Appendix F

Artefact inventory (raw data)

Artefact inventory (raw data)

Key to Raw Data Table

Types

Fl	Flake
Rt	Retouched
Rd	Redirecting
HF	Heat fragment
RS	Ridge straightening
SP	Single platform
S-D	Semi-discoidal
Bi	Bipolar
Mp	Multiplatform
Ha	Hammerstone
An	Anvil
Co	Core
Bk	Backed
Asy Bk	Asymmetric backed artefact
Sy Bk	Symmetric backed artefact
FCR	Fire cracked rock
Bu	Burin
No	Notch
Si	Side
En	End
Sc	Scraper
Mbl	Microblade
FP	Flake piece
Rt FP	Retouched flaked piece
BTF	Biface thinning flake
EGAF	Edge ground axe flake

Breakage

C	Complete
B	Broken
P	Proximal fragment
M	Medial fragment
D	Distal fragment
S	Surface fragment
Ma	Marginal fragment
L	Left half
R	Right half
RP	Right proximal fragment
LP	Left proximal fragment
L	Left medial fragment
RM	Right medial fragment
LD	Left distal fragment
RD	Right distal fragment

Raw material type

Si	Silcrete
Cht	Chert
Chl	Chalcedony
Snd	Sandstone
And	Andesite
Qtz	Quartz
Qtzt	Quartzite
Ba	Basalt
Slg	Slag
Mds	Mudstone

Termination type

F	Feather
H	Hinge
S	Step
O	Outrépassé
Cr	Crushed

Heat shattered

Y	Yes

Platform preparation

OR	Overhang removal
F	Faceting
B	Overhang removal and faceting

Cortex type

R	Rounded
A	Angular
I	Irregular

Cortex location

P	Platform of core or flake
D	Dorsal surface of flake
B	Platform and dorsal surfaces of flake
F	Core face
D	Distal end of core
F&D	Face and distal of core
P&D	Platform and distal of core
P&F	Platform and face of core

Platform type

SC	Single conchoidal
C	Cortical
Cr	Crushed
F	Focalised
MC	Multiple conchoidal
C&S	Cortical and single conchoidal
F&S	Focalised and single conchoidal
F&M	Focalised and multiple conchoidal
NFS	Non-flaked surface
HC	Heat cracked

Retouch location

V	Ventral only
D	Dorsal only
B	Bidirectional
L	Lateral (Burinate)
VF	Ventral first
DF	Dorsal first
Alt	Alternating
DVD	Dorsal-ventral-dorsal
VDV	Ventral-dorsal-ventral

Contact material

H	Hide
W	Wood

Action

T	Transverse

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
1	41	13	1	flake	Chert	broken		left			6.58	32.44				6.8			
2	41	8	3	flake	Chert	complete			yes	pot lidded	9.09	27.48	23.29	24.12	16.59	11.95	1.14	13.90	1
3	41	2	2	core	Quartzite	complete					45.27	48.31		37.18		24.89	1.30		
4	41	6	3	flake	Chert	broken	medial		yes	pot lidded	0.68	16.63							
5	41	3	1	flake	Chert	broken		marginal	yes	pot lidded	0.46	12.62							
6	41	4	1	retouched glass artefact	Glass	broken	side of bottle				6.68	36.51		29.35		4.96	1.24		
7	41	5	2	flake	Chert	broken		left proximal			8.8	27.09							
8	41	1	3	fire cracked rock	Sedimentary	broken					35.72	47.98							
9	41	1	3	flake	Chert	broken		marginal	yes	surface	1.29	21.98							
10	41	1	3	flake	Chert	broken		marginal	yes	pot lidded	1.24	20.53							
11	41	1	3	flake	Chert	broken	distal				0.64	18.65							
12	41	1	2	flake	Quartz	broken	proximal				0.68	14.51	10.2					38.73	
13	41	1	2	flake	Chert	complete					0.08	6.07	5.47	7.45	6.27	1.32	0.81	-7.54	
14	41	1	3	flaked piece	Chert	broken					0.11	8.09							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
15	16	4	3	flake	Quartz	broken		right			0.28	12.3				3.64			
16	16	4	3	flake	Quartz	broken	proximal				0.18	10.5							
17	16	4	2	flaked piece	Chert	broken					0.62	22							
18	16	4	2	flaked piece	Quartz	broken					0.75	17.27							
19	16	4	2	flaked piece	Quartz	broken					0.36	11.45							
20	16	1	2	flake	Chert	broken		marginal			0.18	9.61							
21	16	2	3	flake	Chert	complete					11.24	39.78	15.94	26.35	18.39	10.68	1.51	-3.53	
22	16	2	3	flake	Chert	complete					1.4	23.99	6.09	12.35	10.29	4.09	1.94	-10.01	1
23	16	2	3	flake	Chert	complete					0.28	10.63	9.77	10.67	6.41	2.23	1.00	17.96	
24	16	2	3	flake	Chert	complete					0.73	17.67	13.85	11.1	5.24	2.93	1.59	27.38	1
25	16	2	3	heat fragment	Chert	broken			yes	shattered piece	4.52	33.18							
26	16	2	3	flake	Chert	broken	distal				0.1	9.52		5.05	4.02	2.63	1.89	-23.84	1
27	16	2	2	microblade	Silcrete	complete					1.47	31.1	2.14	7.27	7.5	4.89	4.28	-9.85	2
28	16	2	2	flake	Chert	broken		marginal			1.74	23.97							
29	16	2	2	flake	Chert	broken		right proximal			0.45	14.58							
30	16	2	2	flaked piece	Chert	broken					2.65	40.51							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
31	16	2	4	flake	Chert	broken	proximal				0.72	14.6	10.26		12.67	3.94		-9.44	
32	16	2	4	flaked piece	Chert	broken					0.8	13.42							
33	16	2	4	flake	Chert	broken		marginal			1.03	21.4							
34	25	8	4	flake	Chert	broken		left	yes	pot lidded	0.36	16.54							
35	25	8	2	core	Mudstone	complete					104.68	67.95		55.53		27.16	1.22		
36	25	8	2	flake	Quartz	broken		right			4.11	23.5				7.84			
37	25	8	2	flake	Chert	broken					1.17	15.92	14.91					50.19	
38	25	8	2	flake	Chert	complete					0.66	9.36	9.16	9.77	5.25	4.3	0.96	23.60	
39	25	4	5	flake	Chert	broken					0.94	19.95	10.52	7.33	0	6.46	2.72	29.54	1
40	25	5	1	flake	Chert	complete					0.87	19.58	8.8	14.36	7.96	2.74	1.36	2.46	
41	25	5	4	multiplatform core	Mudstone	complete					347.69	34.1		90.39		63.48	0.38		
42	25	6	2	flake	Chert	complete					36.64	44.41	27.07	33.1	14.11	15.49	1.34	16.60	
43	25	6	2	flake	Quartz	complete					0.49	13.15	6.28	8.42	7.17	3.76	1.56	-3.88	
44	25	7	1	flake	Chert	complete					3.71	24.19	9.72	18.54	22.69	4.94	1.30	-30.01	
45	25	7	1	flake	Silcrete	complete					1.45	19.28	8.66	15.71	8.58	4.32	1.23	0.24	

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
46	25	7	2	retouched flake fragment	Chert	broken		marginal	yes	pot lid	0.58	16.55							
47	25	1	4	redirecting flake	Mudstone	complete					0.51	5.98	9.59	10.79	10.22	4.92	0.55	-6.03	
48	25	1	4	flaked piece	Chert	?					1.9	22.77							
49	20	16	2	redirecting flake	Chert	complete					0.98	20.5	3.42	11.45	2.03	5.12	1.79	3.88	
50	20	23	5	flake	Quartz	broken	proximal				0.2	7.36							
51	20	18	1	flake	Volcanic?	complete					0.29	7.72	11.87	8.07	1.46	2.64	0.96	67.98	
52	20	20	1	bipolar core?	Chert	complete					4.83	23.72							
53	20	20	3	heat fragment	Chert	broken			yes	shatter	0.57	12.35							
54	20	20	3	heat fragment	Chert	broken			yes	surface	0.45	18.77							
55	20	20	2	flaked piece	Chert	broken					15.77	41.92							
56	20	20	2	flaked piece	Sandstone	broken					1.23	15.28							
57	20	20	2	flake	Chert	complete					1.08	9.64	12.4	20.29	11.66	3.62	0.48	4.40	
58	20	20	2	flake	Chert	broken		right			0.57	15.1							1
59	20	12	3	hammerstone	Metamorphic (Granite?)	broken					68.26	49.27							
60	20	12	3	flake	Chert	complete					23.81	36.45	29.67	38.84	37.63	16.37	0.94	-12.46	

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
61	20	12	3	flake	Chert	broken		mesial			0.6	18.39							
62	20	12	1	flaked piece	Chert	?					7.17	33.72							
63	20	12	2	flaked piece	Chert	broken					0.36	13.17							
64	20	12	3	flake	Silcrete	broken	proximal				0.52	15.08	12.41					44.73	
65	20	4	2	hammerstone and anvil	Mudstone	complete					356.91	92.71		73.31		44.87	1.26		
66	20	4	2	heat fragment	Chert	broken			yes	shatter	32.11	53.33							
67	20	4	2	heat fragment	Chert	broken			yes	shatter	1.77	28.55							
68	20	17	3	retouched flake fragment	Chert	broken			yes	surface	2.12	26.26							
69	20	17	8	flake	Quartz	broken	proximal				1.43	16.42							
70	20	19	12	flaked piece	Chert	broken					0.47	13.23							
71	20	3	3	flake	Quartz	broken					3.2	27.62							
72	20	19	13	flake	Chert	complete					1.64	10.6	17.81	15.85	5.27	5.3	0.67	61.21	
73	20	5	3	flake	Chert	broken		marginal			3.08	34.93							
74	20	5	3	flake	Quartz	broken	proximal				0.96	16.74							
75	20	13	1	flake	Chert	complete					4.59	32.57	9.21	12.09	11.29	7.67	2.69	-3.66	
76	20	13	1	redirecting flake	Chert	complete					0.87	19.59	3.26	9.74	8.12	5.25	2.01	-14.14	1

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
77	20	3	3	flaked piece	Quartz	broken					0.35	10.76							
78	20	3	3	heat fragment	Chert	broken			yes	shatter	0.55	13.12							
79	20	14	2	flake	Sandstone	broken	distal				1.08	23.98							
80	20	11	4	flake	Chert	complete					5.86	20.74	12.21	19.4	11.69	8.51	1.07	1.44	
81	20	11	4	flaked piece	Volcanic?	broken					1.06	14.93							
82	20	11	4	flake	Quartzite	broken	distal				17.69	41.38							
83	20	11	4	flake	Chert	complete					75.85	71.09	25.46	36.88	27.12	19.96	1.93	-1.34	
84	20	2	4	ochre crayon	Ochre	complete					20.86	38.79		28.67		17.98	1.35		
85	20	2	4	hammerstone?	Metamorphic (Granite?)	broken					70								
86	20	10	1	flake	Quartz	broken		right proximal			0.45	13.62							
87	20	9	2	flake	Chert	broken	p				5.42	33.01	23.91					39.82	
88	20	9	2	flake	Chert	complete					0.63	9.56	5.1	12.43	18.04	5.12	0.77	-68.18	
89	28	1	3	flake	Volcanic?	broken	proximal				3.16	27.83							
90	28	1	2	flake	Sandstone	broken	medial				0.79	19.37							
91	28	3	1	heat fragment	Chert	broken			yes	surface	1.28	22.94							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
92	28	2	3	flake	Chert	broken	distal		yes	pot lid removal	1.35	26.51							
93	28	21	4	heat fragment	Chert	broken			yes	surface	0.82	23.48							
94	28	13	1	flake	Chert	broken		marginal			0.15	11.45							
95	28	8	1	flake	Chert	complete					6.29	24.62	13.88	24.88	25.94	9.52	0.99	-27.52	
96	28	8	3	flake	Chert	complete					6.03	24.06	17.46	23.72	20.4	6.88	1.01	-6.99	
97	14	3	3	flake	Chert	broken	distal				0.93	15.18							
98	14	12	4	pot lid	Chert	broken			yes	pot lid	0.13	9.34							
99	14	10	2	flake	Chert	complete			yes	pot lid removal	6.26	18.84	36.43	23.63	12.46	6.81	0.80	64.92	
100	14	6	3	flake	Chert	complete					0.71	13.35	7.55	10.31	10.32	3.39	1.29	-11.85	
101	14	6	1	flake	Chert	complete					1.06	11.86	13.6	18.5	22.97	3.78	0.64	-43.11	
102	14	8	2	flake	Chalcedony	complete					0.72	13.42	8.16	12.57	18.06	3.33	1.07	-40.49	
103	14	8	2	flake	Chert	broken	distal				0.4	16.46							
104	14	8	2	flake	Chert	broken	proximal				1.03	23.55							
105	14	8	2	flake	Chert	broken	proximal				1.49	22.75							
106	14	8	2	flake	Chalcedony	broken	distal				1.07	16.7							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
107	14	8	2	flake	Chert	complete					0.29	13.34	4.81	10.28	9.36	1.78	1.30	-19.36	
108	14	8	2	flaked piece	Chert	broken					0.09	8.86							
109	14	8	6	heat fragment	Chert	broken			yes	shatter	0.2	12.85							
110	14	8	6	heat fragment	Chert	broken			yes	shatter	0.2	10.48							
111	14	9	3	redirecting flake	Chert	broken		right			9.2	32.75							
112	14	9	3	flake	Chert	complete					7.78	35.24	13.45	23.85	19.16	6.75	1.48	-9.26	
113	14	9	3	flaked piece	Chert	broken					0.19	10.67							
114	14	11	2	flake	Chert	complete					2.38	21.47	18.6	16.35	5.18	5	1.31	34.71	
115	21	8	11	asymmetric backed	Chert	complete					0.41	16.87	0	7.92	0	3.71	2.13		
116	43	20	6	flaked piece	Chert	broken					0.1	10.94							
117	43	31	2	flake	Chert	complete				pot lid removal	6.02	24.5	20.75	23.94	22.07	7.73	1.02	-3.09	
118	43	30	1	burin spall	Chert	broken	distal				2.8	36.21							
119	43	30	1	flake	Volcanic?	complete					3.55	25.49	8.24	22.08	11.38	6.68	1.15	-7.05	
120	43	30	1	flake	Chert	broken		marginal			0.2	12.51							
121	43	30	1	flake	Chert	complete					0.78	11.84	10.01	12.54	5.98	2.91	0.94	19.32	
122	43	30	1	flaked piece	Chert	broken			yes	surface	0.62	18.9							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
123	43	30	1	flaked piece	Chert	broken					0.2	11.83							
124	43	30	1	flaked piece	Chert	broken					0.15	10.94							
125	43	30	2	flake	Chert	complete					1.8	16.37	10.52	12.8	14.53	7.36	1.28	-13.97	
126	18	1	4	flake	Chert	broken		right			1.21	17.99				3.12			
127	18	3	1	flaked piece	Chert	broken					0.54	17.54							
128	15	3	3	flake	Chert	broken	proximal				3.75	30.96							
129	15	1	4	flaked piece	Chert	broken					0.37	10.57							
130	15	5	2	flake	Chalcedony	complete					1.26	21.18	21.47	17.21	11.25	2.49	1.23	27.13	
131	15	5	1	flake	Chert	broken	medial				0.18	13.06							
132	13	22	1	flake	Chert	complete					1.22	14.48	13.36	11.59	6.46	5.55	1.25	26.80	
133	13	13	7	flake	Chert	complete					1.31	8.25	6.95	8.83	6.83	7.62	0.93	0.83	1
134	24	6	4	flake (split cobble)	Quartzite	complete					790	131.33	120.81	140.15	88.96	22.94	0.94	13.83	
135	24	6	4	multiplatform core	Mudstone	complete					620	119.22		90.55		45.92	1.32		
136	24	3	6	flake	Mudstone	complete					11.1	47.31	25.79	20.49	0	7.69	2.31	30.49	1
137	24	3	6	flake	Chert	complete					0.07	5.79	8.2	905	7.92	1.15	0.01	2.77	
138	24	3	6	flake	Quartz	complete					0.54	13.56	4.54	15.44	8.05	2.94	0.88	-14.75	

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	Longitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
139	24	3	6	flake	Chert	broken		marginal			0.11	9.66							
140	24	3	6	flake	Chert	broken		marginal			0.26	13.4							
141	24	3	6	flake	Chert	broken	distal				0.05	8.38							
142	24	3	6	redirecting flake	Chert	broken		marginal			0.18	10.61							
143	24	3	6	flake	Quartz	broken		mesial			0.29	12.9							
144	24	3	6	flake	Quartz	broken	proximal				0.26	10.48							
145	24	3	6	flake	Quartz	broken					0.16	10.98							
146	24	7	3	multiplatform core	Chert	complete					63.9	55.29		38.84		38.42	1.42		
147	24	2	4	flaked piece	Chert	broken					0.65	12.77							
148	27	12	1	retouched flake fragment	Silcrete	broken	proximal				21.26	52.18							
149	27	12	3	flake	Chert	complete					16.95	35.41	20.39	35.72	20.9	10.64	0.99	-0.83	1
150	27	12	3	redirecting flake	Chalcedony	complete					3.67	15.3	7.76	19.11	19.35	7.29	0.80	-41.49	
151	27	12	3	end scraper	Chert	complete					1.8	17.87	13.66	14.09	4.96	6.66	1.27	27.36	
152	27	12	2	flake	Chert	broken	distal		yes	pot lid removal	0.32	12.24							
153	27	12	4	flake	Chert	broken		right			0.66	20.34							
154	27	12	4	flake	Chert	broken		left			0.85	15.93							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
155	27	3	4	flake	Chert	complete					0.58	13.34	80.4	10.75	6.7	2.93	1.24	140.20	
156	27	3	4	flake	Chert	broken		right proximal			0.46	17.19							
157	27	3	4	flaked piece	Chert	broken			yes	pot lid removal	0.75								
158	27	3	4	flaked piece	Chert	broken					3.32	23.67							
159	27	5	3	flaked piece	Quartz	broken					2.36	16.86							
160	29	17	1	flake	Chert	complete					2.05	18.42	10.34	18.77	26.07	5.36	0.98	-46.24	
161	29	16	3	pot lid	Chert	broken			yes	pot lid	0.28	15.87							
162	29	16	3	flaked piece	Chert	broken					0.4	11.83							
163	29	15	1	flake	Silcrete	broken	distal				0.1	10							
164	29	5	1	bipolar flake	Silcrete	broken	proximal				0.63	14.43							
165	29	3	2	notch	Chert	broken		marginal			48.76	60.2							
166	29	3	2	flaked piece	Chert	broken					0.48	13.54							
167	29	3	2	flake	Chert	complete					0.21	8.27	8.44	5.59	0	2.35	1.48	54.07	
168	29	9	2	flake	Chalcedony	broken		left distal			0.64	19.7							
169	29	7	3	flake	Chert	broken	surface		yes	surface	0.41	0.02							
170	29	7	4	flake	Chert	broken		proximal mesial			0.67	0.67	17.78					171.38	

