 37.45 | 9.95 | 49.49 | 9.18 | 48.07 |

| Date | BH25b2 | | BH 26 | | BH 26a | | BH 27 | | BH28a | | BH28b | | BH29 | | BH30 | |
|-----------|--------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| 16-Jun-10 | 7.53 | 50.92 | 0.06 | 59.38 | 5.11 | 54.30 | 0.20 | 49.40 | 6.58 | 51.23 | 3.59 | 52.64 | 8.51 | 58.09 | 16.35 | 54.58 |
| 21-Jul-10 | 7.91 | 51.30 | 0.05 | 59.39 | 5.10 | 54.31 | 0.16 | 49.44 | 6.60 | 51.25 | 3.73 | 52.78 | 8.37 | 58.23 | 16.78 | 55.01 |
| 23-Aug-10 | 7.99 | 51.38 | 0.04 | 59.40 | 4.99 | 54.42 | 0.01 | 49.59 | 6.63 | 51.28 | 3.78 | 52.83 | 8.16 | 58.44 | 16.71 | 54.94 |

| Date | BH31a | | BH31b | | BH32 | | BH33 | | BH34 | | BH35a | | BH35b | | BH36a | |
|-----------|-------|-------|-------|-------|------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| 16-Jun-10 | 14.96 | 48.55 | 12.49 | 49.78 | 4.17 | 54.49 | 1.02 | 59.25 | 9.75 | 49.00 | 17.72 | 48.54 | 11.35 | 54.91 | 7.68 | 58.85 |
| 21-Jul-10 | 15.17 | 48.76 | 12.63 | 49.92 | 3.75 | 54.91 | 0.96 | 59.31 | 9.17 | 49.58 | 17.72 | 48.54 | 11.08 | 55.18 | 7.51 | 59.02 |
| 23-Aug-10 | 15.08 | 48.67 | 12.6 | 49.89 | 3.08 | 55.58 | 0.65 | 59.62 | 8.73 | 50.02 | 17.61 | 48.65 | 10.80 | 55.46 | 7.30 | 59.23 |

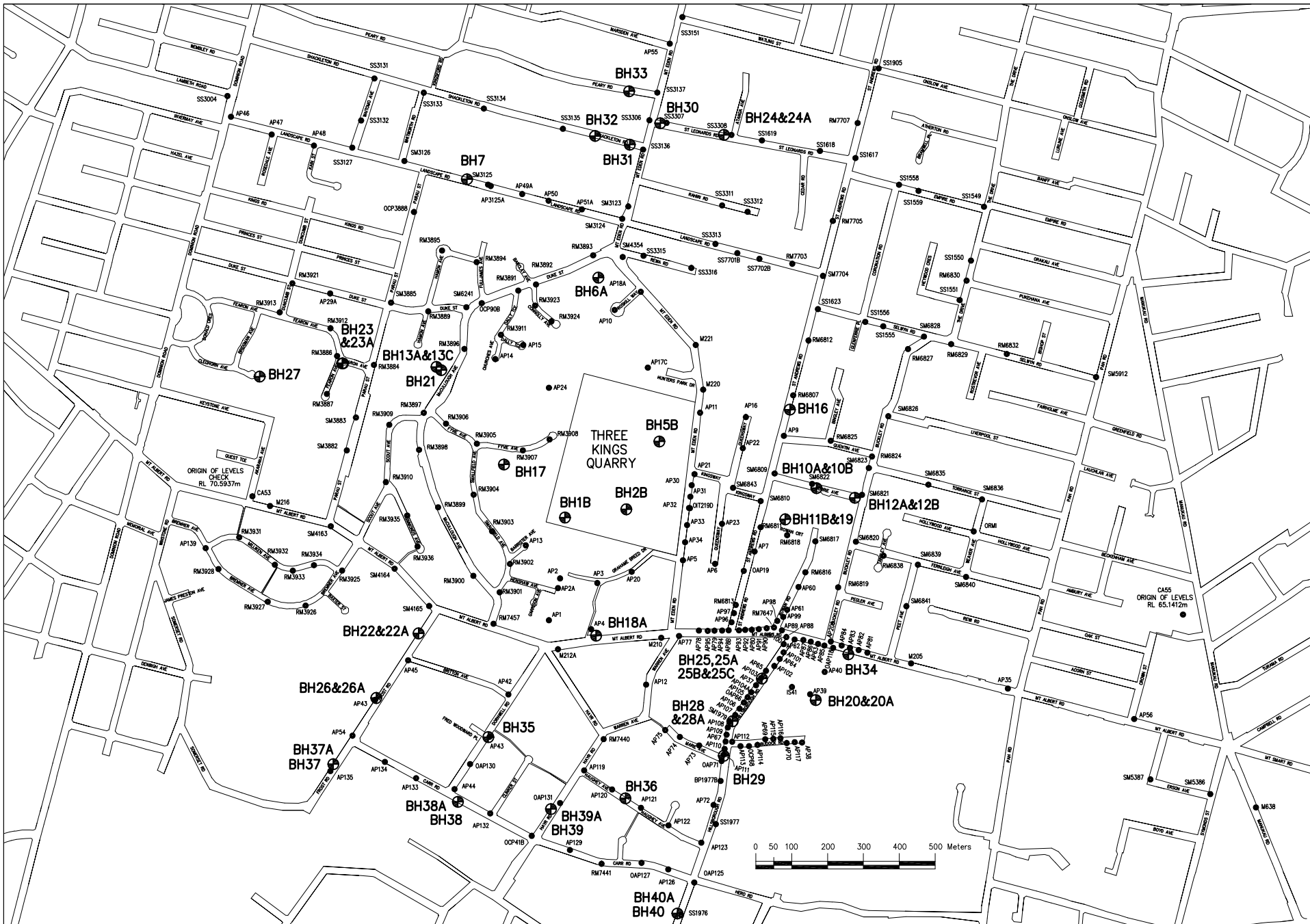
| Date | BH36b | | BH37a | | BH37b | | BH38a | | BH38b | | BH39a | | BH39b | | BH40a | |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 16-Jun-10 | 7.64 | 58.89 | 3.6 | 53.94 | 3.83 | 53.77 | 4.18 | 54.30 | 4.79 | 53.68 | 7.19 | 54.80 | 5.03 | 57.10 | 10.94 | 60.38 |
| 21-Jul-10 | 7.46 | 59.07 | 3.6 | 53.94 | 3.80 | 53.80 | 4.23 | 54.25 | 4.80 | 53.67 | 7.23 | 54.76 | 5.00 | 57.13 | 10.90 | 60.42 |
| 23-Aug-10 | 7.27 | 59.26 | 3.57 | 53.97 | 3.71 | 53.89 | 4.2 | 54.28 | 4.78 | 53.69 | 7.24 | 54.75 | 4.88 | 57.25 | 10.77 | 60.55 |

