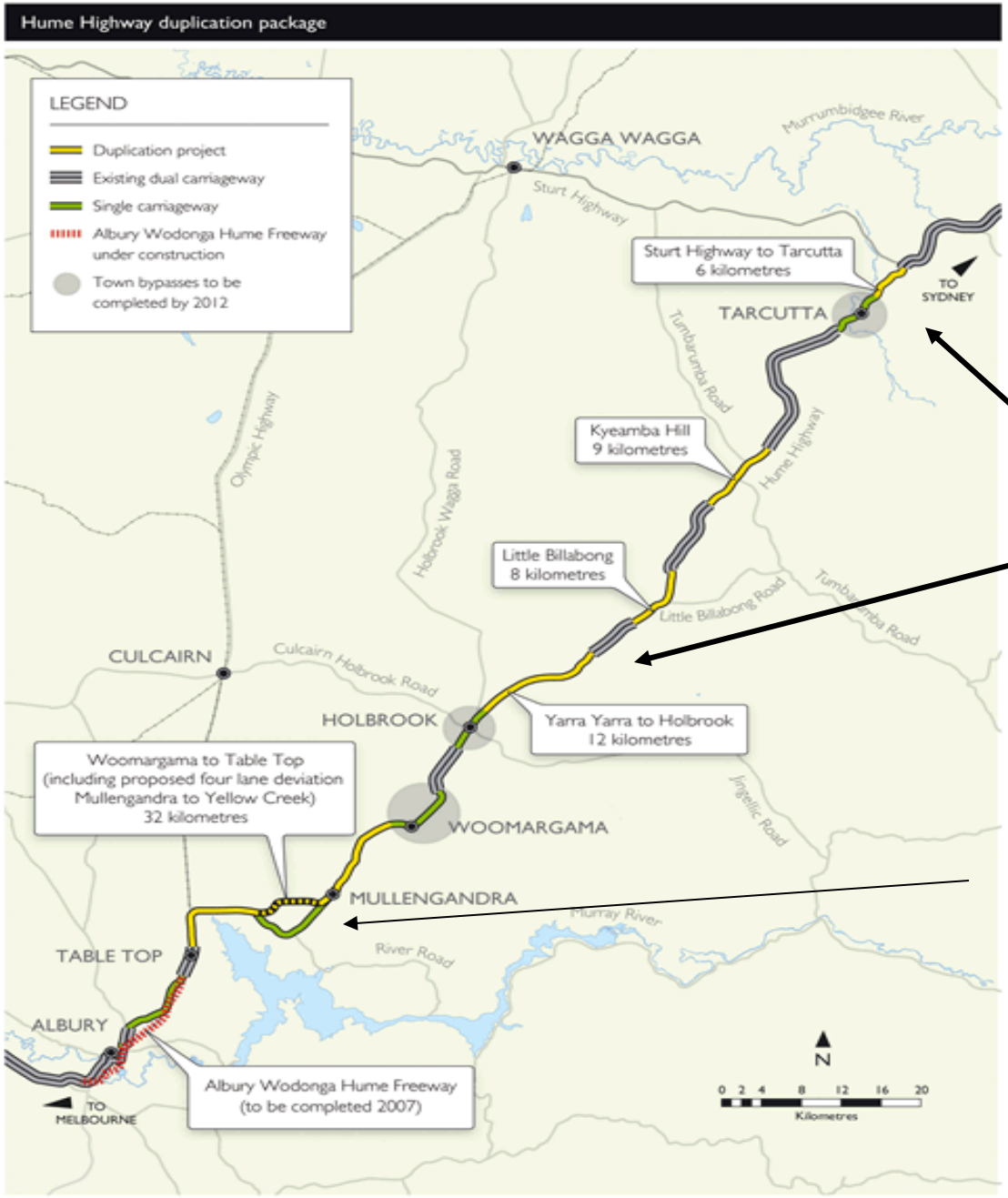
HUME HIGHWAY

Background Presentation for Coffey Lane Cove

13 – 14 July 2009



Northern Hume Alliance

Southern Hume Alliance

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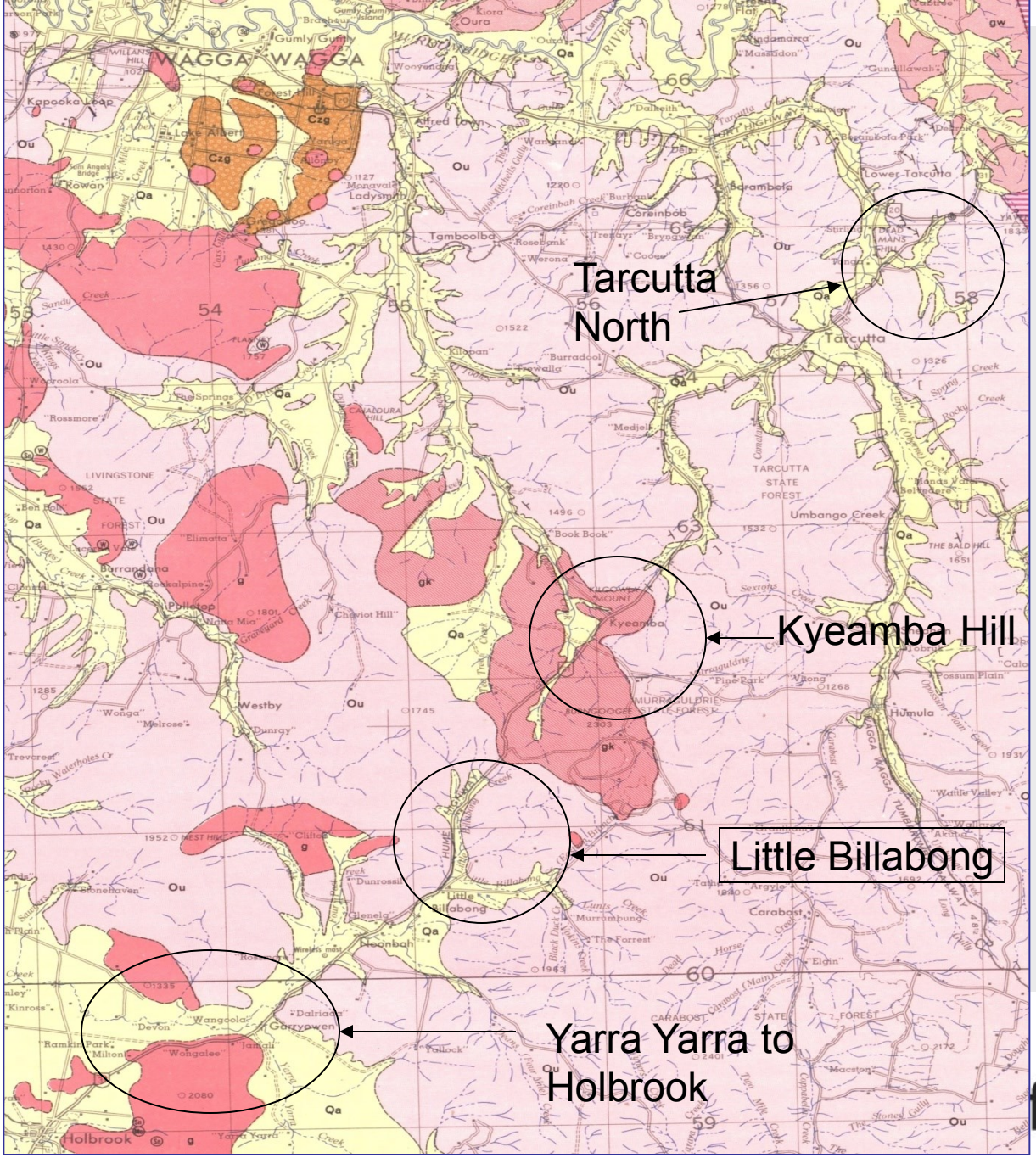
Project Background

- Four sections totalling 35km over a length of 85km.
- **N1 - Sturt Highway to Tarcutta** - 4.7 km [36.7km south of Gundagai]
- **N2 - Kyeamba Hill** - 11.3 km [66.3km south of Gundagai]
- **N3 - Little Billabong** - 8.7 km [84.5km south of Gundagai]
- **N4 - Yarra Yarra to Holbrook** - 11.4 km [98.4km south of Gundagai]
- A duplication to be constructed with existing highway retained (original target). Road safety considerations resulted in some four lane sections and now some 45km on new carriageway is to be constructed.
- Existing highway infrastructure assessed for stability and pavement 10 year life.



Regional Geology

NHA – 4 Sections of Road Duplication including:

Tarcutta North
Kyeamba Hill
Little Billabong
Yarra Yarra
(Approx. 34km)

Sections commonly within rolling hills (metasediments and granite) and low lying colluvium and alluvium

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Section N1
Tarcutta North
(Metasediments)

Tarcutta North – N1 – 4.7km

- RTA decided on one new duplication and the existing highway retained as much as possible, where road safety permits.
- The northern end of the duplication commences at the end of the existing concrete dual carriageway.
- The southern extent is several km north of Tarcutta with a temporary pavement tie-in awaiting the proposed Tarcutta by-pass.
- The new northbound carriageway will be constructed along the western side of the existing highway along the entire length of the duplication.
- Duplication requires some local modifications to the alignment of Dellateroy Creek.

Section N2

Kyeamba Hill

(Granite)

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Kyeamba Hill – N2 – 11.3km

- RTA decided on a full, high speed duplication using as much of the existing highway as possible.
- Northern and southern ends connect to existing dual sections.
- Substantive works for the Lady Smith - Tumbarumba Road interchange.
- The proposed duplication comprises a mix of retained road, reconstructed existing carriageway, and new carriageways on the west or east sides of the existing highway.
- There are about ten creeks and drainage crossings requiring the construction of new culverts and /or the widening of existing culvert structures.


