Tonkin & Taylor

Appendix F: Earthquakes - maps

ENVIRONMENTAL AND ENGINEERING CONSULTANTS

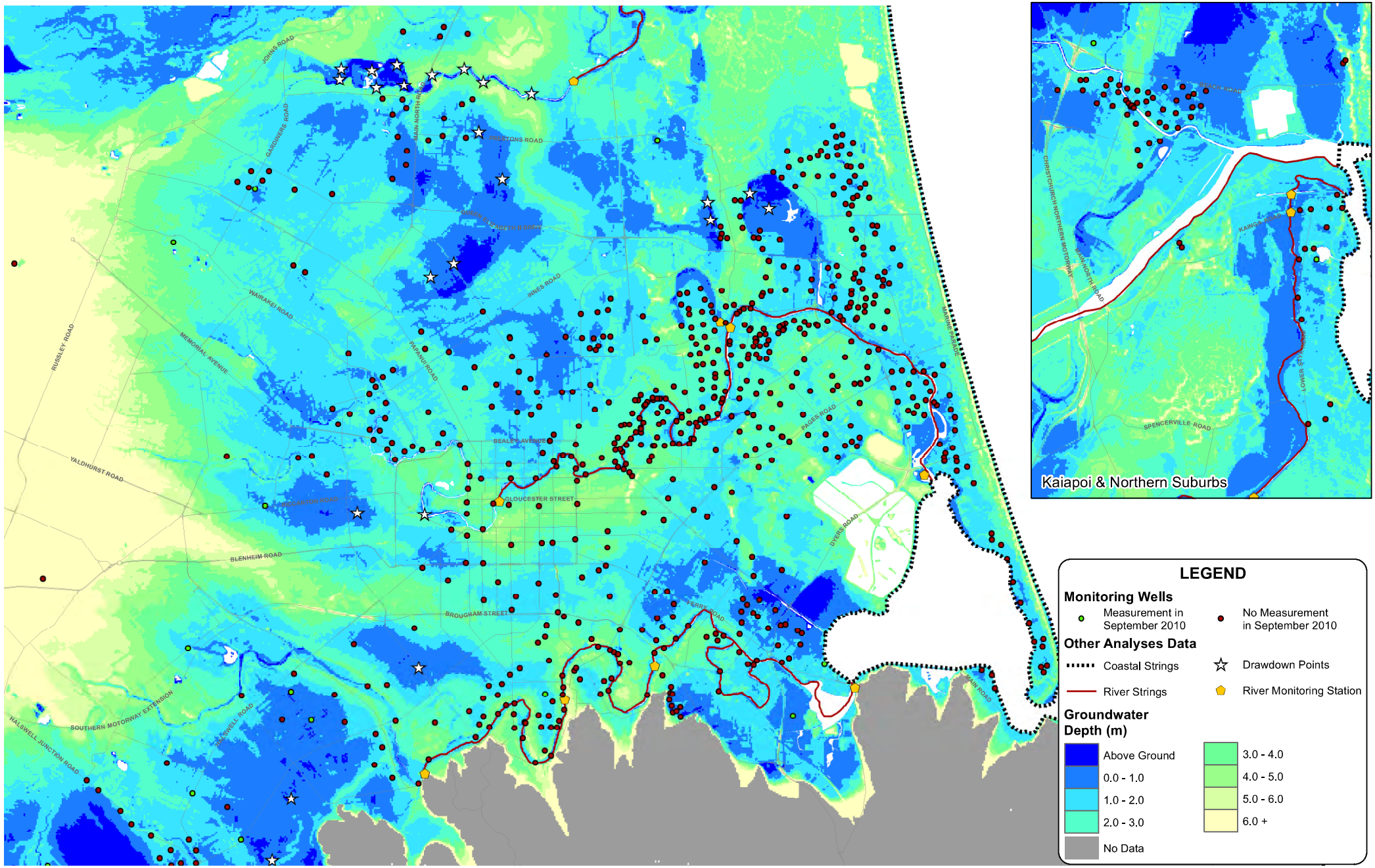


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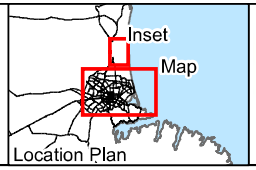
September 2010 Event



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



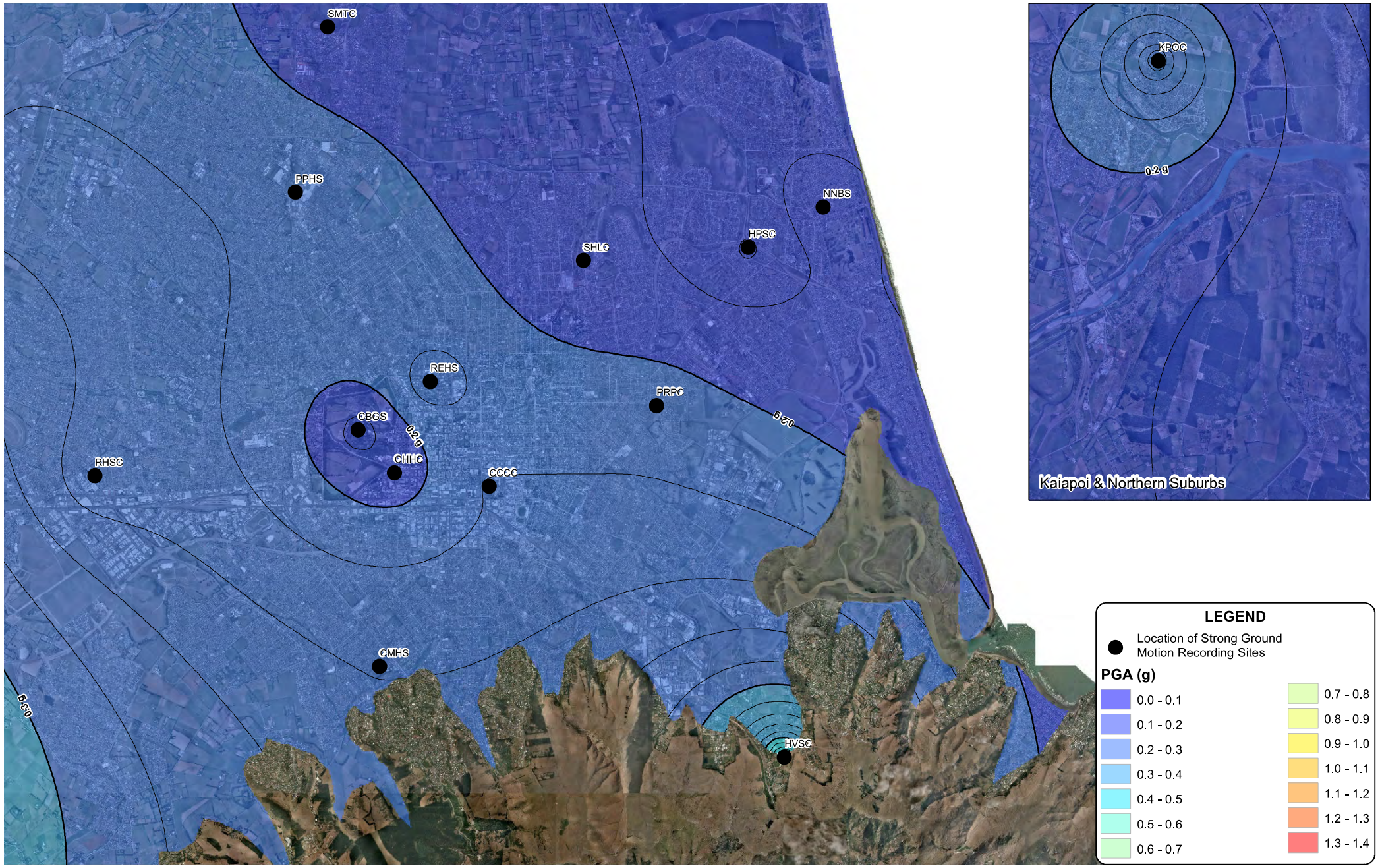
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

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CHECKED		
APPROVED		
ARCFILE	52020-0200-GWM07	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Depth to Groundwater 25m Grid (September 2010)

FIGURE No. Figure F1 Rev.

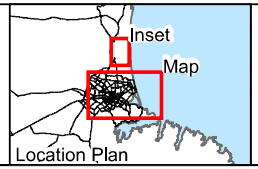
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Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA Contours produced from grid supplied by University of Canterbury.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



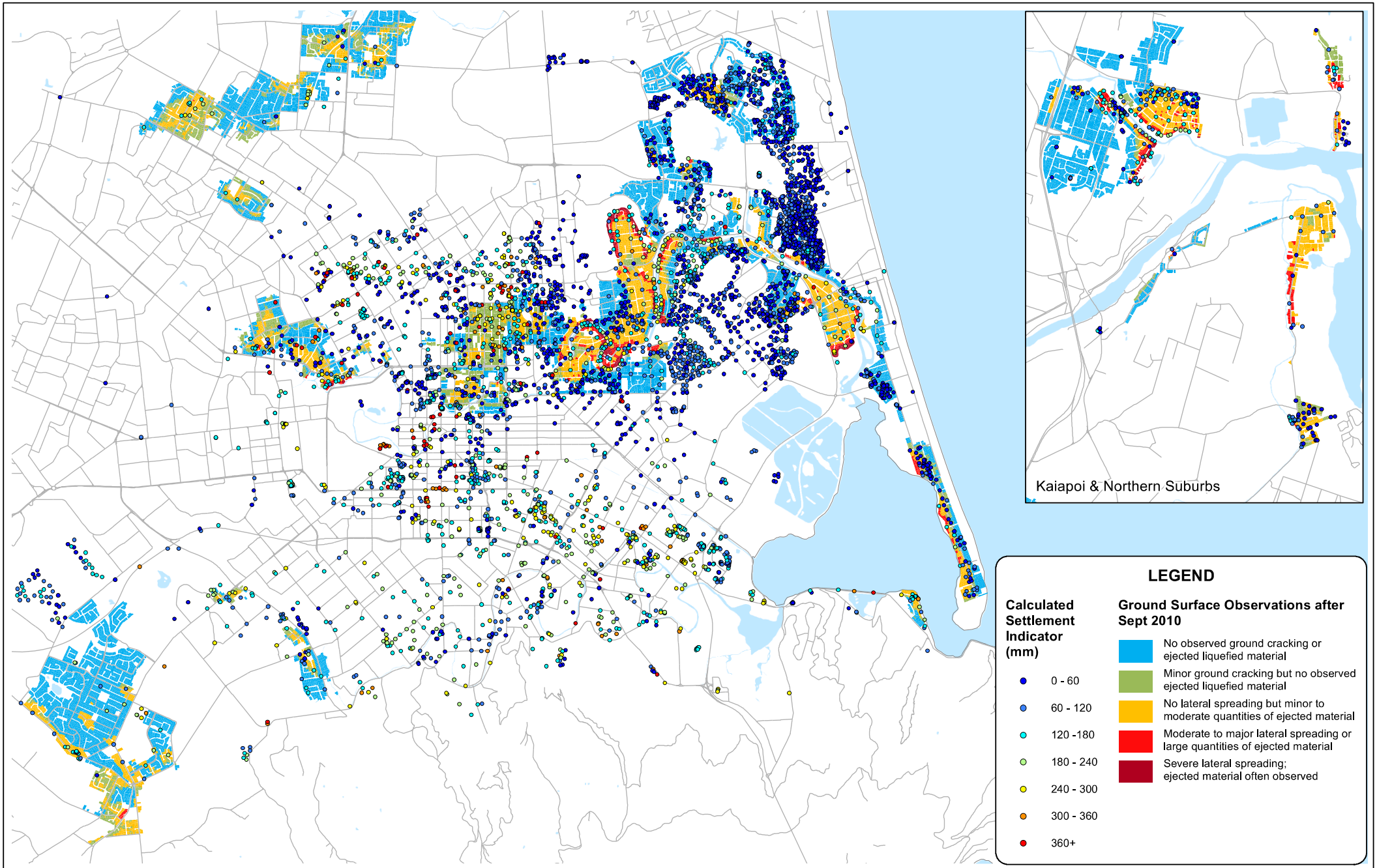
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CHECKED		
APPROVED		
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PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Contours of Horizontal Geometric Mean PGA (UoC, September 2010 Event)

FIGURE No. Figure F2 Rev. 0

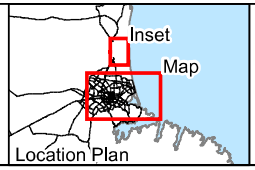
Date: 25/02/2013 Time: 9:42:11 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		

ARCFILE 52020-0200-LSN110

SCALE (AT A3 SIZE) 1:60,000

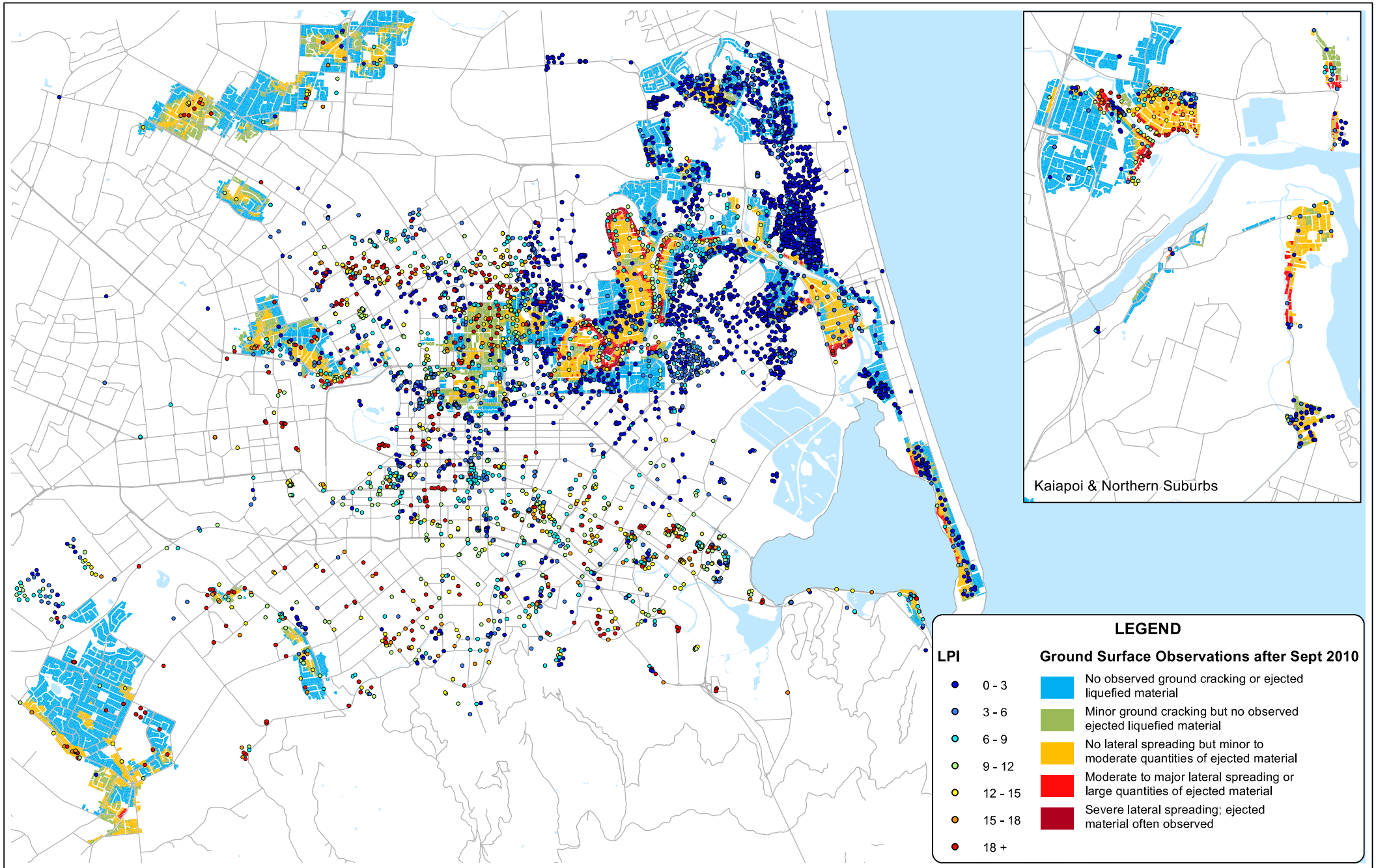
Prepared by Tonkin & Taylor Ltd. Ref: 52020.0200

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, September 2010 (Using UoC PGA)

FIGURE No. Figure F3

Rev. 0

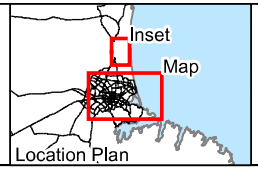
Date: 5/03/2013 Time: 5:09:05 p.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



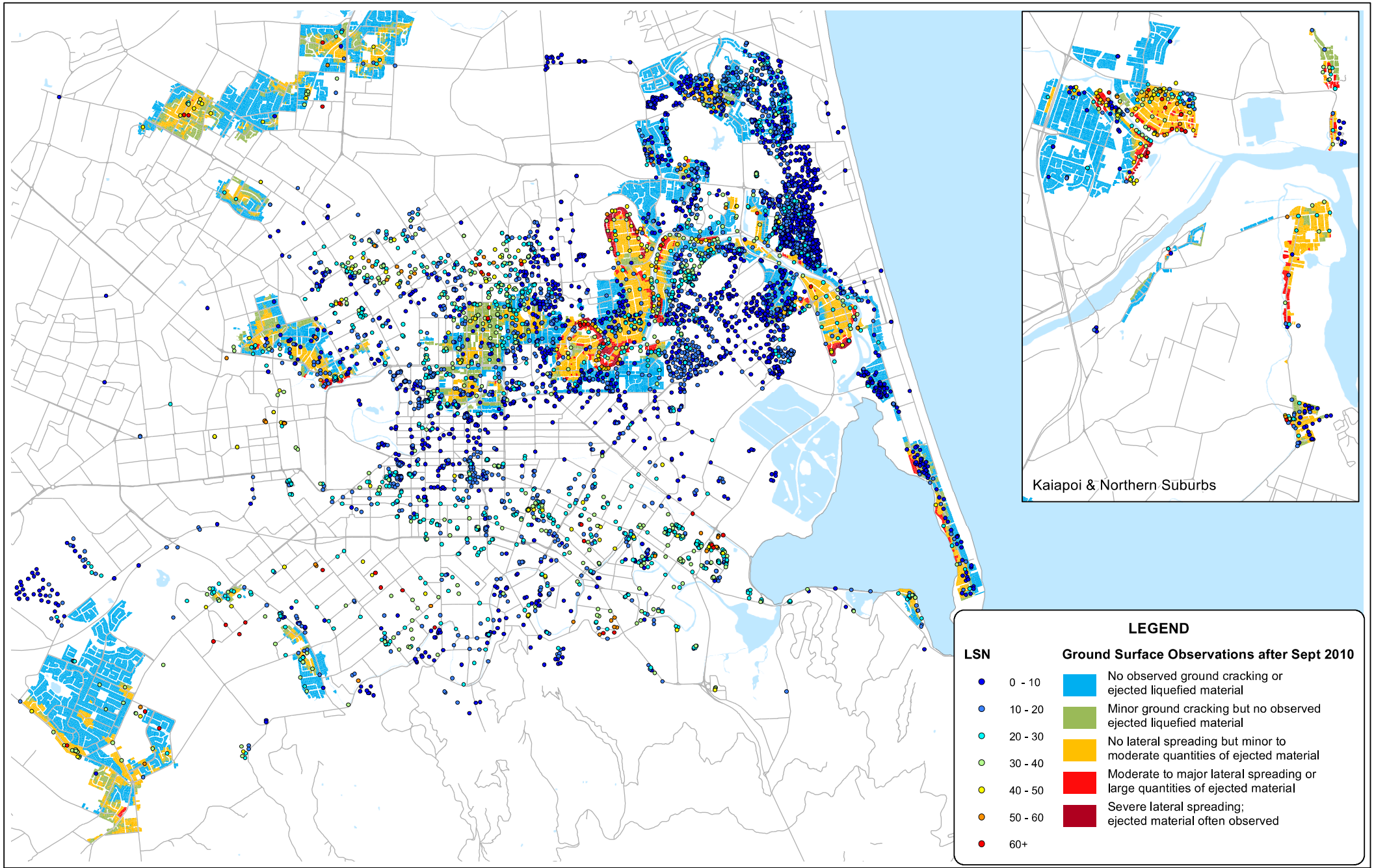
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN229	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, September 2010
(Using UoC PGA)

FIGURE No. Figure F4 Rev. 0

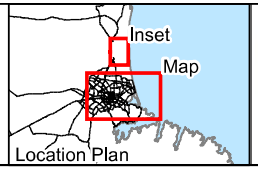
Date: 5/03/2013 Time: 4:44:58 p.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



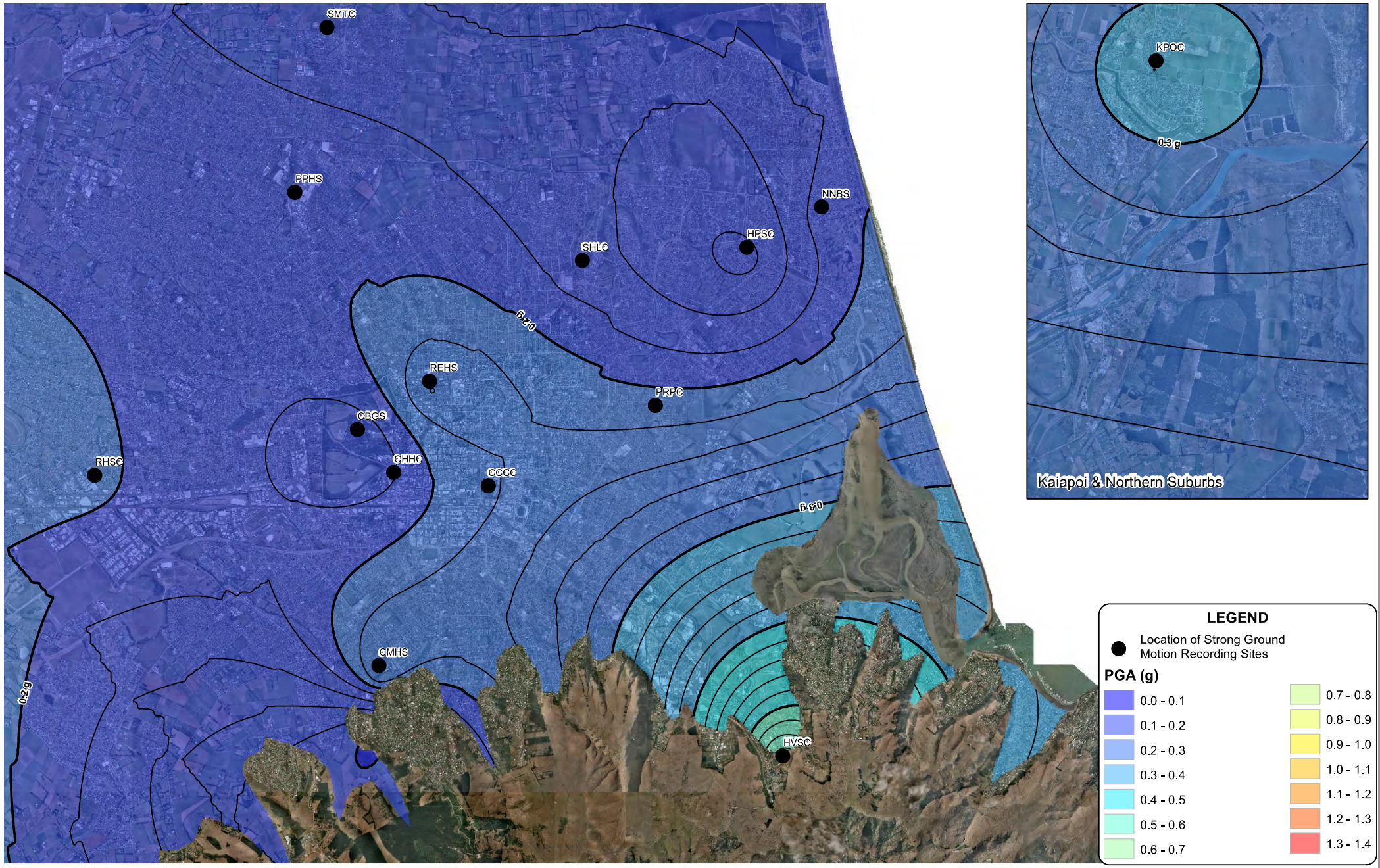
EQC
EARTHQUAKE COMMISSION
Kōmihana Rūwhenua

DRAWN	CXP	Mar.13	
CHECKED			
APPROVED			
ARCFILE	52020-0200-LSN111		
SCALE (AT A3 SIZE)	1:60,000		
Prepared by Tonkin & Taylor Ltd. Ref:	52020.0200		

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, September 2010
(Using UoC PGA)

FIGURE No. Figure F5 Rev. 0

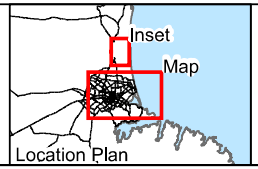
Date: 5/03/2013 Time: 4:50:42 p.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA values supplied by Cornell University.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

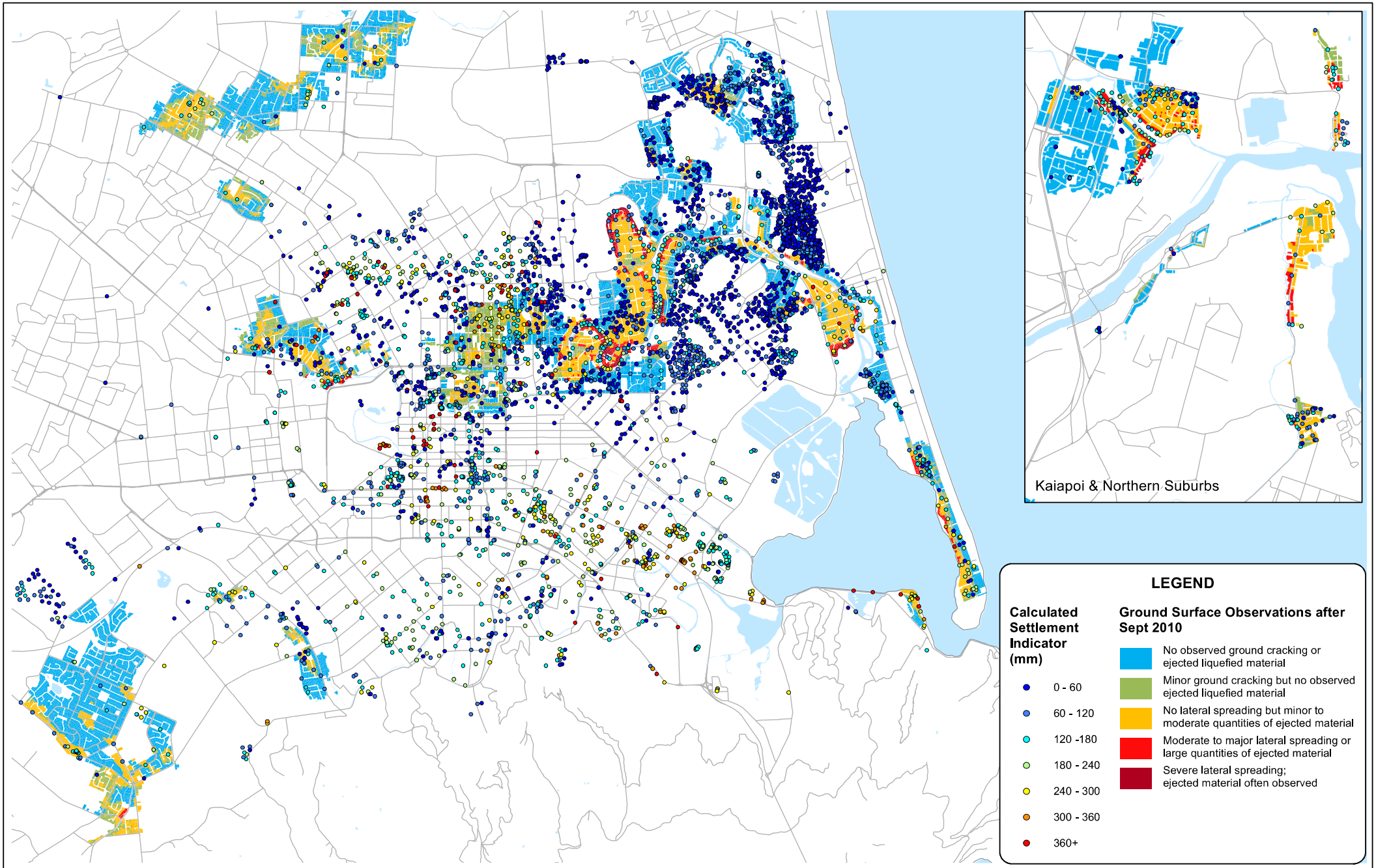
DRAWN	JSD	Feb.13
CHECKED		
APPROVED		

ARCFILE 52020-0200-PGA04
SCALE (AT A3 SIZE) 1:60,000
PROJECT No. 52020-0200

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Contours of Horizontal Geometric Mean PGA (Cornell, September 2010 Event)