| Date | BH40b | | | | | | | | | | | | | | | |
|-----------|-------|-------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 16-Jun-10 | 8.74 | 62.62 | | | | | | | | | | | | | | |
| 21-Jul-10 | 8.75 | 62.61 | | | | | | | | | | | | | | |
| 23-Aug-10 | 8.71 | 62.65 | | | | | | | | | | | | | | |

Locations of boreholes are marked on the attached plan

Waterlevels within standpipe piezometers are expressed as depth below surface levels (first column) and as elevations above sealevel (second column).

Waterlevels within pneumatic piezometers are expressed as head of water above piezometer tip (first column) and as elevations above sealevel (second column).



Note:
 Origin of Levels
 CA55 S049930
 RL65.1412m
 in same terms as
 M205 S054417
 RL59.305m

- SS3316 = Precise Level Survey Benchmarks
- ⊕ BH16 = Borehole Location

| | | | | |
|-----------|-------|------------|--------------|-----------|
| DESIGNED: | DATE: | SIGNATURE: | PLOT DATE: | 10/5/05 |
| DRAWN: | DATE: | SIGNATURE: | CD REF: | BOREHOLES |
| CHECKED: | DATE: | SIGNATURE: | CD REF: | |
| APPROVED: | DATE: | SIGNATURE: | SURVEY BY: | MJD |
| BY: | DATE: | SIGNATURE: | SURVEY DATE: | 10/3/05 |
| | | | CD REF: | BOR |

ASSOCIATION OF CONSULTING ENGINEERS NEW ZEALAND

ISO 9001 QUALITY ASSURED

HARRISON GRIERSON

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Level 5 Capital House, 28 Amsterdam Way, Manukau City Ph 09 966 3380 Fax 09 966 3390

PROJECT: WINSTONE AGGREGATES LTD
THREE KINGS QUARRY

TITLE: BOREHOLE LOCATION PLAN
AS AT 10-3-05

| | | | | |
|--------------|--------------|------------|-----------|-----|
| PLOT STATUS: | PROJECT No: | SCALE: | A1 1:5000 | A1 |
| | 11330/006451 | A3 1:10000 | | A3 |
| | DRAWING No: | | | REV |
| | 6451-100 | | | B |