TOYOTA

Little Billabong – N3

COFFEY GEOTECHNICS

(metasediments)

Little Billabong – N3 – 8.5km

- RTA decided on a full, high speed duplication using as much of the existing highway as possible.
- The duplication will link existing dual highway sections north and south of Little Billabong.
- The new works (northbound) are mainly along western side of existing highway, with a new southbound section along the edge of the Little Billabong floodplain, east of the existing highway.


N4 Yarra
Yarra
(Metasediments and
Granite)

Yarra Yarra – N4 – 11.4km
(Granite)

- RTA decided on one new duplication and the existing highway retained as much as possible, where road safety permitted.
- The duplication commences at the southern end of the existing dual carriageway at ch.98400.
- The southern extent, several km north of Holbrook has a temporary pavement tie-in awaiting the completion of the proposed Holbrook Bypass.
- The proposed duplication will comprise a new southbound carriageway located on the east of the existing highway.
- The existing bridge crossing Yarra Yarra Creek will be replaced by two new bridges located up and down stream of the existing bridge.

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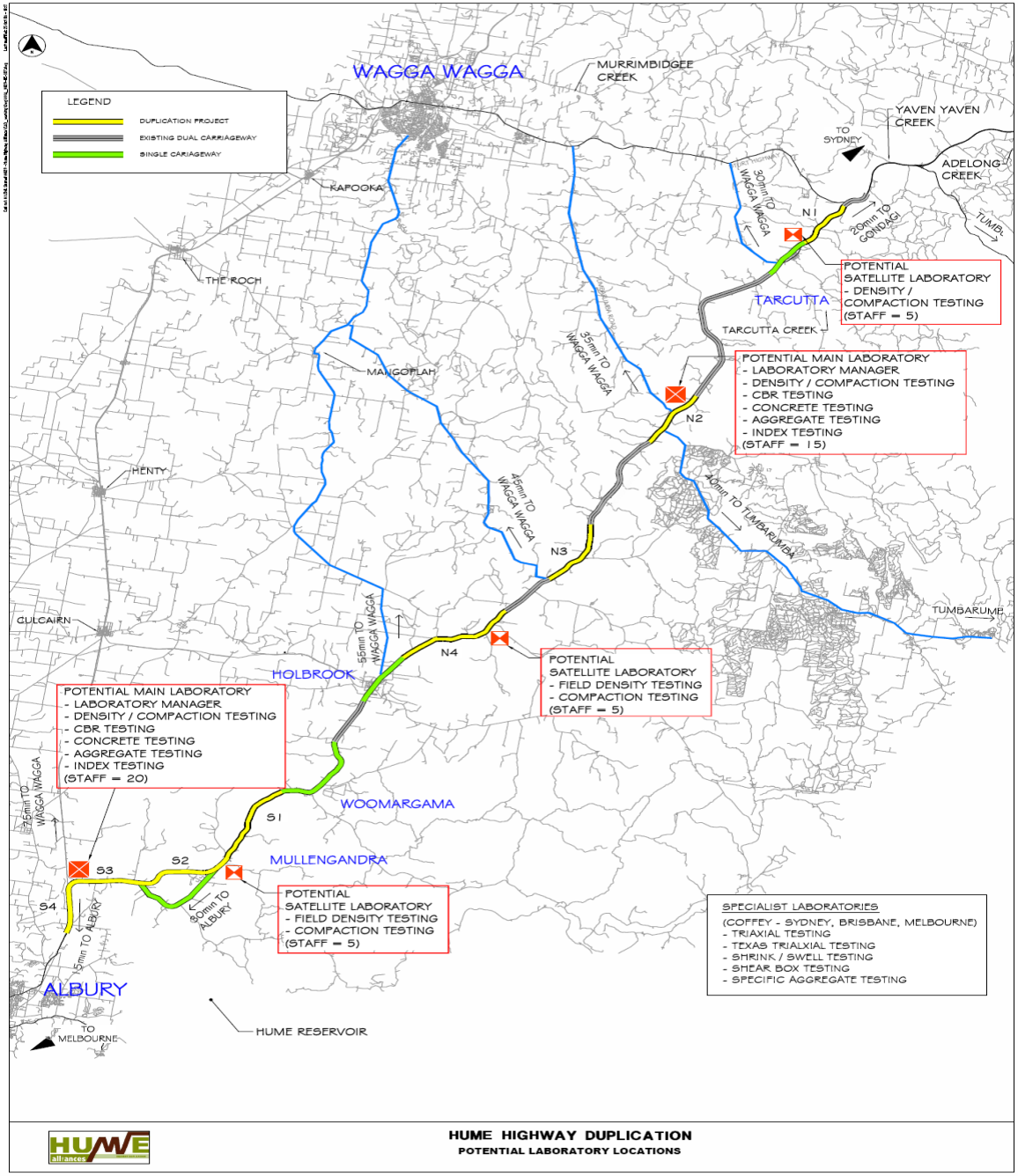
YARRA YARRA CK