FIGURE No. Figure F6 Rev. 0

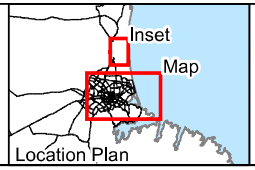
Date: 25/02/2013 Time: 10:24:22 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

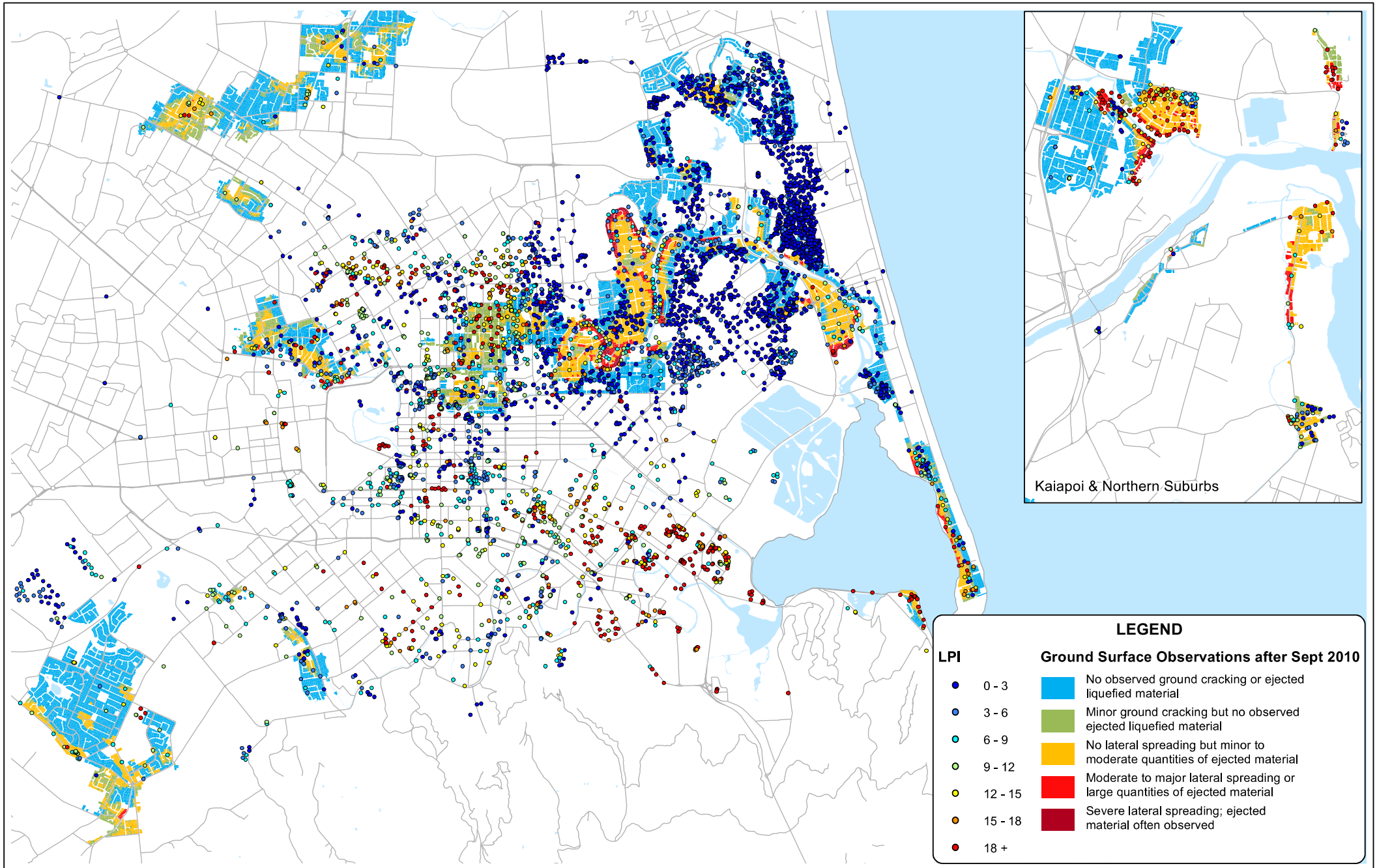
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CHECKED		
APPROVED		

ARCFILE 52020-0200-LSN172
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Prepared by Tonkin & Taylor Ltd. Ref: 52020.0200

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, September 2010 (Using Cornell PGA)

FIGURE No. Figure F7 Rev. 0

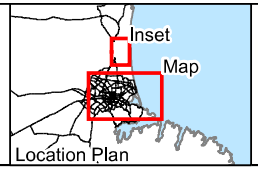
Date: 28/02/2013 Time: 10:20:30 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



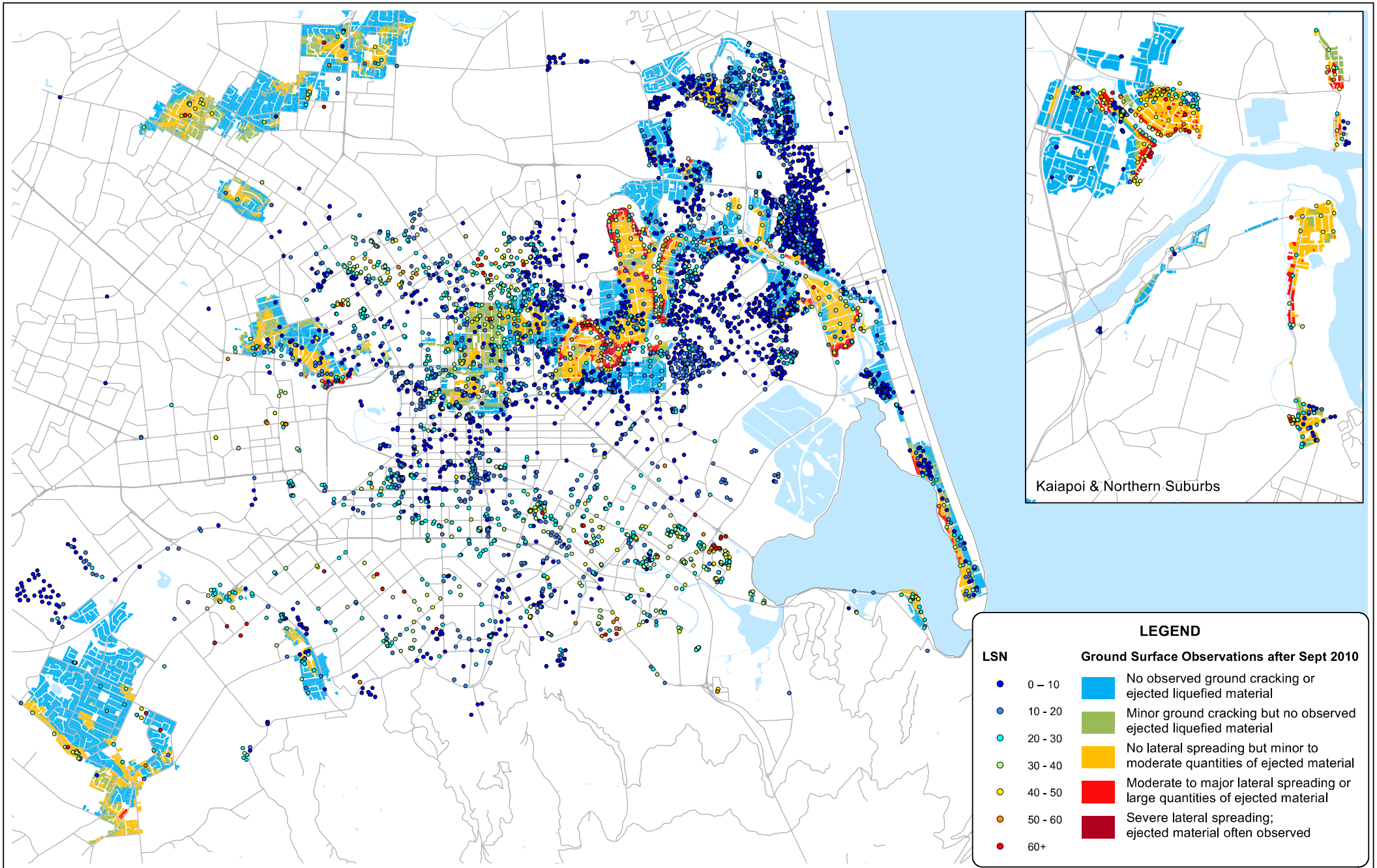
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN230	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, September 2010
(Using Cornell PGA)

FIGURE No. Figure F8 Rev. 0

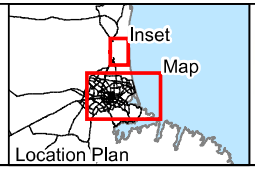
Date: 5/03/2013 Time: 4:23:46 p.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC
EARTHQUAKE COMMISSION
Kōmihana Rūwhenua

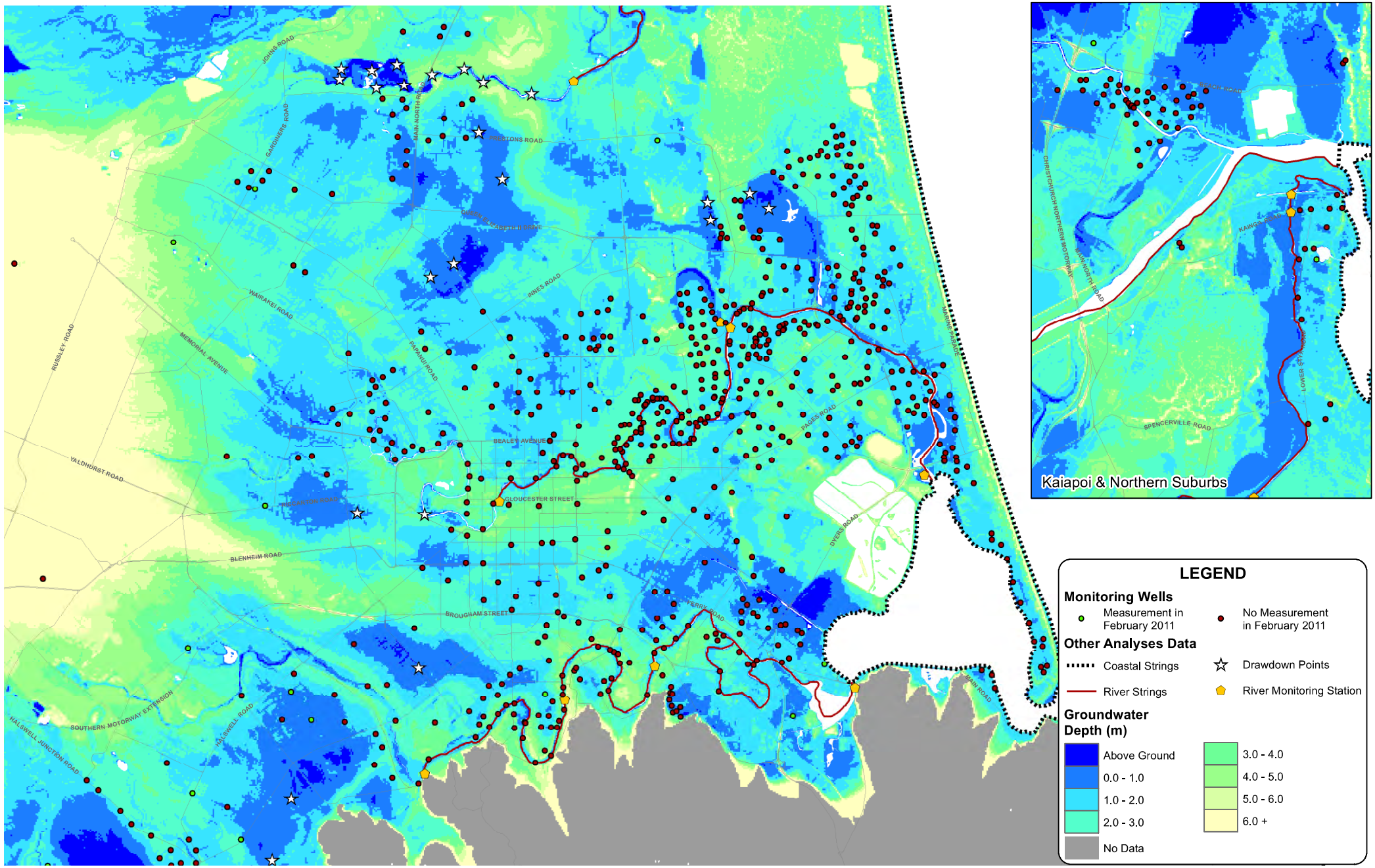
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APPROVED		
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Prepared by Tonkin & Taylor Ltd. Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, September 2010
(Using Cornell PGA)

FIGURE No. Figure F9 Rev. 0

Date: 27/02/2013 Time: 10:16:18 a.m.

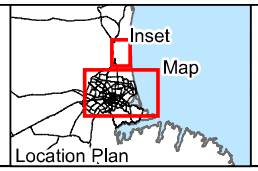
February 2011 Event



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

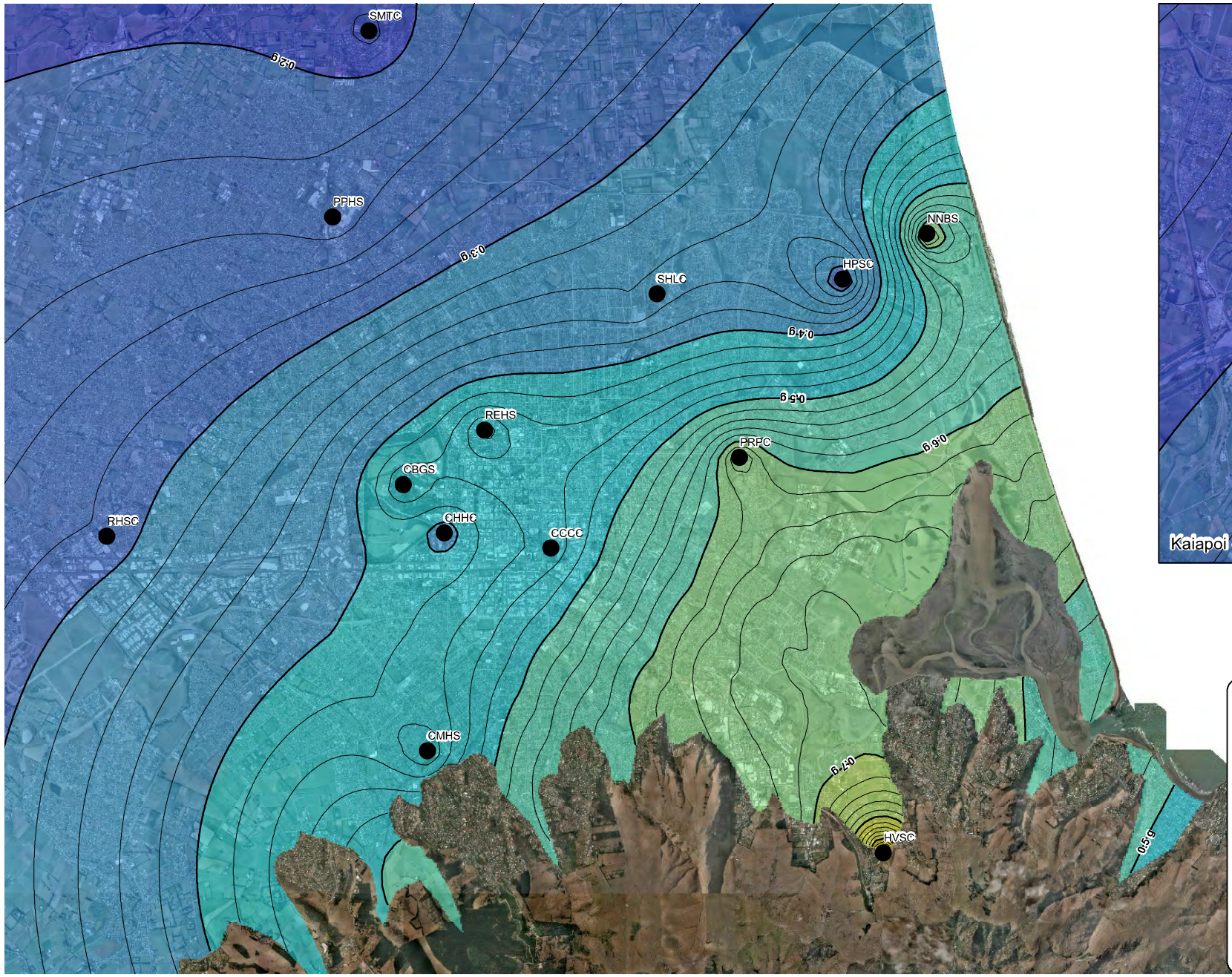
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CHECKED		
APPROVED		
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PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Depth to Groundwater 25m Grid (February 2011)

FIGURE No. Figure F10

Rev.

Date: 26/02/2013 Time: 4:35:52 p.m.





LEGEND

Location of Strong Ground Motion Recording Sites

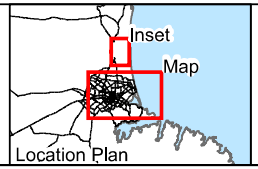
PGA (g)

0.0 - 0.1	0.7 - 0.8
0.1 - 0.2	0.8 - 0.9
0.2 - 0.3	0.9 - 1.0
0.3 - 0.4	1.0 - 1.1
0.4 - 0.5	1.1 - 1.2
0.5 - 0.6	1.2 - 1.3
0.6 - 0.7	1.3 - 1.4

Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA Contours produced from grid supplied by University of Canterbury.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC
EARTHQUAKE COMMISSION
Kōmihana Rūwhenua

DRAWN	JEL	Feb.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-PGA02	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION

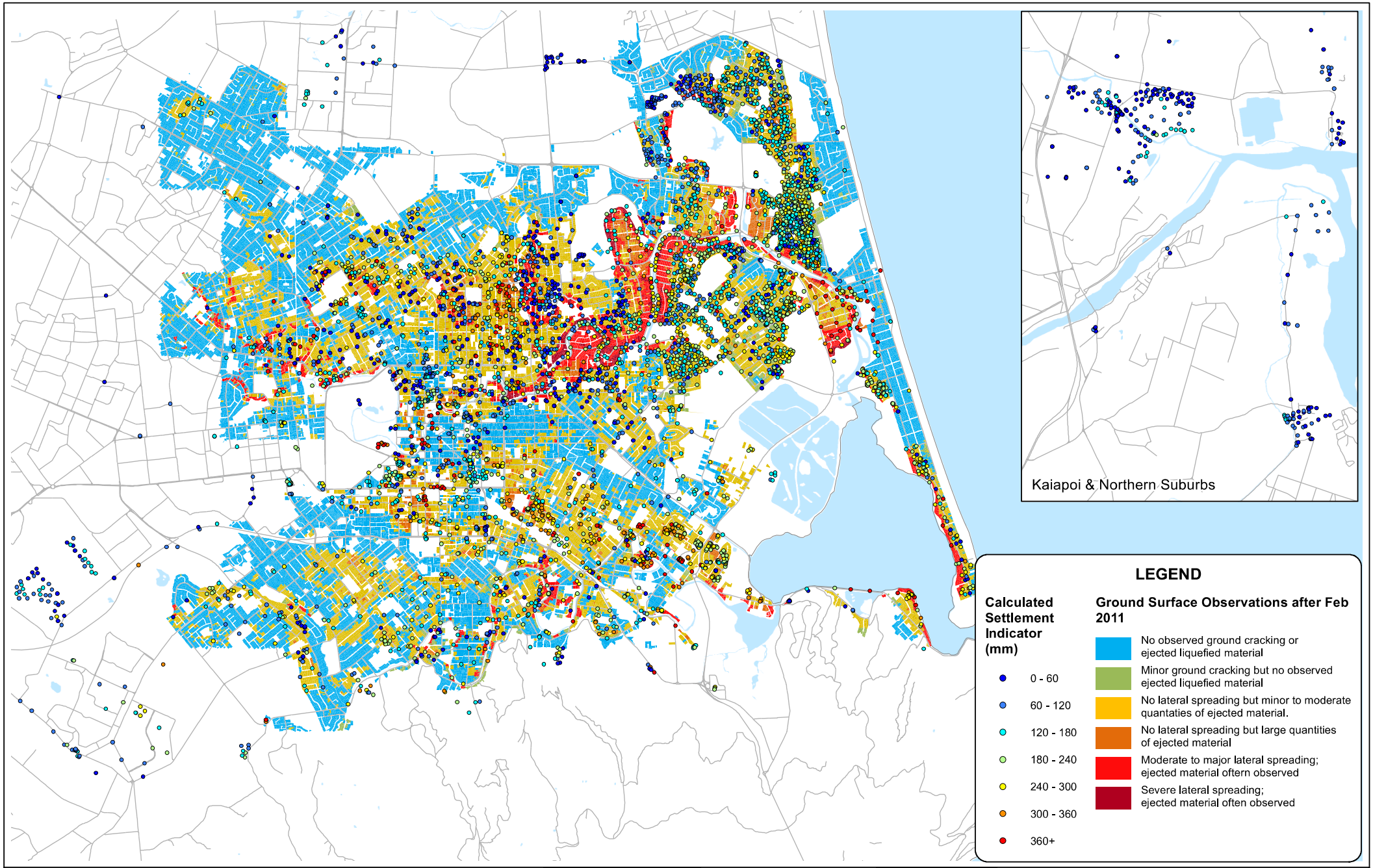
CHRISTCHURCH CITY & KAIAPOI

Contours of Horizontal Geometric Mean PGA (UoC, February 2011 Event)

FIGURE No. Figure F11

Rev. 0

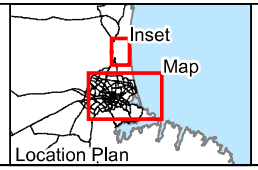
Date: 25/02/2013 Time: 10:24:31 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



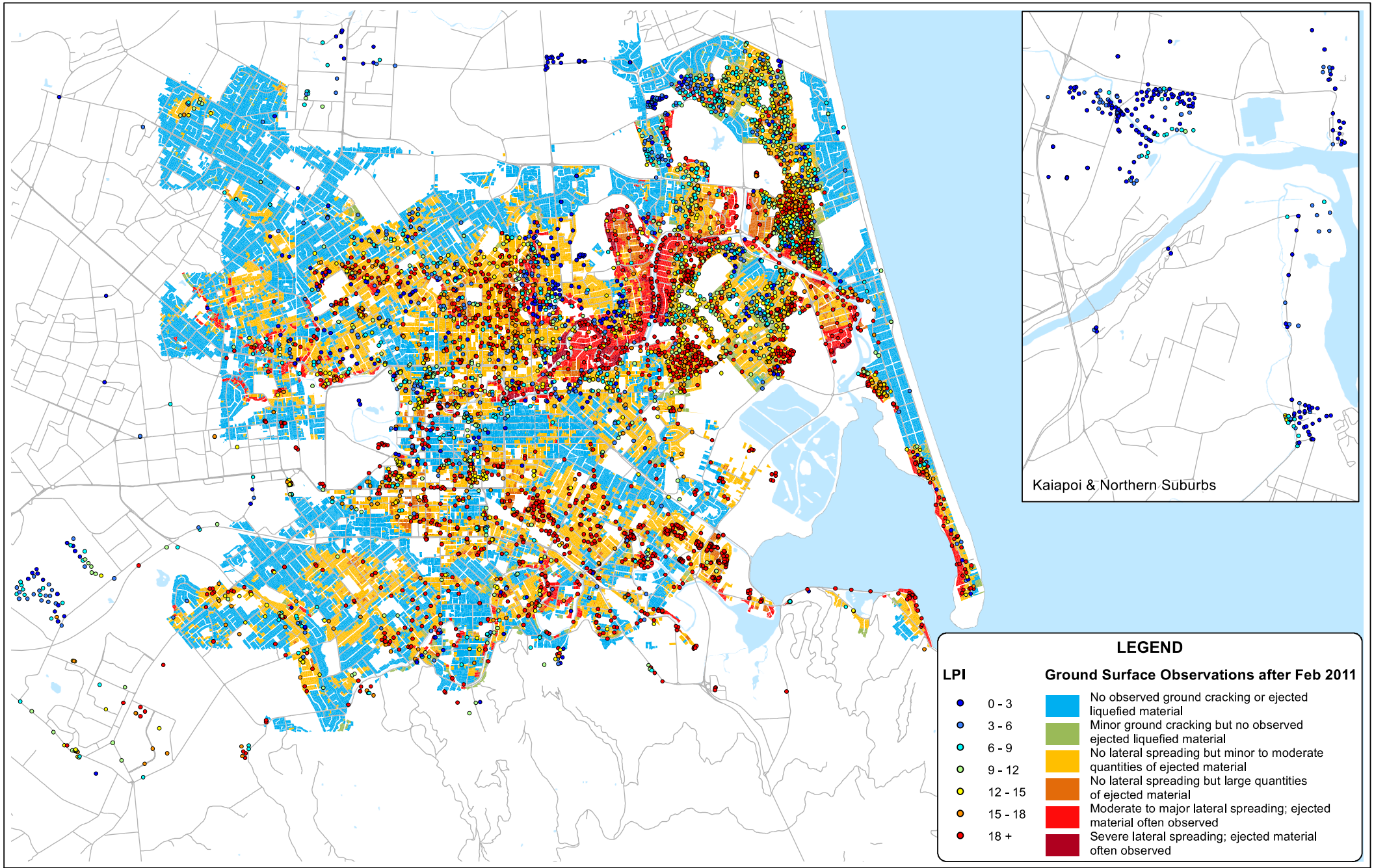
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Feb.13	
CHECKED			
APPROVED			
ARCFILE	52020-0200-LSN112		
SCALE (AT A3 SIZE)	1:60,000		
Prepared by Tonkin & Taylor Ltd. Ref:	52020.0200		

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, February 2011 (Using UoC PGA)

FIGURE No. Figure F12 Rev. 0

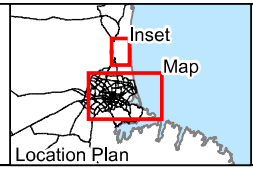
Date: 28/02/2013 Time: 10:37:29 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