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
171	29	7	4	flake	Chert	broken		right			0.56	17.32							
172	29	7	4	retouched flaked piece	Chert	broken					2.09	20.6							
173	40	16	1	flake	Chert	broken		right	yes	pot lid removal	3.82	24.76							
174	44	4	3	flaked piece	Chert	broken					0.75	15.33							
175	44	4	3	heat fragment	Chert	broken			yes	shatter	0.58	0.58	14.03					170.55	
176	44	4	3	flake	Chert	broken		marginal			1.85	19.04							
177	44	4	3	flaked piece	Chert	broken	surface		yes	surface	0.56	15.6							
178	23	18	1	flaked piece	Quartz	broken					0.2	9.81							
179	23	18	2	redirecting flake	Chert	broken	distal		yes	pot lid removal	4.54	26.53							
180	23	18	2	flake	Chert	complete					1.48	21.37	13.34	13.31	11.26	6.68	1.61	5.57	
181	23	18	1	flake	Volcanic?	broken					0.49	20.22							
182	23	18	1	flaked piece	Volcanic?	broken					2.34	27.48							
183	23	18	1	flaked piece	Volcanic?	broken					0.68	23.65							
184	23	18	1	flaked piece	Volcanic?	broken					0.27	10.85							
185	23	18	1	flaked piece	Quartz	broken					0.35	11.76							
186	23	18	1	flaked piece	Quartz	broken					0.19	10.2							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
187	23	18	1	flake	Quartz	complete					0.22	11.21	7.93	8.66	2.19	1.36	1.29	28.72	
188	23	18	1	flake	Quartz	complete					0.19	7.2	4.94	10.82	8.84	2.29	0.67	-30.31	
189	23	17	1	flake	Chert	broken		marginal			1.59	26.61							
190	23	16	3	flake	Chert	complete					0.76	12.65	7.12	9.78	14.23	4.09	1.29	-31.39	
191	12	3	1	flake	Chert	complete					0.36	18.81	5.13	6.4	4.73	2.85	2.94	1.22	1
192	12	50	6	heat fragment	Chert	broken	surface		yes	surface	0.33	13.3							
193	12	50	3	flake	Chert	complete					0.32	7.38	8.86	10.27	11.07	3.26	0.72	-17.03	
194	12	50	4	flake	Chert	broken	distal				1.9	24.79							
195	12	48	4	flaked piece	Chert	broken					1.29	22.52							
196	12	47	3	flake	Chert	complete					0.58	19.87	8.05	6.82	6.9	3.07	2.91	3.32	1
197	12	47	2	retouched flake	Chert	broken					11.13	33.53							
198	12	47	2	flake	Chert	broken	proximal				0.76	18.9							
199	12	47	2	heat fragment	Chert	broken			yes	shatter	0.6	15.35							
200	12	46	2	flake	Chert	broken		marginal			0.16	12.56							
201	12	44	1	flake	Chert	complete					1.15	16.05	10.93	14.23	14.84	6.77	1.13	-13.89	
202	12	44	1	flake	Chert	complete					0.47	8.57	6.2	8.46	8.05	5.25	1.01	-12.32	

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
203	12	44	3	flake	Chert	broken		left			0.47	9.65							
204	12	44	2	flake	Chert	complete					0.42	15.19	5.07	7.85	3.04	3.8	1.94	7.65	
205	12	44	2	flake	Chert	complete					0.03	7.98	1.78	4.2	2.86	0.67	1.90	-7.74	
206	12	24	3	flake	Chert	complete					0.13	6.91	7.23	7.17	4.71	1.58	0.96	20.67	
207	12	24	3	pot lid	Chert	broken					0.23	9.53							
208	12	10	1	flake	Quartz	complete					0.76	17.71	4.83	1009	9.09	3.32	0.02	-13.72	
209	12	27	4	flaked piece	Chert	broken					0.56	11.76							
210	12	25	5	flake	Chert	broken	medial				0.5	12.69							
211	12	41	1	flake	Chert	complete					4.77	21.67	9.42	20.81	22.03	9.71	1.04	-32.45	
212	12	41	1	flake	Quartz	broken		left proximal			0.9	15.81							
213	12	40	1	flake	Chert	complete					0.45	12.73	10.2	16.67	12.88	2.69	0.76	-12.02	
214	12	40	1	flake	Volcanic?	complete					3.89	17.71	14.37	18.54	16.82	7.19	0.96	-7.91	1
215	12	40	1	flaked piece	Volcanic?	broken					1.64	23.76							
216	12	40	1	flake	Chert	complete			yes	pot lid removal	1.49	13.04	10.89	12.68	15.44	7.72	1.03	-19.79	1
217	12	40	1	flake	Chert	broken	surface		yes	surface	0.21	14.07							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
218	12	40	1	flaked piece	Chert	broken					0.81	16.88							
219	12	40	1	flaked piece	Chert	broken					1.29	19.46							
220	12	40	1	flake	Chert	complete					0.19	4.84	8.27	6.4	5.21	3.43	0.76	35.09	
221	12	40	1	flake	Chert	broken	proximal				0.28	14.98							
222	12	40	1	pot lid	Chert	broken			yes	pot lid	0.04	6.1							
223	12	39	3	ventral side scraper	Chert	complete					19.9	28.05	22.19	38.19	20.81	12.66	0.73	2.82	
224	12	39	3	core fragment	Chert	broken			yes	pot lid removal	10.74	26.45							
225	12	39	2	flake	Chert	complete					0.08	6.65	5.35	5.88	5.58	1.27	1.13	-1.98	
226	12	39	2	heat fragment	Chert	broken			yes	shatter	0.83	13.86							
227	12	42	4	flake	Chert	broken	distal				0.14	11.46							
228	12	42	3	flake	Chert	complete					0.72	12.57	9.6	12.19	5.28	0.07	1.03	19.50	
229	12	42	1	pot lid	Chert	broken	surface		yes	surface	0.08	7.39							
230	12	42	1	flaked piece	Chert	broken	surface		yes	surface	0.84	16.67							
231	12	42	2	flaked piece	Chert	?					3.06	31.2							
232	12	42	2	flaked piece	Quartz	?					0.17	7.86							
233	12	42	2	flake	Silcrete	complete					0.21	13.52	3.75	5.62	3.05	2.09	2.41	2.97	1
234	12	42	2	flaked piece	Chert	broken					0.1	7.86							

Record Number	PASA	Pit	Spit	Type	Raw Material	Broken?	Transverse break	.ongitudinal Break	Heat Related Damage?	Type of heat break	Weight	Length	Proximal Width	Medial Width	Distal Width	Thickness	Elongation	Marginal Angle	No. Dorsal Ridges
235	12	36	4	notched double side and end scraper	Chalcedony	complete					12.62	26.59	15.95	22.09	17.96	13.86	1.20	-4.33	
236	12	36	5	bipolar flake?	Quartz	complete					4.34	19.85	8.28	14.61	19.7	9.19	1.36	-32.10	

Appendix G

Lithic terminology

Lithic terminology

Type **-** Classification of artefacts was based on technical criteria. The following classes have been identified in the assemblage:

Core: Cores are a piece of rock from which flakes have been detached. Cores are characterised by negative flake scars where flakes have been detached.

Edge-ground axe: implement shaped on at least one margin by grinding against another surface. Such implements are often shaped by flaking, pecking, flaking and pecking or grinding and/or burnishing around much of their exterior.

Flake: A sharp edged piece of stone detached from a core by the application of force. Flakes are characterised by a number of features which may include a platform, bulb of percussion, a bulbar scar, ripple marks and fissures on the ventral surface and negative flake scars on the dorsal surface.

Flaked piece: A flaked piece is an artefact that exhibits features such as negative flake scars but does not have any other features that would allow differentiation between a flake, a retouched flake or core.

Retouched flake: An artefact which has had flakes removed subsequent to its original manufacture.

Backed artefact: A retouched flake possessing one or more margins, which have been retouched on a steep angle; that margin is situated opposite to the unretouched sharp edge.

Anvil: A piece of stone, usually a pebble or cobble, which possesses pitting or furrowing indicative of hard hammer impacts.

Hammer: An artefact, usually a pebble or cobble, identified by characteristic pitting and negative scars indicative of percussive force on one or more ends

Manuport: An unmodified piece of rock situated away from its original context; assumed to have been humanly transported by an Aboriginal person.

Raw material - The raw material of each artefact is categorized according to the following:

Colour – The purpose of recording the colour of raw material is to assist during analysis in identifying source material (if possible), related objects within an episode or episodes of stone reduction and to infer heat treatment.

Raw material – The following raw materials were identified to be present in the assemblage:

Silcrete: This rock is formed by the impregnation of a sedimentary layer with silica; it consists of quartz grains in a matrix of either amorphous or fine-grained silica. The flaking qualities of silcrete are dependent of the size of the quartz grains.

Chert: A cryptocrystalline siliceous rock of organic or inorganic origin. Chert is isotropic and brittle. It is accordingly a highly favoured rock for artefact manufacture.

Quartz: The mineral quartz is crystalline silica with a hardness value of 7 (Mohs' hardness scale). Given this property quartz flakes possess highly durable sharp edges. However, given quartz possesses internal flaws and cleavage planes it typically flakes in an unpredictable manner.

Quartzite: Quartzite is formed by the cementing together of siliceous grains through pressure or chemical processes.

Hornfels: Altered volcanic rock characterised by inclusions in a fine grained groundmass

Quality – Raw material has been classified in terms of its quality based on size of mineral grains and homogeneity (in regard to quartz quality refers to the presence or absence of internal flaws and the general homogeneity of the stone) as follows:

High; Medium; and Low.

Initiation type – The type of primary fracture initiation including the following:

Conchoidal: (Hertzian fracture) Formed when stone is struck by a hammer forming a ring crack; the ring crack forms a cone that bends backward towards the surface of the core.

Bending: Formed when the angle between the platform and surface of the core is acute. Flakes do not possess clear ring cracks or well defined bulbs of percussion.

Bipolar: A bipolar flake is formed as a result of compression forces. Bipolar flakes often show signs of impact on opposing ends and have compression rings moving in two directions towards each other.

Initiation surface = platform

Single: Single flake scar.

Multiple scars: With three or more scars.

Cortical: Retaining evidence of cortex.

Shattered: Damaged: platform attributes cannot be identified.

Facetted: Three or more flake scars in uniform arrangement.

Focused: Struck from close to the edge of the platform.

Bipolar: Flake or core with evidence of fracture initiation on both ends.

Termination type

Feather: Exhibits minimal thickness at the distal end and acute angle between ventral and dorsal surface.

Hinge: Forms when the fracture meets the surface of the core at c. 90º to the longitudinal axis of the flake.

Step: Forms when flake terminates abruptly in a right angle break.

Outré passé (plunge): Forms when the fracture plane curves away from the face of the core removing the base of the core.

Percentage of cortex – An estimate of the percentage of cortex present on an artefact. On flakes the estimate refers to the dorsal surface only; recorded as dorsal cortex present in 25 per cent increments.

Cortex type – The type of cortex (weather worn surface) on an artefact is listed. The following cortex types were identified in the assemblage:

Pebble: A water worn surface indicative of an alluvial origin. It is noted here that the majority of water worn cortex was observed to be minimally worn.

Terrestrial: A weathered surface indicative of terrestrial origin.

***Breakage*:** Where artefacts were broken the portion of the artefact was classified using the following categories.

Flake distal: A broken flake: the distal end, exhibiting the termination.

Flake medial: A broken flake: the mid section, exhibiting dorsal scars and/or ventral surface features.

Flake proximal: A broken flake: the proximal end exhibiting the platform and initiation.

Longitudinal cone split: A broken flake: broken longitudinally; typically occurs during flaking event. Separate categories for left and right LCS portions were used to facilitate artefact number estimates.

Margin Missing: A broken flake where width cannot be measured due to missing marginal sections.

Platform shattered: A broken flake where percussion length cannot be measured due to shattered platform.

***Core attributes - including*:**

Type of core: Refers to number of platform and/or initiation type.

Number of scars: Expressed numerically.

Length of longest complete scars: Measured in mm.

Comments - Comments are made in regard to the following:

The presence or absence of use-wear is noted.

Nature of breaks (along faults, orientation).

Damage and its antiquity or otherwise.

Specific descriptions of various attributes and features.

Associations between artefacts.

Appendix H

Aboriginal stakeholder responses

Jerrinja Local Aboriginal Land Council
PO Box 167
Culburra Beach NSW 2540
Phone: (02) 44 474207
Fax: (02) 44 474230

18th November 2011

To Ron de Rooy
Project Manager
RTA
Berry bypass

Dear Ron,

Jerrinja LALC would like to comment on the Draft Cultural Heritage Assessment Report for Foxground and Berry Bypass.

It is a fact that RTA is the biggest destroyer of Aboriginal artifacts in NSW. This is because the method of locating of artifacts is basically flawed.

Archeologists are engaged to dig test pits at likely locations and then analyze the results.

Jerrinja LALC feel there is inadequate participation of Aboriginal sites officers in the preliminary site excavations by RTA on new road construction.

Jerrinja LALC propose that, during the removal of the first 500mm- 1000mm of topsoil on new road construction, Aboriginal sites officers be present at all times to inspect for artifacts.

This improved practice would uncover more artifacts, limit the damage to artifacts and give the people of Australia, a clearer picture of pre-European settlement.

It is important for RTA to understand that in modern times, consultation with Aboriginal communities should not be seen as merely paying "lip service" to this process, but actually implementing the recommendations offered.

This would help demonstrate NSW government's true commitment to reconciliation with Aboriginal people.

Yours sincerely

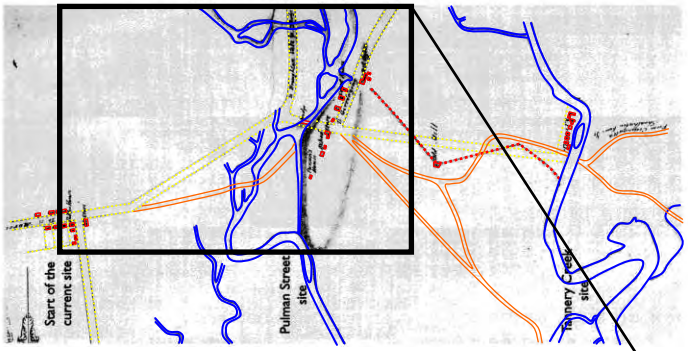
Andrew Harvey
CEO

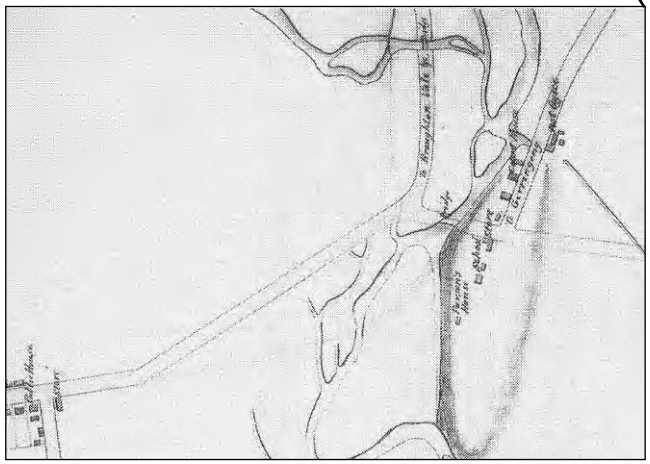
Appendix I

Analysis of previous road construction disturbance zones in area of proposed roundabout at the intersection of Woodhill Mountain Road and the current Princes Highway

Tracings of disturbance from source material overlaid onto Google Pro (2006) aerial image

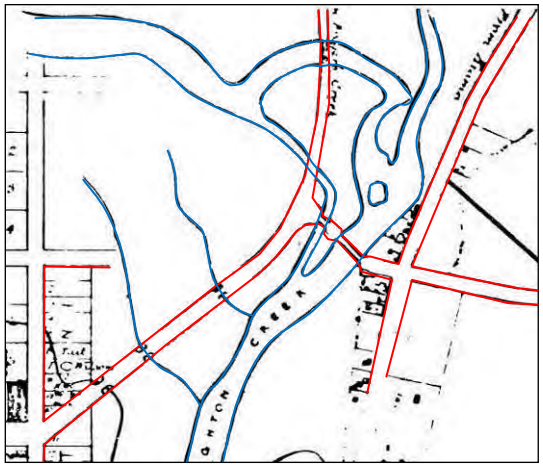
Early map of Broughton Creek Village area, probably 1870s (Berry Museum n.d.: 15)





Base image from Google Earth Pro 2012 (image date 1/30/2006)

Sketch plan of Broughton Township 1883
(Lidbetter 1993:18)



Base image from Google Earth Pro 2012 (image date 1/30/2006)

1949 aerial photograph

SVY662/NOWRA Run 2, 5164 (I55-166) 4 Apl 1949

Base image from Google Earth Pro 2012 (image date 1/30/2006)

1958 aerial photograph

NSW 699-5036 SH.I DAPTO – ULLADULLA Run GKII 23/7/1958

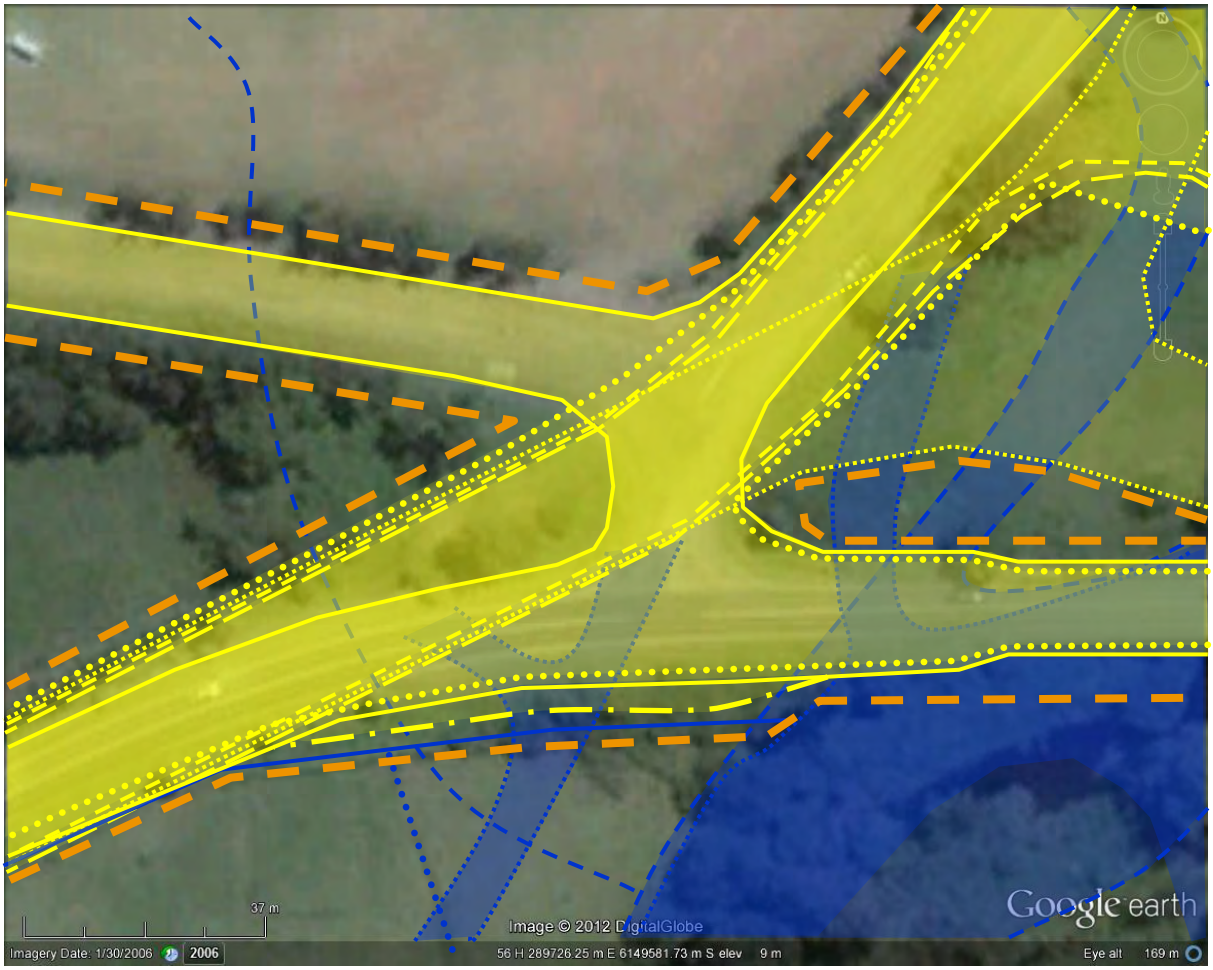
Base image from Google Earth Pro 2012 (image date 1/30/2006)