Testing Laboratories

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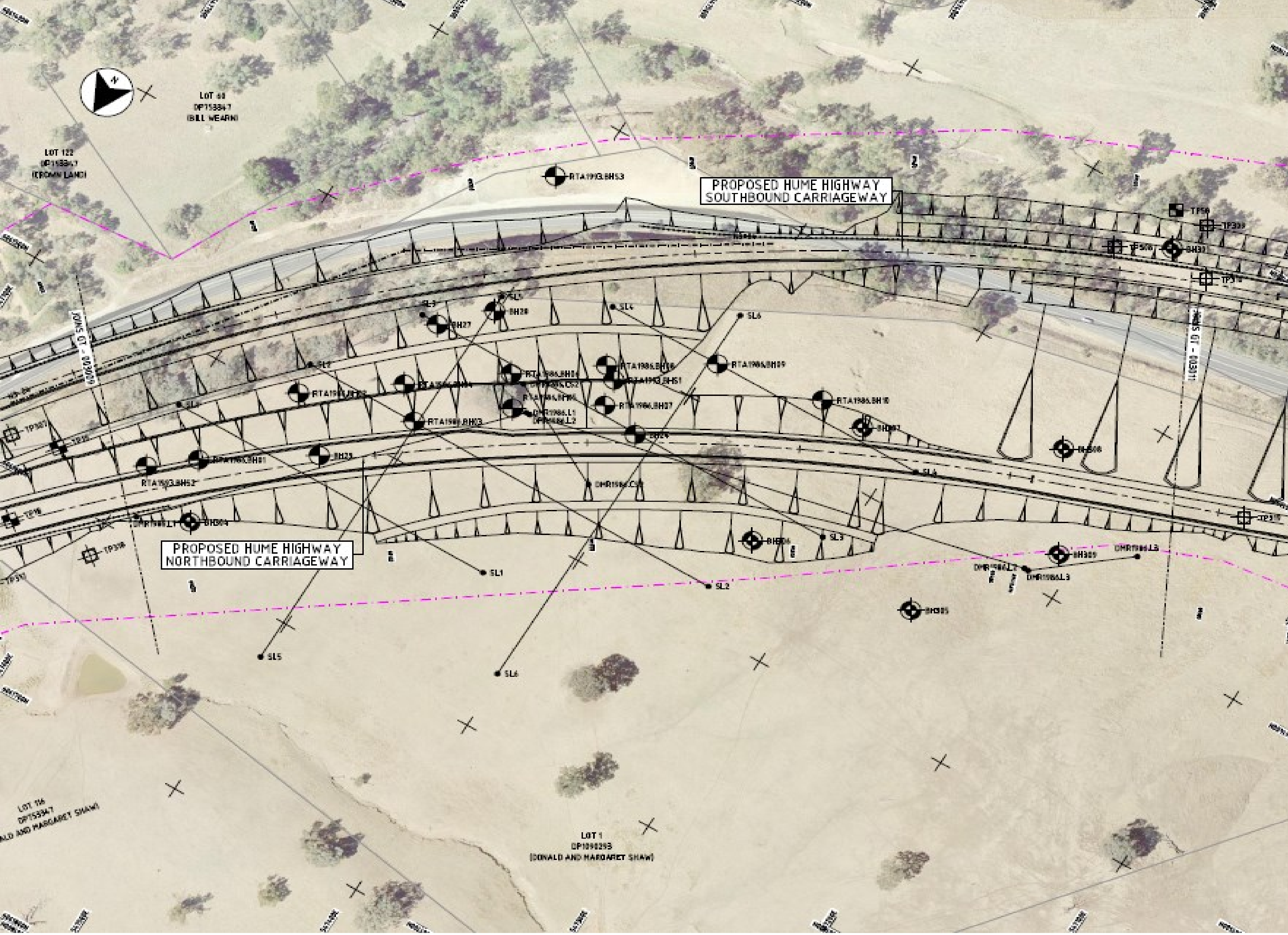
Site Investigation

- Terrain Evaluation
- Geological mapping of cuttings
- Seismic refraction survey
- Cored Boreholes (RTA and NHA)
- Test pitting (RTA and NHA)
- Select Material investigations (R44)
- Quarry investigations
- Existing pavement investigations
- Laboratory testing
- Interpretation and reporting

ZONE	NORTHERN HUME ALLIANCE		RECENT RTA WORK			ADDITIONALLY
	BOREHOLES	TEST PITS	BOREHOLES	TEST PITS	SEISMIC LINES	
N1- TARCUTTA NORTH	14	5	23	80	15	-
N2- KYEAMBA HILL	16	24	20	84	8	RTA and DMR reports dating from 1978 to 1993. 90 Air Track Hammer Holes
N3- LITTLE BILLABONG	11	25	26	56	6	RTA and DMR reports dating from 1978 to 1993
N4- YARRA YARRA	9	36	4	44	1	34 Air Track Hammer Holes. 8 DNR Groundwater Bore Logs. As constructed drawings for Bridge at Yarra Yarra Creek