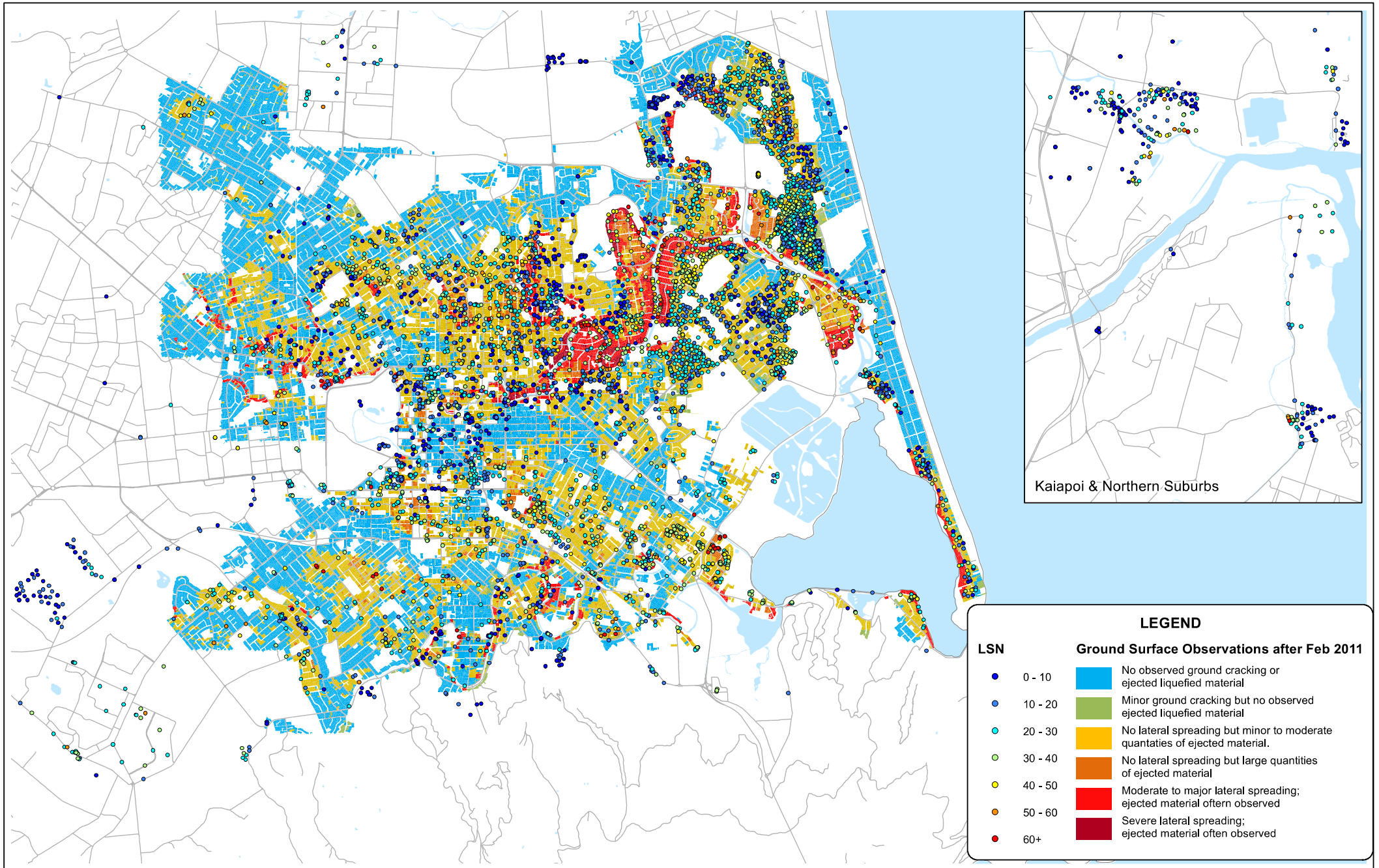
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CHECKED		
APPROVED		
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Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI LPI, February 2011 (Using UoC PGA)

FIGURE No. Figure F13 Rev. 0

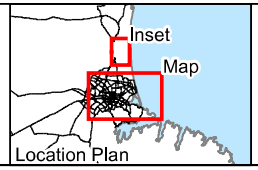
Date: 5/03/2013 Time: 4:22:19 p.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



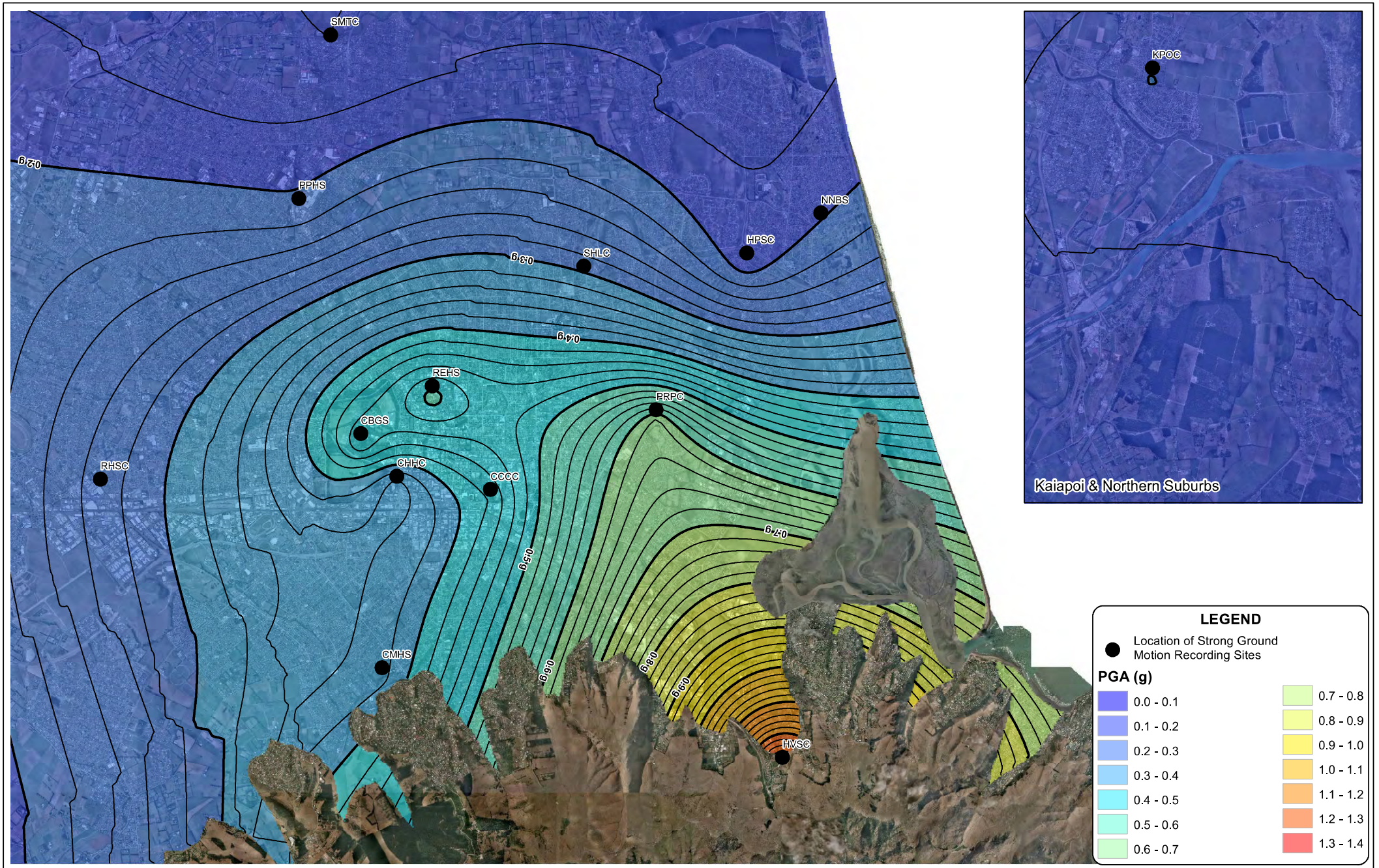
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

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CHECKED			
APPROVED			
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SCALE (AT A3 SIZE)	1:60,000		
Prepared by Tonkin & Taylor Ltd. Ref:	52020.0200		

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI LSN, February 2011 (Using UoC PGA)

FIGURE No. Figure F14 Rev. 0

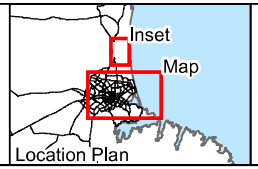
Date: 27/02/2013 Time: 12:11:23 p.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA values supplied by Cornell University.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC
EARTHQUAKE COMMISSION
Kōmihana Rūwhenua

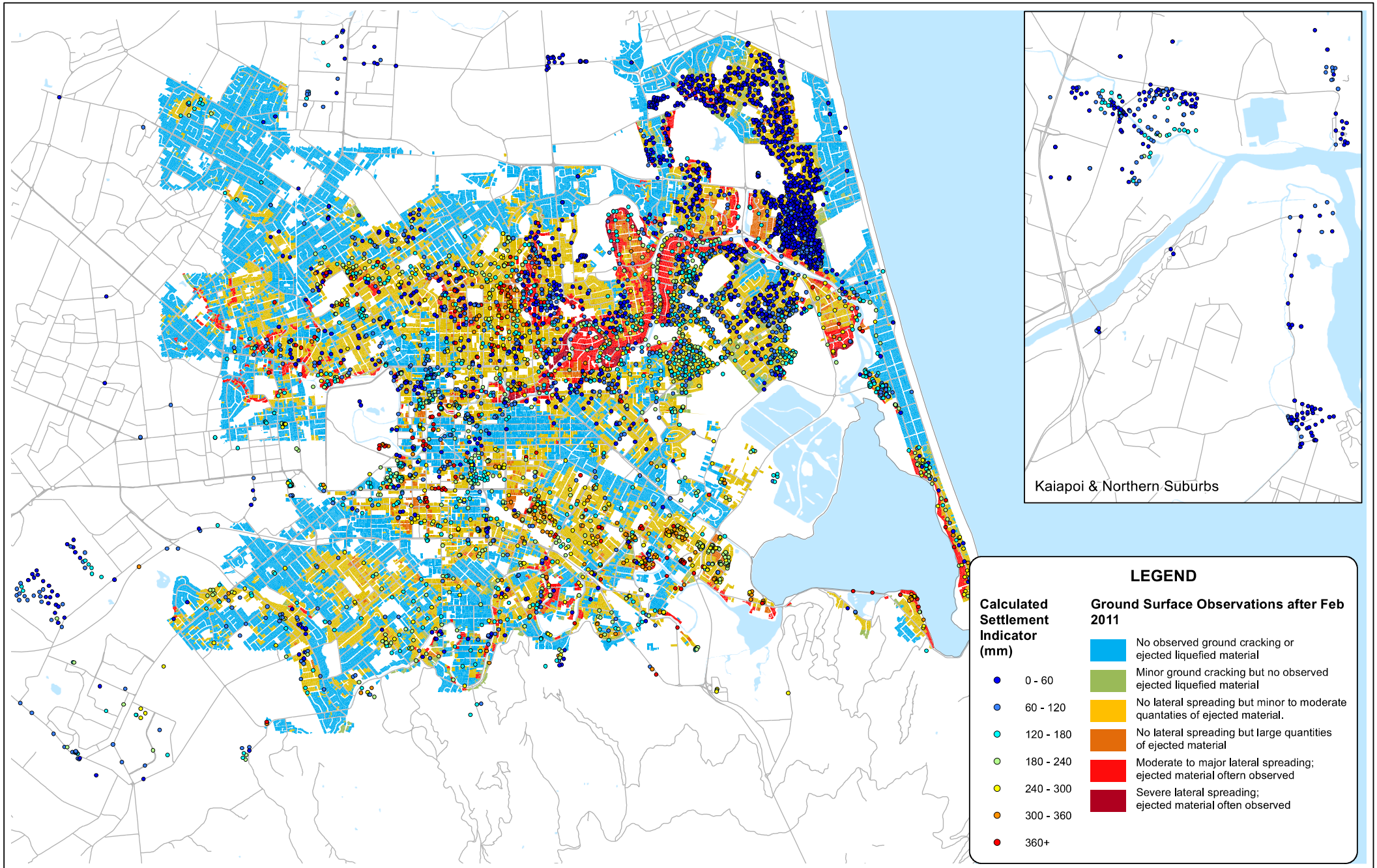
DRAWN	JSD	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-PGA05	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Contours of Horizontal Geometric Mean PGA (Cornell, February 2011 Event)

FIGURE No. Figure F15

Rev. 0

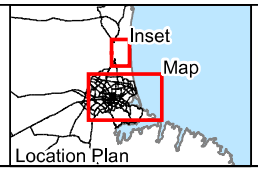
Date: 27/02/2013 Time: 8:01:15 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



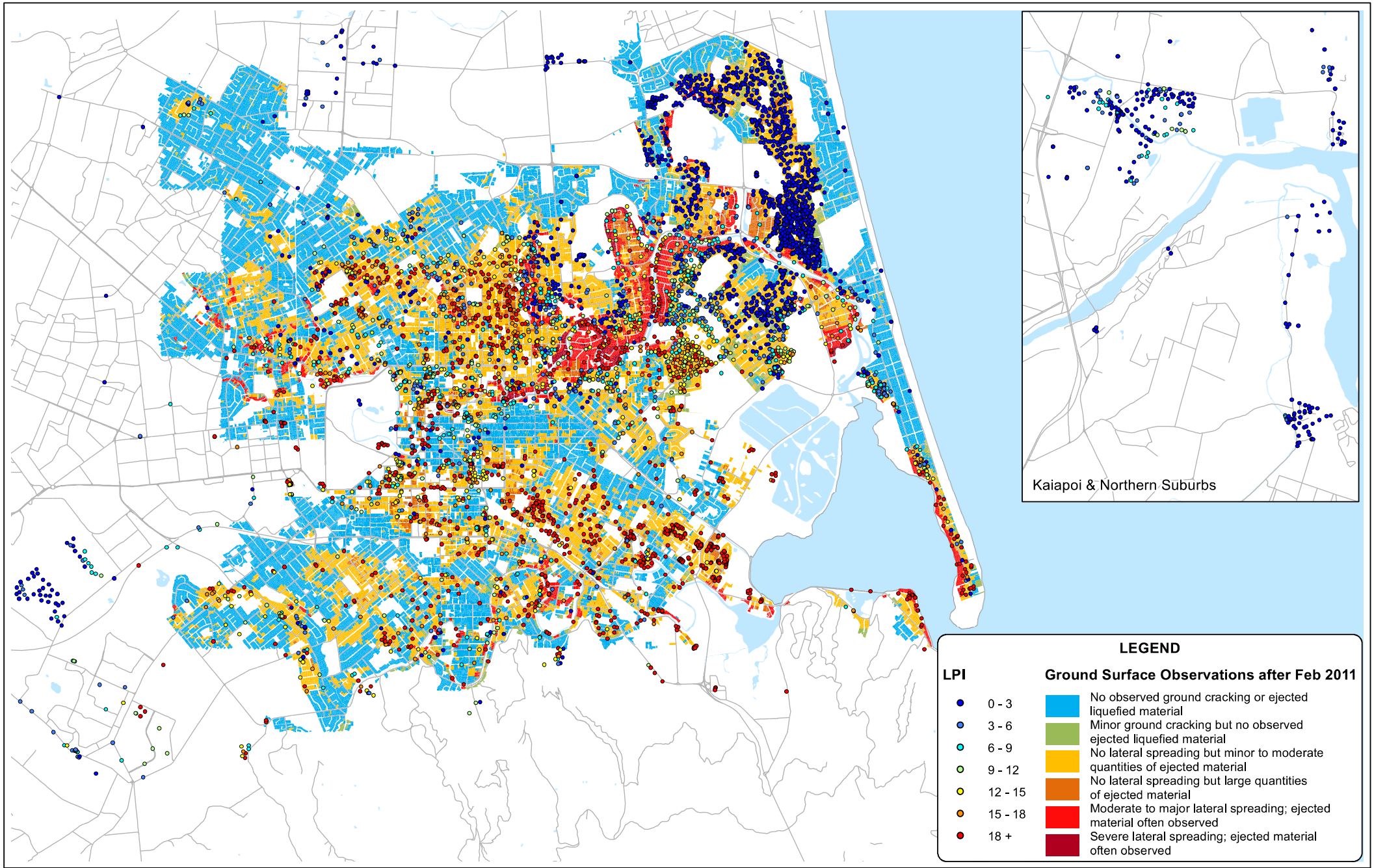
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Feb.13	
CHECKED			
APPROVED			
ARCFILE	52020-0200-LSN173		
SCALE (AT A3 SIZE)	1:60,000		
Prepared by Tonkin & Taylor Ltd. Ref:	52020.0200		

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, February 2011 (Using Cornell PGA)

FIGURE No. Figure F16 Rev. 0

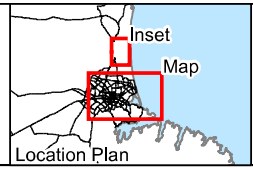
Date: 28/02/2013 Time: 10:19:03 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



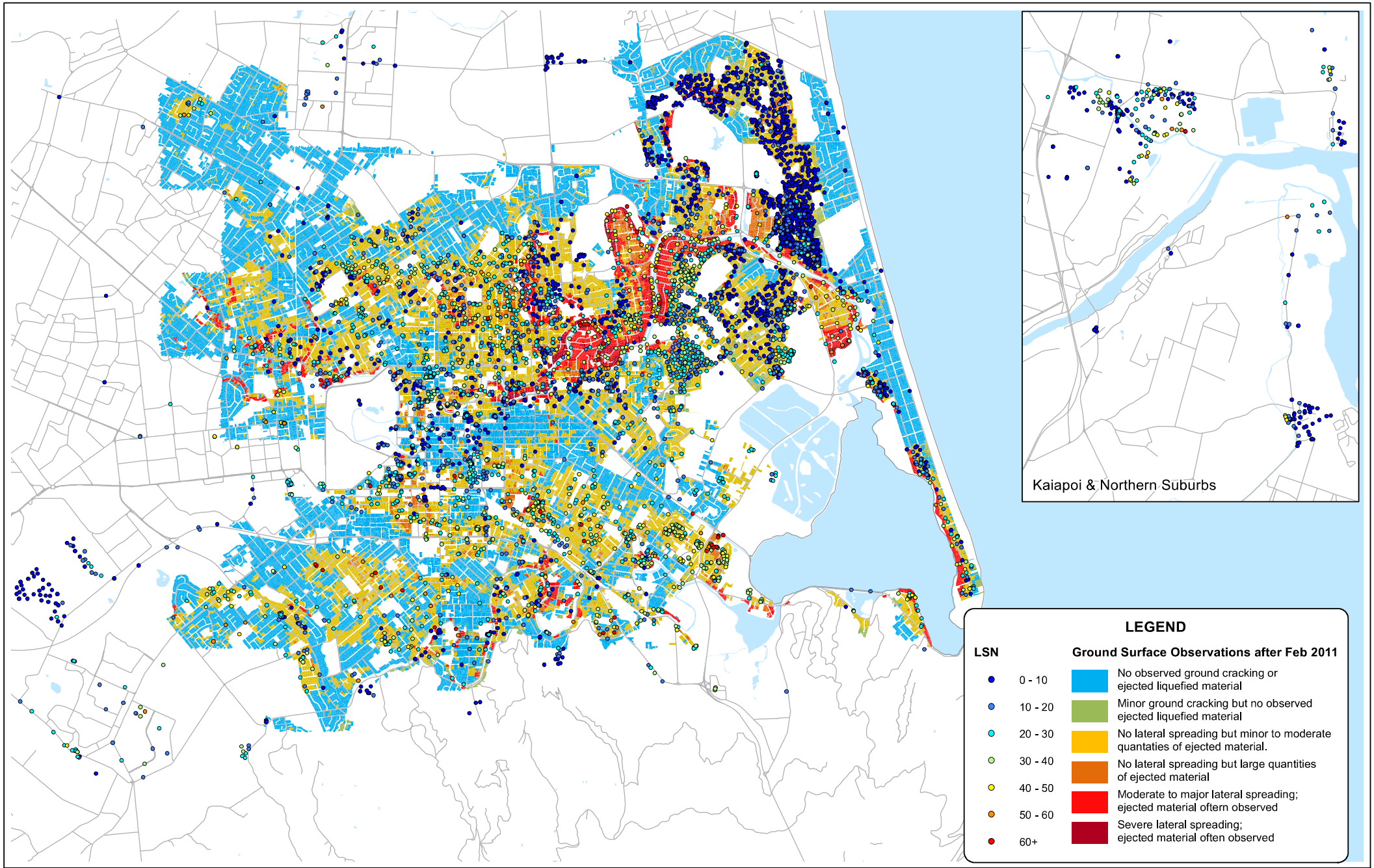
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN232	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI LPI, February 2011 (Using Cornell PGA)

FIGURE No. Figure F17 Rev. 0

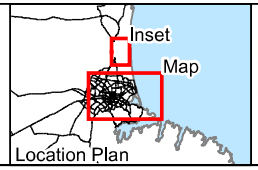
Date: 5/03/2013 Time: 4:21:04 p.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



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EARTHQUAKE COMMISSION
Kōmihana Rūwhenua

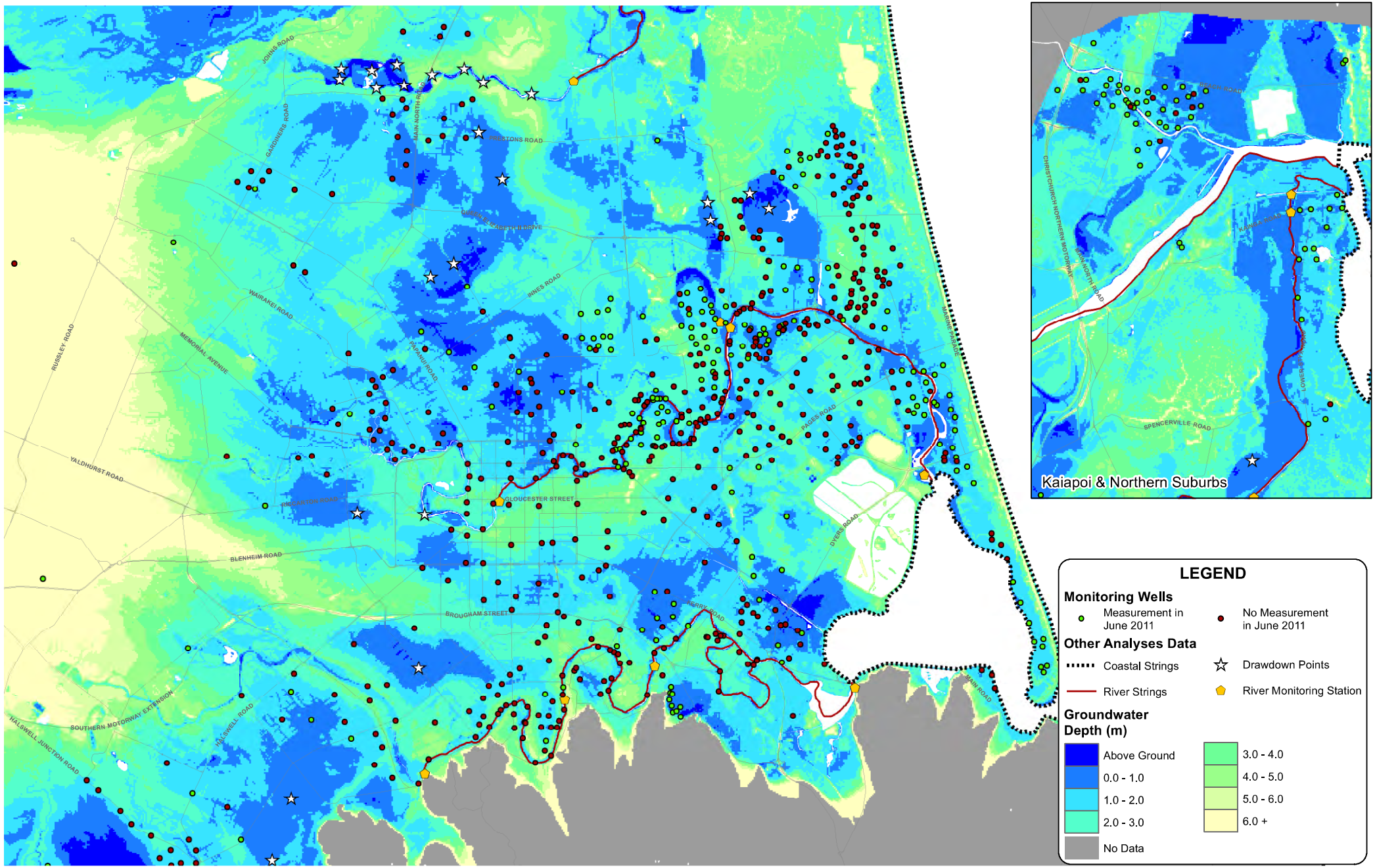
DRAWN	CXP	Feb.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN163	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI LSN, February 2011 (Using Cornell PGA)

FIGURE No. Figure F18 Rev. 0

Date: 27/02/2013 Time: 12:17:58 p.m.

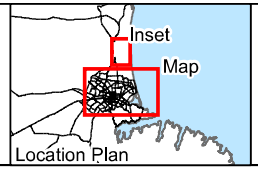
April 2011 Event



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



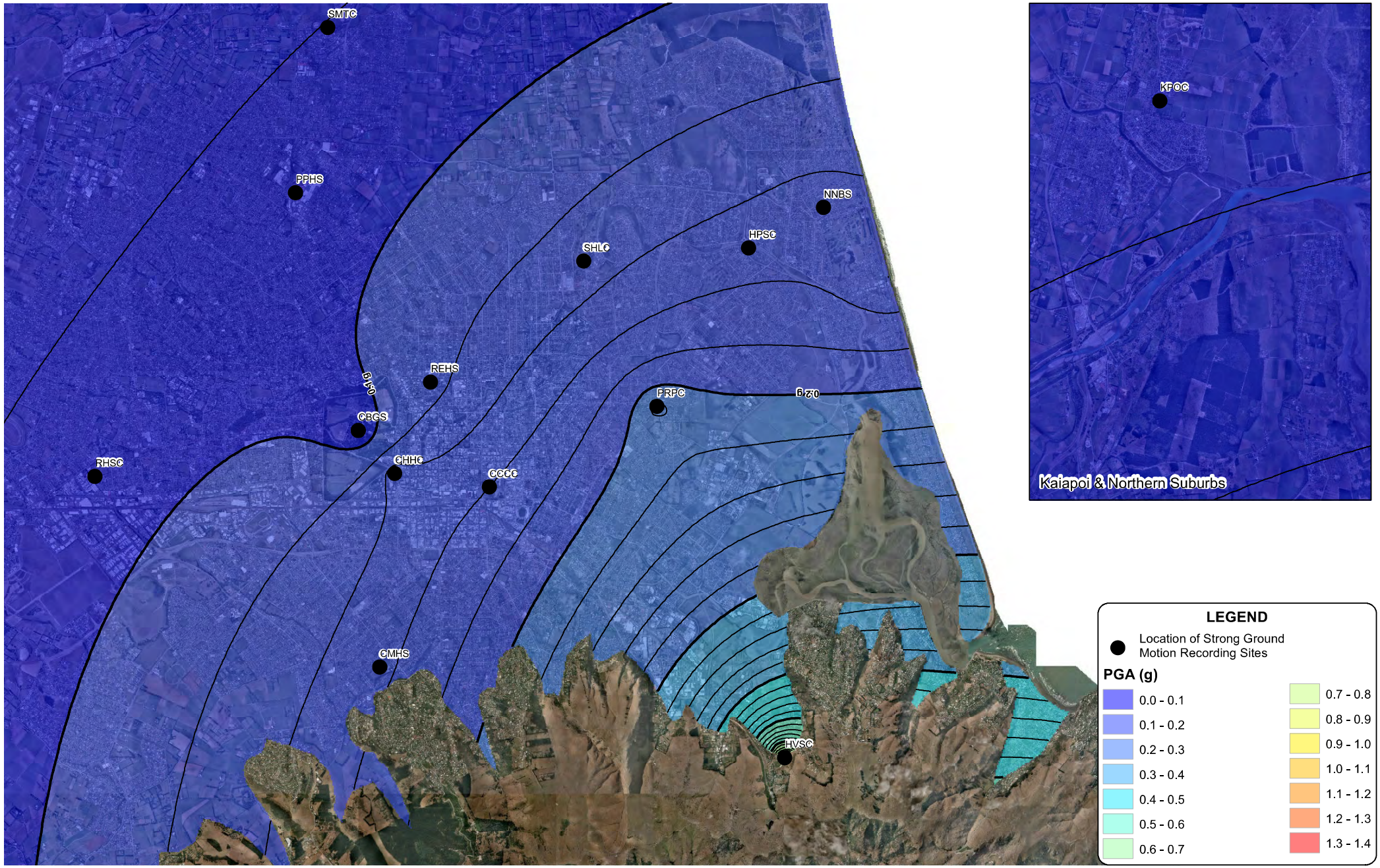
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JEL	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-GWM09	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Depth to Groundwater 25m Grid
(April 2011 - using June 2011 Model)

FIGURE No. Figure F19 Rev.

