

Rural Cadastral Survey of Crown Land for Aboriginal Land Grant under the Aboriginal Land Rights Act

Anthony Oliver

Registered Land Surveyor, ADW Johnson Pty Ltd

anthonyo@adwjohnson.com.au

ABSTRACT

In 2015, the Department of Industry-Lands (DoI-Lands) issued a Request for Tender for a cadastral survey of nine titles, encompassing approximately 750 ha of land covering the locations of Mount White, Glenworth Valley, Wendoree Park and Marlow. This is the largest cadastral survey DoI-Lands has offered for open tender in recent history and represents a new challenge for the private and public sector in the management and delivery of such a large rural survey. The survey ranges from water level at the Hawkesbury River to the Mount White Trigonometric Station at RL 286 m AHD. Similarly, the perimeter of the survey extends approximately 42 km from near Mangrove Creek at the west across to the M1 Motorway in the east. The survey was commissioned for the purpose of preparing titles suitable for the transfer of land to the Darkinjung Local Aboriginal Land Council (DLALC). DLALC had claimed the land in accordance with section 36 of the Aboriginal Lands Rights Act in April 1996 and was subsequently granted the majority of the claim in December 2002 by the then Minister for Land and Water Conservation. The survey required a comprehensive and strategic approach to the management of Work Health and Safety (WHS), ranging from risks associated with working near water, quarries, farmland and horse studs, adventure and caravan parks, cliffs, bushfire and wildlife including snakes, tics, leeches and goannas. This required a proactive management of risks and work methods. It also represented challenges in locating survey marks that were placed many years ago in high-risk locations when WHS standards were less stringent. The age of existing surveys ranged from the most recent being 2006 to the oldest of 1836. The survey standards of the day and various methods of marking land, combined with the inherent challenges of the order of accuracy, particularly over steep and precipitous land, also led to significant challenges in obtaining reliable comparisons to earlier surveys. More recently, particularly in light of the amendments to the National Parks and Wildlife Act, it is inherent upon all persons to make themselves aware of the presence of Aboriginal heritage and artefacts in their location. Given the relatively undisturbed nature of the landscape, it was considered highly likely that heritage would be prevalent within the region. ADW Johnson surveyors undertook specialised training with DLALC's Cultural Officer in order to understand the likely evidence and artefacts that may be found. Ultimately, through the course of the survey, examples were found of artwork, grinding grooves and sharpening stones, which influenced the methodology applied to both traversing and marking the project. Key outcomes for our team included an entrenched appreciation for WHS issues and strategies for minimising risk, improved understanding of Aboriginal culture and heritage, and significant improvement in professional experience and competence of our staff.

KEYWORDS: Rural cadastral survey, Aboriginal land grant, Aboriginal heritage, WHS, Mount White.

1 INTRODUCTION

The aim of this paper is to discuss the purpose for, and the results of, the survey of Crown land being located at Mount White and surrounding areas, particularly in relation to the evolution of surveying standards confronted throughout this project. The requirement for the survey originated from a successful claim for Crown land in accordance with section 36 of the Aboriginal Land Rights Act 1983. As a result of the grant, it was necessary to complete a survey of the land to accurately determine the location and extent of the abutments and remaining available land.

Crown land, being that land still vested in Her Majesty in the State of New South Wales (NSW), may be claimable under section 36 of the Aboriginal Land Rights Act 1983 (ALRA). Section 36 partly states:

“Claims to Crown Lands

(1) In this section, except in so far as the context or subject-matter otherwise indicates or requires:

“claimable Crown land” means lands vested in Her Majesty that, when a claim is made for the lands under the Division:

(a) are able to be lawfully sold or leased, or are reserved or dedicated for any purpose, under the Crown Lands Consolidation Act 1913 or the Western Lands Act 1901,

(b) are not lawfully used or occupied,

(b1) do not comprise lands which, in the opinion of a Crown Lands Minister, are needed or are likely to be needed as residential lands,

(c) Are not needed, nor likely to be needed, for an essential public purpose, and

(d) do not comprise lands that are the subject of an application for a determination of native title (other than a non-claimant application that is an unopposed application) that has been registered in accordance with the Commonwealth Native Title Act, and

(e) do not comprise lands that are the subject of an approved determination of native title (within the meaning of the Commonwealth Native Title Act) (other than an approved determination that no native title exists in these lands.”

The ALRA was established in order to compensate Aboriginal people for the loss of land. Indeed, the preamble to the ALRA states (www.alra.nsw.gov.au/alrareviewpreamble.html):

(1) Land in the State of New South Wales was traditionally owned and occupied by Aborigines;

(2) Land is of spiritual, social, cultural and economic importance to Aborigines;

(3) It is fitting to acknowledge the importance which land has for Aborigines and the need of Aborigines for land;

(4) It is accepted that as a result of past Government decisions the amount of land set aside for Aborigines has been progressively reduced without compensation.

Crown land can be claimed by the NSW Aboriginal Land Council, or by Local Aboriginal Land Councils, of which there are 120 across NSW. To avoid confusion, it is noted that land claimed under the ALRA is distinct from that claimed under the Commonwealth Native Title Act 1994, although land granted under ALRA may still be available for Native Title claim.

In accordance with ALRA, Darkinjung Local Aboriginal Land Council (DLALC) made a claim in 1996 to land in the locations of Mount White, Wendoree Park and Glenworth Valley. Following a detailed land and tenure review by the District Office and Land Claims Unit of the Department of Industry-Lands, a recommendation to, and approval by the then Minister

for Land and Water Conservation, the majority of this claim was granted to DLALC in 2002. Some of the land, such as roads, easement sites and privately owned land was refused. Figure 1 shows the general extents of the granted lands.