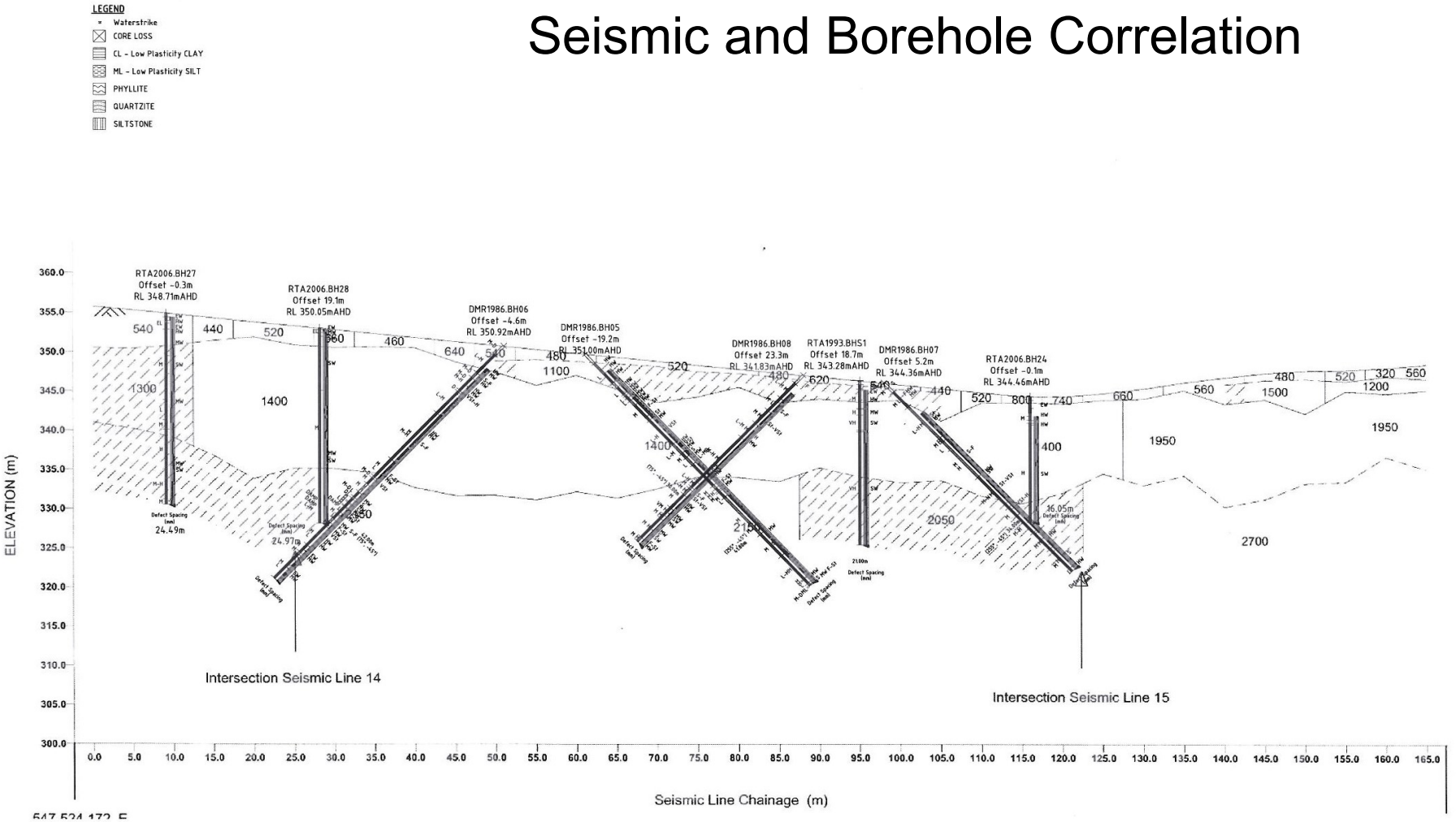

PROPOSED HUME HIGHWAY
SOUTHBOUND CARRIAGEWAY
PROPOSED HUME HIGHWAY
NORTHBOUND CARRIAGEWAY
RTA1993.BH53
RTA1986.BH09
RTA1986.BH10
BH305
BH309
SL1
SL2
SL5
SL6
LOT 1
(DONALD AND MARGARET SHAW)


SUMITOMO
SWL 2750
TP425


MULLIGAN


VOLVO

Seismic and Borehole Correlation



CHECK PRINT

BACKDRAFTING REQUIRED / READY TO ISSUE	CHECK PRINT	
	INITIAL	DATE
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BACKDRAFTED/CORRECTED		
CONFIRMED		