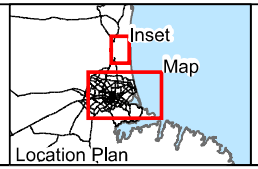
Date: 26/02/2013 Time: 4:36:55 p.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA Contours produced from grid supplied by University of Canterbury.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



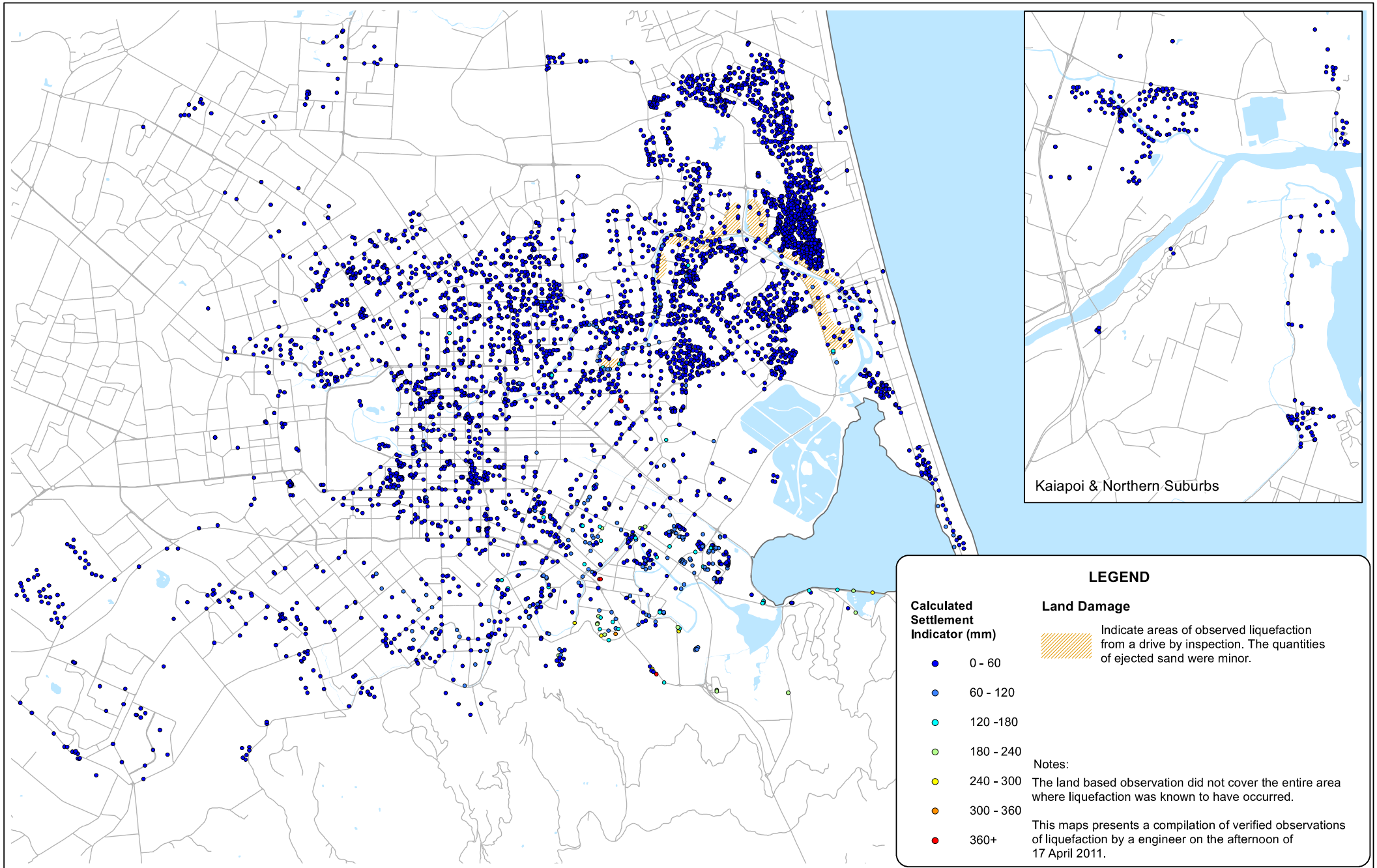
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JSD	Feb.13	
CHECKED			
APPROVED			
ARCFILE	52020-0200-PGA19		
SCALE (AT A3 SIZE)	1:60,000		
PROJECT No.	52020-0200		

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Contours of Horizontal Geometric Mean PGA (UoC, April 2011 Minor Event)

FIGURE No. Figure F20 Rev. 0

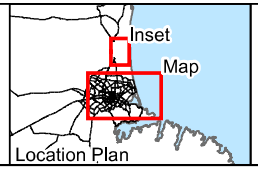
Date: 25/02/2013 Time: 10:41:30 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



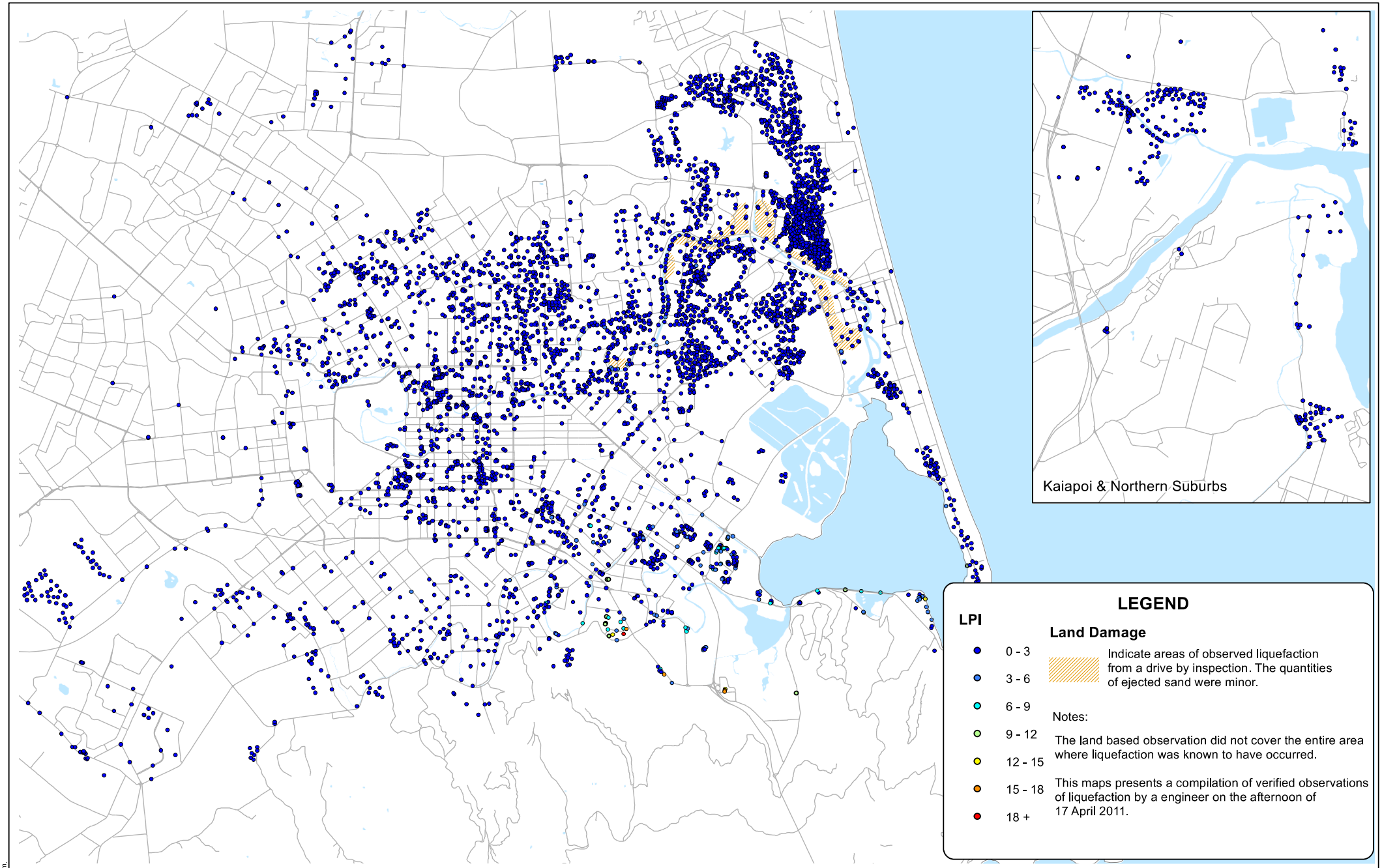
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN182	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, April 2011 (Using UoC PGA)

FIGURE No. Figure F21 Rev. 0

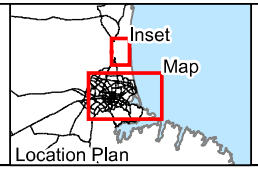
Date: 5/03/2013 Time: 9:42:27 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



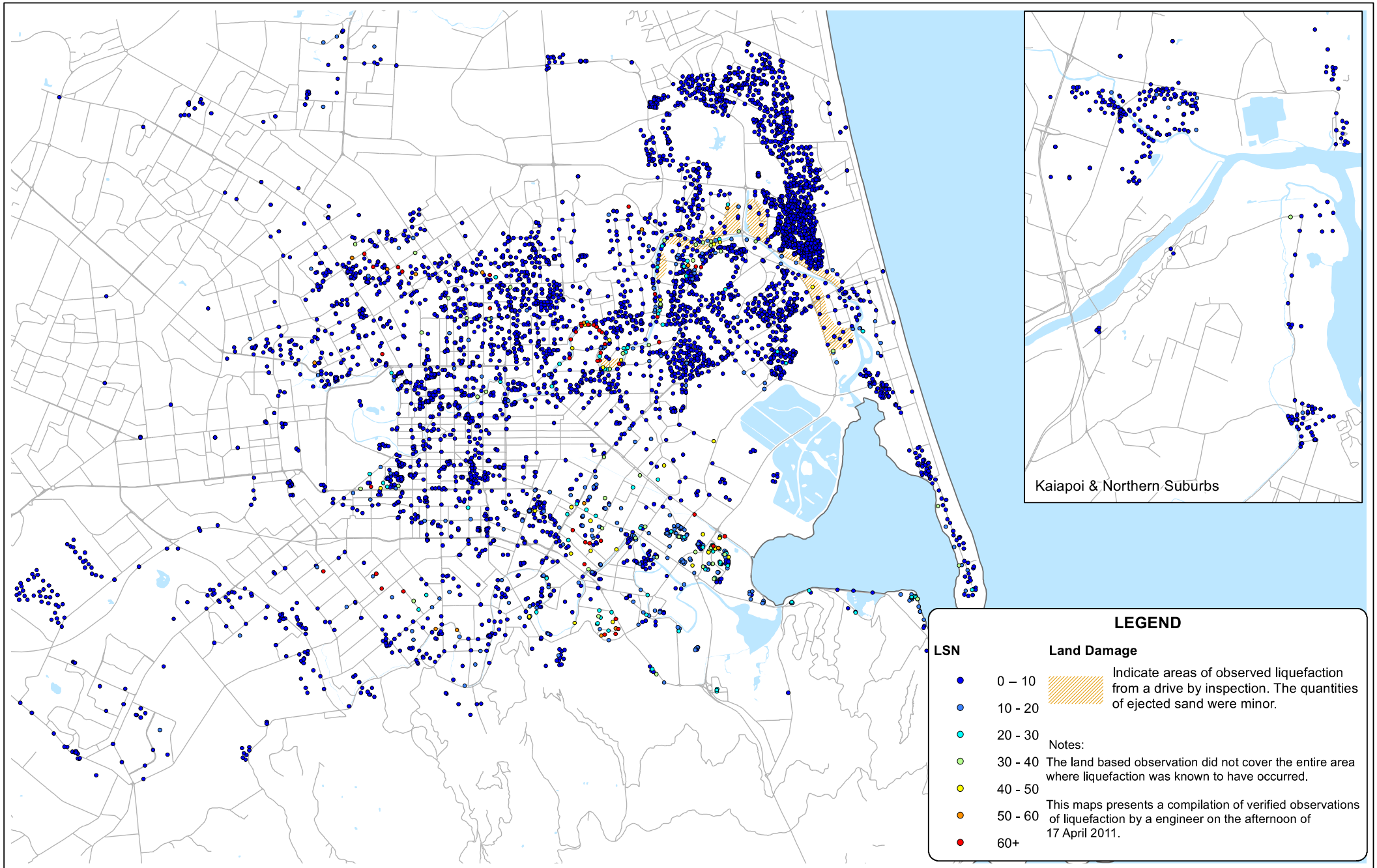
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JEL	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN196	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, April 2011
(Using UoC PGA)

FIGURE No. Figure F22 Rev. 0

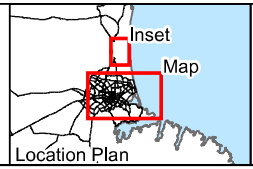
Date: 4/03/2013 Time: 5:08:32 p.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



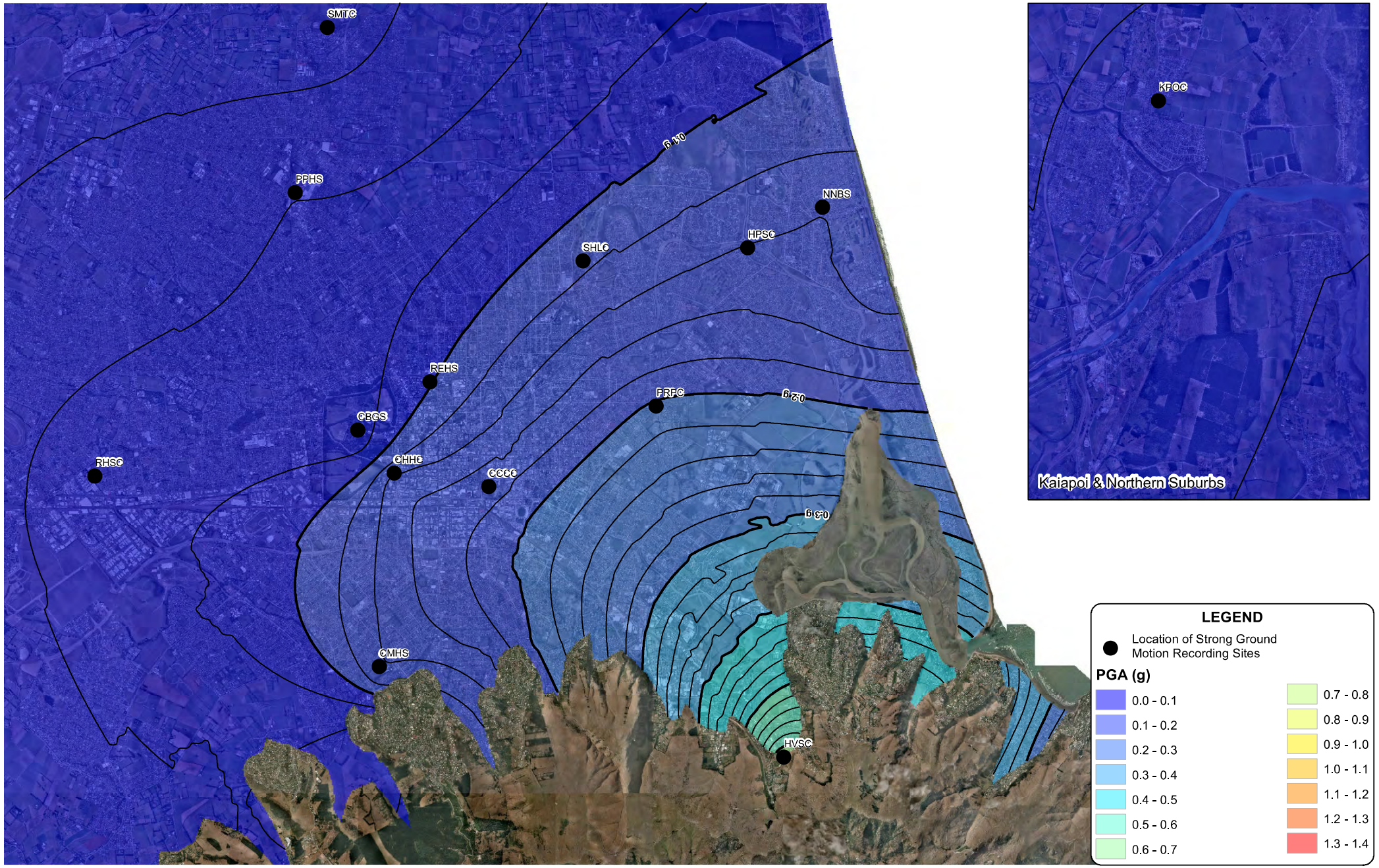
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Feb,13	
CHECKED			
APPROVED			
ARCFILE	52020-0200-LSN176		
SCALE (AT A3 SIZE)	1:60,000		
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200		

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, April 2011
(Using UoC PGA)

FIGURE No. Figure F23 Rev. 0

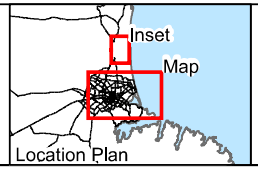
Date: 27/02/2013 Time: 8:54:28 a.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA values supplied by Cornell University.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



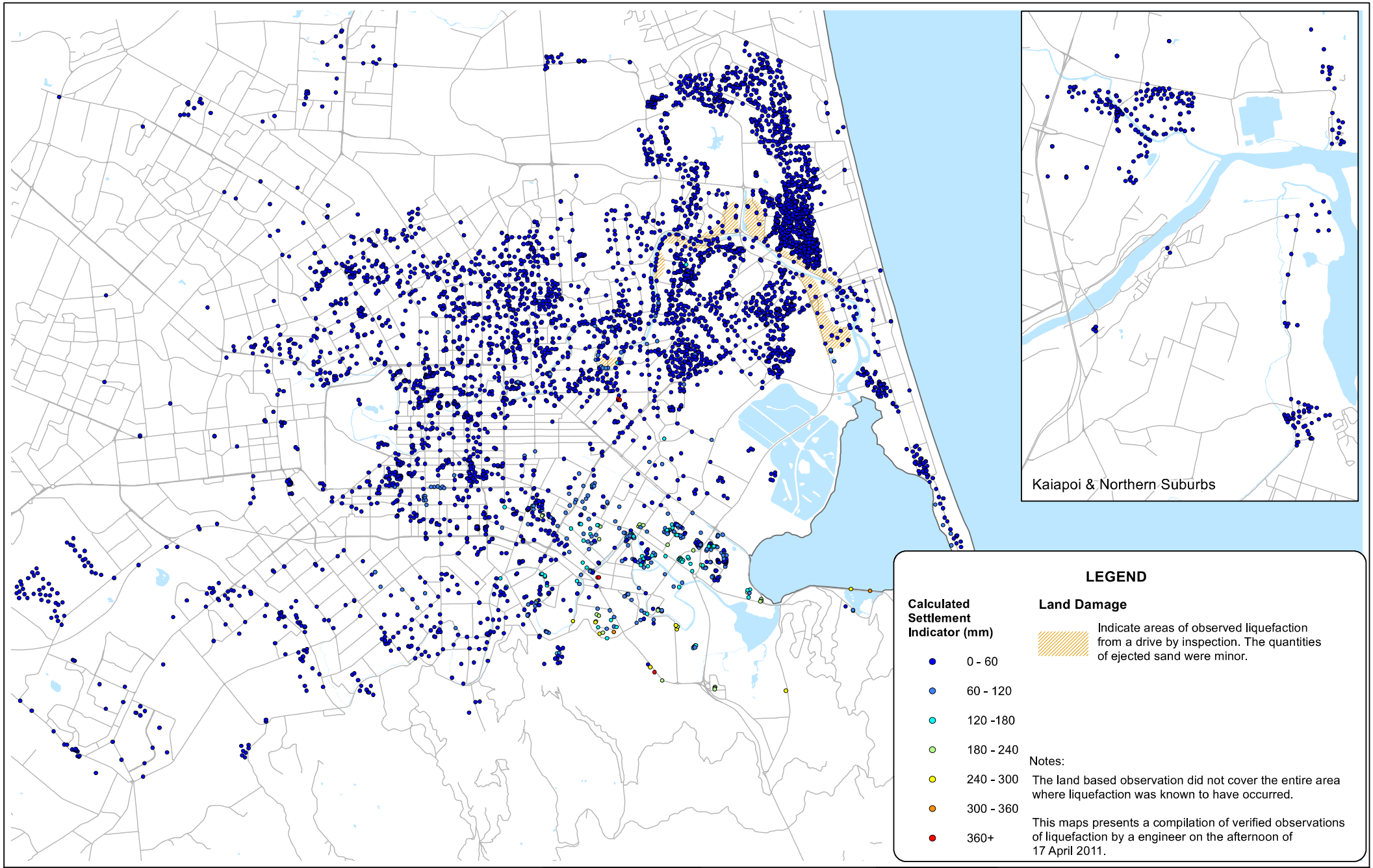
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JSD	Feb.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-PGA07	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Contours of Horizontal Geometric Mean PGA (Cornell, April 2011 Minor Event)

FIGURE No. Figure F24 Rev. 0

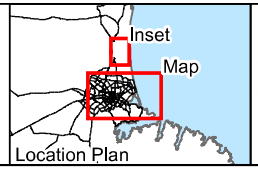
Date: 25/02/2013 Time: 10:24:13 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



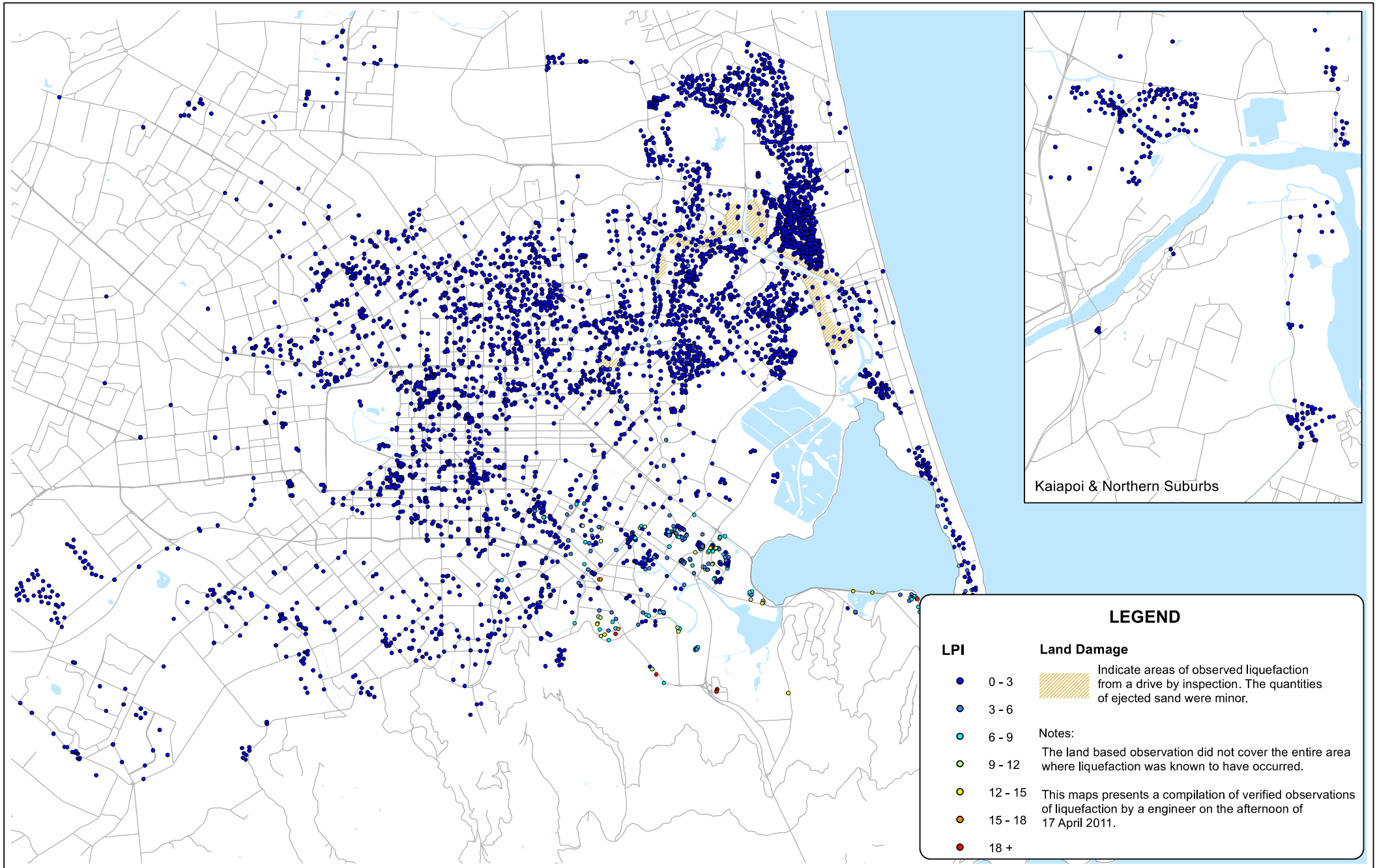
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN185	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, April 2011 (Using Cornell PGA)

FIGURE No. Figure F25 Rev. 0

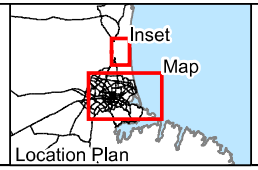
Date: 5/03/2013 Time: 9:00:50 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



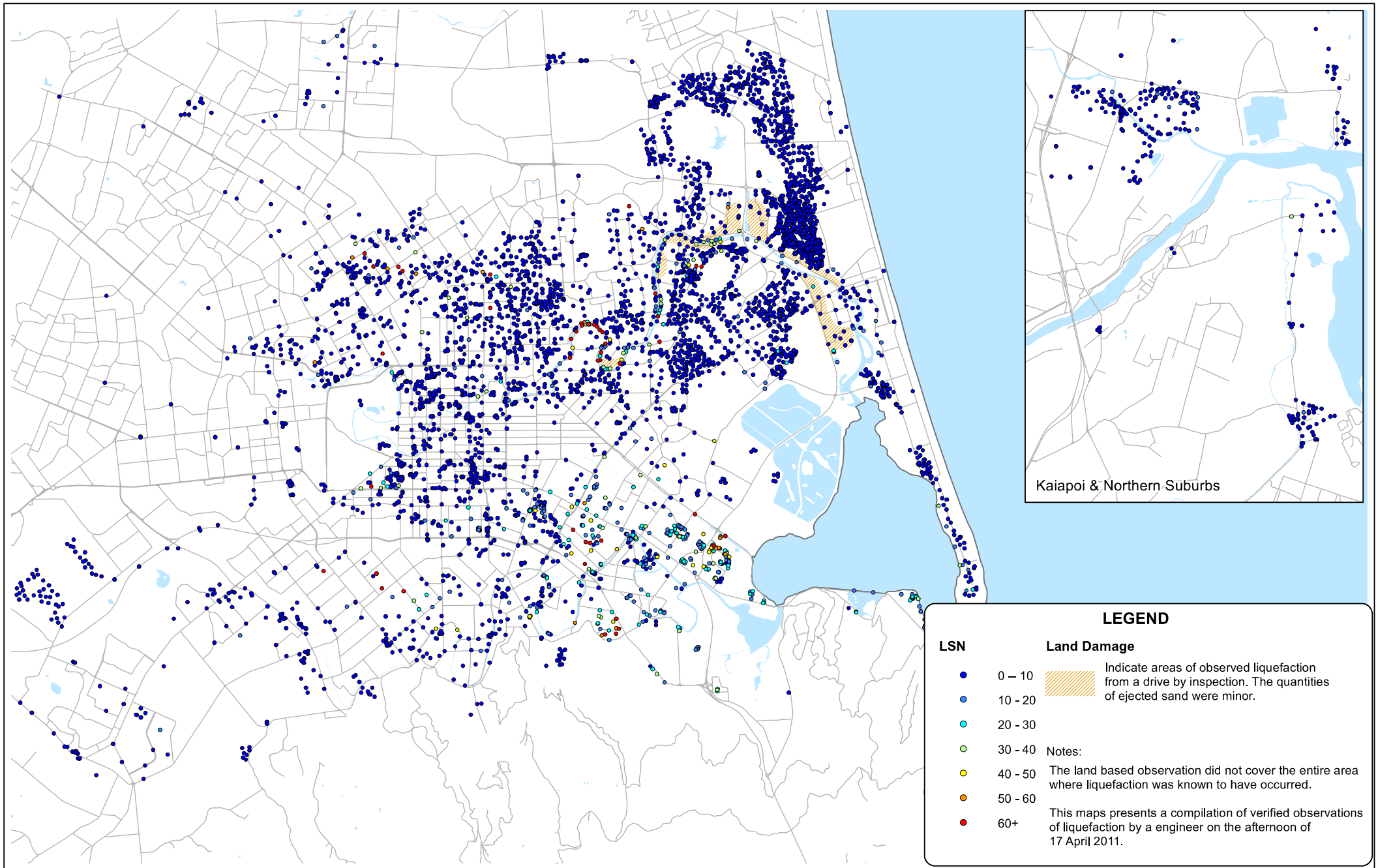
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JEL	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN197	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, April 2011
(Using Cornell PGA)

