

Roads and Traffic Authority

Pacific Highway Upgrade -
Oxley Highway to Kempsey
Aboriginal Heritage Working Paper

September 2010

GHD Pty Ltd
ABN 39 008 488 373
Level 3, GHD Tower
24 Honeysuckle Drive
NEWCASTLE NSW 2300
Phone: +61 2 4979 9999
Fax: +61 2 4979 9988
Email: ntlmail@ghd.com

Appendix A

Glossary

Acid volcanic – broad category of extrusive, fine-grained igneous stone, formed by rapid cooling. For the purposes of the test excavation lithic recording, subdivided into five categories, each on the basis of similar stone characteristics.

Activity (in relation to *activity areas*) – the nature of behaviour that resulted in the discard of a lithic item. For example, *non-specific stone flaking*, *bipolar flaking*, *microblade production*, *microlith production*, *loss or intentional discard of microliths* and *discard of non-microlith tools*.

Activity area – a single location in which one or more *activity events* has resulted in the discard of items that constitute archaeological evidence. For example, an *activity area* may represent a single *activity* such as *microblade production*. However, this activity is comprised of numerous *activity events* (for example, each blow to the core can be described as an *activity event*), which result in multiple discarded items, each from different *activity events*.

Activity event (discard event) – the discard of lithic item(s) resulting from a single action performed during an *activity*. For example, a single blow to a core during a *non-specific stone flaking* event may result in the detachment of several flakes.

Anvil – usually a thick piece of quartzite or similar hard siliceous stone on which a core being reduced by percussive blows is rested.

Archaeological site – any location that contains evidence of human activity.

Archaeological terrain unit (environmental context) – discrete, recurring areas of land (*survey areas*) in which the same combination of landform element and class of slope are present.

Archaeological visibility – a mean estimate of the percentage of visible ground surface within a *sample area* or *site* that has potential to contain evidence of Aboriginal heritage.

Artefact – an object, normally portable, made or modified by the human hand (refer also to *stone artefact*).

Artefact density per square metre of effective survey coverage – mean number of artefacts within each square metre of visible ground surface with potential to contain Aboriginal artefacts that is physically inspected in an archaeological survey. Calculated by dividing the *number of artefacts* by *effective survey coverage*.

Artefact scatter – a locality that contains evidence of Aboriginal occupation in the form of stone artefacts. Artefact scatters have commonly been defined as either the presence of two or more stone artefacts within 50 or 100 metres of each other, or a concentration of artefacts at a higher density than surrounding low density *background scatter*. Within the present investigation, artefact scatters are identified as the presence of one or more stone artefacts within a *survey area*. The boundaries of the site are defined by the boundaries of the visible extent of artefacts within the survey area. The survey areas are based on specific, repeated environmental contexts termed *archaeological terrain units*.

Associated – where artefacts are identified to be in context with other material. Two main forms of association include where artefacts are identified to be of the same stone material and potentially belonging to the same reduction event, and where artefacts are associated with another feature such as a hearth.

Backed artefact (microlith) – a retouched flake with one or more margins retouched at a steep angle, and that margin is opposite a sharp edge. The steep margin is formed by bipolar or hammer and anvil knapping. This type of artefact is subdivided into asymmetrical (Bondi) and symmetrically (geometric) shaped backed artefacts.

Backed blade – refer to *backed artefact* or *microlith*.

Background discard (background scatter) – manuports and artefactual material that are insufficient either in number or in association with other material to suggest focused activity in a particular location.

Backing (retouch) - when one margin of a flake is retouched at a steep angle, and that margin is opposite a sharp edge. The steep margin is formed by bipolar or hammer and anvil knapping (Hiscock 1997). Also used to describe artefacts with backing (eg. backed artefact).

Bending initiation – (commonly associated with soft hammer percussion and pressure flaking) – the commencement of a fracture by the application of a bending load or force, as in breaking a bar of chocolate, where the load is applied away from the point at which the object breaks.

Bending transverse break – (or bending transverse snap) flakes or flake scars found on a thin edge of a flake and resulting from the application of a bending load or force. These fractures occur during tool use (from processes such as end-shock) and flake manufacture, as well as unintentionally or naturally in a number of other circumstances, such as through stock or human treadage.

Bidirectional core – core with two identified platforms, sometimes displaying alternating directional flaking. Refer to *flaking pattern*.

Bipolar flaking – a method of making flakes or retouched flake tools by breaking a piece of stone, rested on a stone surface and repeatedly striking the core from above with a hammerstone.

Bondi point – a sub-type of microlith with abruptly angled backing retouch along one lateral margin (and often the butt end) so that it has an asymmetrical plan shape similar to a pen knife blade. This microlith type is commonly found east of the Great Divide as far north as Great Keppel Island.