DESIGNER: NORTHERN HUME ALLIANCE

SCALES: 1 : 250 FULL SIZE A1

NORTHERN HUME ALLIANCE

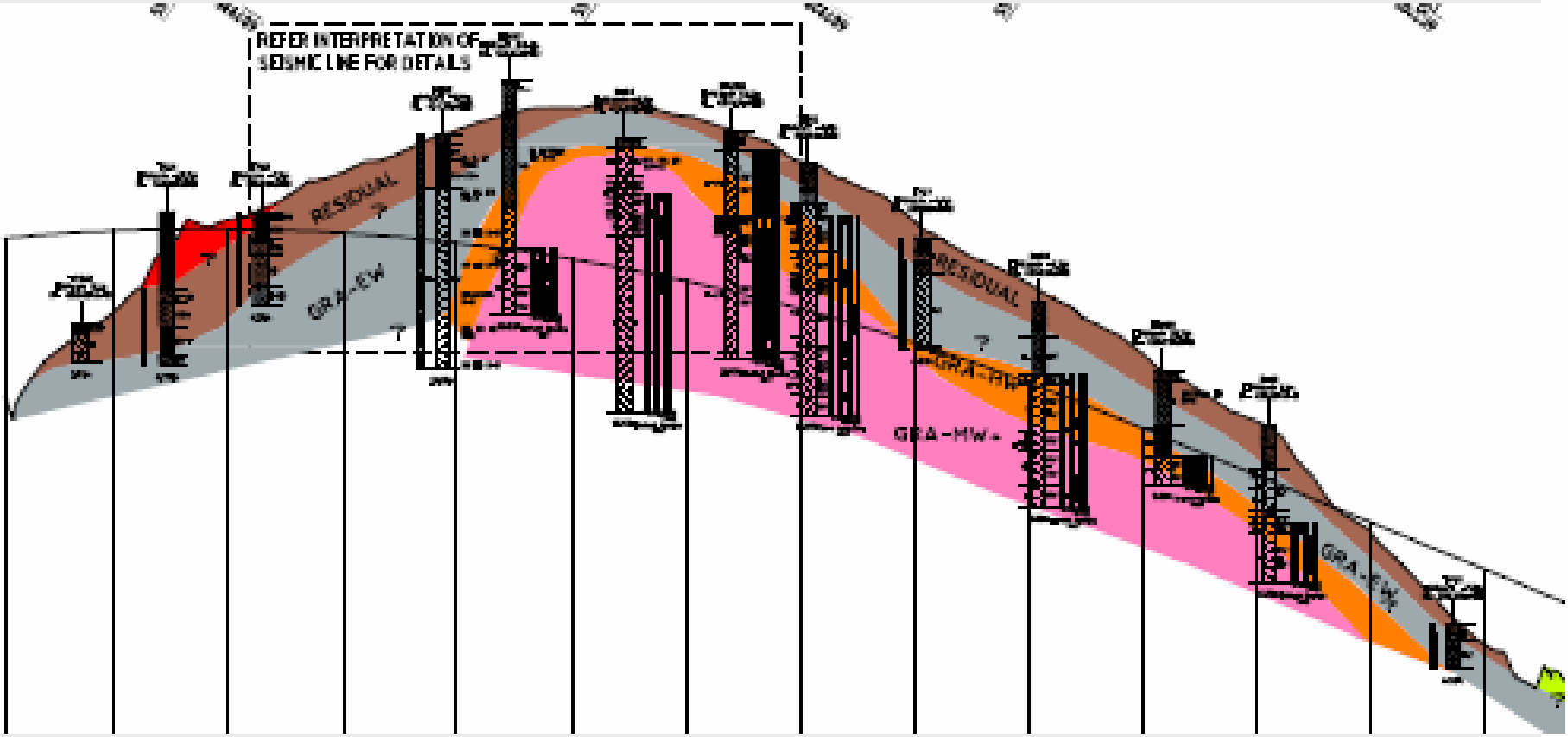
N3-LITTLE BILLABONG
GEOTECHNIAL SEISMIC LINE SL03
AND BOREHOLE STICK

SHEET 1 OF 1

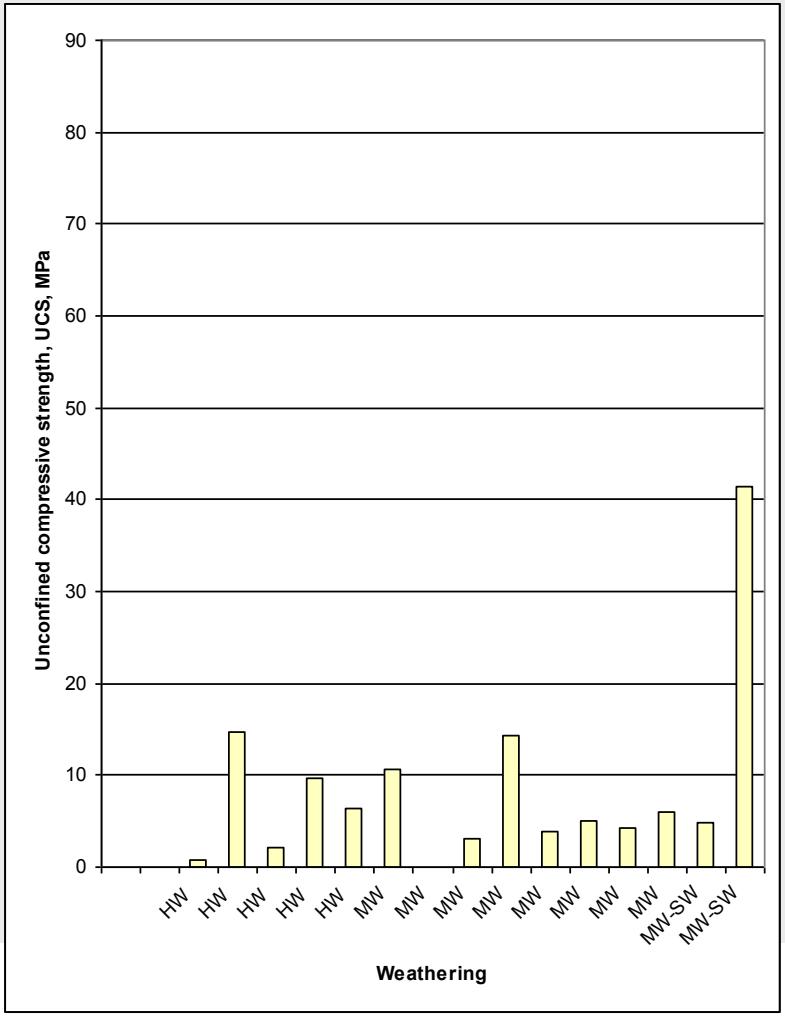
NHA-N3130202

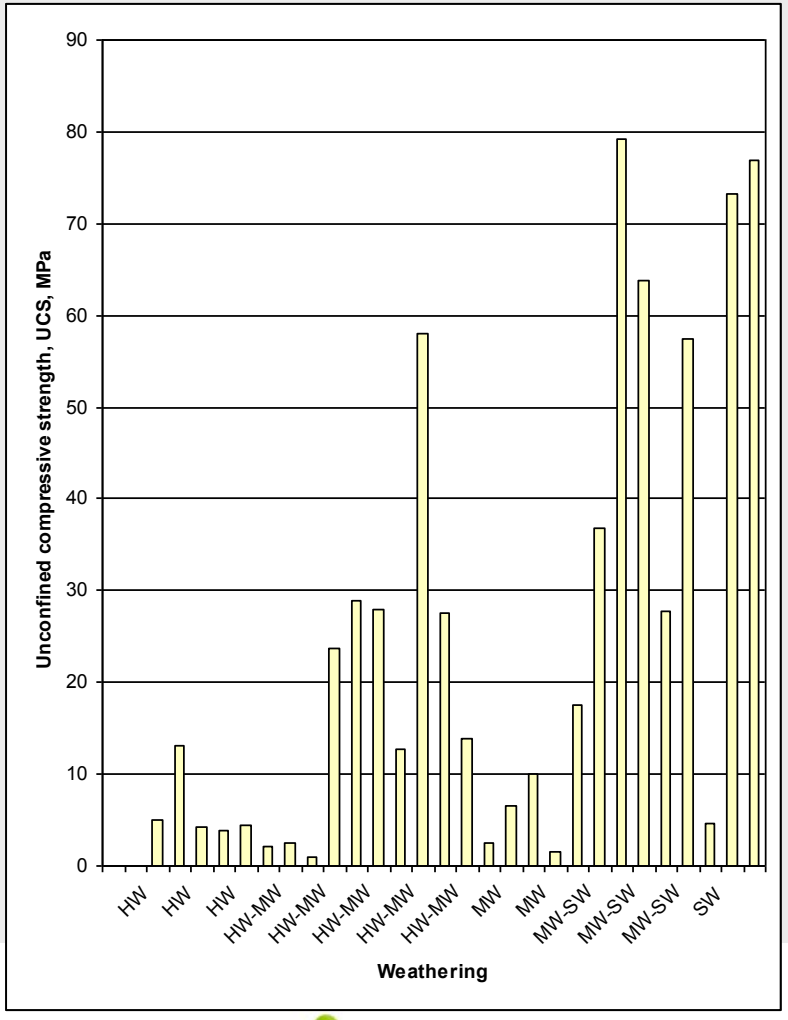
Geological Unit	Seismic velocities, m/sec (very approximate)	Excavatability (very approximate)
Residual soil and colluvium	300 to 500	Dig
EW & HW granite	500 to 1,700; 1,000 to 1,500 typically	Rip (1)
MW granite	800 to 2,600	Marginal ripping to blast
SW-Fr granite	2,000 to 4,000	Blast
EW, HW, MW Metasediments	Not differentiated	Rip
MW-SW Metasediments	2,500 to 5,000	Marginal ripping to blast