FIGURE No. Figure F26 Rev. 0

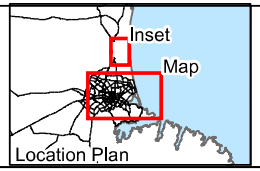
Date: 5/03/2013 Time: 10:37:21 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

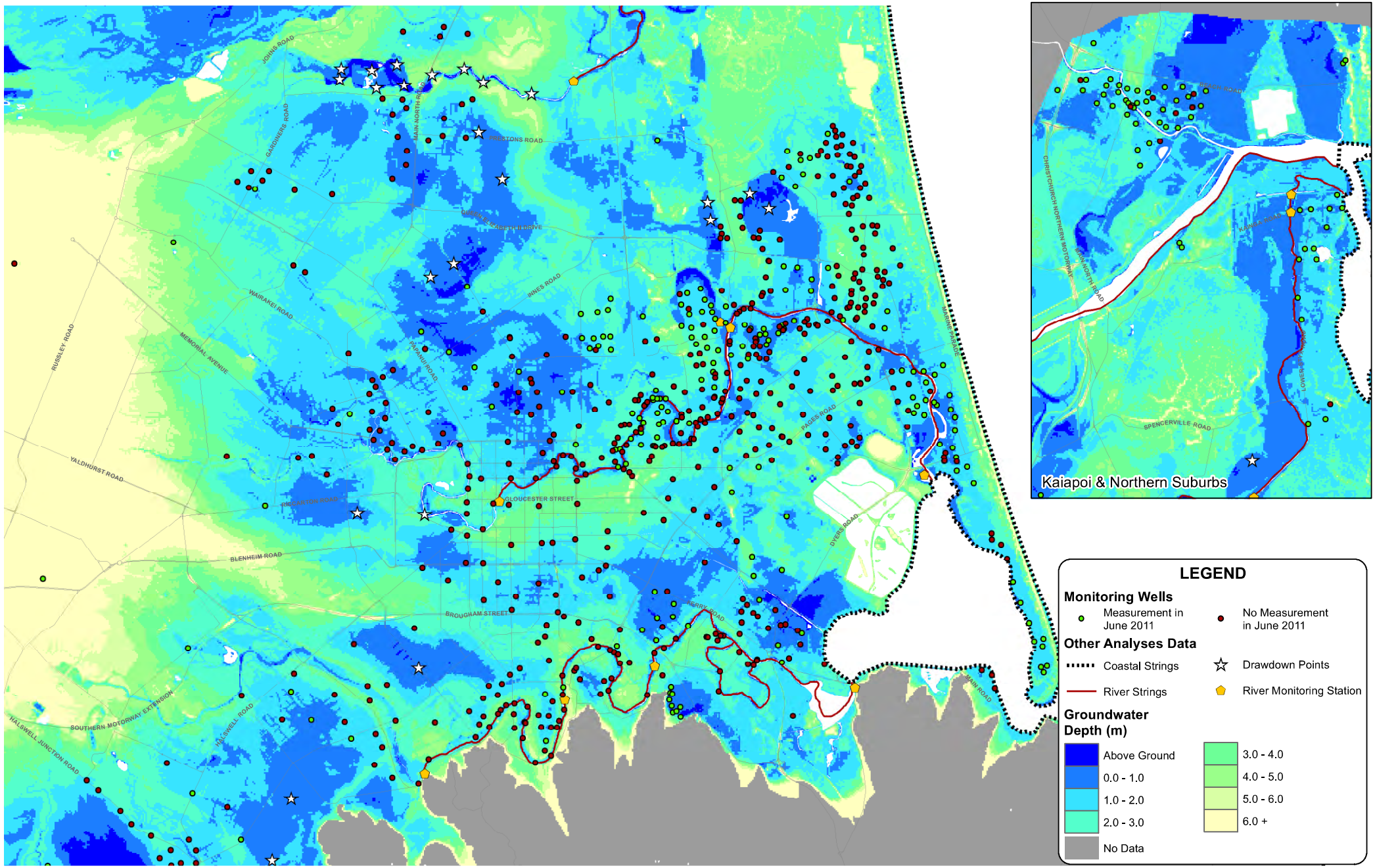
DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN179	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, April 2011
(Using Cornell PGA)

FIGURE No. Figure F27 Rev. 0

Date: 5/03/2013 Time: 11:05:34 a.m.

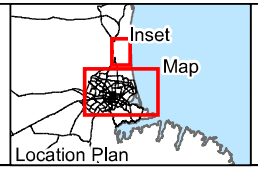
June 2011 Event A



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



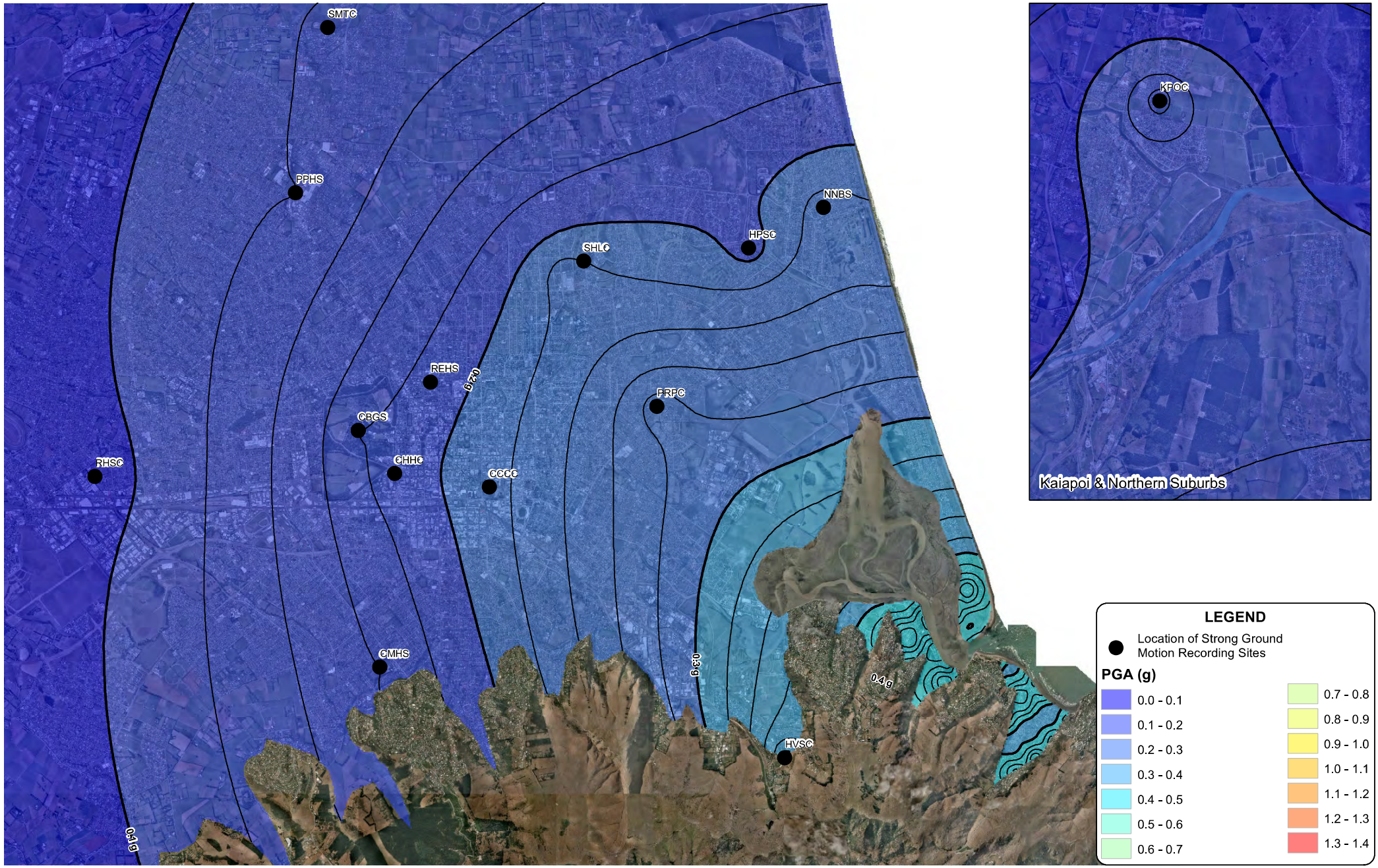
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JEL	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-GWM09	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Depth to Groundwater 25m Grid (June 2011)

FIGURE No. Figure F28 Rev.

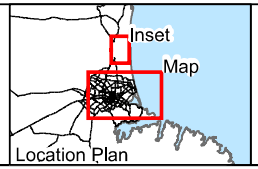
Date: 26/02/2013 Time: 4:36:55 p.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA Contours produced from grid supplied by University of Canterbury.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC
EARTHQUAKE COMMISSION
Kōmihana Rūwhenua

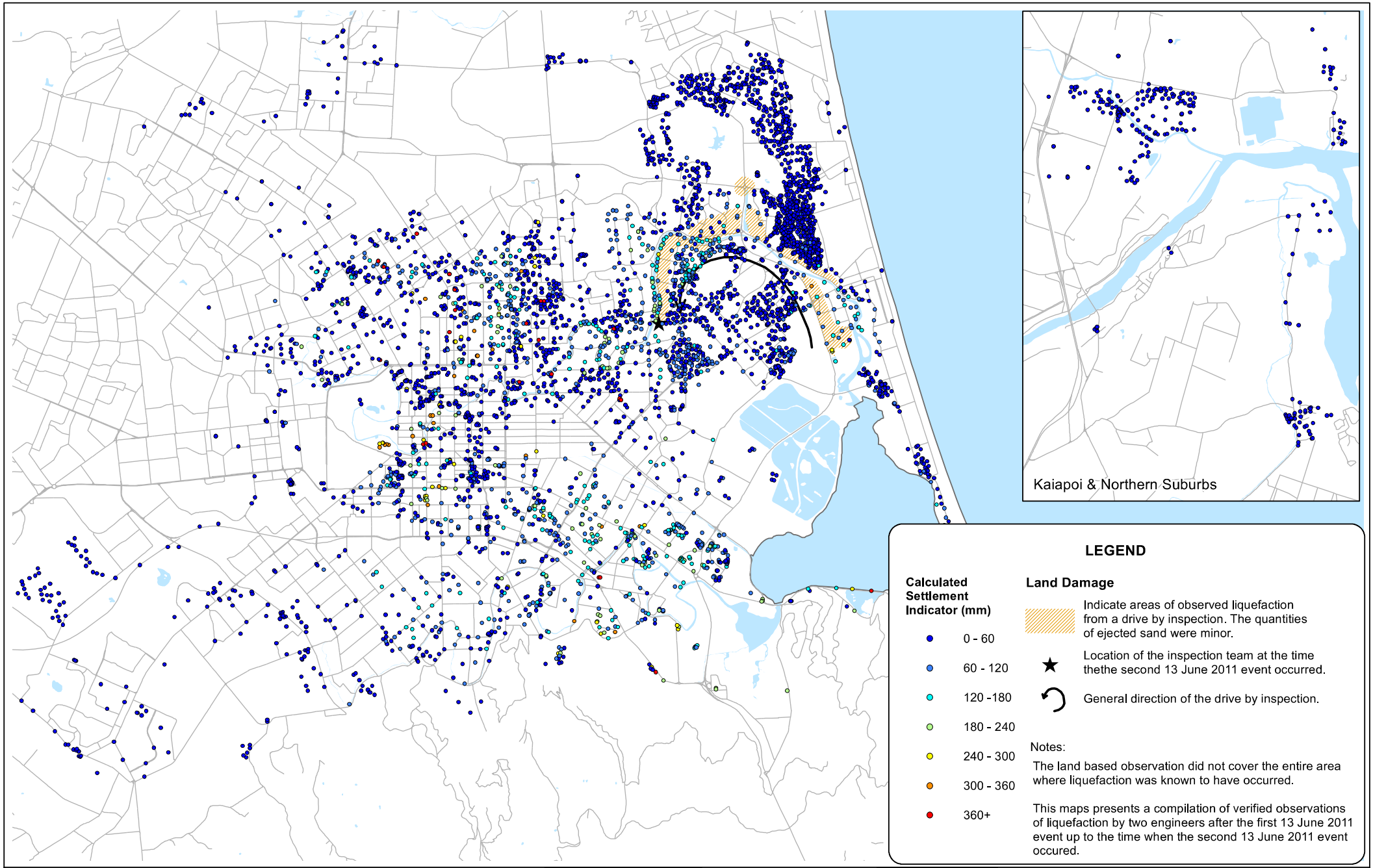
DRAWN	JSD	Feb.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-PGA18	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Contours of Horizontal Geometric Mean PGA (UoC, June 2011 Event A)

FIGURE No. Figure F29

Rev. 0

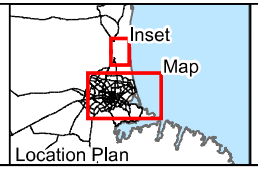
Date: 25/02/2013 Time: 10:41:47 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



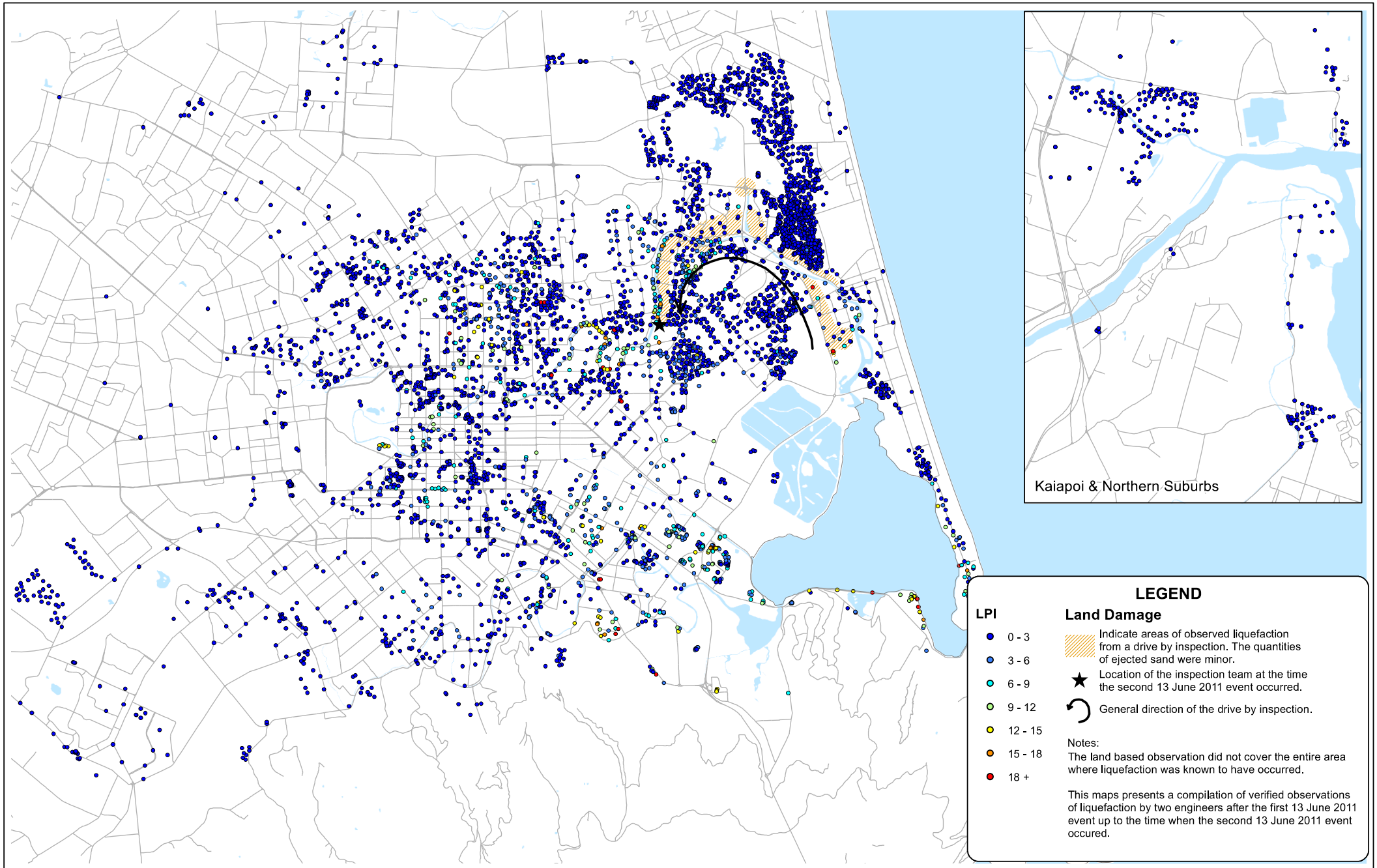
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN183	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, June 2011
Event A (Using UoC PGA)

FIGURE No. Figure F30 Rev. 0

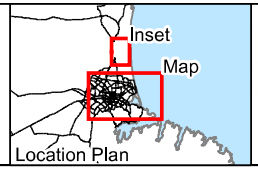
Date: 5/03/2013 Time: 9:00:50 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



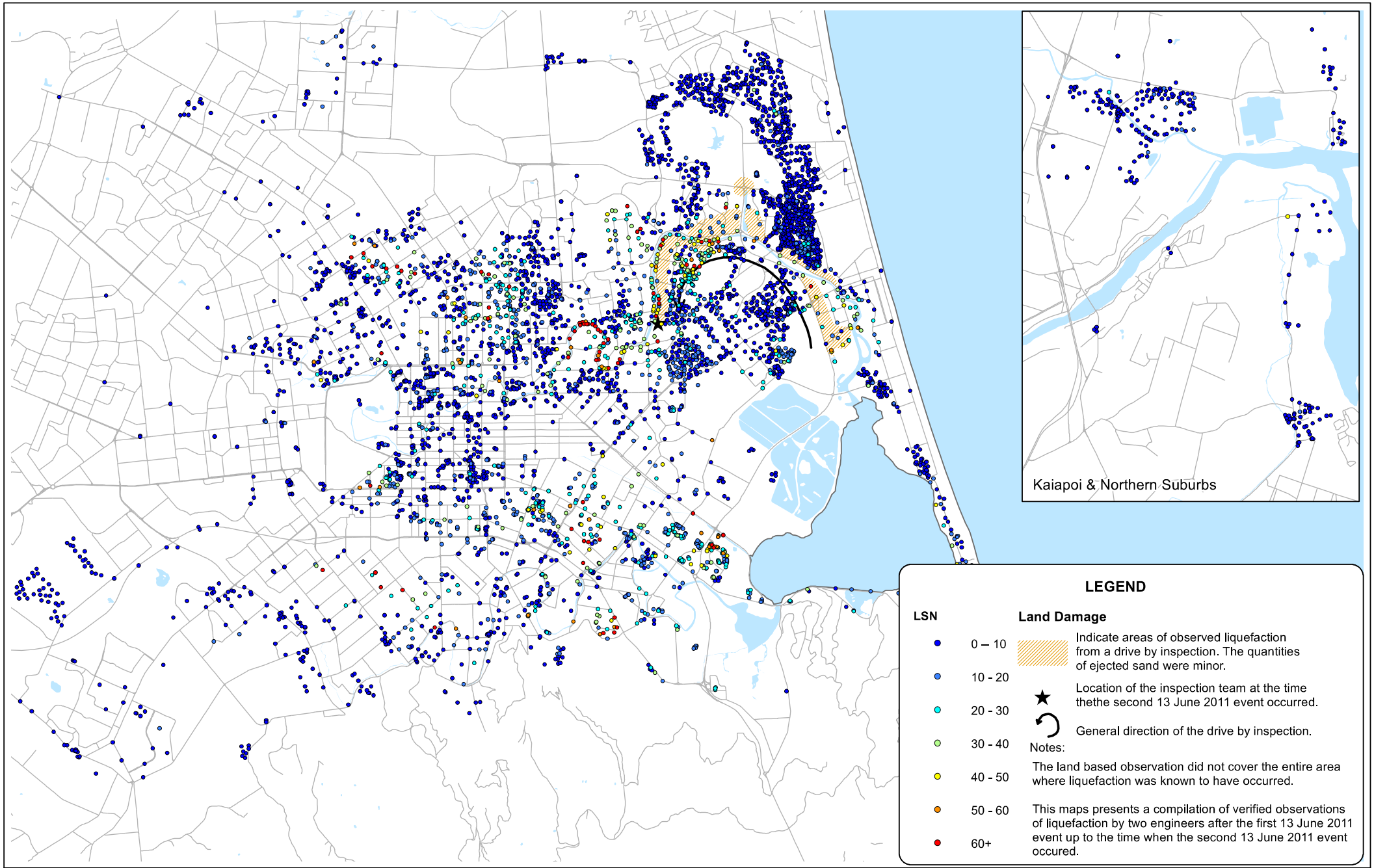
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JEL	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN198	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, June 2011 Event A
(Using UoC PGA)

FIGURE No. Figure F31 Rev. 0

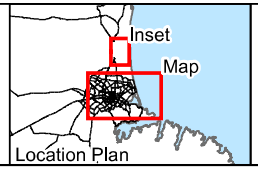
Date: 5/03/2013 Time: 11:30:35 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



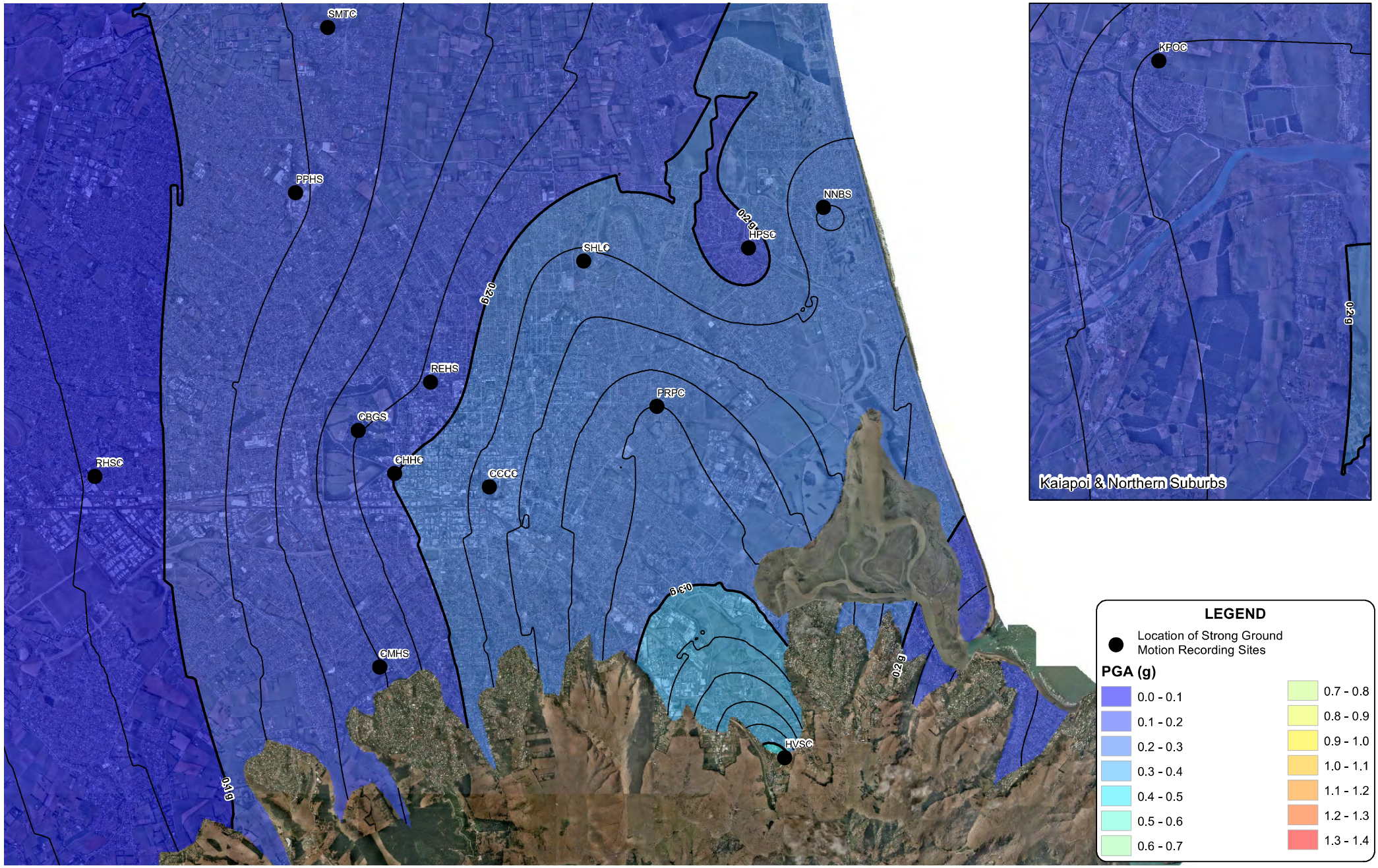
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN177	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, June 2011 Event A
(Using UoC PGA)

FIGURE No. Figure F32 Rev. 0

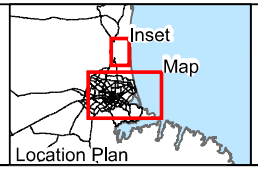
Date: 27/02/2013 Time: 8:49:06 a.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA values supplied by Cornell University.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



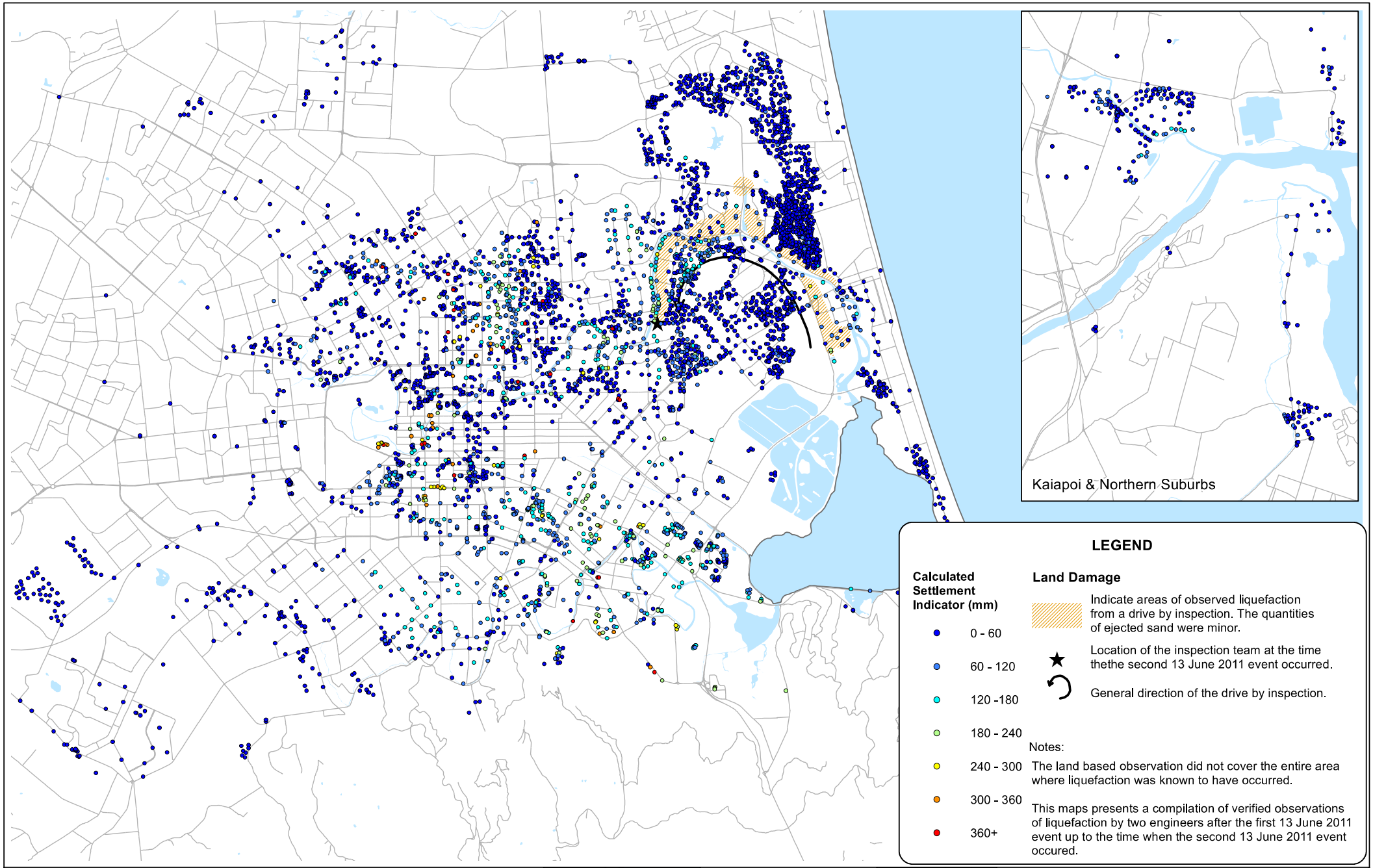
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JSD	Feb.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-PGA08	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Contours of Horizontal Geometric Mean PGA (Cornell, June 2011 Event A)