1986 aerial photography

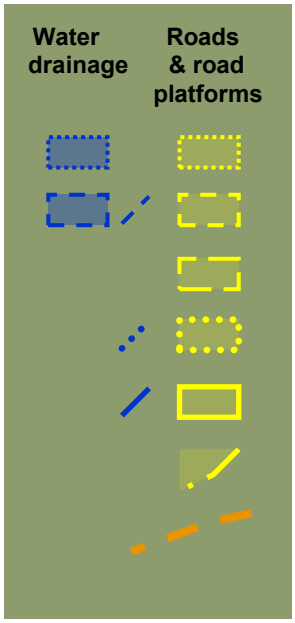
NSW 2652-138 SHI – SUTHERLAND TO NOWRA
Run XD15 7/3/1986

Base image from Google Earth Pro 2012 (image date 1/30/2006)

Detail of proposed roundabout area showing composite of past disturbance and drainage features (as interpreted from source material)



Base image from Google Earth Pro 2012 (image date 1/30/2006)



1870s (approx. boundaries)

1883 (approx. boundaries)

1949

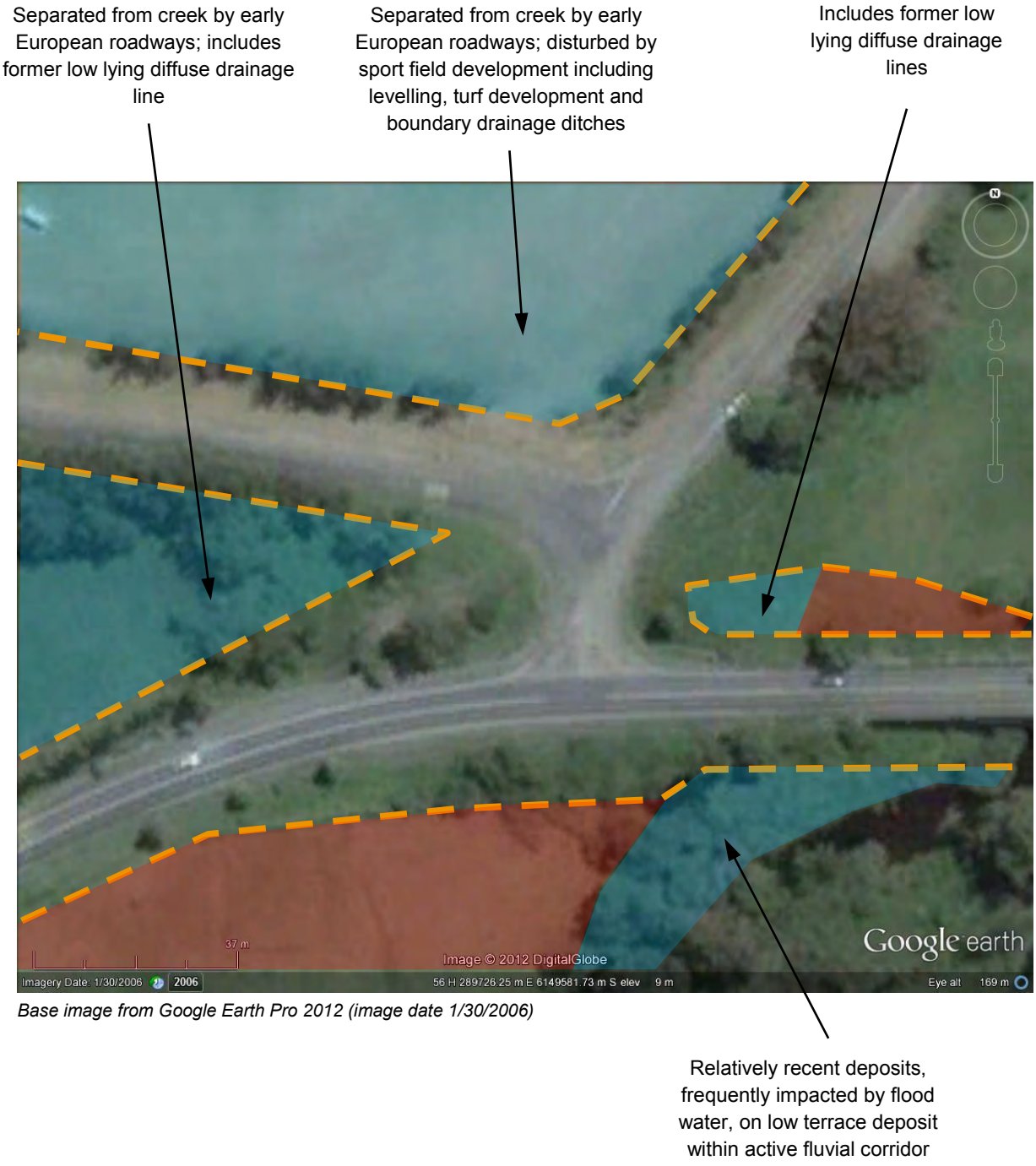
1958

1986

2010 (extension to road platform for construction of footpath)

Net boundary of previous disturbance (including road easements)

Archaeological sensitivity of surrounding areas outside of net disturbance boundary



Base image from Google Earth Pro 2012 (image date 1/30/2006)

Low potential for historical Aboriginal encampment remains

Greater than low potential for historical Aboriginal encampment remains

Net boundary of previous disturbance (including road easements)

Draft roundabout design relative to existing disturbance zones and adjacent historical Aboriginal archaeological sensitivity

Note placement of whole roundabout footprint within existing disturbance zone and no construction south of the existing footpath on southern edge of proposed works.

Base image and draft roundabout design provided by AECOM 13/8/2012)

Low potential for archaeological remains

Greater potential for archaeological remains

Net boundary of previous disturbance (including road easements)

Appendix J

Information from Keith Campbell relating to the *Boongaree* Aboriginal Encampment

Attn. N. Officer.
fax 62829416

SUBMISSION RE ROUTE OPTIONS, GERRINGONG TO BERRY PRINCE'S HIGHWAY UPGRADE

1. I wish to draw attention to the fact that a traditional Aboriginal camp site was located near Berry which I believe should be avoided by the proposed upgrade. The northern part of the camp site is close to or in the path of two of the existing proposed routes (the orange route and the brown route). I understand that another route, to the east and south of the township, is being proposed by Shoalhaven City Council. Such an option, depending on its exact route, might also run across land occupied by the camp.

2. The Aboriginal name of the camp was Boon-ga-ree. It was the birthplace of two well-known Aboriginal brothers of the early 19th century, Boger and Toodwick. Toodwick exchanged names with William Broughton, the Assistant Commissary General. As a result, he became universally known as Broughton. Broughton Creek and several other geographical features were named after him. The township of Berry was also named after him – it was known as Broughton Creek until the 1880s. Broger's Creek is named after his brother Broger.

3. The Aboriginal camp of Boon-ga-ree was apparently occupied permanently or at least semi-permanently in the first decade of European occupation of the area (in the 1820s). It was therefore almost certainly occupied permanently or semi-permanently in pre-colonial days. Broger was especially noted for being attached to Boon-ga-ree. He was widely known for calling the spot 'his place'.

4. The site was located on a clear area at the junction of Broughton Creek and Broughton Mill Creek. The area was not on the eastern and western banks of these creeks, but on the point between the two, and running north to where Pulman Street is today. The cleared area was surrounded by dense brush or rainforest.

5. I am unaware whether any archaeological work has been carried out at the site, but I believe it should be thoroughly examined before any major disturbance occurred there. I therefore would object to any change in plans to re-route the highway through this area at this stage.

6. Sources

   a) For reference to Boon-ga-ree as Broughton's birthplace, see letter of 8 April 1822, from Charles Throsby to Alexander Berry, in Berry Papers, (Mitchell Library), vol 46, p81.
   b) For reference to Broughton's birthplace extending from the junction of the creeks to the ridge (along which Pulman Street runs today) see "Recollections of the Aborigines" pp569-570, by Alexander Berry.
   c) For reference to Broger's claim that Boon-ga-ree was "his own place", see Criminal Investigations, T 146, at State Records.
   d) For references to thick brush surrounding the cleared area, see RF Pleaden, 'Coastal Explorers', p25 (note by Meehan on his map).

Keith Campbell

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Nowra

Appendix K

Archaeological survey coverage mapping and visibility variables

K.1 Table of survey coverage data

Survey Unit	Landform	Survey unit area (ha)	Proportion of unit surveyed (%)	Area of unit surveyed (ha)	Average Incidence of exposure %	Average visibility within Exposures %	Effective coverage area (ha) survey unit area x proportion surveyed % x inc. exp. % x exp. vis.%)	Effective Coverage % (effective coverage area / survey unit area x 100)
1	CU	3.0	80	2.4000	2.0	50	0.0240	0.8
2	MS	2.2	60	1.3200	5.0	65	0.0429	1.9
3	MS	0.7	55	0.3850	2.0	65	0.0050	0.7
4	BS	0.8	40	0.3200	10.0	60	0.0192	2.4
5	VF	4.0	20	0.8000	5.0	75	0.0300	0.7
6	CU	4.1	85	3.4850	5.0	70	0.1220	3.0
7	CU/RLC	2.5	30	0.7500	5.0	60	0.0225	0.9
8	MS	5.4	60	3.2400	8.0	30	0.0777	1.4
9	MS	2.0	0	0.0000			0.0000	0.0
10	MS	2.2	20	0.4400	5.0	45	0.0099	0.4
11	MS	2.7	10	0.2700	2.0	70	0.0073	0.3
12	CU	5.3	30	1.5900	1.0	30	0.0048	0.1
13	MS/RC	0.6	20	0.1200	15.0	75	0.0135	2.2
14	BS	3.4	60	2.0400	2.0	40	0.0163	0.5
15	VF/RC	4.4	30	1.3200	10.0	50	0.0660	1.5
16	VF/RC	12.4	30	3.7200	10.0	30	0.1116	0.9
17	CU/RC	0.4	80	0.3200	2.0	50	0.0032	0.8
18	CU	0.6	80	0.4800	2.0	30	0.0014	0.2
19	BS	3.6	50	1.8000	8.0	45	0.0648	1.8
20	VF	4.3	10	0.4300	15.0	65	0.0419	1.0
21	VF/RC	7.6	10	0.7600	5.0	45	0.0171	0.2
22	VF/RC	1.0	70	0.7000	2.0	45	0.0063	0.6
23	VF	0.3	80	0.2400	2.0	30	0.0014	0.5
24	VF/RC	8.5	65	5.5250	15.0	75	0.6216	7.3

Survey Unit	Landform	Survey unit area (ha)	Proportion of unit surveyed (%)	Area of unit surveyed (ha)	Average Incidence of exposure %	Average visibility within Exposures %	Effective coverage area (ha) survey unit area x proportion surveyed % x inc. exp. % x exp. vis.%)	Effective Coverage % (effective coverage area / survey unit area x 100)
25	CU	1.0	20	0.2000	5.0	45	0.0045	0.4
26	BS	3.2	10	0.3200	5.0	30	0.0048	0.1
27	MS	3.2	20	0.6400	5.0	30	0.0096	0.3
28	CU	3.6	65	2.3400	5.0	50	0.0585	1.6
29	MS	6.5	30	1.9500	10.0	50	0.0975	1.5
30	CU	0.2	20	0.0400	5.0	85	0.0017	0.8
31	MS	1.3	30	0.3900	8.0	60	0.0187	1.4
32	CU	0.2	25	0.0500	8.0	50	0.0020	1.0
33	MS	1.4	10	0.1400	5.0	50	0.0035	0.2
34	CU	1.5	10	0.1500	2.0	25	0.0007	0.05
35	BS	1.0	20	0.2000	2.0	25	0.0010	0.1
36	VF	2.3	45	1.0350	2.0	25	0.0052	0.2
37	BS	0.1	75	0.0750	5.0	45	0.0017	1.7
38	CU	0.5	85	0.4250	15.0	30	0.0191	3.8
39	MS	0.3	80	0.2400	8.0	30	0.0058	1.9
40	CU	1.3	60	0.7800	20.0	60	0.0936	7.2
41	MS	2.0	20	0.4000	5.0	45	0.0090	0.4
42	CU	1.0	45	0.4500	10	25	0.0112	1.1
43	MS	0.7	80	0.5600	5.0	20	0.0056	0.8
44	BS	0.9	60	0.5400	10.0	50	0.0270	3.0
45	MS	3.2	70	2.2400	10.0	45	0.1008	3.1
46	CU	0.2	60	0.1200	2.0	35	0.0008	0.4
47	CU/RLC	9.0	60	5.4000	10.0	65	0.3510	3.9
48	MS	0.4	60	0.2400	2.0	45	0.0022	0.5
49	MS	4.4	5	0.2200	2.0	45	0.0020	0.05

Survey Unit	Landform	Survey unit area (ha)	Proportion of unit surveyed (%)	Area of unit surveyed (ha)	Average Incidence of exposure %	Average visibility within Exposures %	Effective coverage area (ha) survey unit area x proportion surveyed % x inc. exp. % x exp. vis.%)	Effective Coverage % (effective coverage area / survey unit area x 100)
50	CU/RLC	4.7	80	3.7600	15.0	35	0.1974	4.2
51	MS	0.2	75	0.1500	5.0	65	0.0049	2.4
52	MS	0.5	50	0.2500	25.0	75	0.0469	9.4
53	BS	1.6	60	0.9600	15.0	60	0.0864	5.4
54	VF	1.2	30	0.3600	65.0	80	0.1872	15.6
55	VF/RC	8.8	50	4.4000	20.0	65	0.5720	6.5
56	MS/RC	0.9	70	0.6300	5.0	35	0.0110	1.2
57	VF	5.4	20	1.0800	35.0	75	0.2835	5.2
58	VF/RC	18.8	35	6.5800	15.0	65	0.6415	3.4
59	VF/RC	2.0	0	0.0000			0.0000	0.0
60	VF	2.7	15	0.4050	95	90	0.3463	12.8
61	VF	3.0	10	0.3000	2.0	15	0.0009	0.03
62	VF	1.9	10	0.1900	10.0	45	0.0085	0.4
63	VF	0.6	0	0.0000			0.0000	0.0
64	VF	0.1	60	0.0600	10.0	50	0.0030	3.0
65	VF	0.6	0	0.0000			0.0000	0.0
66	VF	0.8	60	0.4800	10.0	65	0.0312	3.9
67	VF/RC	1.6	35	0.5600	2.0	35	0.0039	0.2
68	BS/RC	0.5	20	0.1000	2.0	15	0.0003	0.1
69	MS	0.2	20	0.0400	2.0	15	0.0001	0.1
70	CU	0.8	25	0.2000	10.0	45	0.0090	1.1
71	MS	1.7	35	0.5950	10.0	40	0.0238	1.4
72	BS	1.7	55	0.9350	10.0	55	0.0514	3.0
73	VF	0.4	70	0.2800	15.0	45	0.0189	4.7
74	VF/RC	1.5	40	0.6000	3.0	30	0.0054	0.4

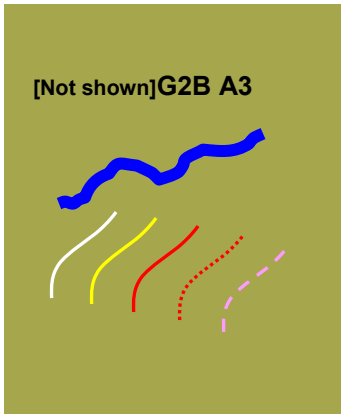
Survey Unit	Landform	Survey unit area (ha)	Proportion of unit surveyed (%)	Area of unit surveyed (ha)	Average Incidence of exposure %	Average visibility within Exposures %	Effective coverage area (ha) survey unit area x proportion surveyed % x inc. exp. % x exp. vis.%)	Effective Coverage % (effective coverage area / survey unit area x 100)
75	BS/RC	0.5	25	0.1250	5.0	30	0.0019	0.4
76	MS	0.2	10	0.0200	5.0	50	0.0005	0.2
77	CU	0.3	10	0.0300	5.0	50	0.0007	0.2
78	MS	0.4	5	0.0200	5.0	30	0.0003	0.1
79	BS/RC	0.3	0	0.0000			0.0000	0.0
80	VF/RC	0.9	5	0.0450	2.0	15	0.0001	0.01
81	VF	0.1	0	0.0000			0.0000	0.0
82	BS	0.4	20	0.0800	2.0	15	0.0002	0.1
83	MS	0.8	85	0.6800	15.0	45	0.0459	5.7
84	CU	0.6	10	0.0600	5.0	45	0.0013	0.2
85	MS	0.4	10	0.0400	5.0	30	0.0006	0.1
86	BS	0.1	10	0.0100	5.0	30	0.0001	0.1
		198.6 ha (100%)		***75.625 ha (38.1%)***			***4.753 ha (2.4%)***	***2.4***

K.2 Summary table of and sampled areas

Landform (not all categories are mutually exclusive)	**Landform area (ha)**	**Area of unit surveyed (ha)**	**Area effectively surveyed (ha)** **(effective coverage area)**	**% Landform effectively surveyed** **(area effectively surveyed / landform area x 100)**	**Number of sites**
Basal slopes (BS)	18.1	7.5050	0.2751	1.5	1
Crest and upper slopes (CU)	40.8	23.0300	0.9294	2.3	1
Mid slopes (MS)	44.5	15.2200	0.5450	1.2	1
Valley floor (VF)	95.2	29.8700	3.0035	3.1	
Ridgeline crest (RLC)	16.2	9.91	0.5709	3.5	
Riparian corridor (RC)	70.7	25.505	2.0754	2.9	1

K.3 Location of archaeological surface survey traverses relative to landform boundaries