Bondi point preform – a microblade or flake that has been partially backed by abruptly angled retouch scars along one lateral margin for the purpose of making a bondi point.

Bora (ground or ring) – a type of ceremonial site associated with initiation ceremonies.

Breccia – a rock composed of angular rock fragments held together by a mineral cement or in a fine-grained matrix. A breccia can have different origins (for example, sedimentary, igneous or hydrothermal).

BP (Before Present) – before the year 1950 AD.

Bulb of force (bulb of percussion) – the rounded outwards swelling of the inside surface of a conchoidal flake beginning just below the partial or complete Hertzian cone. This swelling is caused by the uniform change of direction of the fracture front as the outward bending component of the applied force decays and is overtaken by the compressive component of the force.

Burial – placement of human remains after death, generally in hollow trees, caves or sand deposits or by interment in mounds.

Butt portion – the thicker end of a backed artefact, normally the proximal part of the original flake from which the backed artefact has been fashioned.

Carved tree – a tree subject to scarring or modification by Aboriginal people, commonly for use as a marker for ceremonial or symbolic areas, including burials.

Chalcedony – a compact variety of silica, formed of quartz crystallites, often fibrous in form and with sub-microscopic pores that contain water (about one per cent of weight). Coloured varieties include carnelian (yellow-brown), sard (brown), agate (multicoloured) and jasper

(red). Chalcedony can form veins or it can occur as pseudomorphs, resulting from solution infiltrating voids or cavities in rock, sometimes by gradually replacing decaying organic matter. Chalcedony, like fine quality chert, was a valued stone tool material.

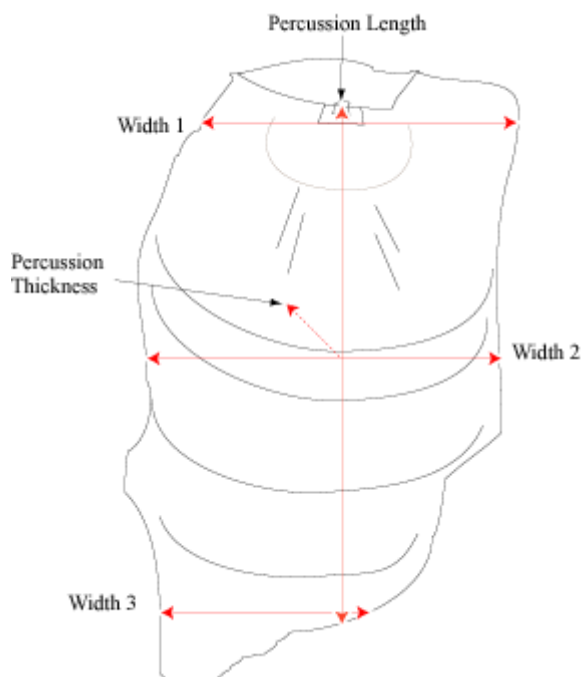
Chert – a highly siliceous rock type formed biogenically from the compaction and precipitation of the silica skeletons of diatoms. Normally there is a high percentage of cryptocrystalline quartz. This rock type breaks by the process of conchoidal fracture and provides flakes that have sharp, durable edges.

Chord – the non-retouched margin of a backed artefact, usually opposite the retouched margin.

Cobble – waterworn stones of diameter greater than 64 millimetres and less than 256 millimetres. Archaeologists often refer to cobbles as pebbles (refer also to *pebble*).

Colour – for the test excavation assemblage, the colour of individual lithic items was recorded. Colouration of stone assists in identifying potential associations and conjoins among lithic items and in inferring heat treatment.

Complete flake metrics and features – for the test excavation lithic database, a series of metrics were recorded for complete flakes. Refer to the diagram below for an illustration of how these were performed. These measurements were only performed where minor fractures, breaks or very fine retouch did not preclude the possibility of performing these measurements.



Conchoidal flake – a flake created by Hertzian initiation (a cone crack) where a concentrated load is applied above the point where the stone begins to break. This is the most common type of flake produced by tool making. It is distinguished by fracture surface features, including initiation platform or surface, partial or complete Hertzian cone, bulb of force, eorillure scar, lances and undulations (refer to Cotterell & Kamminga 1987). The inside fracture surface of a conchoidal flake often is similar to that of a bivalve shell, hence the name of the flake type.

Conjoin – refitting or 'conjoining' artefacts assists with reconstructing prehistoric events (such as tool manufacture, tool use activities and cutting-edge rejuvenation), determining chronology and assessing site integrity.