FIGURE No. Figure F33 Rev. 0

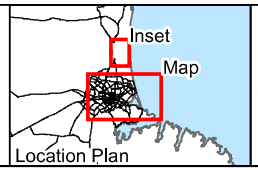
Date: 25/02/2013 Time: 10:24:24 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



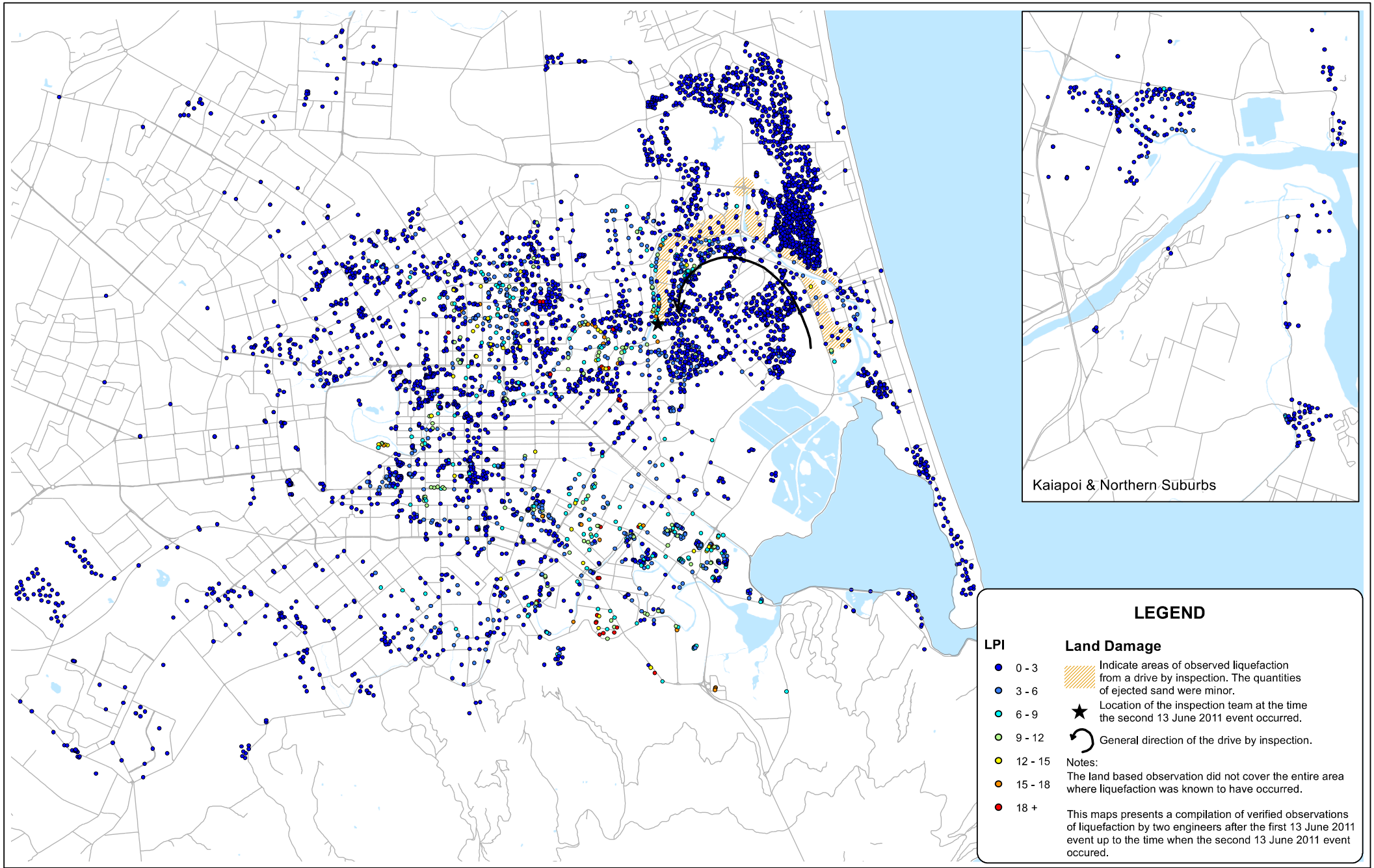
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN186	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, June 2011
Event A (Using Cornell PGA)

FIGURE No. Figure F34 Rev. 0

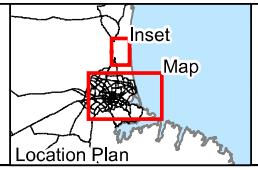
Date: 5/03/2013 Time: 9:00:50 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



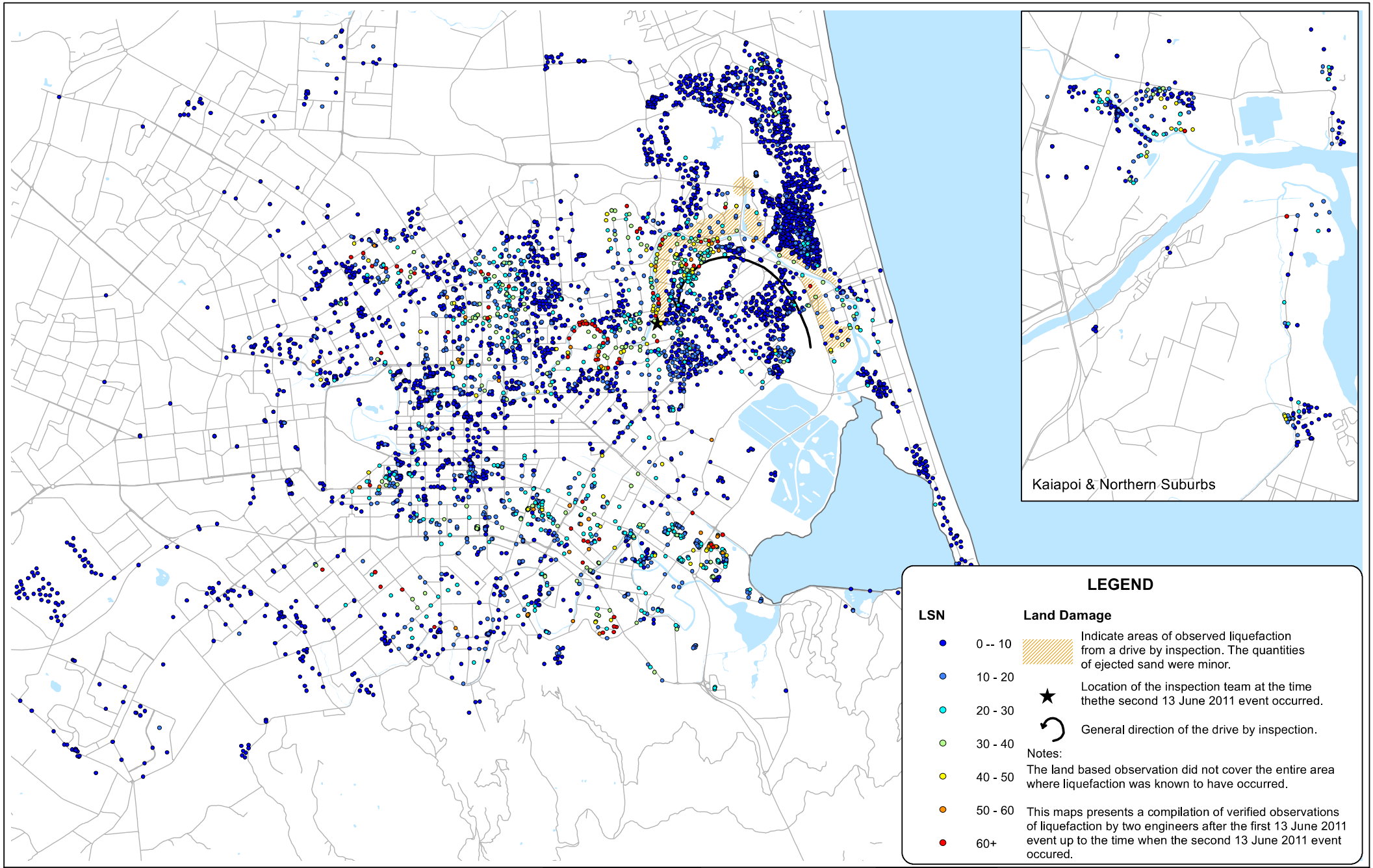
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JEL	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN199	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, June 2011 Event A
(Using Cornell PGA)

FIGURE No. Figure F35 Rev. 0

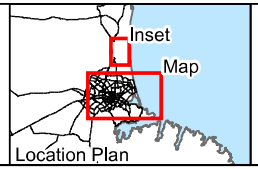
Date: 5/03/2013 Time: 11:32:14 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

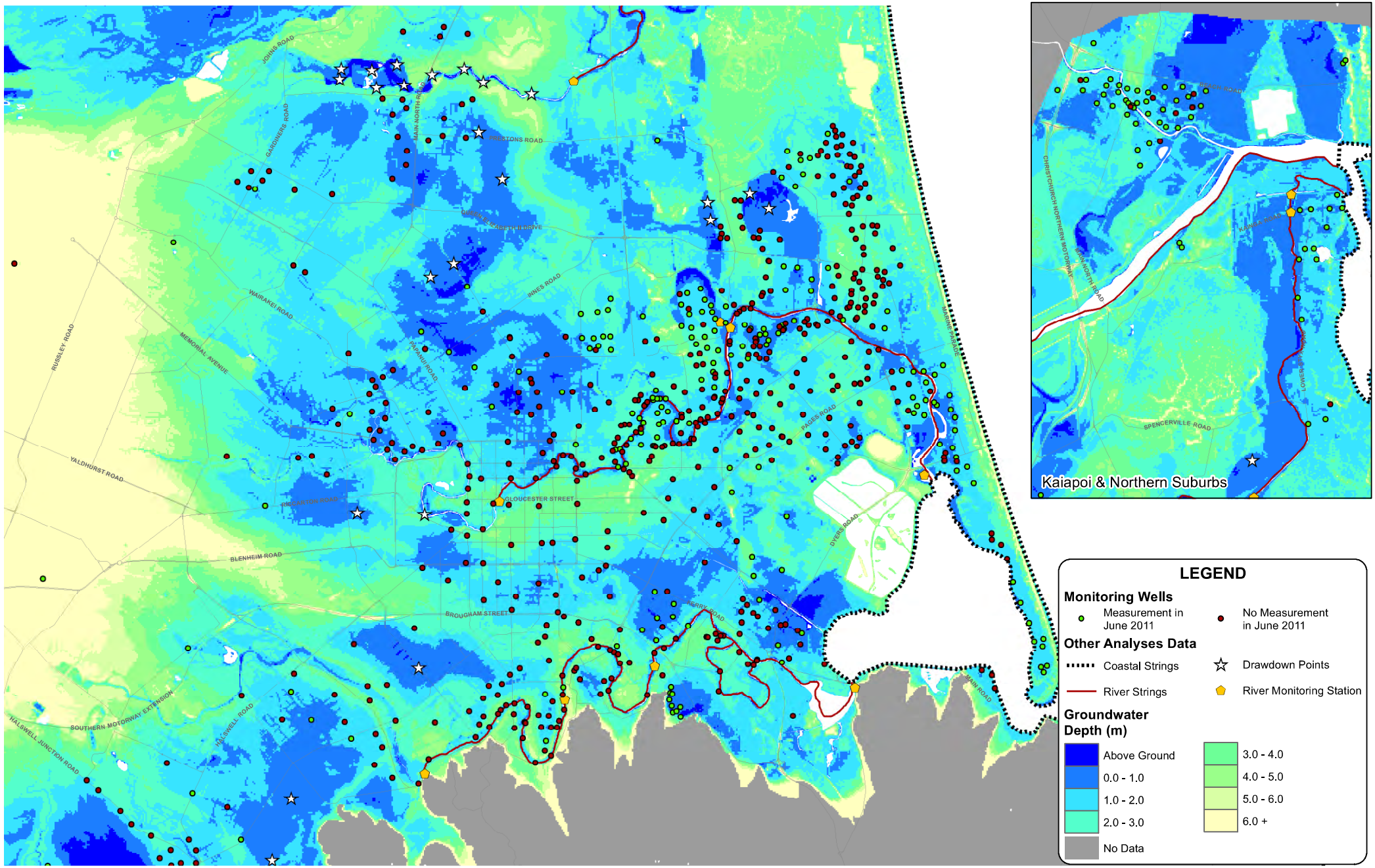
DRAWN	CXP	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN180	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, June 2011 Event A
(Using Cornell PGA)

FIGURE No. Figure F36 Rev. 0

Date: 27/02/2013 Time: 12:43:17 p.m.

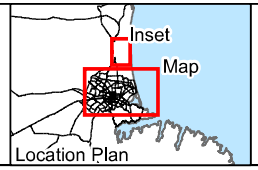
June 2011 Event **A & B** combined



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



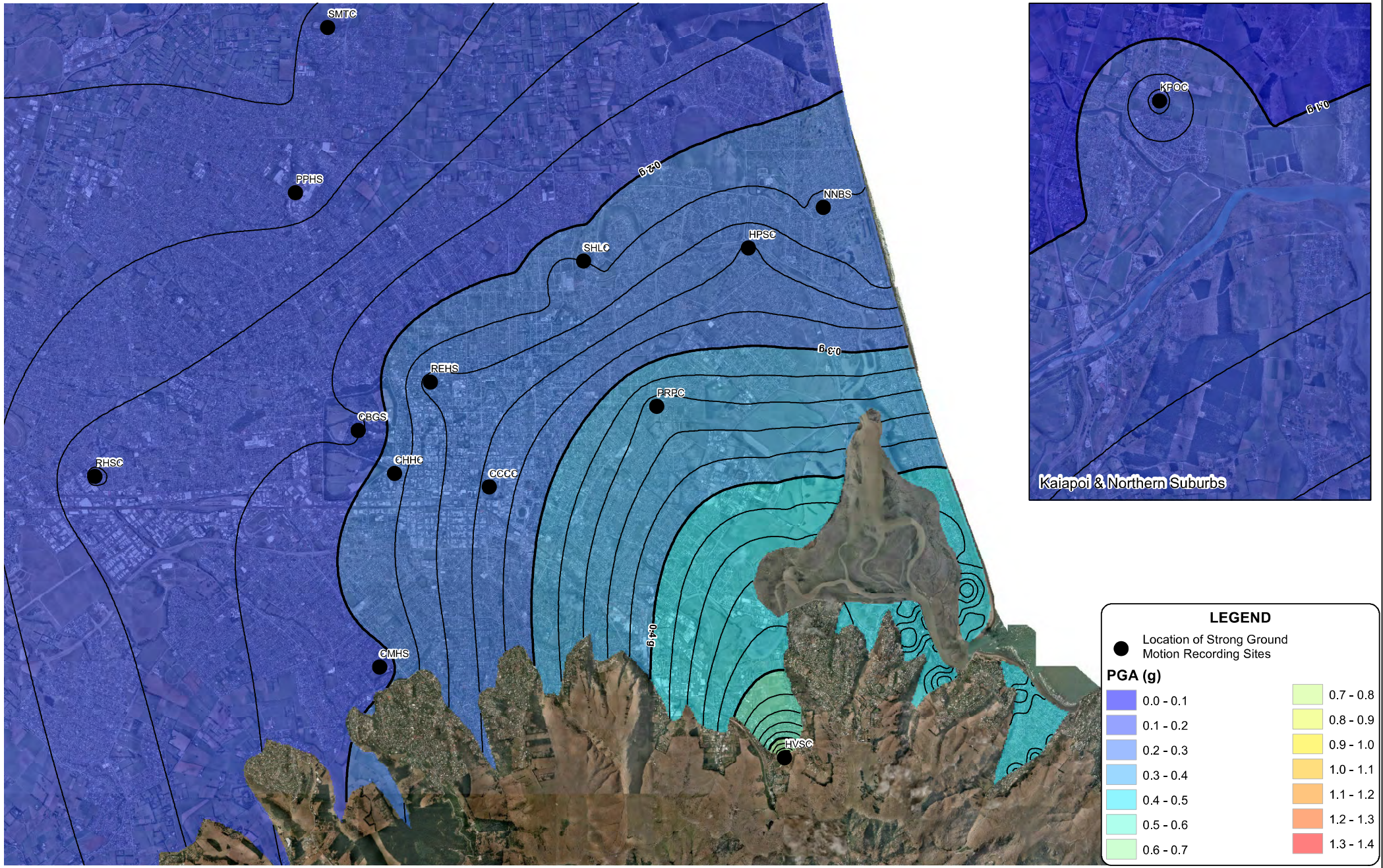
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JEL	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-GWM09	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Depth to Groundwater 25m Grid (June 2011)

FIGURE No. Figure F37 Rev.

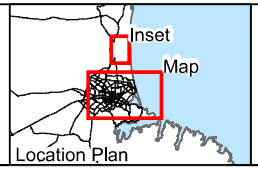
Date: 26/02/2013 Time: 4:36:55 p.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA Contours produced from grid supplied by University of Canterbury.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JSD	Feb.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-PGA23	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

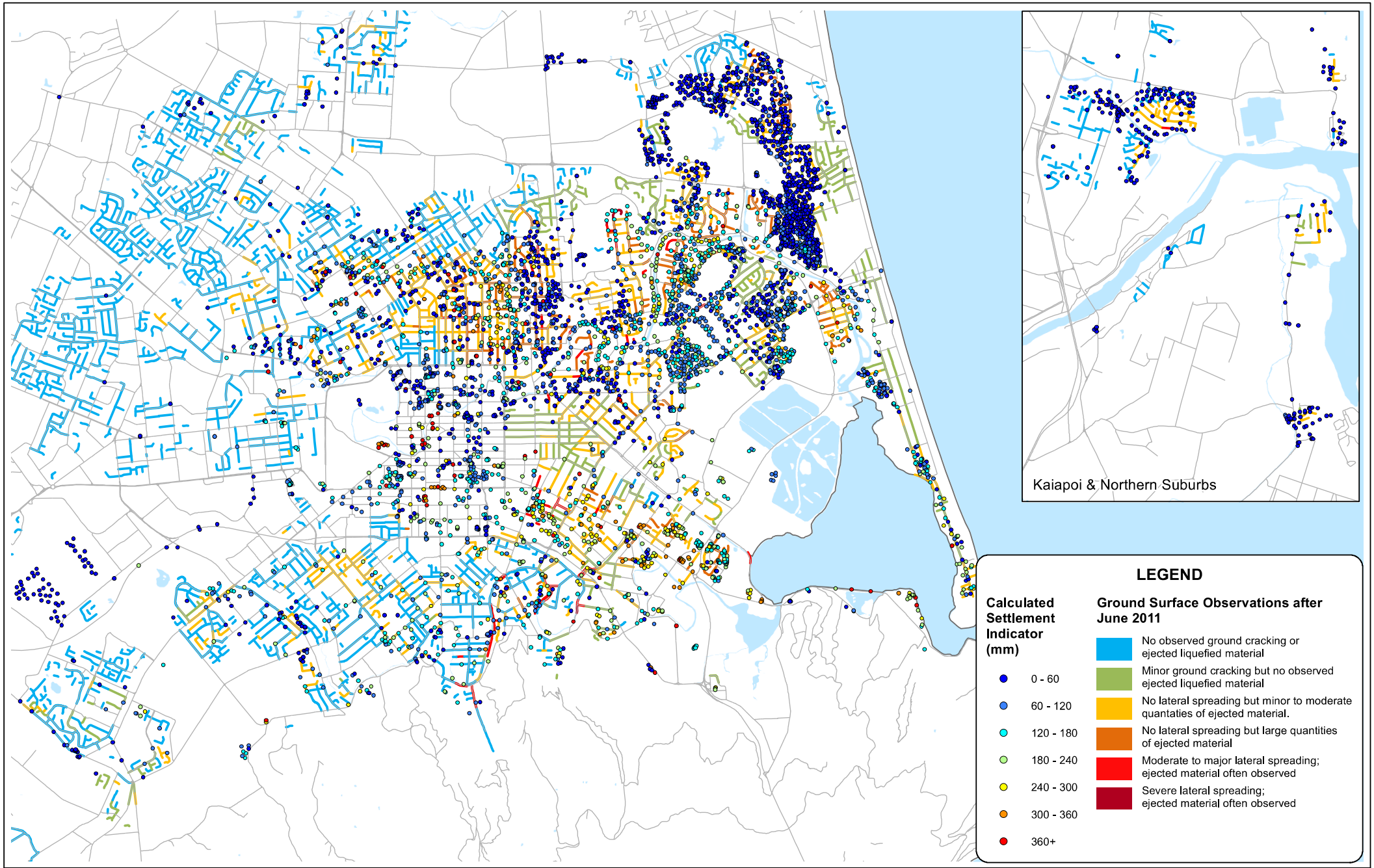
EARTHQUAKE COMMISSION

CHRISTCHURCH CITY & KAIAPOI

Contours of Horizontal Geometric Mean PGA (UoC, Jun 2011 Max of Event A & B)

FIGURE No. Figure F38 Rev. 0

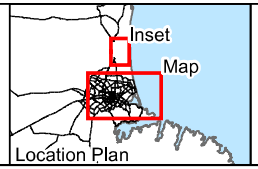
Date: 25/02/2013 Time: 9:50:38 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



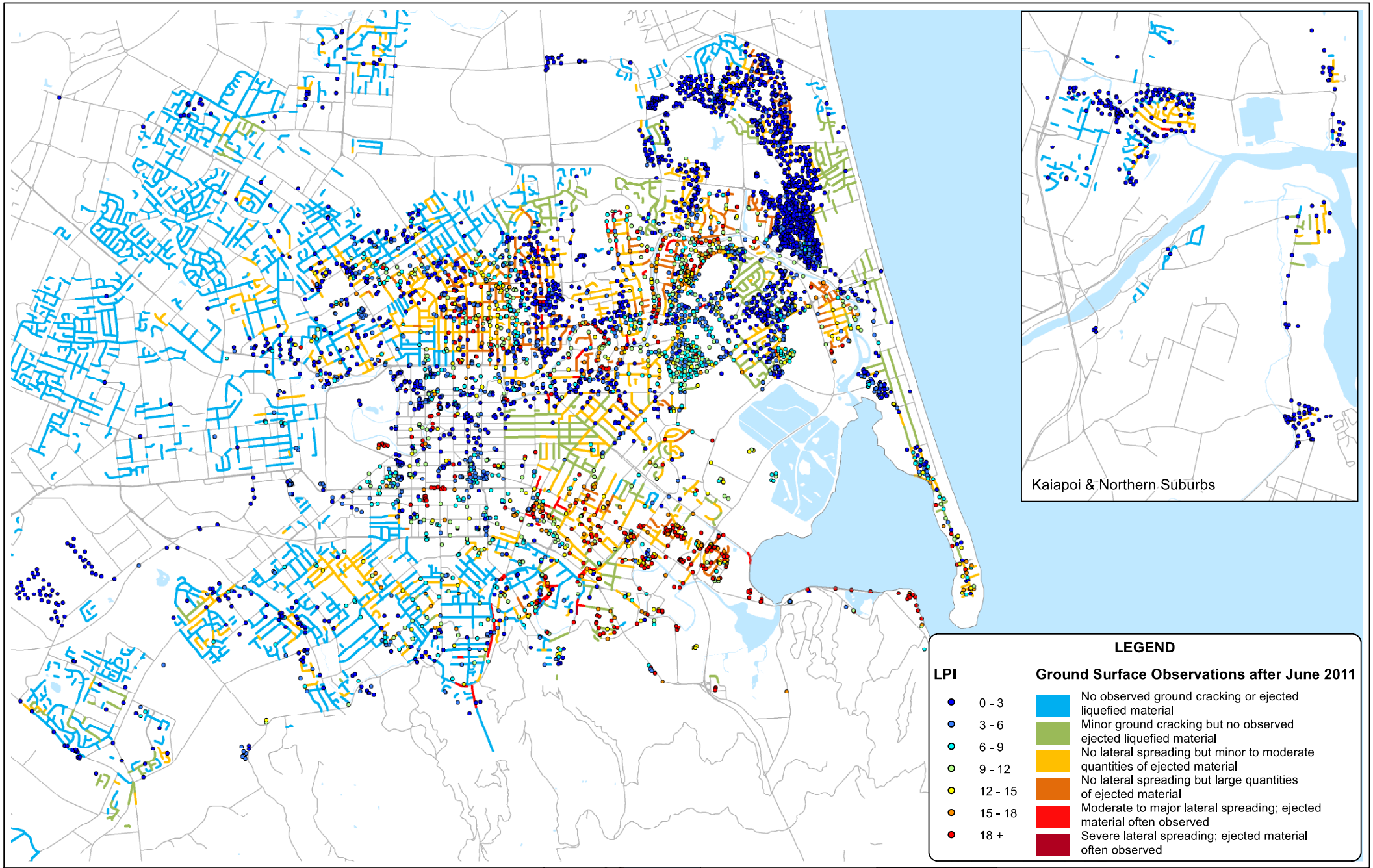
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN114	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52000.200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, June 2011 (Using UoC PGA)

FIGURE No. Figure F39 Rev. 0

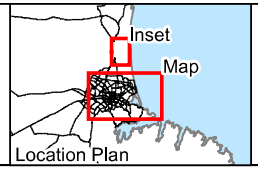
Date: 28/02/2013 Time: 10:45:24 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



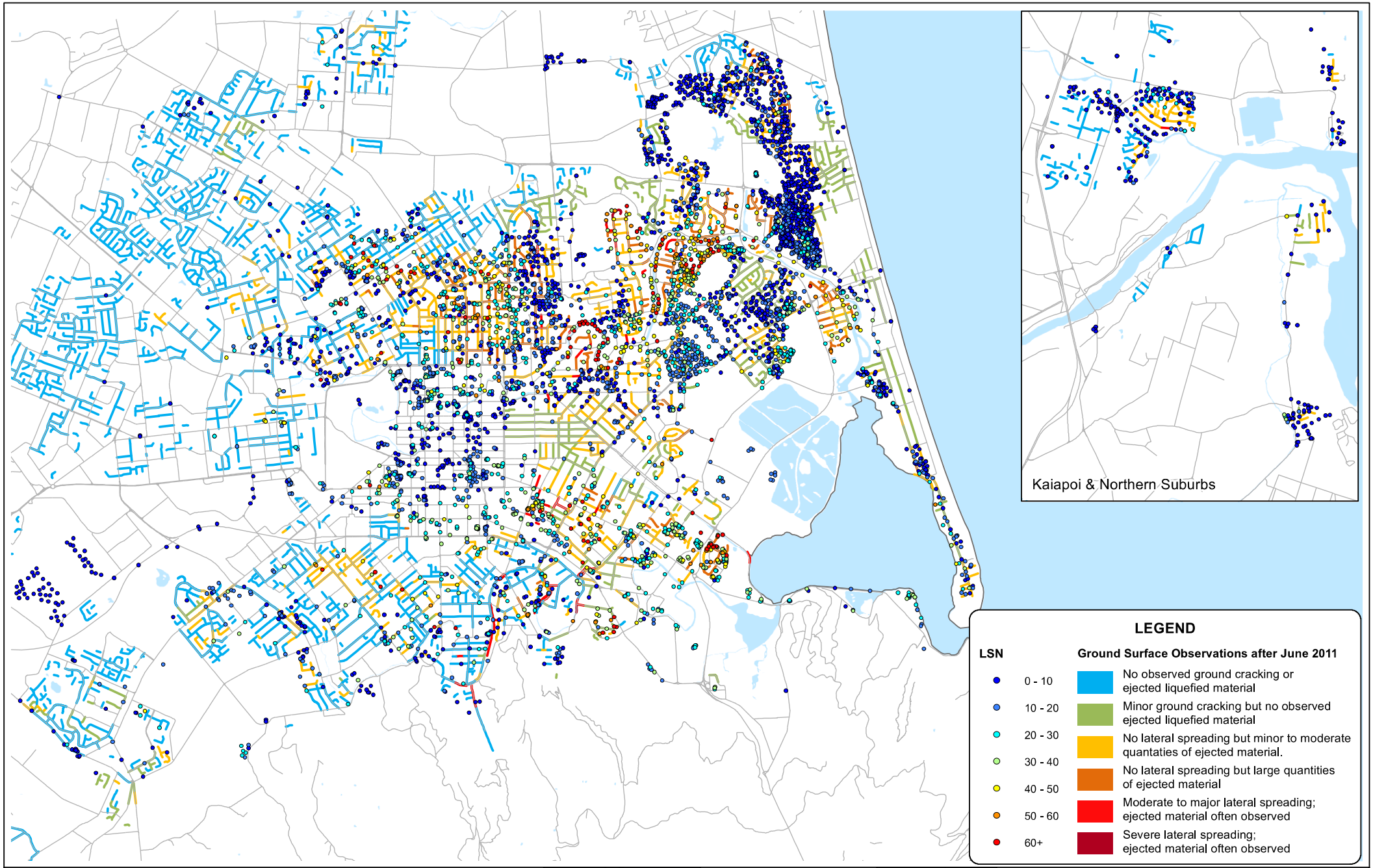
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN233	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, June 2011
(Using UoC PGA)