KEY

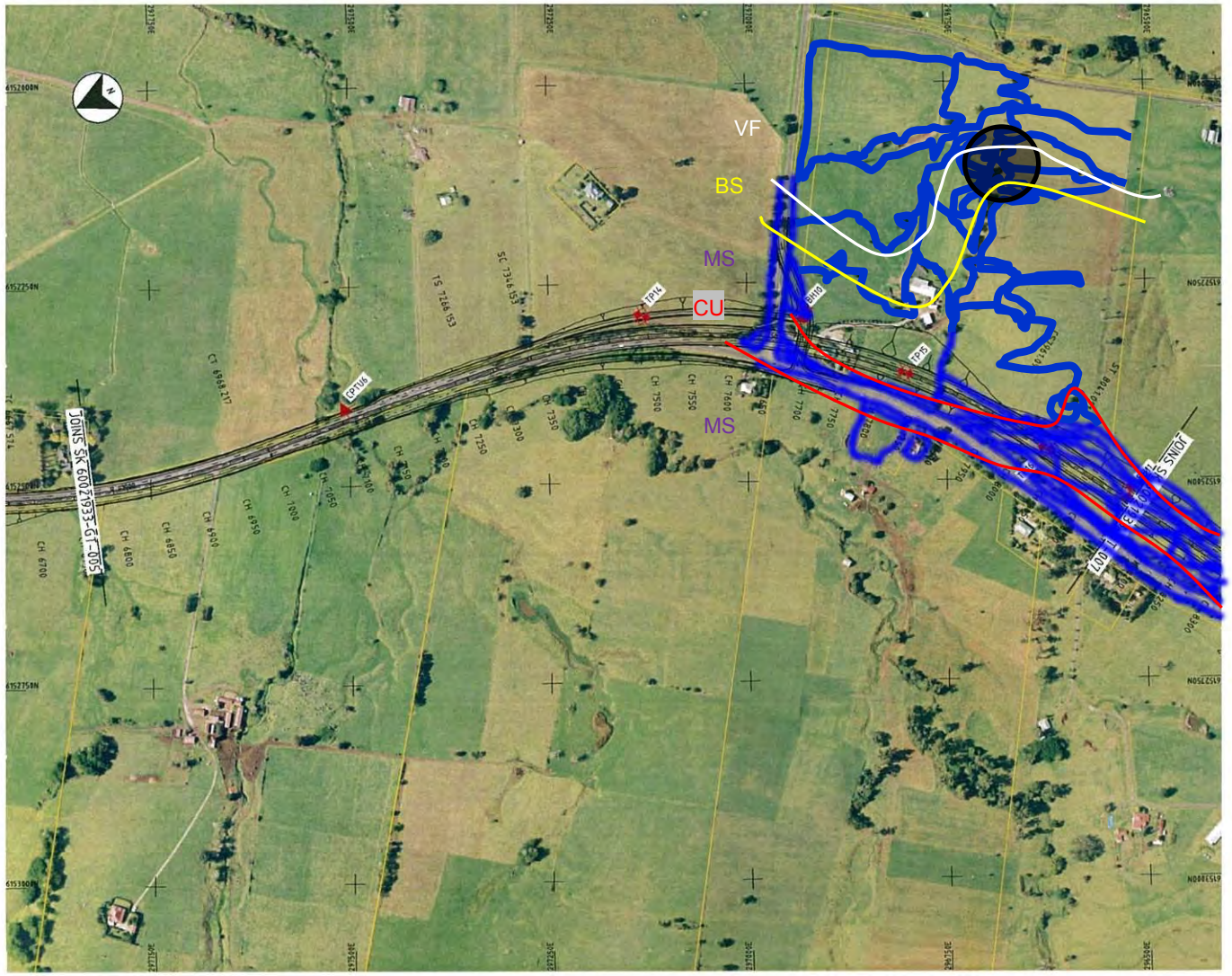


Aboriginal cultural heritage site and site code

Archaeological survey traverse

Landform unit boundaries:
VF – Valley Floor
BS – Basal Slopes
CU – Crest and Upper slopes
MS – Mid Slopes
RC – Riparian Corridor
RLC – Ridge Line Crest

NOTE: The base mapping shown in this Appendix dates from the time of the main survey and does not reflect the current project design. This original mapping is retained in order to illustrate the integrity of and justification for the survey traverses. Note also that the graphic scale (the graduated horizontal bar in the bottom, middle left of the Figures) is incorrect on these maps – the stated interval of 100m on this scale is actually only 50 metres. (Despite this, the marked chainage intervals along the alignment remain correct).



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SHEET 6

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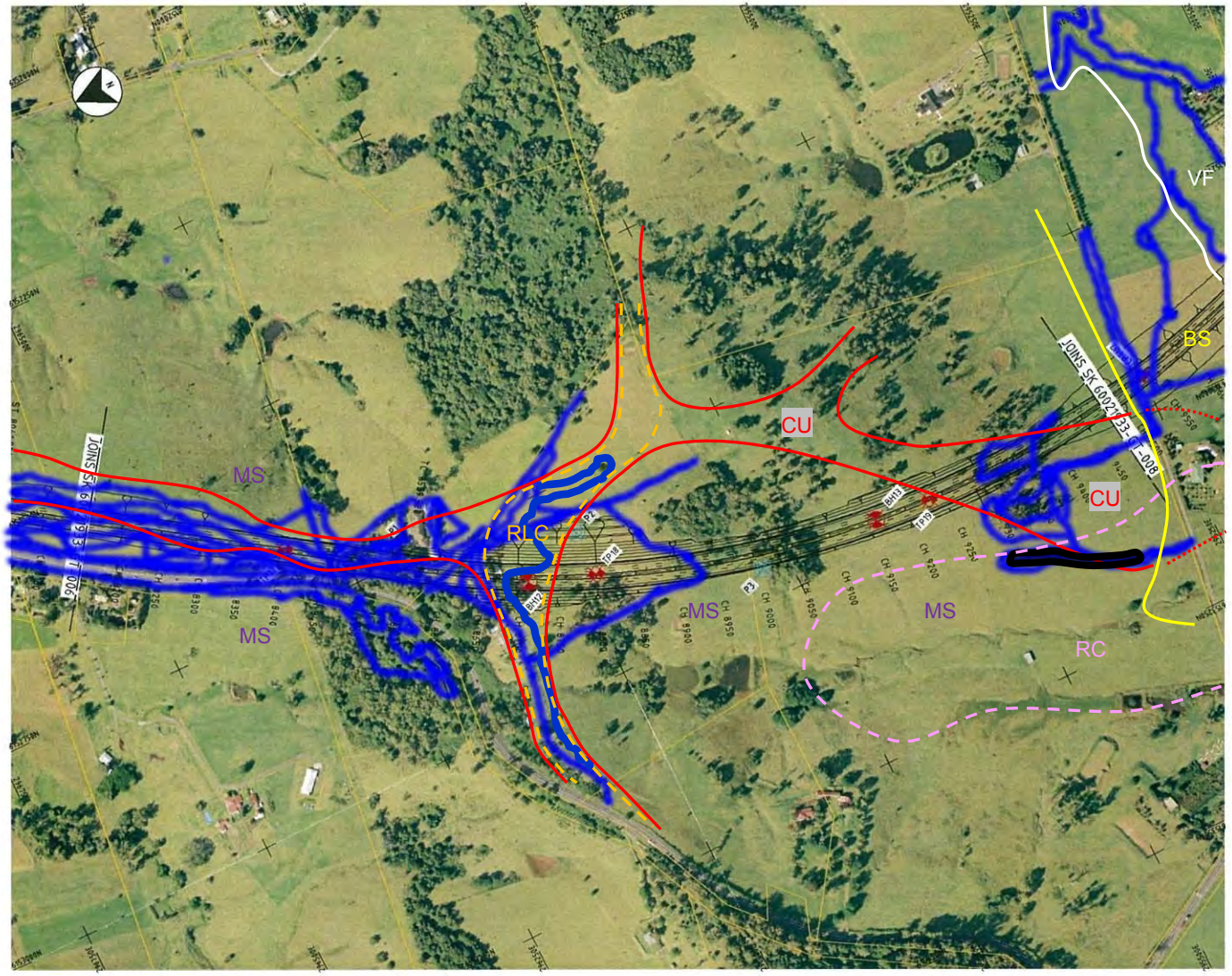


LEGEND

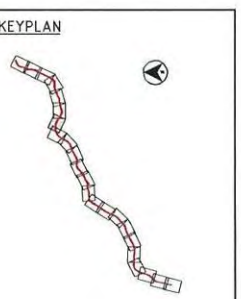
PROPOSED INVESTIGATION

- BOREHOLE (BH)
- TEST PIT (TP)
- CONE PENETRATION TEST WITH PIEZO CONE (CPTU)

PREVIOUS INVESTIGATION

- PREVIOUS BOREHOLE BY COFFEY (CBH)
- PREVIOUS TEST PIT BY COFFEY (CTP)
- PREVIOUS CPT BY COFFEY (CPT)
- PREVIOUS BOREHOLE BY GOLDER (GT)

KEYPLAN



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PROPOSED GEOTECHNICAL INVESTIGATION SITES

SHEET 7

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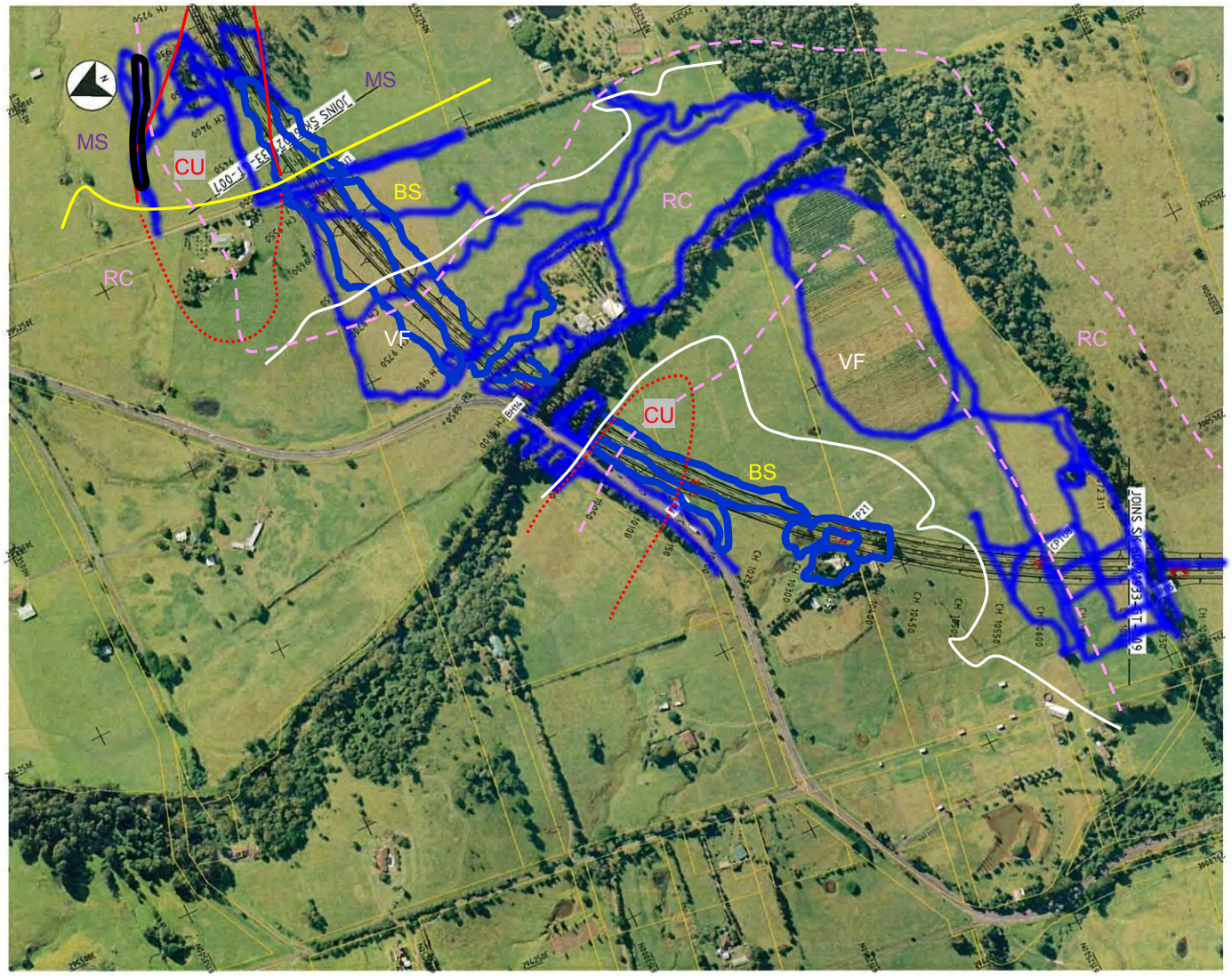


LEGEND

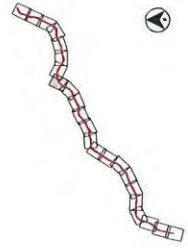
PROPOSED INVESTIGATION

- BOREHOLE (BH)
- TEST PIT (TP)
- CONE PENETRATION TEST WITH PIEZO CONE (CPTU)

PREVIOUS INVESTIGATION

- PREVIOUS BOREHOLE BY COFFEY (CBH)
- PREVIOUS TEST PIT BY COFFEY (CTP)
- PREVIOUS CPT BY COFFEY (CPT)
- PREVIOUS BOREHOLE BY GOLDER (GT)

KEYPLAN



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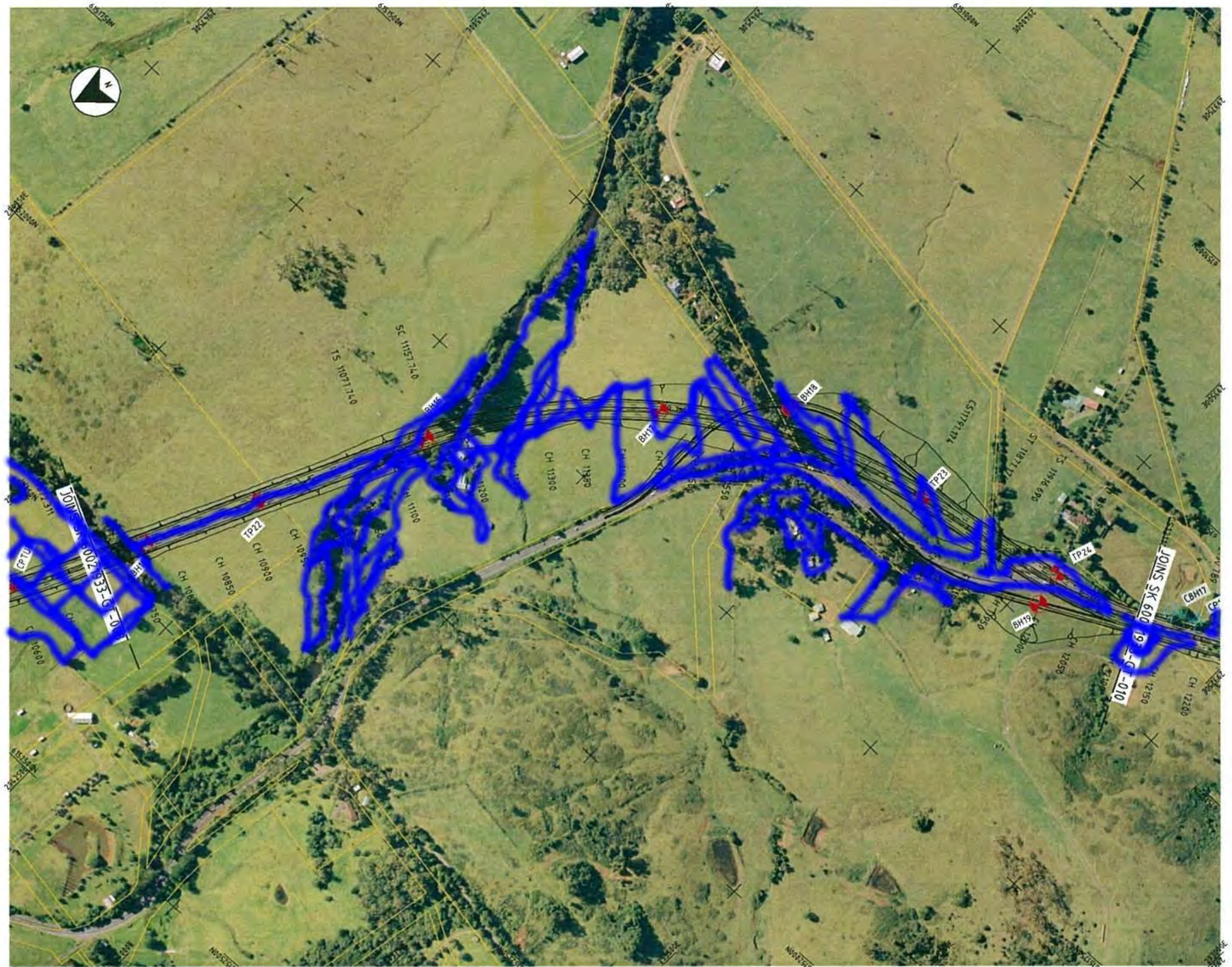


LEGEND

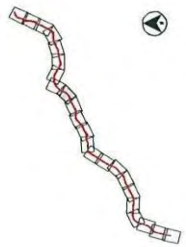
PROPOSED INVESTIGATION

- BOREHOLE (BH)
- TEST PIT (TP)
- CONE PENETRATION TEST WITH PIEZO CONE (CPTU)

PREVIOUS INVESTIGATION

- PREVIOUS BOREHOLE BY COFFEY (CBH)
- PREVIOUS TEST PIT BY COFFEY (CTP)
- PREVIOUS CPT BY COFFEY (CPT)
- PREVIOUS BOREHOLE BY GOLDER (GT)

KEYPLAN



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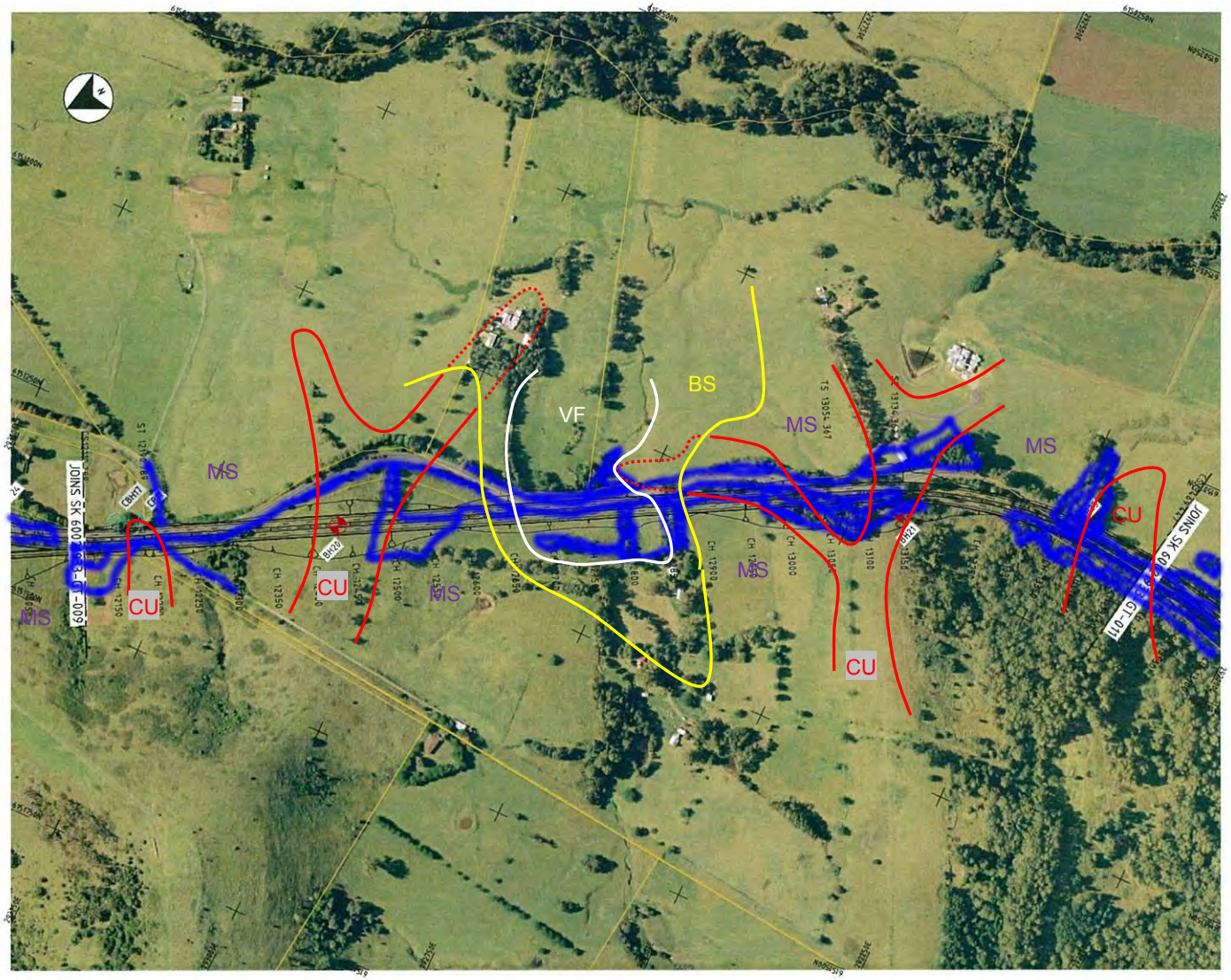