Convoluted fracture surface – refer to *rugose fracture surface*.

Core (synonymous with *nucleus*) – a piece of stone, often a cobble or pebble, but also quarried stone, which has been used for striking flakes. These flakes are called 'primary flakes' and may be further shaped by finer flaking, called 'retouch'. The term 'nucleus' refers to cores and flakes or cores that have been retouched.

Core metrics and features – for the test excavation lithic database, a series of metrics were recorded for cores.

Cortex – nature of the original weathered surface of the stone material. Three types are identified: waterworn (rounded waterworn surface), tabular (smooth tabular shaped surface, may be waterworn) and terrestrial (rough cortex not consistent with tabular or waterworn surface).

Cortex amount – amount of the original weathered surface of the stone material, expressed as a percentage of the item's total surface. For artefacts such as cores, hatchet heads, hammerstones and lithic fragments (for example, artefacts which have no ventral surface), the estimate of percentage of cortex is as a proportion of all surfaces, whereas on flakes the estimate is only a proportion of the dorsal surface).

Cortical initiation surface – an initiation surface on a pebble or cobble (refer to 'cortex' and 'initiation surface / platform').

Crushed initiation surface – an initiation surface obscured by crushing damage from the hammerstone.

Detection limiting factors – factors that act to reduce *surface visibility* and *archaeological visibility*.

Discard – in relation to lithic scatters, discard means the incidental, intended or accidental placement of a lithic item on the ground surface.

Discard event – refer to *activity event*.

Distal portion or end – the end of a flake (the opposite to that of the point of fracture origin on the ventral (or inside) surface).

Dorsal surface – the outside surface(s) of a flake, opposite the inside (bulbar or ventral) surface created during the formation of the flake (refer also to 'ventral face').

Drainage depression – landform element that typically comprises a shallow open depression with smoothly concave cross-section, rising to moderately inclined side slopes, eroded or aggraded by sheetwash (after McDonald *et al* 1984). For the purposes of the survey, this unit also includes gullies (drainage depressions subjected to gully erosion), along with ground approximately 50 metres either side of the centre of the drainage depression.

Effective site area – a measure of the area of a *site locus* containing visible ground with potential for Aboriginal heritage items to occur. Calculated for each *locus* by multiplying the *visible site area* with the percentage of the locus physically inspected and with *mean archaeological visibility*.

Effective survey coverage – a measure of the quantity of visible ground surface physically inspected within a *sample area* with potential to contain Aboriginal heritage evidence. Calculated by multiplying the *total sample area* of a *survey area* with the percentage of *archaeological visibility*. For a *total sample area* that includes multiple exposures, the *effective survey coverage* of each exposure is calculated separately and added to produce the reported figure.

Environmental context – refer to *archaeological terrain unit*.

Environmental / cultural context – a specific context that exists (generally within an individual archaeological terrain unit), that may host a different range of evidence (reflecting different types and frequencies of activities) than other locations within the same archaeological terrain unit or environmental context. For example, a particular spur crest may lead from a ridgeline used for transitory movement to a camp site bordering a food resource, whereas another spur crest may lead to a stone material source. Individual survey areas on these spur crests may host different types and proportions of evidence, reflecting different ways in which these landforms were utilised.

Exposure type – identification during field inspection of exposed soil units; for example, A horizon, A and B horizons, or B horizon.

Feather termination – a normal ending to a flake, in which the fracture turns slightly to meet the fresh surface of the core at a very low angle, as in the ending of a feather.

Flake – a complete or substantially complete piece of lithic material detached from a core (nucleus), usually with evidence of hard indenter initiation, or occasionally bending initiation. The flake's primary fracture surface (ventral or inside surface) exhibits features such as fracture initiation, bulb of force, and undulations and lances. Very occasionally a conchoidal flake comprises only a bulb of force.

Flake - backing – a small flake detached from an artefact during the process of backing.

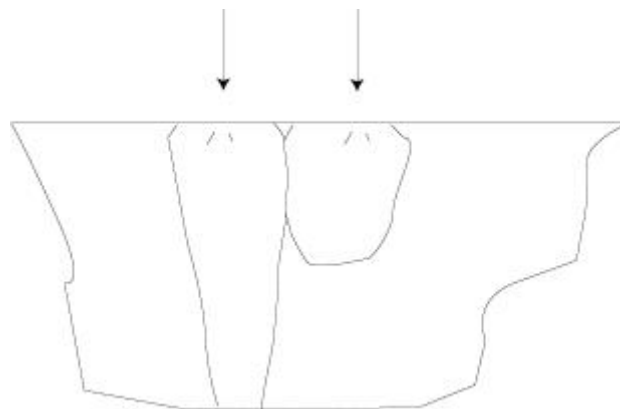
Flake - longitudinal – a flake longitudinally fractured from its proximal to its distal end. The breakage may be slightly tangential but are mostly axial in orientation. Such breakages tend to occur during knapping (such as longitudinal cone splits) rather than through post-depositional processes.