FIGURE No. Figure F40 Rev. 0

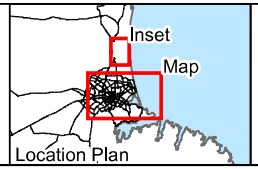
Date: 5/03/2013 Time: 10:10:47 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

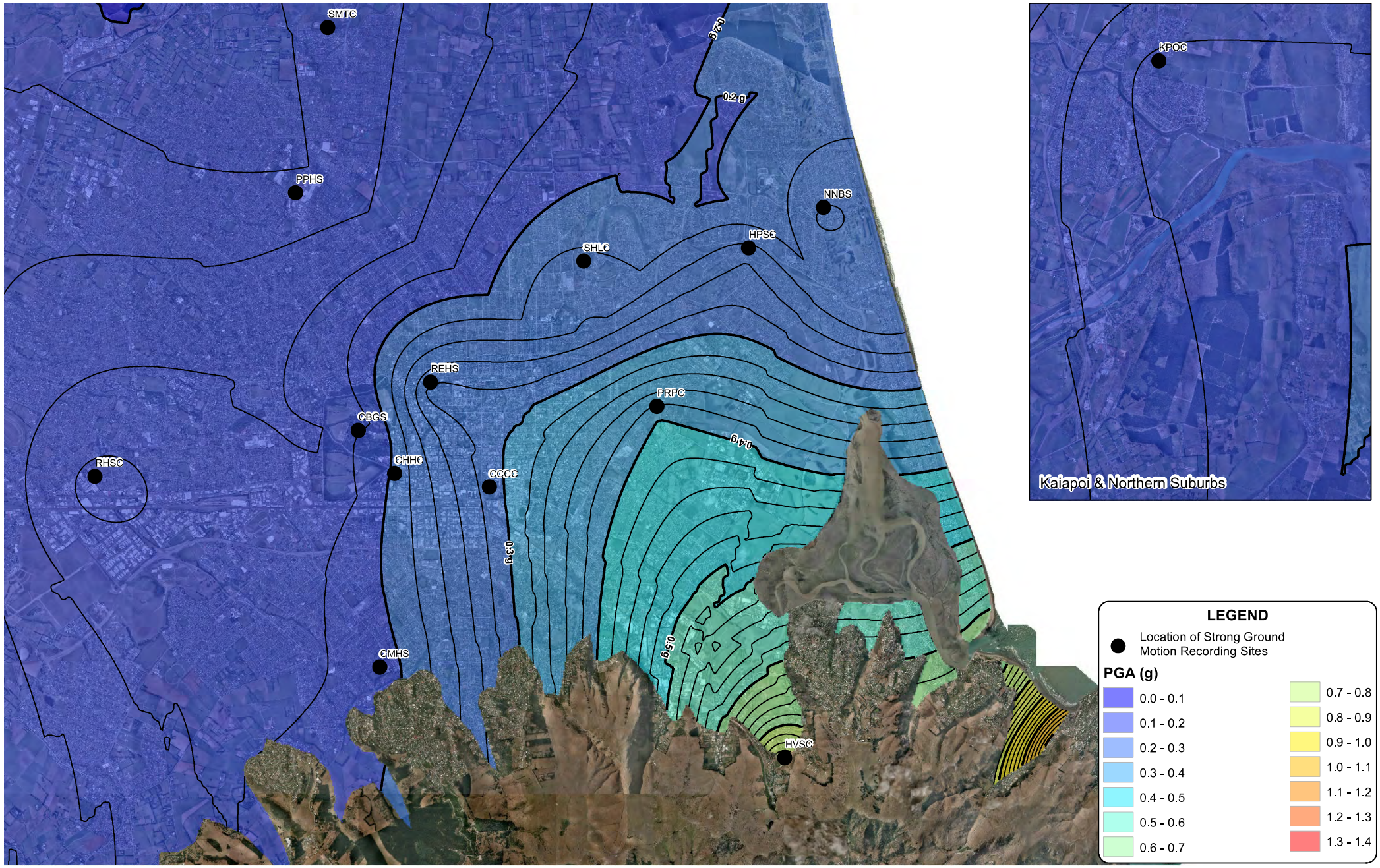
DRAWN	CXP	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN115	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52000.200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, June 2011
(Using UoC PGA)

FIGURE No. Figure F41

Rev. 0

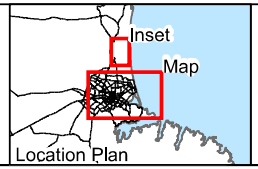
Date: 27/02/2013 Time: 12:40:39 p.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA values supplied by Cornell University.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

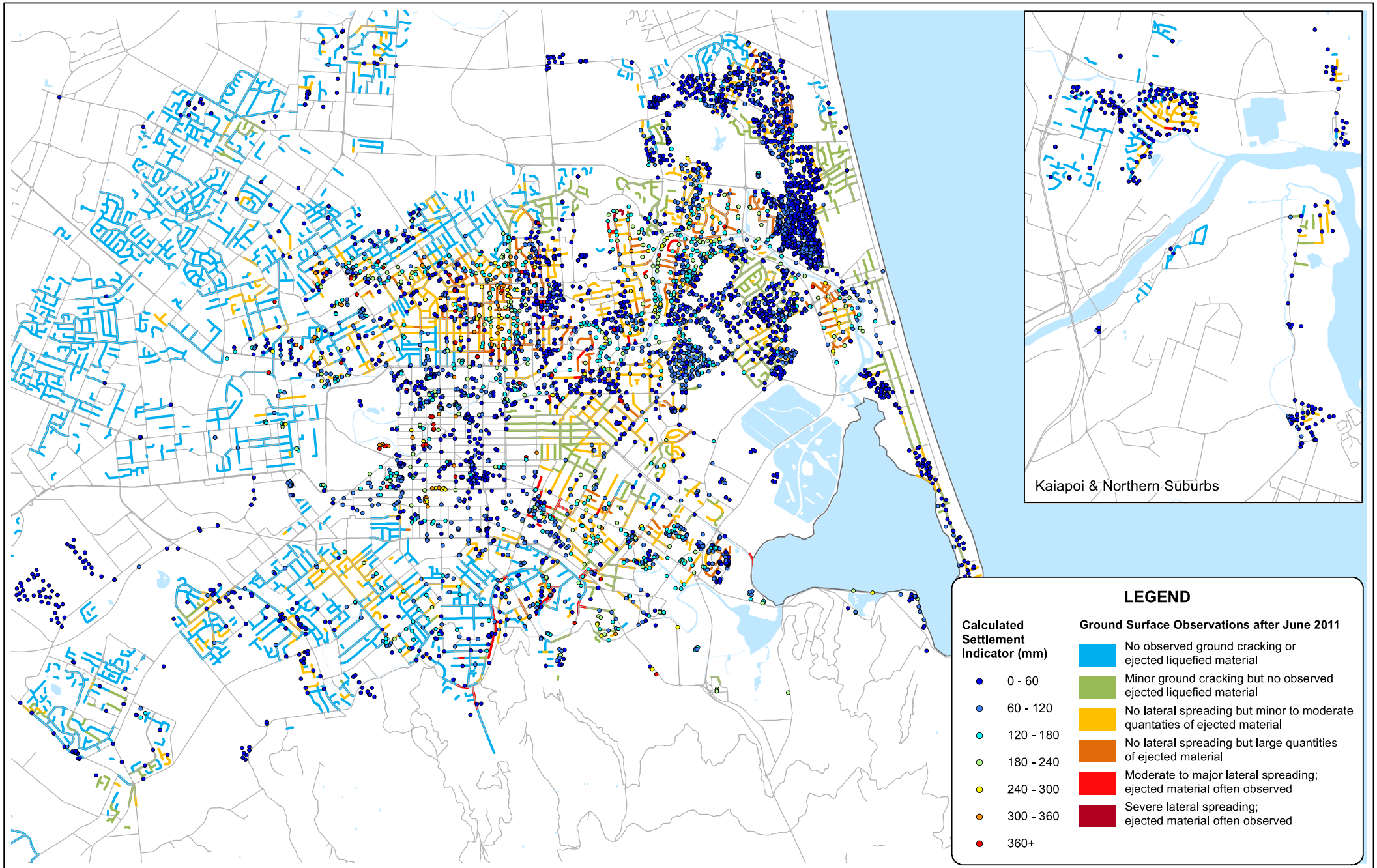
DRAWN	JSD	Feb.13
CHECKED		
APPROVED		

ARCFILE 52020-0200-PGA24
SCALE (AT A3 SIZE) 1:60,000
Prepared by Tonkin & Taylor Ltd
Ref 52020-0200

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Contours of Horizontal Geometric Mean PGA (Cornell, June 2011 Max of Events A & B)

FIGURE No. Figure F42 Rev. 0

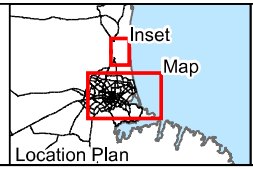
Date: 25/02/2013 Time: 10:41:23 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



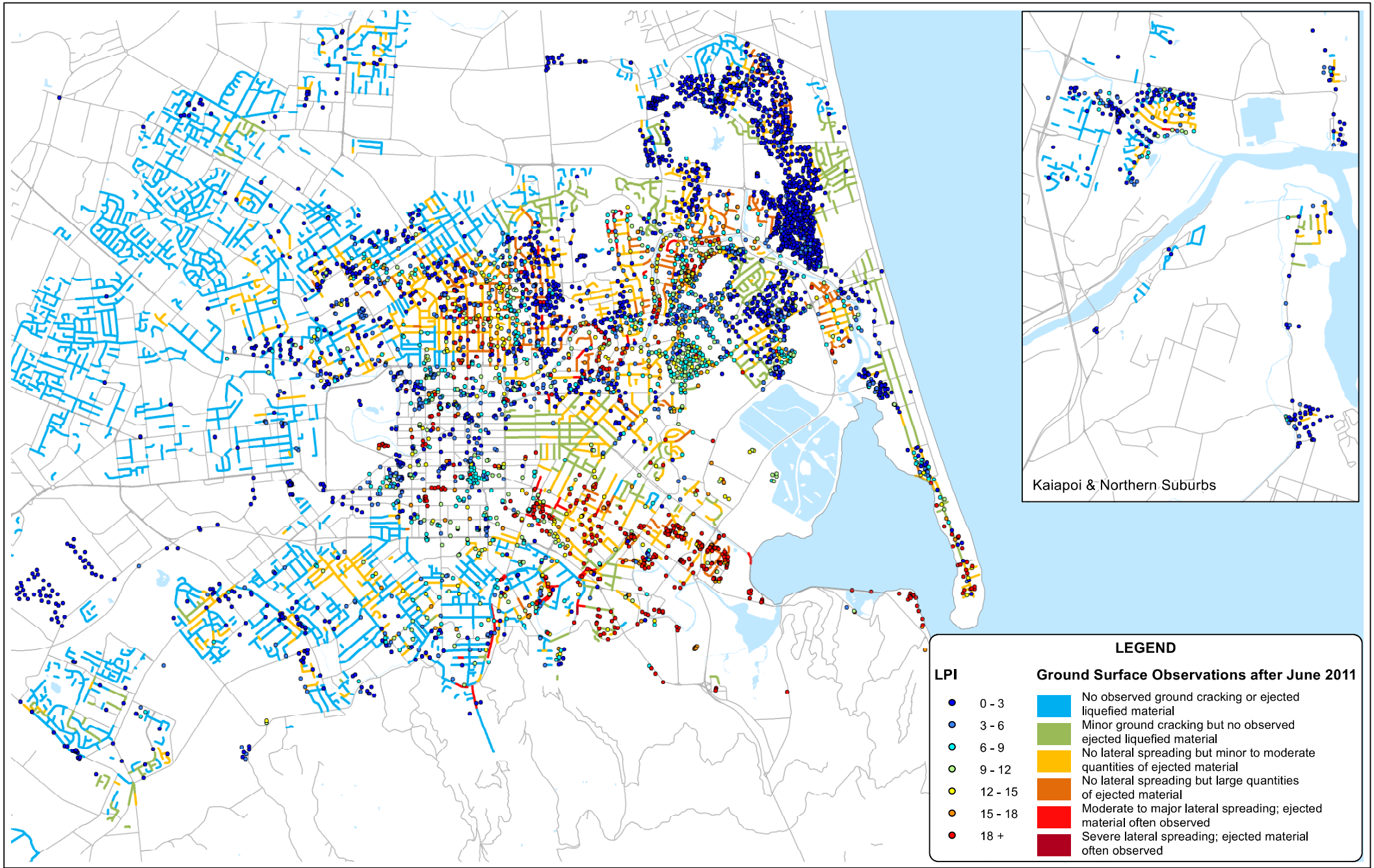
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN174	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52000.200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, June 2011 (Using Cornell PGA)

FIGURE No. Figure F43 Rev. 0

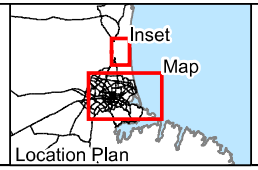
Date: 5/03/2013 Time: 10:22:41 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



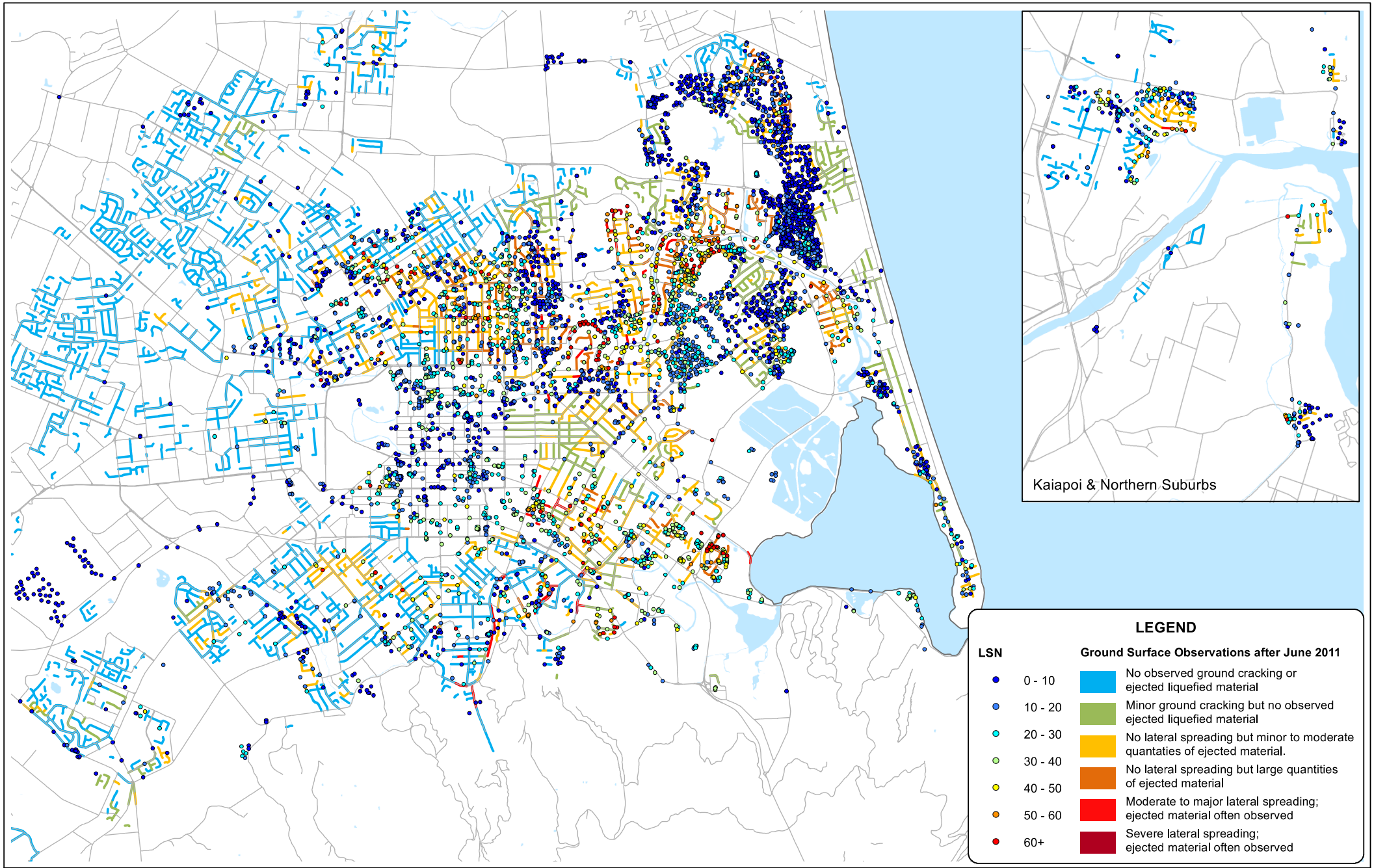
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN234	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, June 2011
(Using Cornell PGA)

FIGURE No. Figure F44 Rev. 0

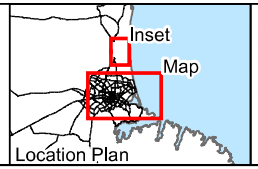
Date: 5/03/2013 Time: 10:08:45 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

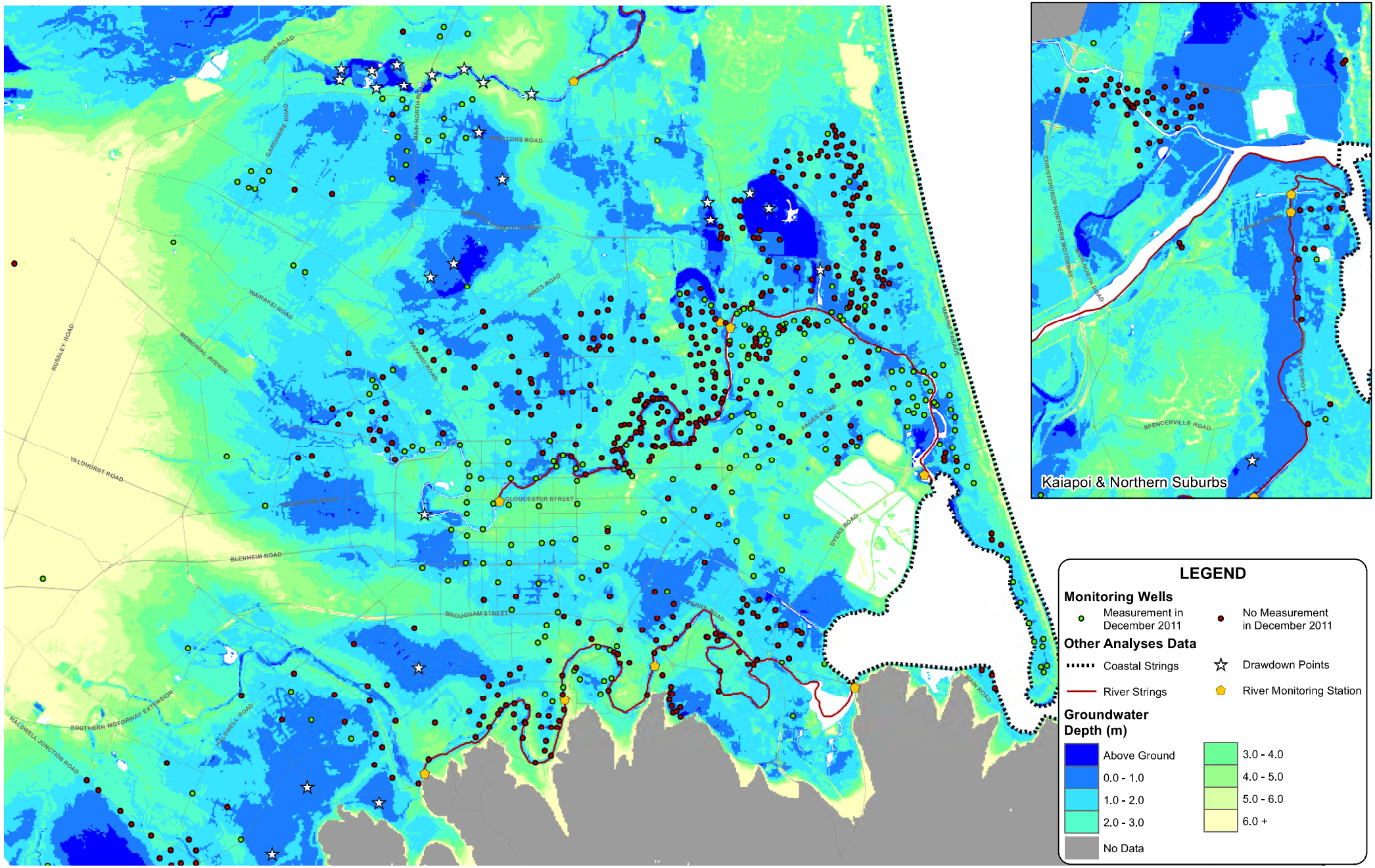
DRAWN	CXP	Feb,13	
CHECKED			
APPROVED			
ARCFILE	52020-0200-LSN164		
SCALE (AT A3 SIZE)	1:60,000		
PROJECT No.	52000.200		

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, June 2011
(Using Cornell PGA)

FIGURE No. Figure F45 Rev. 0

Date: 26/02/2013 Time: 5:09:12 p.m.

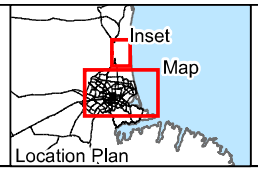
December 2011 Event **A & B** combined



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



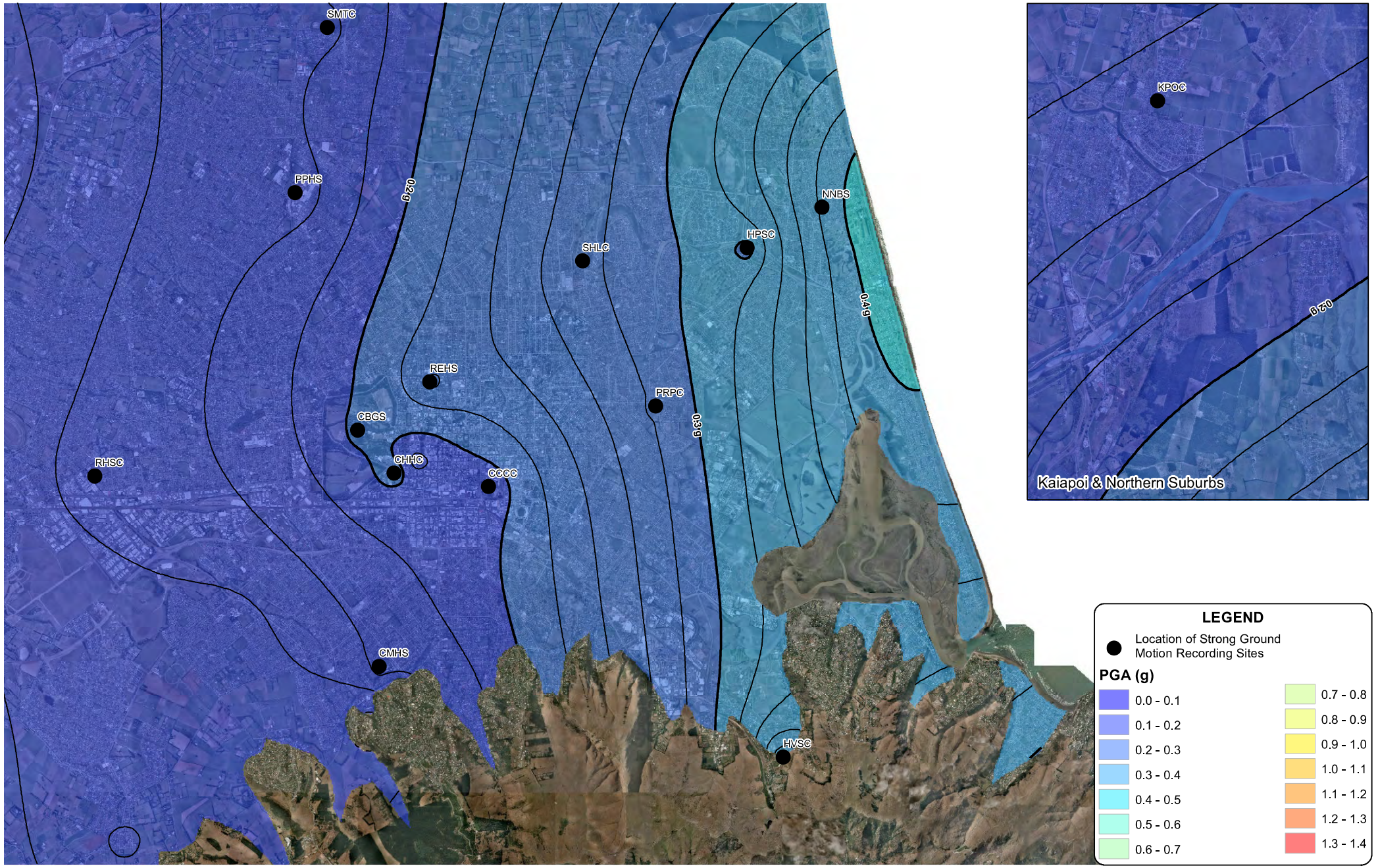
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JEL	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-GWM14	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Depth to Groundwater 25m Grid (December 2011)

FIGURE No. Figure F46 Rev.