LEGEND

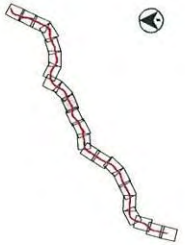
PROPOSED INVESTIGATION

- BOREHOLE (BH)
- TEST PIT (TP)
- CONE PENETRATION TEST WITH PIEZO CONE (CPTU)

PREVIOUS INVESTIGATION

- PREVIOUS BOREHOLE BY COFFEY (CBH)
- PREVIOUS TEST PIT BY COFFEY (CTP)
- PREVIOUS CPT BY COFFEY (CPT)
- PREVIOUS BOREHOLE BY GOLDER (GT)

KEYPLAN



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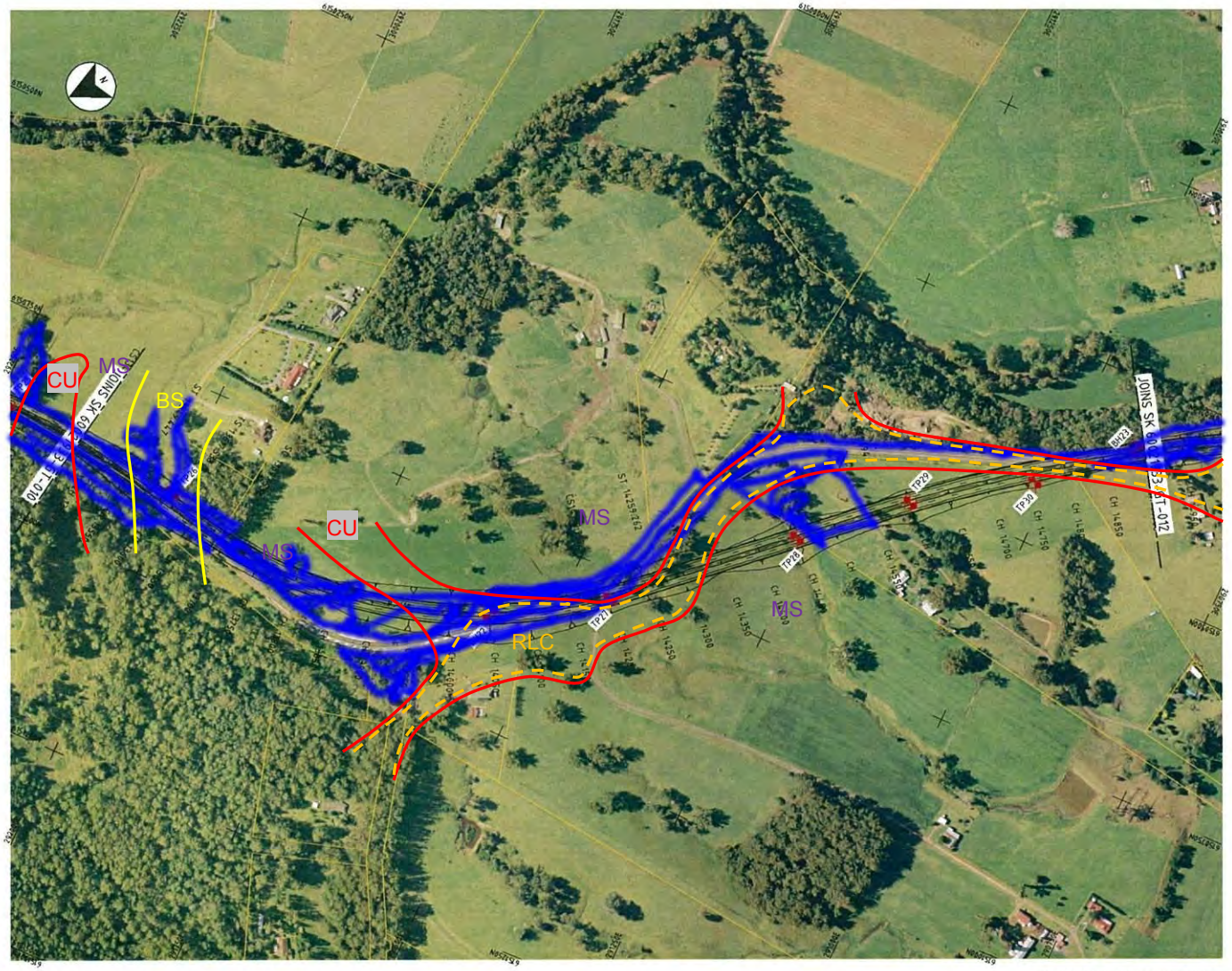

LEGEND

PROPOSED INVESTIGATION

- BOREHOLE (BH)
- TEST PIT (TP)
- CONE PENETRATION TEST WITH PIEZO CONE (CPTU)

PREVIOUS INVESTIGATION

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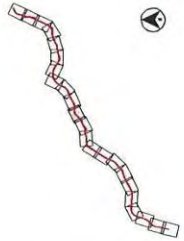
- PREVIOUS TEST PIT BY COFFEY (CTP)
- PREVIOUS CPT BY COFFEY (CPT)
- PREVIOUS BOREHOLE BY GOLDER (GT)

KEYPLAN



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SHEET 11

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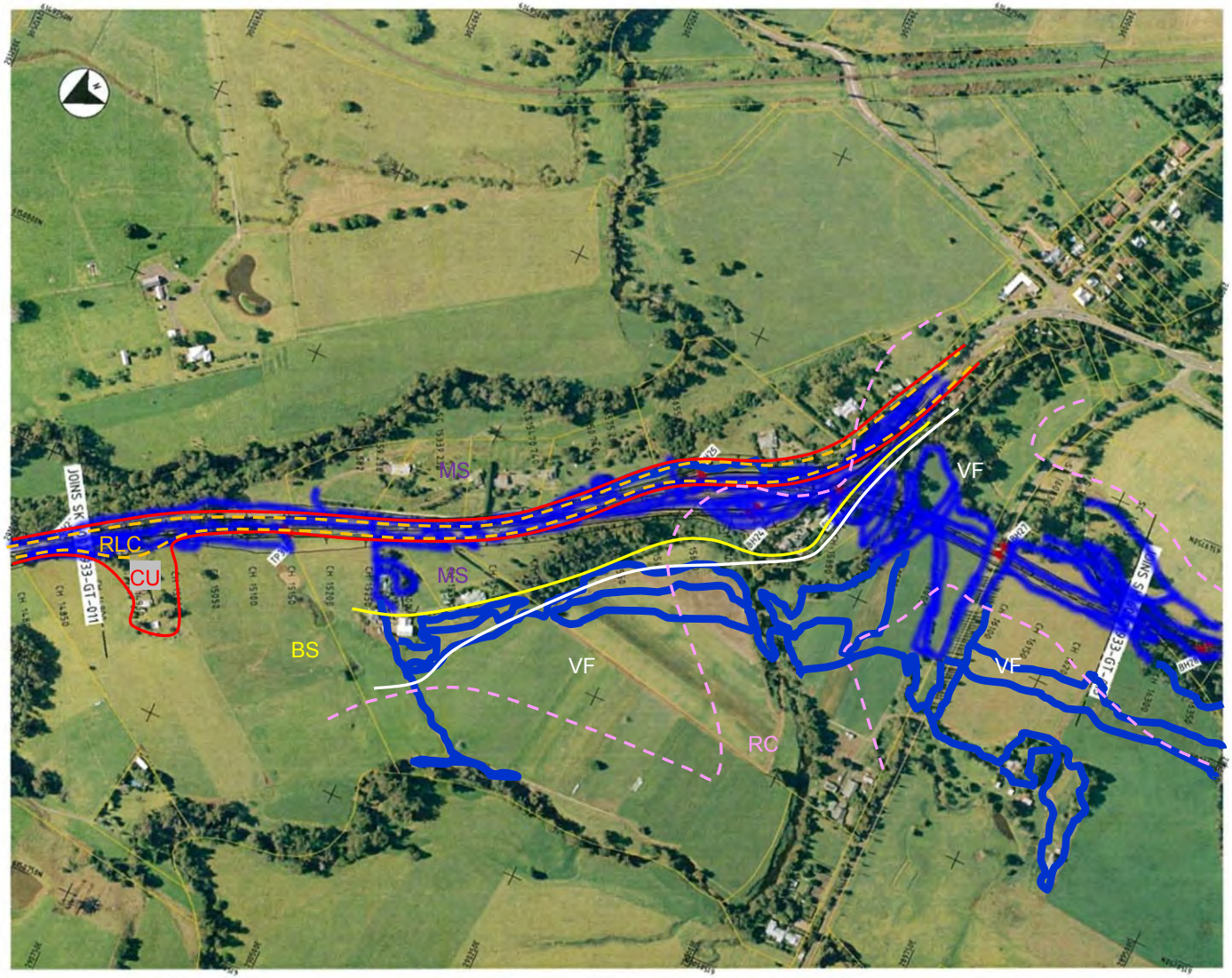

LEGEND

PROPOSED INVESTIGATION

- BOREHOLE (BH)
- TEST PIT (TP)
- CONE PENETRATION TEST WITH PIEZO CONE (CPTU)

PREVIOUS INVESTIGATION

- PREVIOUS BOREHOLE BY COFFEY (CBH)
- PREVIOUS TEST PIT BY COFFEY (CTP)
- PREVIOUS CPT BY COFFEY (CPT)
- PREVIOUS BOREHOLE BY GOLDER (GT)

KEYPLAN

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CONTRACTOR: LOGO_CONTRACTOR

DESIGNER: AECOM

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PROPOSED GEOTECHNICAL INVESTIGATION SITES

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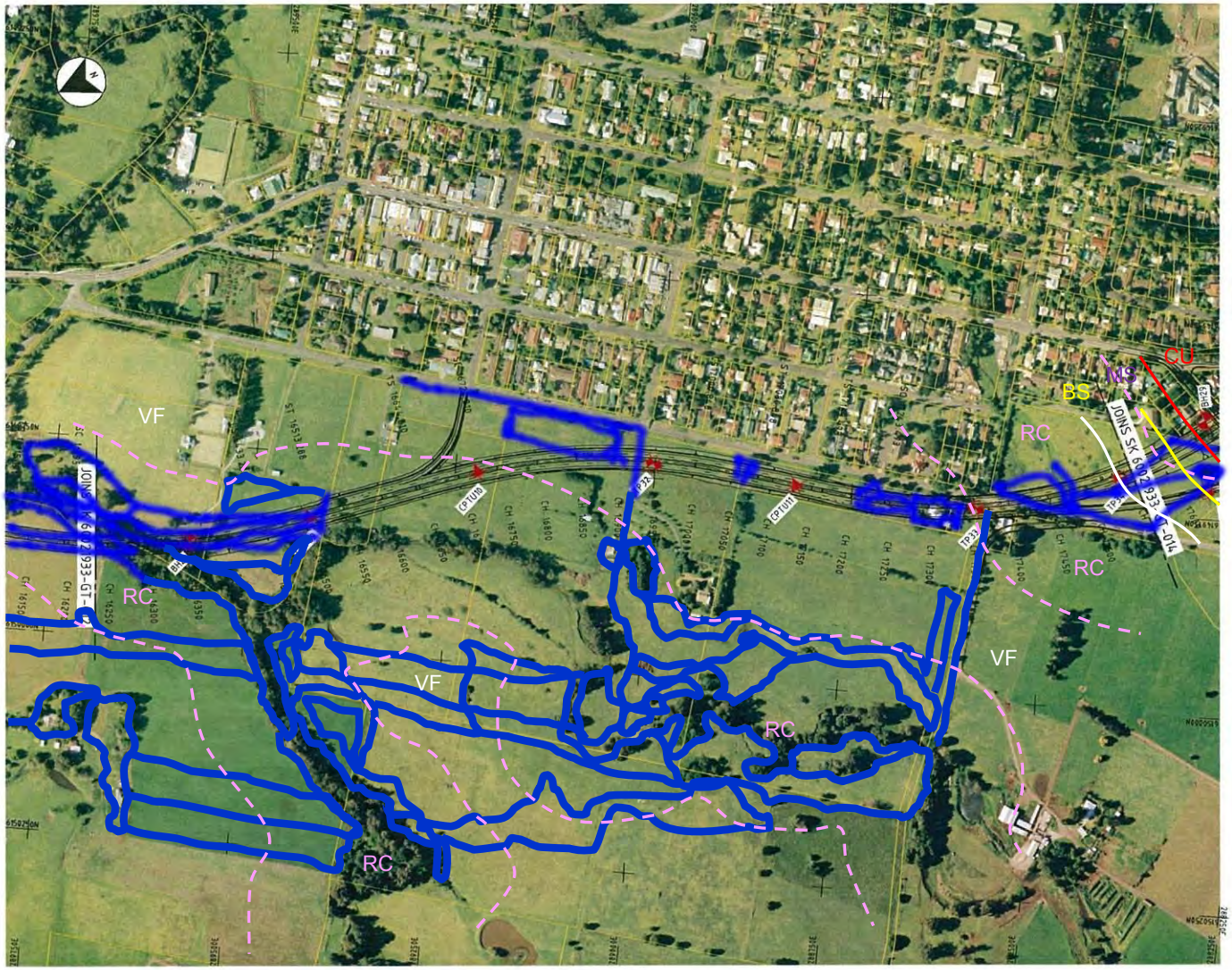

LEGEND

PROPOSED INVESTIGATION

- BOREHOLE (BH)
- TEST PIT (TP)
- CONE PENETRATION TEST WITH PIEZO CONE (CPTU)

PREVIOUS INVESTIGATION

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- PREVIOUS TEST PIT BY COFFEY (CTP)
- PREVIOUS CPT BY COFFEY (CPT)
- PREVIOUS BOREHOLE BY GOLDER (GT)

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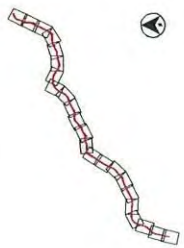

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GERRINGONG TO BOMADERRY PRINCES HIGHWAY UPGRADE

PROPOSED GEOTECHNICAL INVESTIGATION SITES

SHEET 13

STATUS:	DRAWING NO:	REV.
SKETCH	60021933-GT-013	01

LEGEND

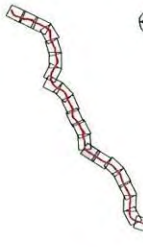
PROPOSED INVESTIGATION

- BOREHOLE (BH)
- TEST PIT (TP)
- CONE PENETRATION TEST WITH PIEZO CONE (CPTU)

PREVIOUS INVESTIGATION

- PREVIOUS BOREHOLE BY COFFEY (CBH)
- PREVIOUS TEST PIT BY COFFEY (CTP)
- PREVIOUS CPT BY COFFEY (CPT)
- PREVIOUS BOREHOLE BY GOLDER (GT)

KEYPLAN



REVISION IN PROGRESS

No.	BY	DATE	DESCRIPTION	APPD
01				

THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE MAUNSELL QUALITY ASSURANCE SYSTEM TO ISO 9001:1994

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APPROVED		DATE	

SCALES

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GERRINGONG TO BOMADERRY PRINCES HIGHWAY UPGRADE

PROPOSED GEOTECHNICAL INVESTIGATION SITES

SHEET 14

STATUS	DRAWING NO.	REV.
SKETCH	60021933-GT-014	01


MS
BS
CU
BS
RC
VF

Appendix L

Southeastern Australian sites used in (lithic analysis) richness comparison

Project name	Site name(s)	Map coordinates (GDA)	N° of excavated areas	N° of excavated pits	Total area excavated (m²)	Assemblage size	Assemblage diversity	Raw material diversity	Broken: complete artefacts
Sandon Point Sub-Surface Testing and Salvage Program, NSW south coast	Lot 235	308786.6199550	3	5	3000	2731	52	14	1.00
Coila Lake Salvage, NSW south coast	CPL1	240967.6007904	1	14	8	4081	47	13	1.47
Boardwalk, Newcastle, NSW south coast	NPWS Site #38-4-0559	384608.6356255	Not available	Not available	154	568	14	8	1.82
McCue Midden, Kurnell, NSW Central Coast	NPWS Site # 52-3-1110	331562.6233443	1	12	120	554	23	12	1.47
Banora Pt, NSW Far North Coast (SE Qld)	04-2-0017/166	554162.6878347	1	22	150	134	14	6	1.25
Dolphin Pt, NSW south coast	Stage 1 (Dolphin Point 2)	267638.6080637	1	36	90	1338	37	11	2.12
Lagoon Restaurant, Wollongong, NSW south coast	NPWS Site # 52-2-2189	306982.6109044 6	Not available	3	Not available	116	10	5	1.27
Conjola Regional Sewerage Scheme, NSW south coast	CS3; CS4; CS6; CS9; CS20; CS25; CS26; 58-2-241	267817.6098684	1	8	2	895	32	13	1.27
Gerroa Sand Mine, NSW South Coast	Conservation area B	298198.6149469	1	51	8	35	8	6	1.47
Wombeyan Caves Open Site, NSW south coast Hinterland	Wombeyan 1	773461.6200013	1	3	16	244	11	9	2.64
Tuross Pipeline, NSW south coast	TGPAD	242035.6006787	1	16	6	211	14	10	2.64

Project name	Site name(s)	Map coordinates (GDA)	N° of excavated areas	N° of excavated pits	Total area excavated (m²)	Assemblage size	Assemblage diversity	Raw material diversity	Broken: complete artefacts
Tugun Bypass, SE QLD Coast	Tugun stages 1-3, Tugun Piers	549435.6883930	1	28	5600	1564	34	10	1.04
Coombabah Creek, SE Qld Coast	CC1	536480.6914558	1	29	81	456	31	11	0.6
Tidbinbilla, ACT	TDC1; TDC2; TDC4 (PAD)	672758.6073553 GDA	3	NA	NA	256	24	8	1.60
Gerroa STP, NSW south coast	STP; SPS682	298604.6149693	2	66	216	1961	19	9	1.6
Manyana, NSW south coast	MS1; MS2; MS3; MS4; MS5	273704.6095421	1	27	5	479	20	3	1.20
Bungendore Gas Pipeline, Eastern NSW	GMF1; GMF2; GMF4; GMF PAD1	717300.6085260	1	5	4000	728	26	10	0.60
Blacktown Olympic Park, NSW Central Coast	BOP PAD	301685.6261360	1	39	39	958	19	9	0.99
Bannaby, NSW south coast Hinterland	BA1; BA2; BA3; BA4; BA6; BA7; BA8; BA9, PAD BA7	775193.6182827	1	19	28	229	20	9	1.46
Eastern Creek, ACT	PAD1	301283.6258599	1	16	40	66	4	3	2.80
Barton Highway, ACT	BHDS1; BHDS2	693807.6100481	3	2	2	24	3	Not available	1.64
West Macgregor 1&2, ACT	MW3; MW4; MW5/PAD; MW6	682326.6101307	3	63	63	1799	34	13	9.39
Cotter Dam, ACT	UF330, UF332, ECRAs 6, 15, 17, 30 and 65	675420.6089946	15	305	50	2131	61	11	