(1) Ripping with single tyne D9 or larger dozer


REFER INTERPRETATION OF
SEISMIC LINE FOR DETAILS
RESIDUAL
?
GRA-ECH
?
RESIDUAL
?
GRA-HW
GRA-HW
GRA-HW

Unconfined compressive strength results vs weathering for metasediments & granites





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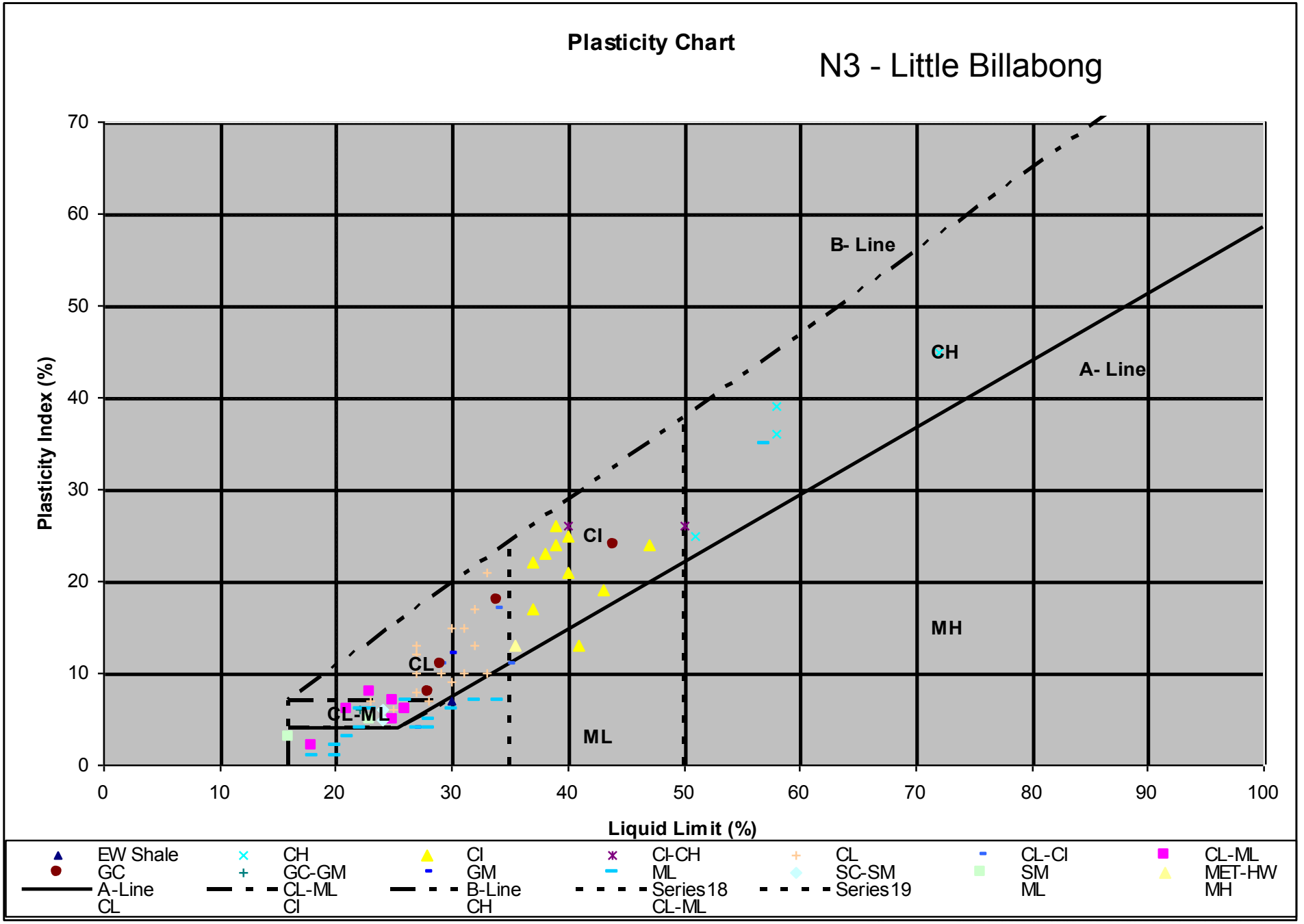
Plasticity Chart
N3 - Little Billabong
Plasticity Index (%)
Liquid Limit (%)
B- Line
A- Line
CH
MH
CI
CL
CL-ML
ML
0
10
20
30
40
50
60
70
80
90
100
EW Shale
GC
A-Line
CL
CH
GC-GM
CL-ML
CI
CI-CH
GM
B-Line
CH
ML
Series18
CL-ML
CL
SC-SM
Series19
CL-CI
SM
ML
CL-ML
MET-HW
MH