Flake portion – medial, proximal, longitudinal or distal portion of the original flake.

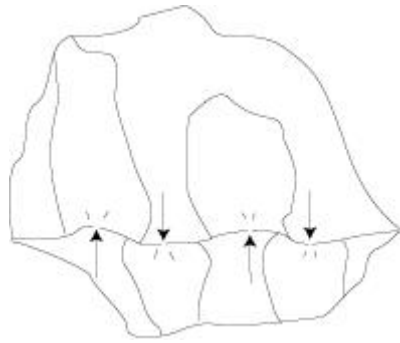
Flake - utilised – a flake which displays macroscopic evidence of use.

Flaking pattern – for cores in the test excavation lithic database, the dominant type of flaking. The flaking patterns include unidirectional, bidirectional and multidirectional. Refer to the diagrams below for an illustration of how these were performed.

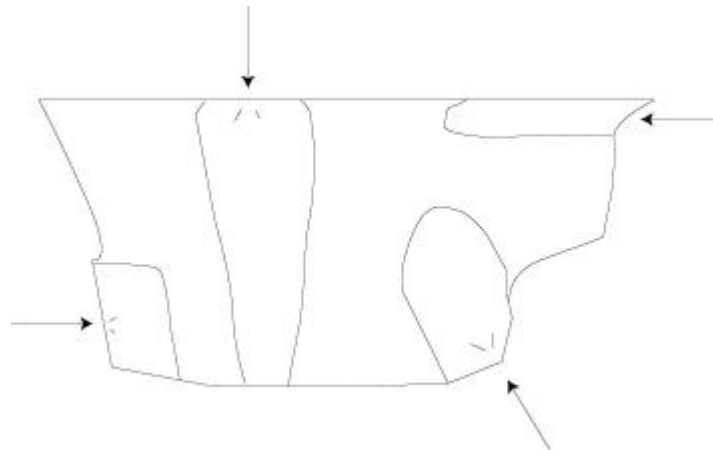
Unidirectional – flaking direction in only one main axis from one main platform.



Bidirectional – flaking direction in only two main axes from two main platforms.



Multidirectional – flaking direction in *more* than two axes from more than two main platforms.



Flat – landform element that is neither a crest nor a depression and is level or very gently inclined (after McDonald *et al* 1984).

Focused initiation surface – an initiation surface area defined by a complete or partial Hertzian cone, sometimes with lateral extensions forming a narrow platform which is less than twice the area of the ring crack.

Fracture (f) – refer to *heat fracture*.

Geometric microlith – a sub-type of backed artefact which is symmetrically shaped. While true symmetry is impossible, general shapes such as triangular, trapezoidal and crescent-shaped are used to differentiate from more asymmetrical backed artefacts.

Geometric microlith – utilised – a geometric microlith which displays evidence of use.

Grinding grooves – elongated narrow depressions in soft rocks (particularly sedimentary), generally associated with watercourses. The shaping and sharpening of ground-edge axes creates the depressions.

Ground disturbance – an estimate of the extent of recent human impacts and impacts of natural processes, noted in low, moderate or high categories, modified after McDonald *et al* (1984:69). The low category includes no effective disturbance, minor vegetation removal and low intensity grazing and minimal erosion. The moderate category includes extensive vegetation removal, improved pasture grasses and moderate levels of erosion. The high category includes complete vegetation removal and cultivation, extensive erosion and areas where the A horizon soil has been removed.

Ground surface visibility – degree of exposure of bare ground surface. Vegetation and litter usually cover the ground in a survey area partly or wholly.

Hammerstone – a piece of stone used as a hammer to detach flakes from a core or in applying controlled pressure when retouching a tool's edge. Stone hammers are often quartzite or a volcanic stone, round or oval in shape, with concentrated hammer impact damage on at least one side or end. The presence of use-wear often is the only diagnostic attribute of this tool type.

Heat – for the test excavation lithic database, evidence of heat treatment or heat fracture is reported in three categories, convoluted or rugose fracture surfaces, potlidd fractures or cracking (crazing) and geometric or planar fracturing.

Heat fracture – fractures caused by heating the stone, either from natural causes, a camp fire, or intentional heat treatment. Also termed *heat shatter* and *thermal fracture*. Attributes indicating heat fracture include colour change, crazing, potlidding and rugose fracture surface topography. Denoted by 'f' in 'Heat' column of test excavation lithic database.