Project name	Site name(s)	Map coordinates (GDA)	N° of excavated areas	N° of excavated pits	Total area excavated (m²)	Assemblage size	Assemblage diversity	Raw material diversity	Broken: complete artefacts
Tintenbar to Ewingsdale, NSW North Coast	PADs 2, 6, 7, 23, 24 and 25	551890.6822512	6	42	7	26	3	1	11.00
Bulahdelah Pacific Hwy, NSW south coast	BPAD2; BPAD3; B8; B10; B15	425868.6414333	4	25	25	10	5	3	2.92
East Lake, ACT	E4	695206.6090351	1	7	7	11	2	1	
Bellambi STP, NSW south coast	Zone A; Zone D	309514.6195028	2	NA	200	444	38	3	2.77
G2B Gerringong Upgrade, Eastern NSW	PASA32; 33;37;38;39; G2B A5; G2B A6; G2B A7	300933.6153204	8	42	7	146	20	10	1.40
Stage 1 and 2 (NSW) Murrumbidgee to Googong Pipeline, ACT and NSW	M2G8, 15, 16, 17, 18, 24, 25, 26, 28, 31, 32, 33, 37, 55, 56, 57, 58, 59, 60, 61, 71	351635.6150908	22	99	16	570	17	6	1.13
C2B, Cootamundra, Eastern NSW	CB2, CB5, CB9, CB15 and at PAD CBPAD1	593871.6166475	5	125	20	381	22	7	1.92

Project name	Site name(s)	Map coordinates (GDA)	N° of excavated areas	N° of excavated pits	Total area excavated (m²)	Assemblage size	Assemblage diversity	Raw material diversity	Broken: complete artefacts
Bacchus Marsh, Southern VIC	WV028, WV092, WV094, WV095, WV108, WV116, WV123, WV138, WV139, WV140, WV141, WV142, WV143, WV144, WV145, WV146, WV147, WV149, WV150, WV151, WV152, WV153, WV154, WV155, WV157, WV85, WV86	271861.826036	27	Not available	Not available	340	24	4	1.60
Mt Gellibrand, Southern VIC	Not available	Not available	Not available	Not available	Not available	2227	29	7	9.00
G2B FBB	PASA12;13; 14;15;16;18; 20;21;23;24; 25;26;27;28; 29;40;41;43 & 44	290049.6149878	3	298	240	236	27	12	1.79
Mean						***791.09***	***23.38***	***8.32***	***2.69***

Appendix M

Unexpected finds procedure

STANDARD MANAGEMENT PROCEDURE

Unexpected Archaeological Finds

July 2012

About this release

RMS/ISBN numbers	RMS 12.003 | ISBN 9781922040305
Title	Unexpected Archaeological Finds Procedure

Approval and authorisation		Name
Prepared by	Environmental Officer (Heritage)	Gretta Logue
Revised by	Environmental Officer (Heritage)	Daniel Percival
Approved by	Manager Environmental Policy	Michael Crowley

Location	File name
G:\ENVIRNMNT\Policy\Heritage\Cultural Heritage (Non-Aboriginal)\Unexpected Finds Procedure\Procedure\Final July 2012	Unexpected Archaeological Finds Procedure.doc

Document status	Date
Final	23 July 2012

Version	Date	Revision Description
Final	1 November 2011	First Draft
Revised	23 July 2012	Amended to reflect that (a) unexpected finds do not include items covered by a relevant approval; (b) Aboriginal people must be consulted where an unexpected find is likely to be an Aboriginal object; (c) the Department of Planning and Infrastructure must be notified in accordance with Step 5 of this procedure for Part 3A and Part 5.1 projects.

Prepared by
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Please note

This procedure applies to all development and activities concerning roads, road infrastructure and road related assets undertaken by Roads and Maritime Services.

For advice on how to manage unexpected archaeological finds as a result of activities related to maritime infrastructure or projects, please contact the Senior Environmental Specialist (Heritage).

Contents

Unexpected Archaeological Finds Procedure

1. Purpose

The unexpected archaeological finds procedure has been developed to provide a consistent approach on how to proceed in the event of uncovering an unexpected archaeological find (both Aboriginal and non-Aboriginal) during Roads and Maritime Services' (RMS) activities. This includes RMS' heritage notification obligations under the following legislation: *Heritage Act 1977* (NSW), *National Parks and Wildlife Act 1974* (NSW), *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) and the *Coroner's Act 2009* (NSW).

This document provides relevant background information in Section 3, followed by the technical procedure in Sections 6 and 7. Associated guidance referred to in the procedure can be found in Appendices A-H.

2. Scope

This procedure assumes that an appropriate level of Aboriginal and non-Aboriginal cultural heritage assessment has been undertaken prior to project approval or determination. Such assessment would have identified all heritage items, including areas of archaeological potential, likely to be present within the project area.

However, in some cases, despite appropriate and adequate investigation, unexpected archaeological finds may be encountered during the project construction phase. When this happens, this procedure must be followed. This procedure provides direction on when to stop work, where to seek technical advice and how to notify the regulator, if required.

This procedure applies to all RMS construction and maintenance activities

This procedure **applies to**:

- The discovery of any unexpected archaeological find (usually during construction), where RMS does not have specific approval to disturb that find.
- All RMS projects that are approved or determined under Part 3A (including Transitional Part 3A Projects), Part 4, Part 5 or Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), or any development that is exempt under the Act.

This procedure must be followed by all RMS staff, RMS alliance partners (including Local Council staff working under Road Maintenance Council Contracts, [RMCC]), developers under works authorisation deeds or any person undertaking Part 5 assessment for the purposes of RMS.

This procedure **does not apply** to:

- The legal discovery and disturbance of archaeological finds as a result of investigations being undertaken in accordance with OEH's *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (2010); an Aboriginal Heritage Impact Permit (AHIP) issued under the *National Parks and Wildlife Act*

1974; or an approval issued under the *Heritage Act 1977*[1].

- The legal discovery and disturbance of archaeological finds as a result of investigations (or other activities) that are required to be carried out for the purpose of complying with any environmental assessment requirements under Part 3A (including Transitional Part 3A Projects) or Part 5.1 of the EP&A Act.
- The legal discovery and disturbance of archaeological finds as a result of construction related activities, where the disturbance is permissible in accordance with an AHIP[2]; an approval issued under the *Heritage Act 1977*; or the Minister for Planning's conditions of project approval.

All new Construction Environment Management Plans (CEMPs) must make reference to and/or include this procedure (often included as a heritage sub-plan). Where approved CEMPs exist they must be followed in the first instance. Where there is a difference between approved CEMPs and this procedure, the approved CEMP must be followed. Where approved CEMPs do not provide sufficient detail on particular issues, this procedure should be used as additional guidance. When in doubt always seek environment and legal advice on varying approved CEMPs.

3. Types of unexpected archaeological finds and their legal protection

Project, field and environment staff will be critical to the early identification and protection of unexpected archaeological finds. Appendix A illustrates the wide range of archaeological discoveries found on RMS projects and provides a useful photographic guide to this early identification. Subsequent confirmation of archaeological discoveries must then be identified and assessed by technical specialists (usually an archaeologist).

An 'unexpected find' is any unanticipated archaeological discovery, for which RMS does not have existing approval to disturb[3].

These discoveries are categorised as either:

(a) Aboriginal objects

(b) 'Non-Aboriginal' unexpected finds

(c) Human skeletal remains.

The relevant legislation that applies to each of these categories is described below.

3.1 Aboriginal objects

Unexpected archaeological finds may include 'Aboriginal objects'. The *National Park and Wildlife Act 1974* protects *Aboriginal objects* which are defined as:

[1] RMS' heritage obligations are incorporated into either the conditions of heritage approval or within the RMS standard consultant's brief for undertaking archaeological investigations.
[2] RMS *Procedure for Aboriginal cultural heritage consultation and investigation* (2011) recommends that Part 4 and Part 5 projects that are likely to impact Aboriginal objects during construction seek a whole-of-project AHIP. This type of AHIP generally allows a project to impact known and potential Aboriginal objects within the entire project area, without the need to stop works. It should be noted that an AHIP may exclude impact to certain objects and areas, such as burials or ceremonial sites. In such cases, the project must follow this procedure.
[3] This is considered to be any physical interference with the find such as manually picking it up and putting it back, moving it to another location near by, removing it from site, crushing or excavation it, or any other type of physical action that results in it being destroyed, defaced, damaged, harmed, impacted or altered in any way (this includes archaeological investigation activities).

> "*any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non Aboriginal extraction, and includes Aboriginal remains*"[4].

Examples of Aboriginal objects include stone tool artefacts, shell middens, axe grinding grooves, pigment or engraved rock art, burials and scarred trees.

IMPORTANT!

All *Aboriginal objects* are subject to statutory controls and protections.

If any impact is expected to an Aboriginal object, an Aboriginal Heritage Impact Permit (AHIP) is usually required from the Office of Environment and Heritage (OEH)[5]. Also, when a person becomes aware of an Aboriginal object they must notify the Director-General of OEH about its location[6]. Assistance on how to do this is provided in Section 7 (Step 5).

3.2 Non-Aboriginal unexpected finds

Non-Aboriginal unexpected finds may include statutory 'relics' or other non-statutory archaeological features (ie works).

The *Heritage Act 1977* protects *relics* which are defined as:

> "*any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and is of State or local heritage significance*"[7].

Relics may relate to past domestic, industrial or agricultural activities in NSW, and can include items such as bottles, items of clothing, pottery, building materials and general refuse.

IMPORTANT!

All *relics* are subject to statutory controls and protections.

If any impact is expected to a relic, a heritage approval is usually required from the NSW Heritage Council[8]. Also, when a person discovers a relic they must notify the NSW Heritage Council of its location[9]. Advice on how to do this is provided in Section 7 (Step 5).

Some non-Aboriginal archaeological features such as historic utilities and infrastructure are not considered to be 'relics'; instead they are considered to be 'works'. Examples

[4] Section 5(1) *National Park and Wildlife Act 1974*.
[5] Except when Part 3A, Division 4.1 of Part 4 or Part 5.1 of the *EP&A Act* applies.
[6] This is required under s89(A) of the *National Park and Wildlife Act 1974* and applies to **all projects** assessed under Part 3A, Part 4, Part 5 *and Part 5.1* of the *EP&A Act*, including exempt development.
[7] Section 4(1) *Heritage Act 1977*.
[8] Except when Part 3A, Division 4.1 of Part 4 or Part 5.1 of the *EP&A Act* applies.
[9] This is required under s146 of the *Heritage Act 1977* and applies to **all projects** assessed under Part 3A, Part 4, Part 5 and Part 5.1 of the *EP&A Act*, including exempt development.

of works that the RMS may encounter include former road infrastructure features and services, culverts, previous historic road formation, historic pavement, buried road retaining walls, tramlines, cisterns and conduits. Although an approval under the *Heritage Act 1977* may not be required, the discovery of works must also be managed in accordance with this procedure.

3.3 Human skeletal remains

Human skeletal remains can be identified as either an Aboriginal object or non-Aboriginal relic depending on ancestry of the individual (Aboriginal or non-Aboriginal) and burial context (archaeological or non-archaeological). Remains are considered to be archaeological when the time elapsed since death is suspected of being 100 years or more. Depending on ancestry and context, different legislation applies.

As a simple example, a pre-contact archaeological Aboriginal burial would be protected under the *National Park and Wildlife Act 1974*, while a historic (non-Aboriginal) archaeological burial within a cemetery would be protected under the *Heritage Act 1977*. For these cases, the relevant heritage approval and notification requirements described in the above sections 3.1 and 3.2 would apply. In addition to the *National Park and Wildlife Act 1974*, finding Aboriginal human remains also triggers notification requirements to the Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities (SEWPC) under s20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

IMPORTANT!

All human skeletal remains are subject to statutory controls and protections.

All bones must be treated as potential human skeletal remains and work around them must stop while they are protected and investigated urgently.

However, where it is suspected that less than 100 years has elapsed since death, the human skeletal remains come under the jurisdiction of the State Coroner and the *Coroners Act 2009* (NSW). Such a case would be considered a 'reportable death' and under legal notification obligations set out in s35(2); a person must report the death to a police officer, a coroner or an assistant coroner as soon as possible. This applies to all human remains less than 100 years old[10] regardless of ancestry (ie both Aboriginal and non-Aboriginal remains). Public health controls may also apply.

Guidance on what to do when suspected human remains are found is provided in Appendix F.

[10] Under s19 of the *Coroners Act 2009*, the coroner has no jurisdiction to conduct an inquest into reportable death unless it appears to the coroner that (or that there is reasonable cause to suspect that) the death or suspected death occurred within the last 100 years.

4. Responsibilities

The following roles and responsibilities are relevant to this procedure.

Role	Definition/responsibility
Aboriginal Cultural Heritage Advisor (ACHA)	Provides Aboriginal cultural heritage advice to project teams. Acts as Aboriginal community liaison for projects on cultural heritage matters. Engages and consults with the Aboriginal community as per the RMS *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.
Aboriginal Sites Officer	Is an appropriately trained and skilled Aboriginal person whose role is to identify and assess Aboriginal objects and cultural values. For details on engaging Aboriginal sites officers, refer to RMS *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.
Archaeologist (A)	Professional consultant, contracted on a case-by-case basis to provide heritage and archaeological advice and technical services (such as reports, heritage approval documentation etc).
Project (*on-call*) Archaeologist	Professional consultant contracted for the implementation phase of a construction project to provide heritage and archaeological advice and technical services when required. Major projects with complex heritage issues often have a Project archaeologist.
Project Manager (PM)	Ensuring all aspects of this procedure are implemented. The PM can delegate specific site tasks to a construction environment manager, RMS site representatives or regional environment staff, where appropriate.
Regional Environment Staff (RES)	Providing advice on this procedure to project teams. Ensuring this procedure is implemented consistently by supporting the PM. Supporting project teams during the uncovering of unexpected finds. Reviewing archaeological management plans and liaising with heritage staff and archaeological consultants as needed.
Registered Aboriginal parties (RAPs)	RAPs are Aboriginal people who have registered with the RMS to be consulted about a proposed RMS project or activity in accordance with OEH's Aboriginal cultural heritage consultation requirements for proponents (2010).
RFS Environment Manager	Ensuring RFS field staff are aware of the RFS Escalation Protocol and RFS Unexpected Find Recording Form 418. Supporting the RFS Section Manager, where required, during the implementation of this procedure and ensuring reporting of unexpected finds through environment management systems.
RFS Section Manager	Responding to escalated unexpected finds that have been uncovered during RFS maintenance works.

	Liaising with the RES and RFS Environment Manager and heritage staff, where required, during the uncovering of unexpected finds and the implementation of this procedure.
RFS Team Leader	Ensuring RFS field crew stop works in vicinity of the find. Completing RFS Unexpected Find Recording Form 418 and escalating issues to RFS Section Manager, as per RFS Escalation Protocol.
Senior Environmental Specialist (Heritage) (SES(H))	Provides technical assistance on this procedure and archaeological technical matters, as required. Reviewing the archaeological management plans and facilitating heritage approval applications, where required. Assists with regulator engagement, where required.
Technical Specialist	Professional consultant contracted to provide specific technical advice that relates to the specific type of unexpected find (eg a forensic or physical anthropologist who can identify and analyse human skeletal remains).

5. Acronyms

The following acronyms are relevant to this procedure.

Acronym	Meaning
AHIP	Aboriginal Heritage Impact Permit
ASO	Aboriginal Site Officer
CEMP	Construction Environment Management Plan
DSEWPC	Commonwealth Department of Sustainability, Environment, Water, Populations and Communities
EPRG	Environmental Planning and Regulatory Group. *Please note at the time of finalisation EPRG became part of Environment Protection Authority.*
OEH	Office of Environment and Heritage
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
RAP	Registered Aboriginal Party/ies
RFS	Road and Fleet Services
RMCC	Road Maintenance Council Contracts
RMS	Roads and Maritime Services

6. Overview of the procedure

On discovering something that could be an unexpected archaeological find ('the find'), the project manager must implement the following procedure with the assistance of the regional environment staff and RMS heritage staff, where required.

There are eight steps in the procedure. These steps are shown briefly in Figure 1 below and explained in detail in Section 7.

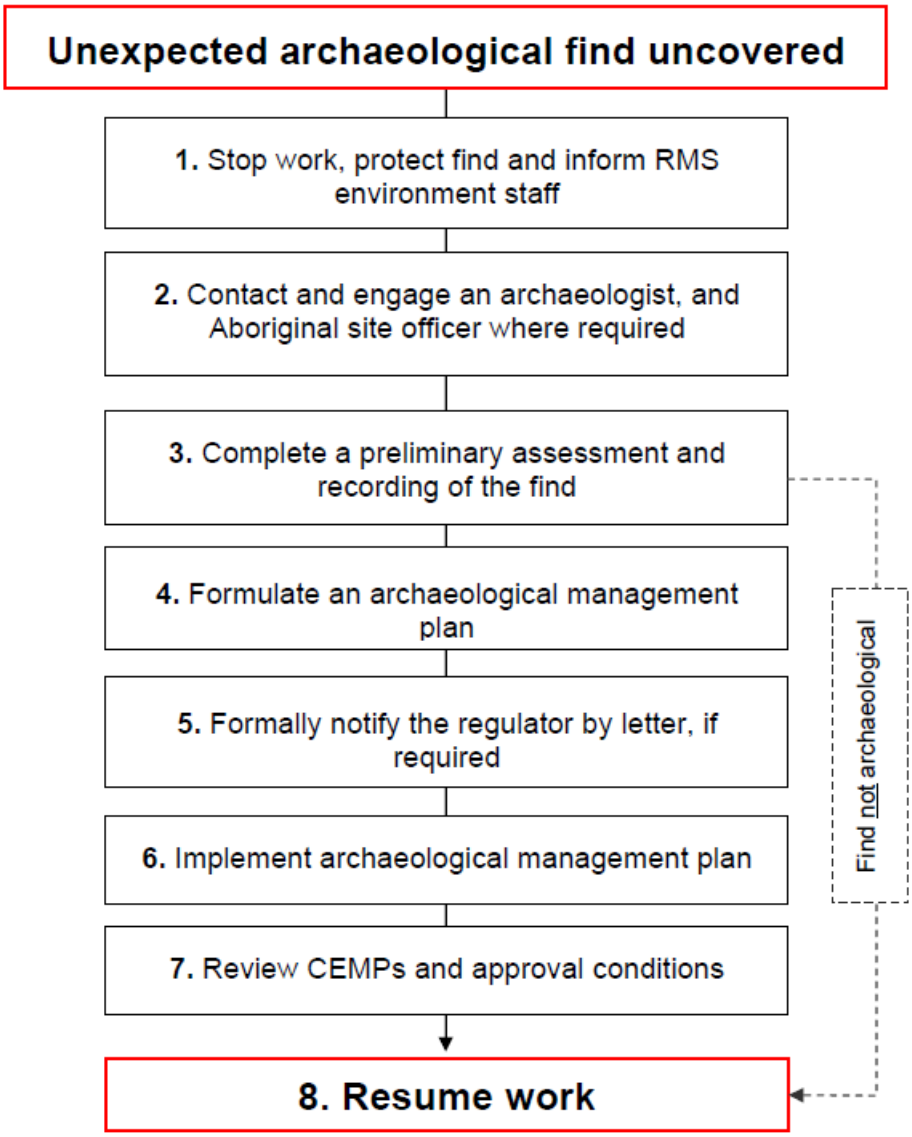


Figure 1: Overview of steps to be undertaken on the discovery of an unexpected archaeological find.