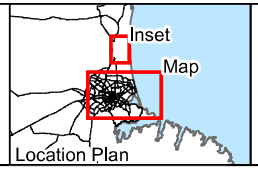
Date: 26/02/2013 Time: 4:40:07 p.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA Contours produced from grid supplied by University of Canterbury.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC
EARTHQUAKE COMMISSION
Kōmihana Rūwhenua

DRAWN	JSD	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-PGA22	
SCALE (AT A3 SIZE)	1:60,000	
PROJECT No.	52020-0200	

EARTHQUAKE COMMISSION

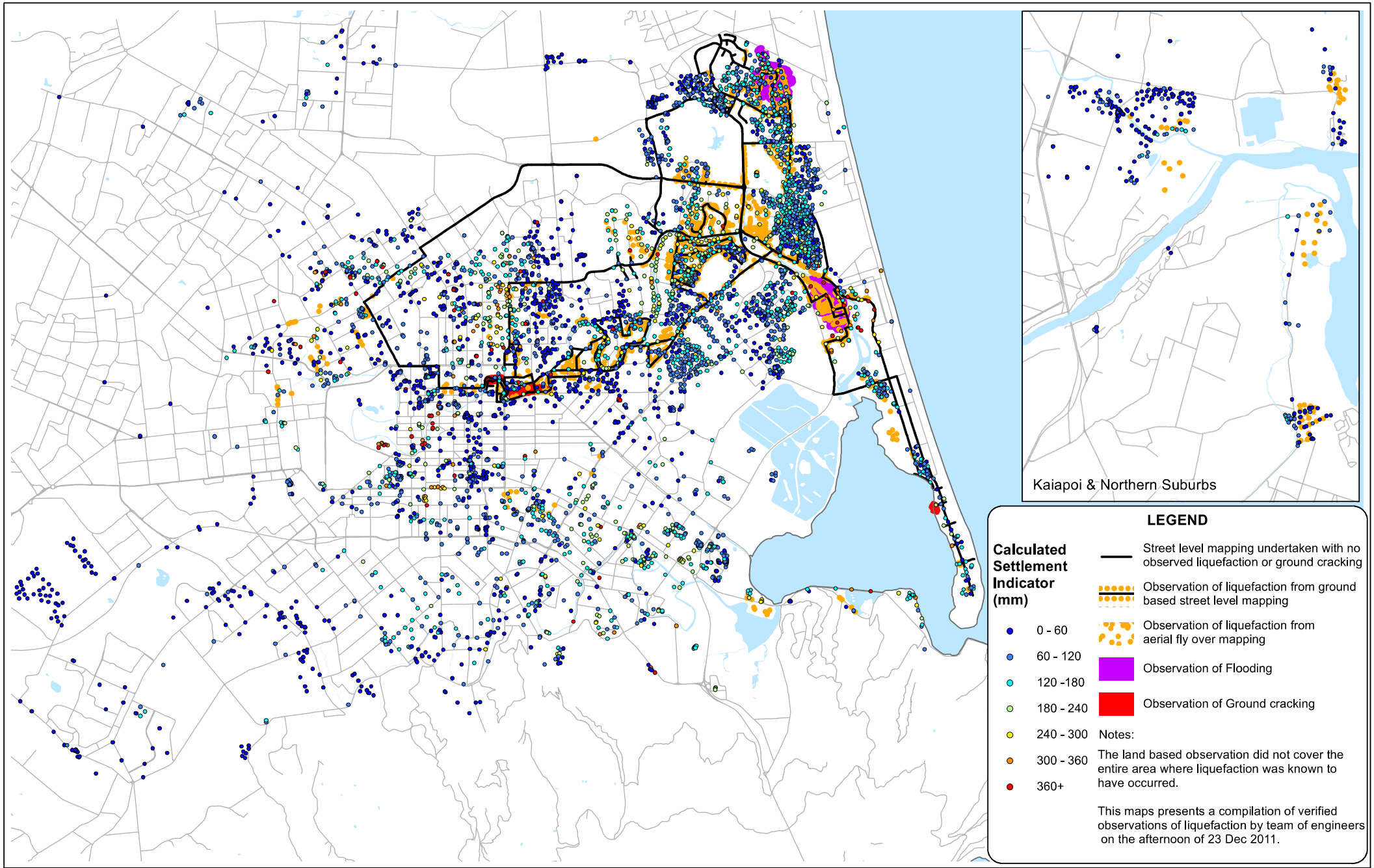
CHRISTCHURCH CITY & KAIAPOI

Contours of Horizontal Geometric Mean PGA (UoC, Dec 2011 Max of Event A & B)

FIGURE No. Figure F47

Rev. 0

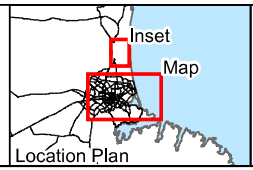
Date: 26/02/2013 Time: 12:00:19 p.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



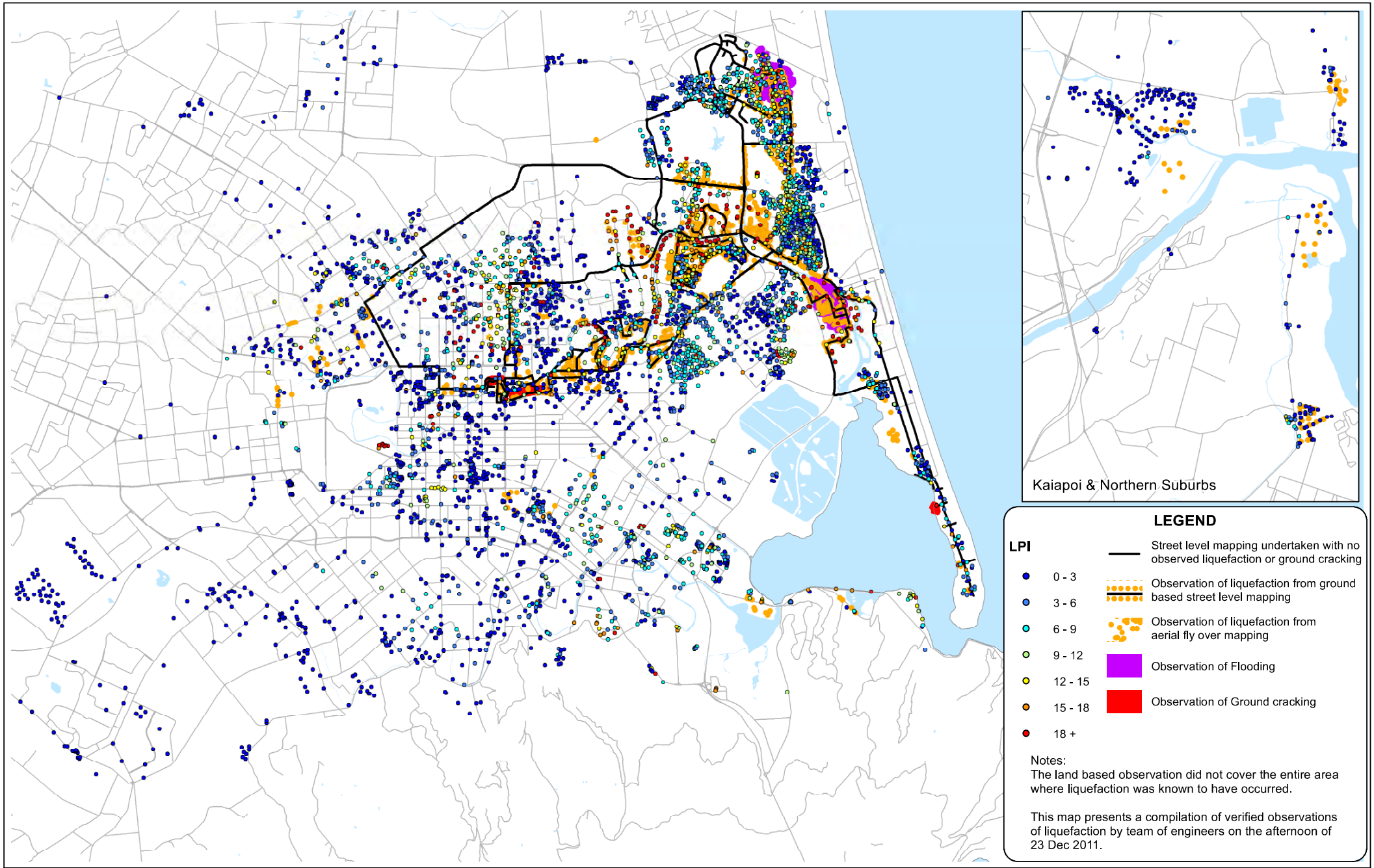
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN171	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, December 2011 (Using UoC PGA)

FIGURE No. Figure F48 Rev. 0

Date: 28/02/2013 Time: 8:26:22 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)

Location Plan: Inset, Map

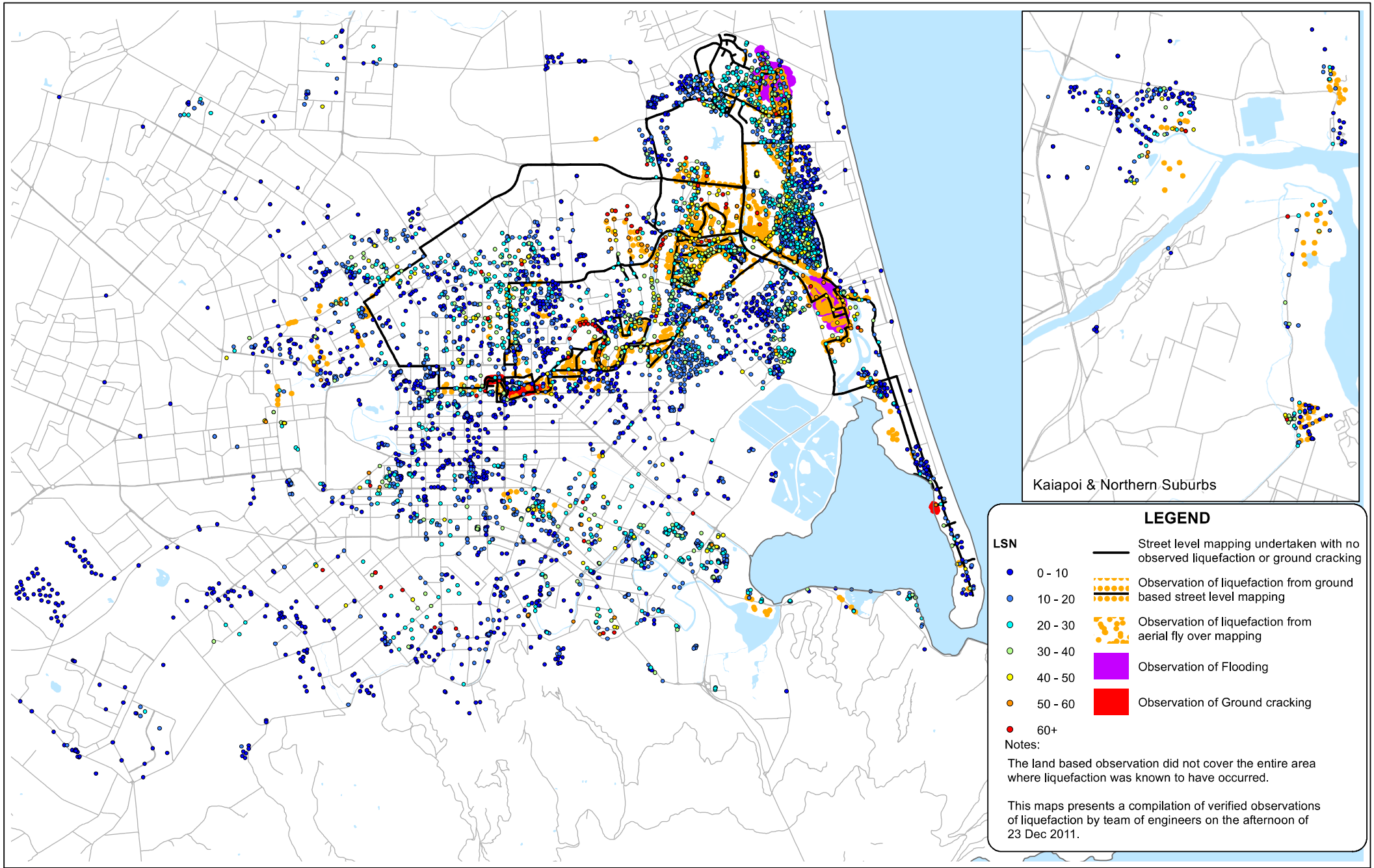
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN235	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, December 2011
(Using UoC PGA)

FIGURE No. Figure F49 Rev. 0

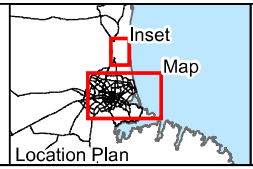
Date: 4/03/2013 Time: 5:44:24 p.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



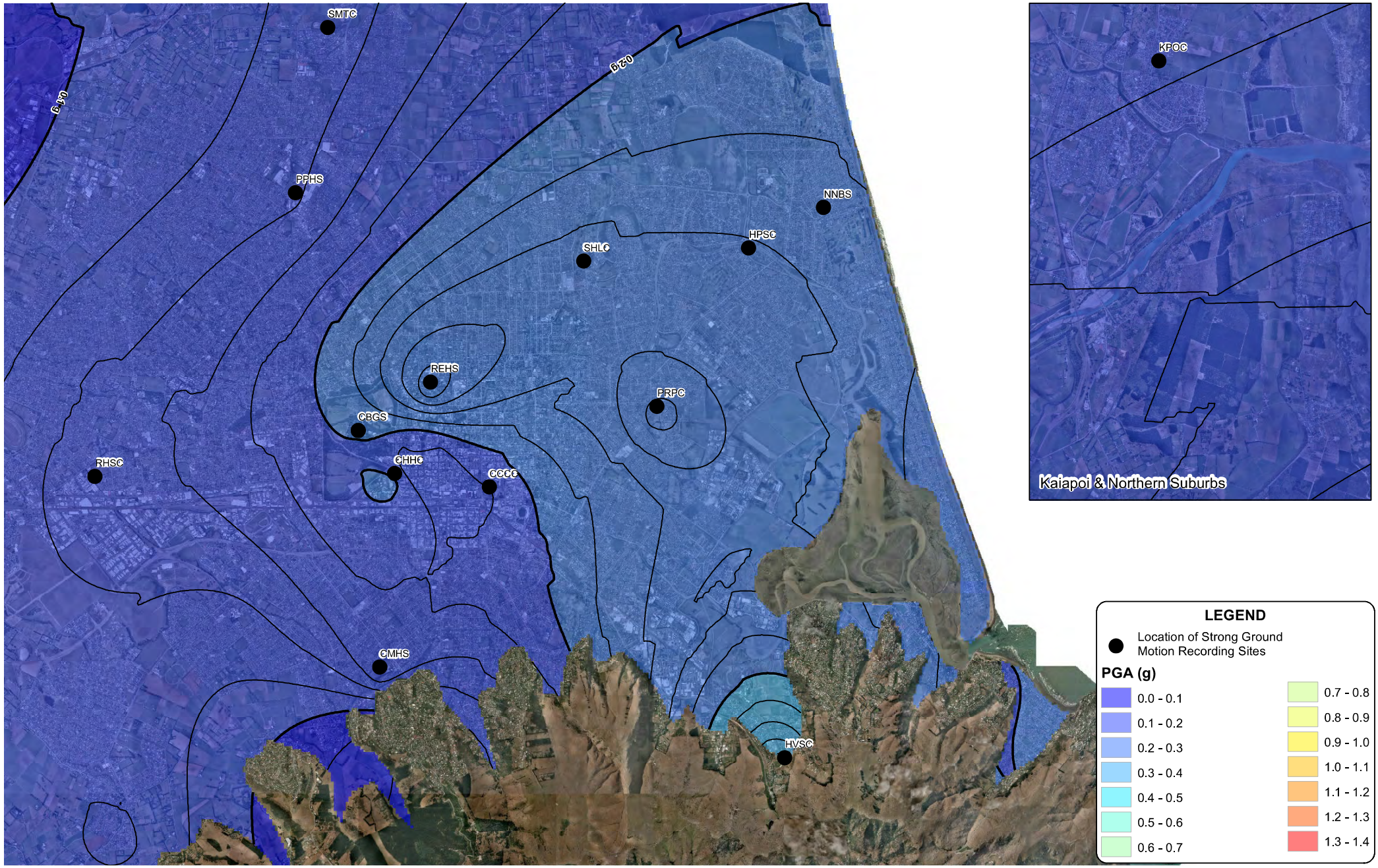
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Feb,13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN165	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, December 2011
(Using UoC PGA)

FIGURE No. Figure F50 Rev. 0

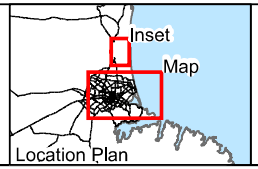
Date: 27/02/2013 Time: 12:20:40 p.m.



Notes: Aerial Imagery supplied by New Zealand Aerial Mapping ltd.
PGA values supplied by Cornell University.

A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	JSD	Feb.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-PGA10	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref	52020-0200	

EARTHQUAKE COMMISSION

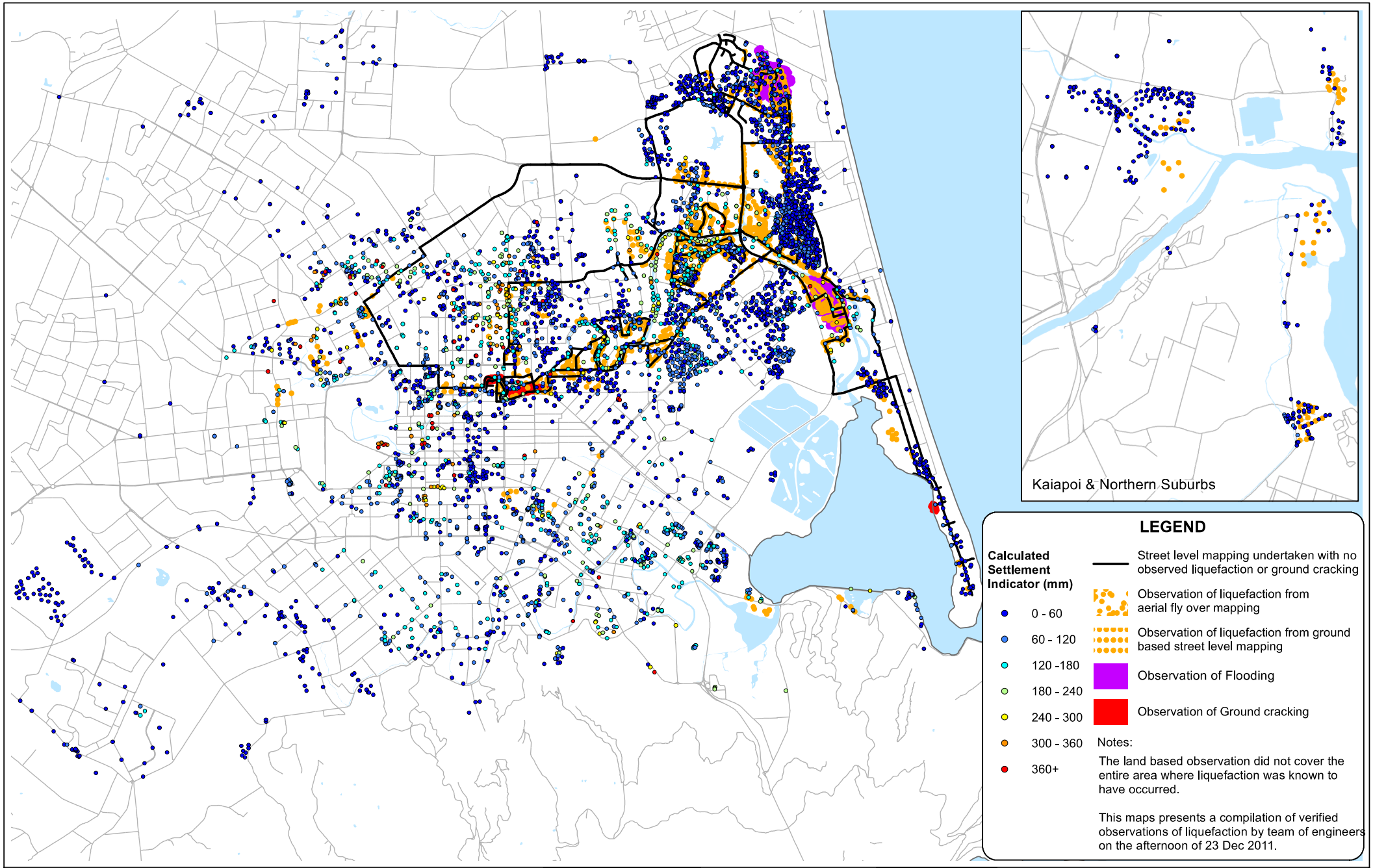
CHRISTCHURCH CITY & KAIAPOI

Contours of Horizontal Geometric Mean PGA (Cornell, Decemeber 2011 Max of Events A & B)

FIGURE No. Figure F51

Rev. 0

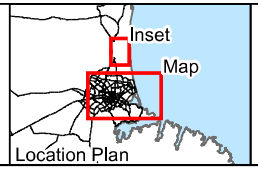
Date: 25/02/2013 Time: 9:51:02 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



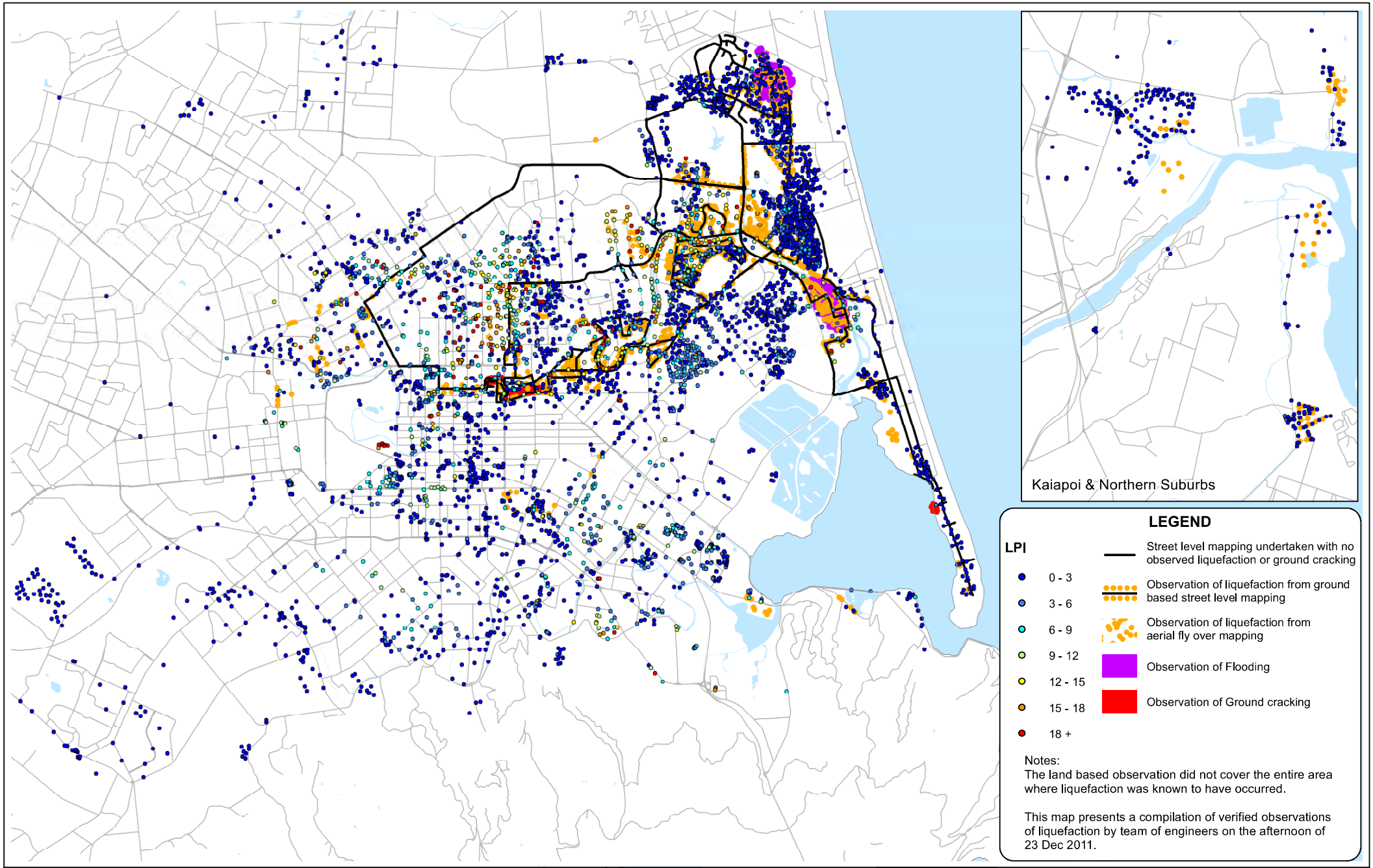
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN175	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd Ref:	52020.0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
Calculated Settlement Indicator, December 2011 (Using Cornell PGA)

FIGURE No. Figure F52 Rev. 0

Date: 5/03/2013 Time: 11:54:21 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)

Inset Map

Location Plan

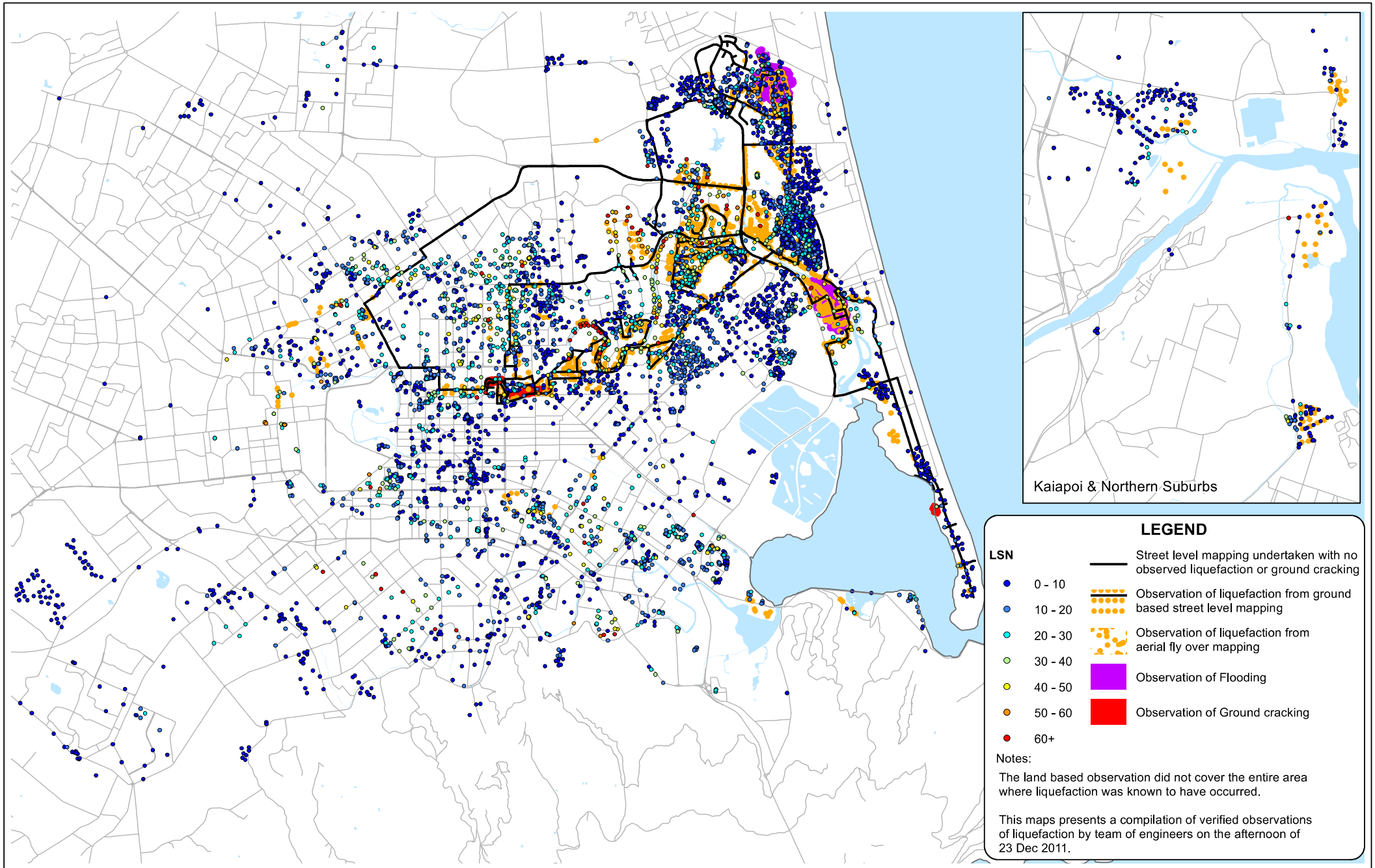
EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Mar.13
CHECKED		
APPROVED		
ARCFILE	52020-0200-LSN236	
SCALE (AT A3 SIZE)	1:60,000	
Prepared by Tonkin & Taylor Ltd. Ref:	52020-0200	

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LPI, December 2011
(Using Cornell PGA)

FIGURE No. Figure F53 Rev. 0

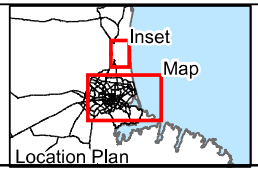
Date: 5/03/2013 Time: 10:43:51 a.m.



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A3 SCALE 1:60,000

0 1 2 3 4 (km)



EQC EARTHQUAKE COMMISSION Kōmihana Rūwhenua

DRAWN	CXP	Feb.13
CHECKED		
APPROVED		

ARCFILE 52020-0200-LSN169

SCALE (AT A3 SIZE) 1:60,000

Prepared by Tonkin & Taylor Ltd Ref: 52020.0200

EARTHQUAKE COMMISSION
CHRISTCHURCH CITY & KAIAPOI
LSN, December 2011
(Using Cornell PGA)

FIGURE No. Figure F54

Rev. 0

Date: 27/02/2013 Time: 7:56:05 a.m.