Heat treatment – the intentional slow heating of stone, such as silcrete, to alter its structure (such as homogenising the matrix) and thereby improve its flaking properties.

Hertzian cone – similar in shape to the neck of a milk bottle with the top of the cone being the initiation of the circular fracture. On a flake surface the cone is not fully formed and is represented by one side, because the fracture-initiating force was applied from above at an angle of about 45 degrees, not 90 degrees.

Hertzian initiation – a Hertzian cone initiation which leads to the formation of a conchoidal flake (refer to 'Hertzian cone').

Hinge termination – when the end of the flake or fracture continuously turns at 90 degrees to the surface of the core or outside surface of the flake.

Holocene – the most recent geological epoch (time period) within the Quaternary period between 10,000 years ago and the present.

Implement (of stone) – synonym for a *stone tool*, usually denoting a tool that has been shaped by flaking (retouch).

Initiation surface/platform – the surface of a stone that is struck with a hammerstone for the purpose of detaching a flake.

Initiation type – the point or area defining the beginning of a flake-forming fracture (always found at the top of the flake scar or ventral (inside) surface of the flake (refer also to 'initiation surface').

Item # – During the recording of the test excavation assemblages, every lithic item was assigned an Item Number which was recorded in waterproof ink on the plastic bag containing the item. The item number must be used when physically accessing artefacts from the collection or when comparing associated artefacts within the database (as reported within the Comments column). The sequence of item numbers reflects the order in which the lithic items were sorted and examined microscopically.

Knapping event – a single act of flaking a piece of stone, resulting in the *in-situ* deposition of stone flaking debris. Such an event may occur as part of a series of events (refer to *knapping floor*).

Knapping floor – a series of flaking events (refer to *knapping event*) that are generally defined as involving a single stone core (but sometimes multiple cores of the same or different materials) and resulting in the deposition of stone flaking debris that may be later recorded in discrete areas or be mixed by post-depositional processes.

Landform element – specific type of topographical feature, following the definitions of McDonald *et al* (1984).

Lateral margin – the thin sides of a flake.

Lithic – in an archaeological context, items of a hard, usually siliceous, stone of a type selected by Aborigines for tool making. These items are often nondescript fragments, but some are finely shaped implements.

Lithic assemblage (of stone) – a collection of whole and fragmentary stone artefacts and manuports obtained from an archaeological site, either by collecting items scattered on the present ground surface or by controlled excavation.

Lithic fragment – (flaked piece) a flaked piece of stone which lacks sufficient morphological attributes to identify it as a flake (a positive scar) or a core (only negative flake scars) or other specific type.

Lithic item – a piece of stone exhibiting fracture surfaces and not identified as a natural piece of stone.

Lithic quarry – a site of stone procurement, typically used in the specific sense to refer to outcrops of bedrock, where there is clear evidence of procurement activity such as pits, discarded hammerstones and large deposits of primary flaking debris. Refer also to *quarry, stone procurement site*.

Lithic sandstone – refer to *sandstone*.

Lithic type – the categories and types of lithic items as recorded in the artefact databases.

Locus (site locus) – a spatially separate location of visible Aboriginal heritage evidence within a *site* (particularly *artefact scatter sites*).

Longitudinal portion – a flake or microblade longitudinally fractured from its proximal to its distal end. The breakage may be tangential or axial in orientation. Such breakages tend to occur during knapping rather than through post-depositional processes.

Manuport – an object, or fragment of an object (or 'item'), that has been brought by a human to the place where it has been found.

Mean archaeological visibility – an estimate of the mean visible ground surface within a *sample area* (for example, survey area) that has potential to contain evidence of Aboriginal heritage.

Mean artefact density – the average number of surface artefacts recorded within each square metre of visible ground surface with potential to contain Aboriginal artefacts that is physically inspected within a sample area (for example, a site locus). Obtained by dividing the *number of artefacts* by the *effective sample area* and expressed as a number of artefacts per square metre of effective sample area.

Mean length of scars – for cores in the test excavation lithic database, the mean length of clearly identifiable complete flake scars on the core. Each scar was recorded to the nearest millimetre, added together and divided by the number of flake scars.

Mean surface visibility – an estimate of the mean visible ground surface within a *sample area*.

Medial portion – a fragment of a flake or microblade exhibiting more than one breakage and no platform or termination.

Microblade – an elongated flake with one or more longitudinal ridges and a length greater than twice the width. This type of specialised flake is detached from a microblade core. They were probably fashioned into spear barbs, during recent prehistoric times.