7. Unexpected Archaeological Finds Procedure

Table 1: Specific tasks to be implemented following the discovery of an unexpected find.

Aboriginal Cultural Heritage Advisor (ACHA); Aboriginal Sites Officer (ASO); Archaeologist (A); Project Manager (PM); Regional Environment Staff (RES); Registered Aboriginal Parties (RAPs); Senior Environmental Specialist (Heritage) (SES(H)).

Step	Task	Responsibility	Guidance & Tools
1	**Stop work, protect find and inform RMS environment staff**		
1.1	Stop all work in the immediate area of the find and notify the PM.	All	**Appendix A** (Identifying Unexpected Archaeological Finds)
1.2	RFS routine maintenance crews are required to follow the escalation protocol outlined in Appendix B and return to this procedure when directed by that protocol.	RFS Team Leader	**Appendix B** (RFS Escalation Protocol) **Appendix C** (RFS Find Recording Form 418)
1.3	Take a number of photographs that captures the general context and specific detail of the find.	PM	**Appendix D** (Photographing Unexpected Archaeological Finds)
1.4	Inform relevant RMS regional environment staff, Senior Environmental Specialist (Heritage) and Regional Aboriginal Cultural Heritage Advisor (where the find is thought to be an Aboriginal object).	PM	**Appendix E** (Key Environmental Contacts)
1.5	Delineate and protect the find with appropriate (high visibility) fencing, where practical.	PM	
1.6	No further interference, including works, ground disturbance, touching or moving the find of any kind, must occur to the find or within the protected area.	PM	
1.7	Inform all site personnel of the protected area (a new environmentally sensitive zone).	PM	

Step	Task	Responsibility	Guidance & Tools
1.8	Where, at this stage, the find is reasonably suspected to be human remains proceed directly to notifying the local police who may take command of all or part of the site. Where the find does not involve human remains, continue progressing through this procedure.	PM	**Appendix F** (Uncovering Bones)
1.9	Report the find as a '*Notifiable Event*' in accordance with the RTA *Incident Classification and Reporting Procedure*. Also implement any additional reporting requirements related to the project's approval and CEMP.	PM/RES	**RTA Incident Classification and Reporting Procedure**
2	**Contact and engage an archaeologist, and Aboriginal site officer where required**		
2.1	Contact the project (*on-call*) archaeologist to discuss the location and extent of the find and to arrange a site inspection, if required. The project CEMP contains contact details of the project archaeologist.	PM/RES	Also see **Appendix E** (Key Environmental Contacts)
2.2	Where there is no project archaeologist engaged for the project, engage a suitably qualified and experienced archaeological consultant to undertake a site inspection, conduct a preliminary assessment and prepare an archaeological management plan. Lists of consultants are available from online sources, including the yellow pages. Regional environment staff and RMS heritage staff can also advise on appropriate consultants.	PM/RES	Online lists of heritage consultants: • OEH List • AACAI List
2.3	Where the find is likely to be an Aboriginal object, arrange for an Aboriginal sites officer to inspect the find. Generally, this person would be a sites officer from the relevant local Aboriginal land council. If an alternative contact person (ie a RAP) has been nominated as a result of previous consultation, then that person is to be contacted.	PM/ACHA	
2.4	If requested, provide photographs of the find taken at Step 1.3 to the archaeologist, and Aboriginal sites officer if relevant.	PM/RES	**Appendix D** (Photographing Unexpected Archaeological Finds)
3	**Preliminary assessment and recording of the find**		
3.1	In a minority of cases, the archaeologist (and Aboriginal sites officer, if relevant) may	A/PM/ASO	Proceed to Step 8

Step	Task	Responsibility	Guidance & Tools
	determine from the photographs that no site inspection is required because no archaeological constraint exists for the project (*eg the find is not a 'relic', a heritage 'work' or an 'Aboriginal object'*). Any such advice should be provided in writing by the archaeologist (eg via email) and confirmed by the project manager.		
3.2	Arrange site access for the archaeologist (and Aboriginal sites officer, if relevant) to inspect the find as soon as practicable. In the majority of cases a site inspection is required to conduct a preliminary assessment.	PM	
3.3	Subject to the archaeologist's assessment (and the Aboriginal sites officer's assessment, if relevant), work may recommence at a set distance from the find. This is to protect any other archaeological material that may exist in the vicinity, which has not yet been uncovered. Existing protective fencing established in Step 1.5 may need to be adjusted to reflect the extent of the newly assessed protective area. No works are to take place within this area once established.	A/PM/ASO	
3.4	The archaeologist (and Aboriginal sites officer, if relevant) may provide advice after the site inspection and preliminary assessment that no archaeological constraint exists for the project (*eg the find is not a 'relic', a heritage 'work' or an 'Aboriginal object'*). Any such advice should be provided in writing by the archaeologist, (and Aboriginal sites officer if relevant) (eg via email) and confirmed by the project manager.	A/PM/ASO	Proceed to Step 8
3.5	Where required, seek additional specialist technical advice (such as a forensic or physical anthropologist to identify skeletal remains). Regional environment staff and/or RMS heritage staff can provide contacts for such specialist consultants.	PM/RES	**Appendix E** (Key Environmental Contacts)
3.6	Where the find has been identified as a 'relic', 'work' or an 'Aboriginal object' the archaeologist should record the find on a proforma recording form.	A	• Aboriginal site recording form • Non-Aboriginal site recording form
3.7	The regulator can be notified informally by telephone at this stage by the archaeologist or project manager (or delegate). Any verbal conversations with regulators must be noted on the project file for future reference.	PM/A	

Step	Task	Responsibility	Guidance & Tools
4	**Prepare an archaeological management plan**		
4.1	The archaeologist must prepare an archaeological management plan (with input from the Aboriginal sites officer, where relevant) shortly after the site inspection. This plan is a brief overview of the following: (a) description of the feature, (b) historic context, if data is easily accessible, (c) likely significance, (d) heritage approval and regulatory notification requirements, (e) heritage reporting requirements, (f) stakeholder consultation requirements, (g) relevance to other project approvals and management plans etc.	A/ASO	**Appendix G** (Archaeological Advice Checklist)
4.2	In preparing the plan, the archaeologist with the assistance of regional environment staff must review the CEMP, any heritage sub-plans, any conditions of heritage approvals, any conditions of project approval (and or Minister's Conditions of Approval) and heritage assessment documentation (eg Aboriginal Cultural Heritage Assessment Report). This will outline if the unexpected find is consistent with previous heritage/project approval(s) and/or previously agreed management strategies. The project manager and regional environment staff must provide all relevant documents to the archaeologist to assist with this. Discussions should occur with design engineers to consider if re-design options exist and are appropriate.	A/RES/PM	**Appendix G** (Archaeological Advice Checklist)
4.3	The archaeologist must submit this plan as a letter, brief report or email to the project manager outlining all relevant archaeological issues. This plan should be submitted to the project manager as soon as practicable. Given that the archaeological management plan is an overview of all the necessary requirements (and the urgency of the situation), it should take no longer than two working days to submit to the project manager.	A	
4.4	The project manager must review the archaeological management plan to ensure all requirements can reasonably be implemented. Seek additional advice from regional environment staff and RMS heritage staff, if required.	PM/RES/SES (H)	
5	**Notify the regulator, if required.**		
5.1	Review the archaeological management plan to confirm if regulator notification is required. It may state notification is not required.	PM/RES/SES (H)	Proceed to Step 6

Step	Task	Responsibility	Guidance & Tools
5.2	If notification is required, complete the template notification letter.	PM	**Appendix H** (Template Notification Letter)
5.3	Forward the draft notification letter, archaeological management plan and the site recording form to regional environment staff and Senior Environmental Specialist (Heritage) for review, and consider any suggested amendments.	PM/RES/SES (H)	
5.4	Forward the signed notification letter to the relevant regulator (ie notification of non-Aboriginal relics must be given to the Heritage Branch of OEH, while notification for Aboriginal objects must be given to the Environmental Protection and Regulation Group of OEH). Informal notification (via a phone call or email) to the regulator prior to sending the letter is appropriate. The archaeological management plan and the completed site recording form must be submitted with the notification letter. For Part 3A and Part 5.1 projects, the Department of Planning and Infrastructure must also be notified.	PM	**Appendix E** (Key Environmental Contacts)
5.5	A copy of the final signed notification letter, archaeological management plan and the site recording form should be kept on file by the project manager and a copy sent to the Senior Environmental Specialist (Heritage).	PM	
5.6	If requested by the regulator, arrange a site inspection of the find for them.	PM	
6	**Implement archaeological management plan**		
6.1	Modify the archaeological management plan to take into account any additional advice resulting from notification and discussions with the regulator.	A/PM	
6.2	Implement the archaeological management plan. Where impact is expected, this would include such things as a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, consultation with registered Aboriginal parties, obtaining heritage approvals etc, if required.	PM/RAPs	PACHCI Stage 3
6.3	Where heritage approval is required contact regional environment staff for further advice and support material. Please note time constraints associated with heritage approval preparation and processing. Project scheduling may need to be revised where extensive delays are expected.	PM/RES	

Step	Task	Responsibility	Guidance & Tools
6.4	For Part 3A/Part 5.1 projects, assess whether heritage impact is consistent with the project approval or if project approval modification is required from the Department of Planning and Infrastructure. Seek advice from regional environment staff and Environment Branch specialist staff if unsure.	PM/RES	
6.5	Where statutory approvals (or project approval modification) are required, impact upon relics and/or Aboriginal objects must not occur until heritage approvals are issued by the appropriate regulator.	PM	
6.6	Where statutory approval (or Part 3A/Part 5.1 project modification) is not required and where archaeological recording is recommended by the archaeologist, sufficient time must be allowed for this to occur.	PM	
6.7	Ensure short term and permanent storage locations are identified for archaeological material removed from site, where required. Interested third parties (eg museums or local councils) should be consulted on this issue. Contact regional environment staff and Senior Environmental Specialist (Heritage) for advice on this matter, if required.	PM	
6.8	Ensure all archaeological excavation and heritage recording are completed prior to RMS project work resuming.	PM	
7	**Review CEMPs and approval conditions**		
7.1	Clarify regulator expectations around written authorisation to commence project work. This may relate to situations where human remains are found or when they request to review preliminary archaeological excavation reports or assessments prior to the resumption of RMS project work. Where this is not explicit in heritage approval conditions, expectations should be clarified directly with the regulator.	PM	
7.2	Update the CEMP, site mapping and project delivery program as appropriate with any project changes resulting from final heritage management (eg retention of heritage item, salvage of item). Updated CEMPs must incorporate additional conditions arising from any heritage approvals, and Aboriginal community consultation if relevant. Include any changes to CEMP in site induction material and update site workers during toolbox talks.	PM	

Step	Task	Responsibility	Guidance & Tools
8	**Resume work**		
8.1	Seek written clearance to resume project work from regional environment staff and the archaeologist (and regulator, if required). Clearance would only be given once all archaeological excavation and heritage recording (where required) are complete. Resumption of project work must be in accordance with the all relevant project/heritage approvals/determinations.	RES/A/PM	
8.2	If required, ensure archaeological excavation reporting and other heritage approval conditions are completed in the required timeframes. This includes artefact retention repositories and/or disposal strategies.	PM/A	
8.3	Forward all heritage/archaeological assessments, heritage location data and its RMS ownership status to the Senior Environmental Specialist (Heritage). They will ensure all heritage items in RMS ownership and/or control are considered for the RMS S170 Heritage Register.	PM/SES(H)	
8.4	If additional unexpected finds are uncovered this procedure must begin again from Step 1.	PM	

8. Seeking advice

Advice regarding this procedure should be directed to regional environment staff in the first instance, and then RMS heritage staff, where required. RMS staff can contact RMS regional environment staff for advice on this procedure at any time. Contractors and alliance partners should ensure their own project environment managers are aware of and understand this procedure. Regional environment staff can assist non-RMS project environment managers with enquires concerning this procedure.

IMPORTANT!

RMS staff and contractors are not to seek advice on this procedure directly from OEH without first seeking advice from regional environment and heritage staff.

Technical archaeological advice regarding the unexpected find should be sought from the contracted archaeologist. Technical specialist advice can also be sought from heritage staff within Environment Branch to assist with the preliminary archaeological identification and technical reviews of heritage/archaeological reports.

9. Related information

Contact details: Manager, Environmental Policy, Environment Branch, 02 8588 5740

Effective date: 1 November 2011

Review date: Final + 12 months

This procedure should be read in conjunction with:

- RTA *Incident Classification and Reporting Procedure*.
- RMS *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.
- RTA *Heritage Guidelines 2004*.
- RTA *Environmental Impact Assessment Guidelines*.

This procedure replaces:

- Procedure 5.5 ("*unexpected discovery of an archaeological relic or Aboriginal object*") outlined in the RTA's *Heritage Guidelines* 2004.

Other relevant reading material:

- NSW Heritage Office (1998), *Skeletal remains: guidelines for the management of human skeletal remains*.
- Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal remains*.
- Department of Health (April 2008), *Policy Directive: Burials - exhumation of human remains*[11].

[11] http://www.health.nsw.gov.au/policies/pd/2008/pdf/PD2008_022.pdf

10. List of appendices

The following appendices are included to support this procedure.

Appendix A	Identifying Unexpected Archaeological Finds
Appendix B	Road and Fleet Services Escalation Protocol
Appendix C	RFS Unexpected Find Recording Form 418
Appendix D	Photographing Unexpected Archaeological Finds
Appendix E	Key Environment Contacts
Appendix F	Uncovering Bones
Appendix G	Archaeological Advice Checklist
Appendix H	Template Notification Letter

Appendix A

Identifying Unexpected Archaeological Finds

The following images can be used to assist in the preliminary identification of a potential unexpected find (both Aboriginal and non-Aboriginal) during construction and maintenance works. Please note this is not a comprehensive typology.

Top left hand picture continuing clockwise: Stock camp remnants (Hume Highway Bypass at Tarcutta); Linear archaeological feature with post holes (Hume Highway Duplication), Animal bones (Hume Highway Bypass at Woomargama); Cut wooden stake; Glass jars, bottles, spoon and fork recovered from refuse pit associated with a Newcastle Hotel (Pacific Highway, Adamstown Heights, Newcastle area).

Top left hand picture continuing clockwise: Woodstave water pipe with tar and wire sealing (Horsley Drive); Tram tracks (Sydney); Brick lined cistern (Clyde); Retaining wall (Great Western Highway, Leura).

Top left hand picture continuing clockwise: Road pavement (Great Western Highway, Lawson); Sandstone kerbing and guttering (Parramatta Road, Mays Hill); Telford road (sandstone road base, Great Western Highway, Leura); Ceramic conduit and sandstone culvert headwall (Blue Mountains, NSW); Corduroy road (timber road base, Entrance Road, Wamberai).

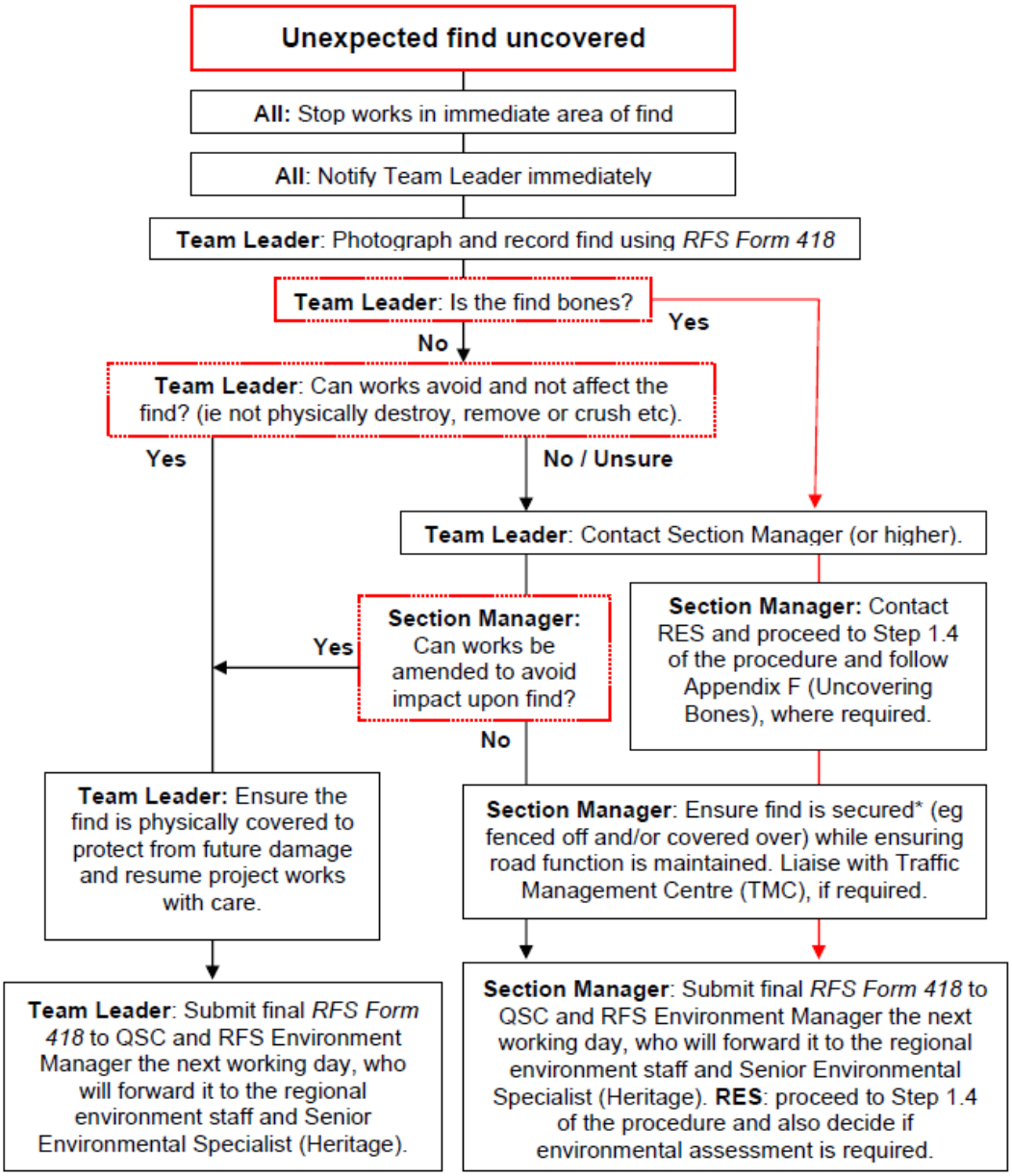
Top left hand corner continuing clockwise: Alignment Pin (Great Western Highway, Wentworth Falls); Survey tree (MR7, Albury); Survey tree (Kidman Way, Darlington Point, Murrumbidgee); Survey tree (Cobb Highway, Deniliquin); Milestone (Great Western Highway, Kingswood, Penrith); Alignment Stone (near Guntawong Road, Riverstone). Please note survey marks may have additional statutory protection under the *Surveying and Spatial Information Act 2002*.

Top left hand corner: Culturally modified stone discovered on Main Road 92, about two kilometres west of Sassafras. The rest of the images show a selection of stone artefacts retrieved from test and salvage archaeological excavations during the Hume Highway Duplication and Bypass projects from 2006-2010.