Microblade core – a small core from which regularly shaped bladelets have been struck. Some microblade cores have only one or two microblade facets; others have numerous facets emanating from more than one striking platform.

Microlith – (synonymous with *backed blade*) – a variety of small, delicately retouched implements of various shapes, such as asymmetric (bondi) point, segment, crescent, triangle, trapeze, rectangle and oblique ended. These implements probably functioned as spear barbs.

Multi-directional core – a core with more than two identified platforms (refer to *flaking pattern*).

Multiple scars fracture initiation surface – an initiation surface which comprises more than one flake scar (refer also to 'initiation surface'). Includes fracture surfaces that are faceted.

Nondescript core – a core which is generally amorphous in shape and has technologically diagnostic features, but has only negative scars from flake removal, and thus no ventral surface.

Nondescript core fragment – a broken portion of a nondescript core.

Non-specific stone flaking – activity category of general or non-specific knapping activity. Artefacts do not identify a more specific activity. Includes debitage from primary flaking and from making flake tools.

Number (#) of flake scars – for cores in the test excavation lithic database, the number of clearly identifiable complete flake scars on the core.

Number (#) of platforms - for cores in the test excavation lithic database, it is the number of clearly identifiable platforms on a core from which flakes have been removed.

Order of watercourse – the order of the watercourse (first, second, etc), after McDonald *et al* (1984), as determined by observations in the field or from topographic mapping.

Outrepassé termination – (also 'plunging') a flake with a thick ending caused by the flake-forming fracture turning inwards within the core. This occurs when the fracture front approaches the bottom of a core.

Overhang removal (OHR) – for complete flakes in the test excavation lithic database, it is noted whether overhang removal had been performed or not. Overhang removal is evidence indicating that some platform preparation has occurred in the form of removing small flakes from the edge of the core prior to the removal of further flakes.

Pebble – a waterworn stone less than 64 millimetres in diameter. Refer also to *cobble*.

Pebble core – a piece of alluvial or colluvial stone exhibiting pebble cortex (typically more than 70 per cent), from which flakes have been struck.

Percent (%) of margin retouched – for the test excavation lithic database, where retouch on a flake occurred, the proportion of the margin of the ventral surface which had been encroached by retouch was recorded. The whole margin is deemed to include both left and right lateral margins as well as distal margins and the flake's platform.

Percussion length – for complete flakes in the test excavation lithic database, measured to the nearest millimetre according to the following criteria: The length of the flake from the platform, at 90 degrees to force indicators such as the ring-crack, bulb of percussion, force ripples and striations, to the opposing end. Where there were an insufficient number of features present to take this measurement, such as when the flake was broken, this variable was not recorded (or recordable).

Plain fracture initiation surface – an initiation surface which comprises a single flake scar or continuous cortex surface (refer also to 'initiation surface').

Platform faceting – a series of transverse flake removals to set up the platform of a core. These flake detachments create ridges where the margins of the scars meet or overlap, and such ridges provide surface prominences that are the hammerstone's point of contact. These ridges allow for more precise flake prediction.

Pleistocene – the geological epoch (time period) within the Quaternary period between 10,000 and approximately 1.6 million years ago.

Potential resource – archaeological evidence predicted to occur through application of a predictive model of site location.

Potlid - A piece of lithic material that has a generally convex or dome-shaped ventral surface, often with evidence of fracture initiation from a location within the surface and not from the edge. Denoted by 'p' in 'Heat' column of test excavation lithic database.

Provenance – in relation to the test excavation assemblage, the test area (Wilson River or Hastings River), the individual test unit number (using x-axis and y-axis values) and spit (level excavated).

Proximal portion – the top part of a flake or implement beginning with the initiation surface or ridge. The opposite end of the flake is termed the *distal* end.

Quarry (lithic quarry, stone procurement site) – a general term for the location of an exploited stone source (Hiscock and Mitchell 1993:32). Often in archaeological studies it is used in a more specific sense, to refer to places where stone was obtained by excavation from a bedrock source (*lithic quarry*).

Quartz – a mineral composed of crystalline silica (SiO₂). Quartz is a very stable mineral that does not alter chemically during weathering or metamorphism. It is hard, usually colourless or white ('milky'). In its massive form quartz occurs as geodes or veins, from which pebbles are formed by weathering. Despite the often irregular nature of fracture in quartz, the flakes tend to have sharp edges.

Quartzite – a hard, silica rich stone formed from sandstone that has been recrystallised by heat (metaquartzite) or strengthened by slow infilling of silica in the voids between sand grains (orthoquartzite). The essential difference between sandstone and quartzite is that a major fracture will propagate around the larger grains in sandstone and through the grains in quartzite.

Residue (on stone tools) – residue analysis concerns the identification of tool use activities from preserved organic and inorganic residues of worked materials. These residues may be compacted into small flake scars on the edges of utilised artefacts or adhere strongly to their surfaces. Routine examination of residues is aided by low-magnification microscopy.

Retouched flake or retouched piece – an artefact or piece of an artefact with retouch along at least one margin. The purpose of this retouch often cannot be determined.

Rhyolite – acid lavas containing free quartz. It is the fine-grained volcanic or extrusive equivalent of granite. Rhyolite is typically light in colour, relatively light in weight and often has a flinty appearance. Two principal varieties can be identified, *banded rhyolite*, which possesses coloured bands, and *porphyritic rhyolite*, which contains small, widely spaced crystal inclusions.

Ridge crest – landform element that stands above most or all of the surrounding points in the adjacent terrain, typically smoothly convex upwards and with a length greater than the width of the landform element (after McDonald *et al* 1984).

Rugose fracture surface – highly irregular ('wrinkled') topography of fracture surface, indicative of heating. Denoted by 'c' in 'Heat' column of test excavation lithic database.

Sandstone – a cemented or compacted rock consisting of detrital grains, which range in size from 1/16 millimetres to two millimetres in diameter. Quartz typically comprises the majority of grains. The grains can be bound together by a cement of silica, carbonate or other minerals, or a matrix of clay minerals. The nature of the cement is denoted by terms such as argillaceous (clayey), calcareous, ferruginous and tuffaceous sandstone.

Scarred tree – scarred trees contain scars caused by the removal of bark for use in manufacturing canoes, containers, shields or shelters. Other trees may exhibit carvings made in relation to burial practices or spiritual beliefs.

Silcrete – a brittle, intensely indurated rock composed mainly of quartz clasts cemented by a matrix which may be well-crystallized quartz, cryptocrystalline quartz or amorphous (opaline) silica (Langford-Smith 1978:3). The texture of silcrete reflects that of the host rock and clasts may range in size from very fine grains to boulders. Silcrete is produced by an absolute accumulation of silica, which is made available by chemical weathering. The formation of silcrete therefore requires the removal of most elements, other than silicon, in the host material. Silcrete is normally grey in colour, but can be whitish, red, brown or yellow. It shatters readily into sharp, angular pieces with a conchoidal fracture and newly broken rocks have a semi-vitreous sheen (Langford-Smith 1978:4).

Siltstone – a sedimentary rock with a grain size between the coarser sandstone and finer-grained mudstone and shale.

Simple slope – slope landform element adjacent below a crest or flat and adjacent above a flat or depression (after McDonald *et al* 1984). For the purposes of this assessment, this unit generally also includes *upper slopes*, *mid-slopes* and *lower slopes*.

Site – location of evidence of Aboriginal occupation. In the context of this report, site commonly refers to *artefact scatter*.

Site integrity – the extent to which the distribution of site contents corresponds to their spatial relationships at the time of deposition. Subsequent to deposition, a range of post-depositional processes affect the spatial relationships of items, and therefore site integrity.

Size class – artefact size as the maximum measurement in any direction, in units of 10 millimetres. For example, class '1' equals items with a maximum dimension of up to 10 millimetres and size class '2' equals items with a maximum dimension of between 10 and 20 millimetres.

Slope (class of slope) – classes of slope (after McDonald *et al* 1984):

- Class 1 (level/very gentle) – level to very gently inclined slopes < three per cent ($1^{\circ}45'$).
- Class 2 (gentle) - gently inclined slopes > three per cent ($1^{\circ}45'$) and <10 per cent ($5^{\circ}45'$).
- Class 3 (moderate/steep) – moderately inclined and steep slopes >10 per cent ($5^{\circ}45'$).

Spit – arbitrary 10 centimetre levels in which the test excavation deposits were removed.

Spur crest – landform element comprising a very gently to steeply inclined *ridge crest* that descends from a dominant or main ridge crest to adjacent lower lying terrain (for example, *flat* or *drainage depression*).

Step termination – when the end of the flake turns sharply at 90 degrees to the surface of the core or outside surface of the flake.

Stone arrangement – stone arrangements include circles, mounds, lines or other patterns of stone arranged by Aboriginal people.

Stone artefact – a piece of stone with evidence of intentional human modification.

Stone material – the geological type of stone from which an artefact is made. Synonymous with 'lithic material', 'stone type' and 'raw material', the latter of which is a less specific but commonly used term.

Stone procurement site (quarry) – a general term for the location of an exploited stone source. Sources can vary from alluvial gravels (where there may be little or no archaeological evidence of human activity) to extensively quarried outcrops of bedrock, where there is clear evidence of procurement activity such as pits, discarded hammerstones and large deposits of primary flaking debris (refer also to *quarry*, *lithic quarry*).