Appendix B

Road and Fleet Services Escalation Protocol

Road crews in RMS Road and Fleet Services (RFS) undertake routine maintenance works such as patching, cleaning, line marking and milling within the road reserve. In addition, these works are often undertaken at night on urban thoroughfares. A specific escalation protocol has been developed to ensure that disruption to traffic is minimised if an unexpected find is encountered when carrying out such maintenance works.



*Appropriate temporary covering of the find is something that protects it from further damage and that can be removed quickly the next day without damage from re-excavation. For example geofabric and loose, dry asphalt, or a metal plate. Certain unexpected finds (such as human remains) should not be covered with loose material as the re-excavation process is likely to cause further damage to the find. Fencing and immediate action is appropriate in these rare cases.

Appendix C

RFS Unexpected Find Recording Form 418

Transport NSW Roads & Maritime Services	RFS Unexpected Find Recording Form	418

Date:		**Recorded by**	
Project Name:			

Description of works being undertaken (eg Removal of failed pavement by excavation and pouring concrete slabs in 1m x 1m replacement sections).	
Description of exact location of find (eg Within the road formation on Parramatta Road, east bound lane, at the corner of Johnston Street, Annandale, Sydney).	
Description of item found (eg Metal tram tracks running parallel to road alignment. Good condition. Tracks set in concrete, approximately 10cms (100 mm) below the current ground surface).	

Sketch
(Provide a sketch of the find's general location in relation to other road features so its approximate location can be mapped without having to re-excavate it. Also annotate this sketch with the location and direction of any photographs of the item taken).

Action Taken (Tick either A *or* B)

A.	Unexpected find **will not** be affected by maintenance works	☐	**B.**	Unexpected find **will be** affected by maintenance works	☐

A. Describe if and how works were amended to avoid impact to the find and the action taken to cover the item.

B. Describe how works will affect the find. (eg Milling is required to be continued to 200 mm depth to ensure road pavement requirements are met. Milling to required depth would affect the top 50 mm of potential heritage pavement).

Attach Photographs. (Take a number of close up and general photographs so anyone off site can understand the location of the find, the material it is made from and any distinguishing features).

Team Leader Signature	

Action: Refer issue to Section Manager (or higher) immediately where 'B' has been ticked.

To be completed by Section Manager

Describe any further considerations to amend project works to avoid unexpected find and if impact is still anticipated.	
Describe action taken to secure site temporarily	
Section Manager Signature	

Action: Escalate to environment and heritage staff where impact to item cannot be avoided.

Appendix D

Photographing Unexpected Archaeological Finds

Removal of the find from its context (eg excavating from the ground) for photographic purposes is not permitted.

Photographs of unexpected finds, in their original placement (*in situ*), assists heritage staff and archaeologists to identify 'finds' soon after being uncovered. Emailing good quality photographs to specialists can allow for better quality and faster heritage advice. The key elements that must be captured in photographs of the find include its position, the general find itself and any distinguishing features. All photographs must have a scale (ruler, scale bar, mobile phone, coin) and a note describing the direction of the photograph.

Context and detailed photographs

It is important to take a general photograph (Figure 1) to convey the location and setting of the find. This will add much value to the subsequent detailed photographs also required (Figure 2).

Figure 2: Close up detail of the sandstone surface showing material type, formation and construction detail. This is essential for establishing date of the feature.

Figure 1: Telford road uncovered on the Great Western Highway (Leura) in 2008.

Photographing distinguishing features

Where unexpected finds (eg artefacts) have a distinguishing feature, close up detailed photographs must be taken of this, where practicable. See Figures 3 and 4 for examples.

Figure 3: Ceramic bottle artefact with stamp.

Figure 4: Detail of the stamp allows '*Tooth & Co Limited*' to be made out. This is helpful to a specialist in gauging the artefact's origin, manufacturing date and likely significance.

Photographing bones

The majority of bones found on site will those of be recently deceased animal bones often requiring no further assessment (unless they are in archaeological context). However, if bones are human RMS must contact the police immediately (see Appendix F for detailed guidance). Taking quality photographs of the bones can often resolve this issue quickly. Heritage staff in Environment Branch can confirm if bones are human or non-human if provided with appropriate photographs. Ensure that photographs of bones are not concealed by foliage (Figure 5) as this makes it difficult to identify. Minor hand removal of foliage can be undertaken as long as disturbance of the bone does not occur. Excavation of the ground to remove bone(s) should not occur, nor should they be pulled out of the ground if partially exposed. Where sediment (adhering to a bone found on the ground surface) conceals portions of a bone (Figure 6) ensure the photograph is taken of the bone (if any) that is not concealed by sediment.

Figure 5: Bone concealed by foliage.

Figure 6: Bone covered in sediment

Ensure that all close up photographs include the whole bone and then specific details of the bone (especially the ends of long bones, the *epiphysis*, which is critical for species identification). Figures 7 and 8 are examples of good photographs of bones that can easily be identified from the photograph alone. They show sufficient detail of the complete bone and the epiphysis.

Figure 7: Photograph showing complete bone.

Figure 8: Close up of a long bone's epiphysis.

Appendix E

Key Environmental Contacts

Hunter region	Senior Environmental Officer	4924 0281
	Aboriginal Cultural Heritage Advisor	4924 0383
Northern region	Senior Environmental Officer	6640 1072
	Aboriginal Cultural Heritage Advisor	6604 9305
Southern region	Senior Environmental Officer	4221 2765
	Aboriginal Cultural Heritage Advisor	4221 2767
South West region	Senior Environmental Officer	6938 1143
	Aboriginal Cultural Heritage Advisor	6937 1647
Sydney region	Senior Environmental Officer	8814 2516
	Aboriginal Cultural Heritage Advisor	8849 2006
Western region	Senior Environmental Officer	6861 1628
	Aboriginal Cultural Heritage Advisor	6861 1658
Pacific Highway Office	Environmental Services Manager	6640 1375
Hume Highway Office	Senior Environmental Officer	6923 3419
Road and Fleet Services	Environment Manager	9598 7721
Environment Branch	Senior Environmental Specialist, Heritage	8588 5754

Heritage Regulators

Heritage Branch Office of Environment and Heritage Locked Bag 5020 Parramatta NSW 2124 Phone: (02) 9873 8500	Minister for Sustainability, Environment, Water, Populations and Communities GPO Box 787 Canberra ACT 2601 Phone: (02) 6274 1111
Planning and Aboriginal Heritage Section Environment Protection and Regulation Group* (Metropolitan) Office of Environment and Heritage PO Box 668 Parramatta NSW 2124 Phone: (02) 9995 5000	Planning and Aboriginal Heritage Section Environment Protection and Regulation Group* (North East) Office of Environment and Heritage Locked Bag 914 Coffs Harbour NSW 2450 Phone: (02) 6651 5946
Environment and Conservation Programs Environment Protection and Regulation Group* (North West) Office of Environment and Heritage PO Box 2111 Dubbo NSW 2830 Phone: (02) 6883 5330	Aboriginal Heritage Protection Section Environment Protection and Regulation Group* (South) Office of Environment and Heritage PO Box 733 Queanbeyan NSW 2620 Phone: (02) 6229 7000

Project-Specific Contacts (*complete as needed*)

Position	Name	Phone Number
Project Manager		
Site/Alliance Environment Manager		
Regional Environmental Officer		
Aboriginal Cultural Heritage Advisor		
Consultant Archaeologist		
Local Police Station		
OEH: Environment Line		131 555

* **Please note:** at the time of finalising this procedure EPRG became part to the Environment Protection Authority (EPA); full title block was yet to be finalised.

Appendix F

Uncovering Bones

All matters relating to uncovering bones and RMS' human remains notification obligations should involve RMS regional environment and heritage staff. They will guide project managers through occurrences of uncovering bones.

This appendix provides project managers with advice (1) on what to do on first uncovering bones (2) the range of human skeletal notification pathways and (3) additional considerations and requirements when managing the discovery of human remains.

1. First uncovering bones

Stop all work in the vicinity of the find. All bones uncovered during project works should be **treated with care and urgency** as they have the potential to be human remains. Therefore they must be identified as either human or non-human as soon as possible by a qualified forensic or physical anthropologist. These specialist consultants can be sought by contacting regional environment staff and/or heritage staff at Environment Branch.

On the very rare occasion where it is *instantly obvious* from the remains that they are human, the project manager (or a delegate) should **inform the police by telephone** prior to seeking specialist advice. It will be '*obvious*' that it is human skeletal remains where there is *no doubt*, as demonstrated by the example in Figure 1. Often skeletal elements in isolation (such as a skull) can also clearly be identified as human. Note it may also be obvious that human remains have been uncovered when soft tissue and clothing are present.

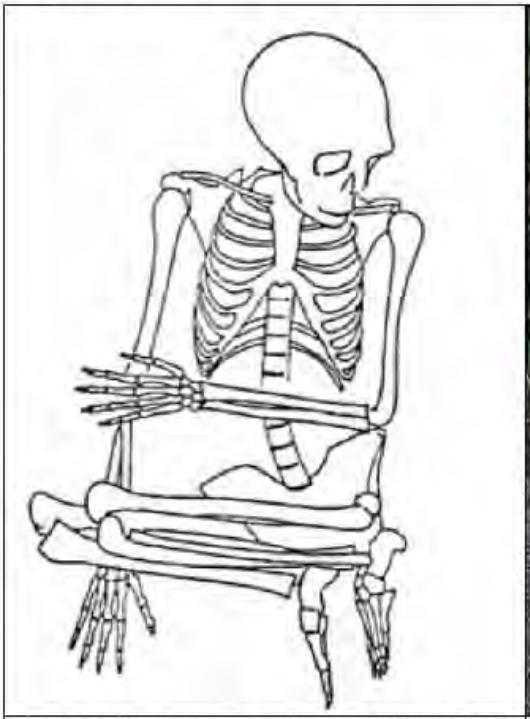


Figure 1: Schematic of a complete skeleton that is 'obviously' human[12].

Figure 2: Disarticulated bones that require assessment to determine species.

[12] After Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal Remains*: 17.

This preliminary phone call is to let the police know that the RMS is undertaking a specialist skeletal assessment to determine the approximate date of death which will inform legal jurisdiction. The police may wish to take control of the site at this stage. If not, a forensic or physical anthropologist must be requested to make an on-site assessment of the skeletal remains.

Where it is not 'obvious' that the bones are human (in the majority of cases, illustrated by Figure 2), specialist assessment is required to establish the species of the bones. Photographs of the bones can assist this assessment if they are clear and taken in accordance with guidance provided in Appendix D. Good photographs often result in the bones being identified by a specialist without requiring a site visit; noting they are nearly always non-human. In these cases, non-human skeletal remains must be treated like any other unexpected archaeological find.

If the bones are identified as human (either by photographs or an on-site inspection) a technical specialist must determine the likely ancestry (Aboriginal or non-Aboriginal) and burial context (archaeological or forensic). This assessment is required to identify the legal regulator of the human remains so **urgent notification** (as below) can occur. Preliminary telephone or verbal notification by the project manager or regional environment staff is considered appropriate. This must be followed up later by RMS formal letter notification as per Appendix H when a management plan has been developed and agreed to by the relevant parties.

2. Range of human skeletal notification pathways

The following is a summary of the different notification pathways required for human skeletal remains depending on the preliminary skeletal assessment of ancestry and burial context.

A. Human bones are from a recently deceased person (*less than* 100 years old).

☑ Action
A police officer must be notified immediately as per the obligations to report a death or suspected death under s35 of the *Coroners Act 2009* (NSW). It should be assumed the police will then take command of the site until otherwise directed.

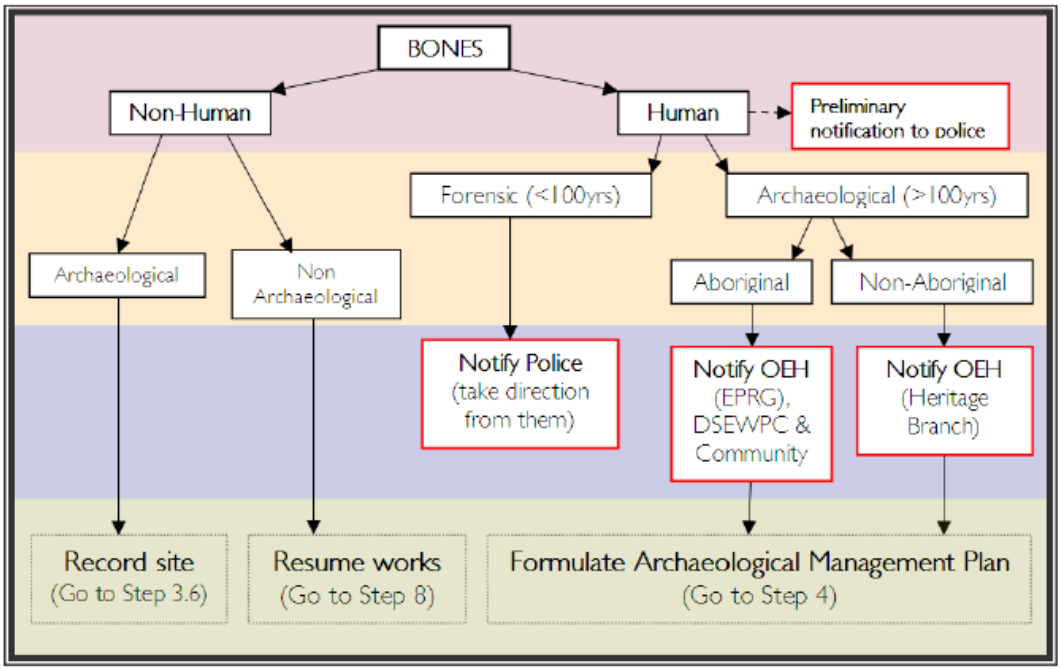
B. Human bones are archaeological in nature (*more than* 100 years old) and are likely to be *Aboriginal* remains.

☑ Action
The OEH (*EPRG*) and the RMS Aboriginal Cultural Heritage Advisor (ACHA) must be notified immediately. The ACHA must contact and inform the relevant Aboriginal community stakeholders who may request to be present on site. Relevant stakeholders are determined by the RTA's *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.

C. Human bones are archaeological in nature (*more than* 100 years old) and likely to be *non-Aboriginal* remains.

☑ Action
The OEH (Heritage Branch, Conservation Team) must be notified immediately.

The simple diagram below summarises the notification pathways on finding bones.



After the appropriate verbal notifications (as described in B and C), the project manager must proceed through the *Unexpected Archaeological Finds Procedure* to formulate an archaeological management plan (Step 4). Note *no* archaeological management plan is required for forensic cases (A), as all future management is a police matter. Non-human skeletal remains must be treated like any other unexpected archaeological find and so must proceed to recording the find as per Step 3.6.

3. Additional considerations and requirements

Uncovering archaeological human remains must be managed intensively and needs to consider a number of additional specific issues. These issues might include facilitating culturally appropriate processes when dealing with Aboriginal remains (such as repatriation and cultural ceremonies). RMS ACHA can provide advice on this and how to engage with the relevant Aboriginal community. Project managers, more generally, may also need to consider overnight site security of any exposed remains and may need to manage the onsite attendance of a number of different external stakeholders during assessment and/or investigation of remains. Project managers may also be advised to liaise with local church/religious groups and the media to manage community issues arising from the find. Additional investigations may be required to identify living descendants, particularly if the remains are to be removed and relocated.

If exhumation of the remains (from a formal burial or a vault) is required, project managers should also be aware of additional approval requirements under the *Public Health Act 1991* (NSW). Specifically, RMS is required to apply to the Director General of NSW Department of Health for approval to exhume human remains as per Clause 26 of the *Public Health (Disposal of Bodies) Regulation 2002* (NSW)[13]. Further, the exhumation of such remains needs to consider health risks such as infectious disease control, exhumation procedures and reburial approval and registration. Further guidance on this matter can be found at the NSW Department of Health website.

In addition, due to the potential significant statutory and common law controls and prohibitions associated with interfering with a public cemetery, project teams are advised, when works uncover human remains adjacent to cemeteries, to confirm the cemetery's exact boundaries.

[13] This requirement is in addition to heritage approvals under the *Heritage Act 1977*.

Appendix G

Archaeological Advice Checklist

The archaeologist must advise the project manager of an appropriate archaeological management plan as soon as possible after site inspection (see Step 4). An archaeological management plan can include a range of activities and processes, which differ depending on the find and its significance. In discussions with the archaeologist the following checklist can be used by the project manager and the archaeologist as a prompt to ensure all relevant archaeological issues are considered when developing this plan. This will allow the project team to receive clear and full advice to move forward quickly and in the right direction. Archaeological advice on how to proceed can be received in a letter or email outlining all relevant archaeological issues.

	Required	Outcome/notes
Assessment and investigation		
• Assessment of significance	Yes/No	
• Assessment of heritage impact	Yes/No	
• Archaeological excavation	Yes/No	
• Archival photographic recording	Yes/No	
Heritage approvals and notifications		
• AHIPs, Section 140, S139 exceptions etc	Yes/No	
• Regulator relics/objects notification	Yes/No	
• RMS' S170 Heritage Register listing requirements	Yes/No	
• Compliance with CEMP or other project heritage approvals	Yes/No	
Stakeholder consultation		
• Aboriginal stakeholder consultation requirements and how it relates to RTA *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI).	Yes/No	
• Advice from regional environmental staff, Aboriginal Cultural Heritage Advisor, RMS heritage team.	Yes/No	
Artefact management		
• Disposal strategy for non-Aboriginal relics or heritage material (eg former road pavement): short term and permanent storage locations (interested third parties should be consulted on this issue).	Yes/No	
• Control Agreement for Aboriginal objects.	Yes/No	
Program and budget		
• Time estimate associated with archaeological work.		
• Total cost of archaeological work.		

Appendix H

Template Notification Letter

[Select and type date]

[Select and type reference number]

[Select and type file number]

[Insert recipient's name and address, see **Appendix E**]

[Select and type salutation and name],

Re: Unexpected archaeological find uncovered during Roads and Maritime Services project works.

I write to inform you of an unexpected archaeological [select: relic and/or Aboriginal object] found during Roads and Maritime Services construction works at [insert location] on [insert date]. [Where the regulator has been informally notified at an earlier date by telephone, this should be referred to here].

This letter is in accordance with the notification requirement under [select: Section 146 of the *Heritage Act 1977* (NSW) or Section 89(A) of the *National Parks and Wildlife Act 1974* (NSW)].

NB: On finding Aboriginal human skeletal remains this letter must also be sent to the Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities (SEWPC) in accordance with notification requirements under Section 20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

[Provide a brief overview of the project background and project area. Provide a summary of the description and location of the find, including a map and image where possible. Also include how the project was assessed under the *Environmental Planning and Assessment Act 1979* (NSW) (eg Part 5). Also include any project approval number, if available].

Roads and Maritime Services [*or contractor*] has sought professional archaeological advice regarding the find. A preliminary assessment indicates [provide a summary description and likely significance of the find]. Please find additional information on the site recording form attached.

Resulting from these preliminary findings, Roads and Maritime Services *[or contractor]* is proposing [provide a summary of the proposed archaeological approach (eg develop archaeological research design, seek heritage approvals and undertake archaeological investigation). Also include preliminary justification of such archaeological impact with regard to project design constraints and delivery program].

The proposed archaeological approach will be further developed in consultation with a nominated Office of Environment and Heritage [select either EPRG/Heritage Branch, Conservation Team] staff member.

Please contact me if you have any input on this approach or if you require any further information.

Yours sincerely

[Sender name and position]

[Attach the archaeological management plan and site recording form].