Stone tool – a piece of flaked or ground stone used in an activity or fashioned for use as a tool. A synonym of stone tool is *implement*, which is more often used to describe a flake tool fashioned by more delicate flaking (retouch).

Sub-surface deposit – identified or predicted deposits of artefacts buried under the surface, typically within the A horizon of texture-contrast soils.

Surface visibility – a mean estimate of the percentage of visible ground surface within a specific area (for example, *survey area*).

Survey area – an area sampled during a survey, in the case of the present assessment to comprise a single *archaeological terrain unit* that is bounded on all sides by different archaeological terrain units.

Tabular cortex – weathered surface of a tabular shaped cobble.

Termination type (of a flake) – the form of the flake's distal end.

Terrestrial cortex (rough and weathered cortex) – A cortical surface which has developed by weathering of a fractured surface. Includes surfaces which have been weathered after natural fracturing along faults and exfoliation. Indicative of a terrestrial, not an alluvial source.

Test area – areas subject to test excavation for the OHK project (one at the Wilson River and one at the Hastings River).

Thickness (percussion thickness) – for complete flakes in the test excavation lithic database, this dimension was measured to the nearest tenth of a millimetre, at 90 degrees and bisecting the *Percussion Width* dimension. This was performed from the ventral surface to the dorsal surface. As this measurement relies on *Percussion Length*, these were not recorded where the *Percussion Length* was not recorded (or recordable).

Thumbnail scraper – a small flaked implement about the size and shape of a human thumbnail. One end of the implement is retouched so that it has a convex, semi-circular plan shape.

Total sample area – the quantity or area of ground surface within a *survey area* physically inspected in such a manner as to reliably enable the detection of heritage evidence.

Tuff – a fine grained, isotropic stone formed after a cloud of ash was ejected in an explosive volcanic eruption. The ash settled to the ground or through ponded water. After burial, some tuff beds became indurated, through a low-grade metamorphic process (probably involving pressure) in which the stone recrystallised to a more stable structure. Tuff samples are often rhyolitic in chemical composition (quartz and potassium-feldspar, occasionally with layer silicate or goethite). Tuff can be grey in colour (a function of grain size, not a reference to individual grains, which can be of a variety of colours). However, tuff is porous enough for the diffusion of iron bearing solution, with iron precipitating out to give a yellow, brown, red or orange colour.

Unidirectional core – core with only one identified platform (refer to *flaking pattern*).

Use-wear – microscopic and macroscopic damage to the surfaces of a stone implement resulting from its use. Major use-wear forms are edge fractures, use-polish and smoothing, abrasion, and edge rounding and bevelling.

Utilised flake or piece – a flake or piece displaying utilisation wear along one or more edges from use as a hand-held tool or as part of a composite wood and stone implement or weapon. The wear may be edge-rounding, surface polish, abrasive smoothing or abrasion such pitting and scratching ('striations').

Waterworn (pebble or cobble) cortex – the topographically smooth weathered surface of a stone, which occurs with a continuous curve. Denoted by "ww" in "Cortex Type" column of test excavation lithic database.

Wedging initiation – initiation at the tip of a flaw on the surface of a core, common in bipolar flaking.

Weight - the weight of each lithic item in the test excavation assemblages was measured with an OHAUS balance, with a precision of ± 0.1 grams. Weights are presented in grams for each lithic item. Where the mass of an artefact exceeded 600 grams the artefact was generally recorded as 600+.

Width 1 – for complete flakes in the test excavation lithic database, this dimension was measured to the nearest millimetre, at 90 degrees to the *Percussion Length* dimension. This was performed from one margin to the opposing margin near the platform approximately 5% of the overall flake's length down from the proximal end of the flake. As this measurement relies on *Percussion Length*, these were not recorded where the *Percussion Length* was not recorded (or recordable).

Width 2 – for complete flakes in the test excavation lithic database, this dimension (*Percussion Width*) was measured to the nearest millimetre, at 90 degrees and bisecting the *Percussion Length* dimension. This was performed from one margin to the other. As this measurement relies on *Percussion Length*, these were not recorded where the *Percussion Length* was not recorded (or recordable).

Width 3 – for complete flakes in the test excavation lithic database, this dimension was measured to the nearest millimetre, at 90 degrees to the *Percussion Length* dimension. This was performed from one margin to the opposing near the flake termination approximately five per cent of the overall flake's length up from the distal end of the flake. As this measurement relies on *Percussion Length*, these were not recorded where the *Percussion Length* was not recorded/recordable.