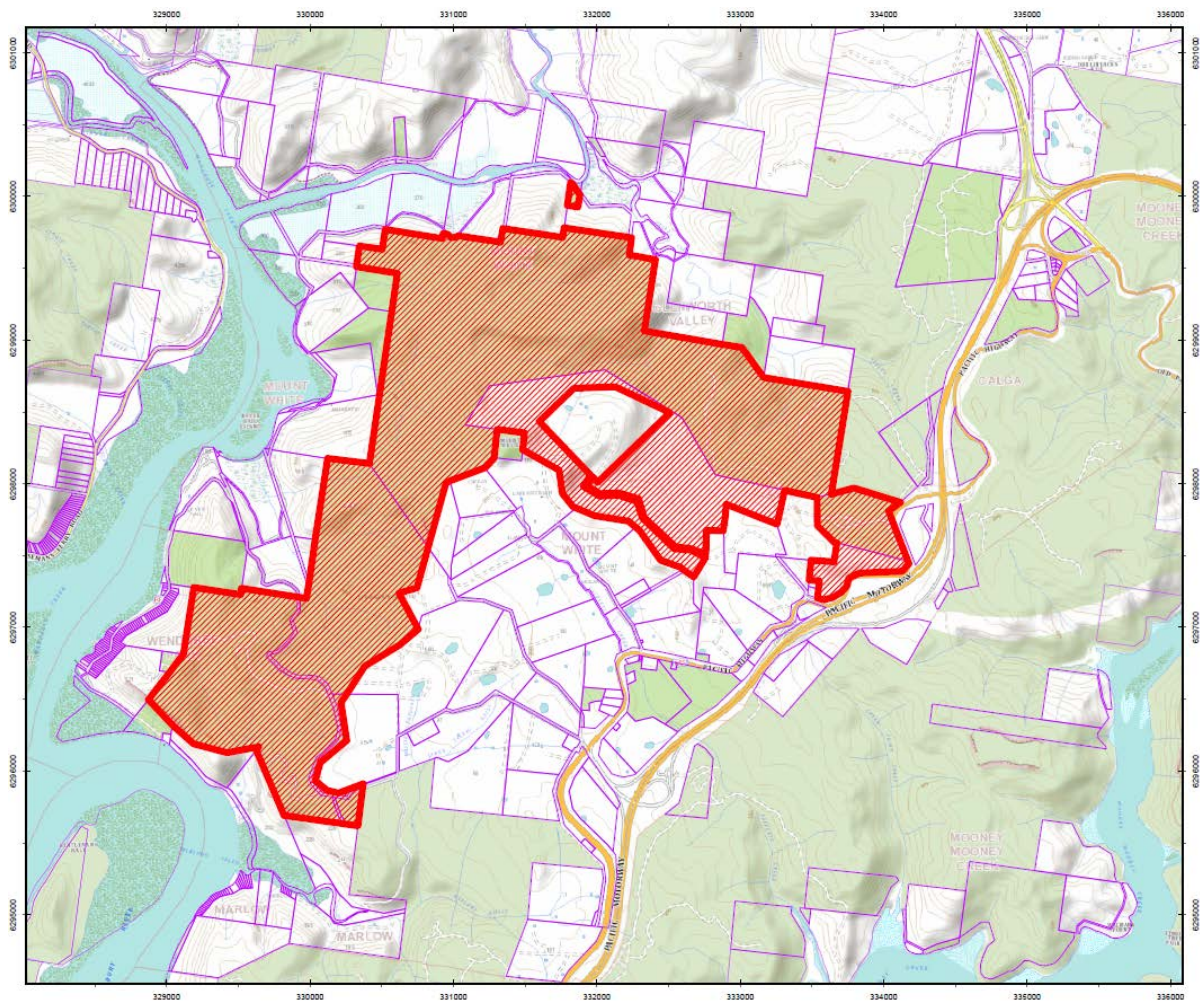


Figure 1: Aboriginal land claim 5831, granted lands.

Broadly, the land is bounded by:

- To the south, private rural land holdings and the Hawkesbury River.
- To the west, private rural holdings fronting Mangrove Creek.
- To the north, private rural holdings fronting Popran Creek and Kelly's Creek.
- To the east, Popran National Park and the Pacific Highway.

In December of 2015, the Department of Industry-Lands (DoI-Lands) offered the survey to public tender to any NSW Registered Land Surveyor. Following the assessment of a number of submissions, in April 2016 ADW Johnson Pty Ltd was tasked with completing the survey which included the granted land and several residue parcels.

The survey was to be lodged in a format suitable for registration at Land and Property Information (LPI) by May 2017 (DFSI Spatial Services, 2016a, 2016b). This timing needed to allow for the review and approval of the survey and mean high water definition by DoI-Lands prior to 16 May 2017.

2 PRE-SURVEY PREPARATION

When planning to undertake any survey, a number of common factors arise that need to be considered. These include factors such as Work Health and Safety, resourcing, management, reporting and methodology. As with most professional practices, systems are developed in order to recognise and manage repetitive risks, processes and arrangements with a view to provide a service of the highest standard, quality and efficiency. The reader is referred to the appendix for a copy of the Plan of Subdivision, including lots 1 to 15 referred to herein.

2.1 Risk Assessment

In this case, aspects of the survey such as the work environment, timeframe and risks were outside our standard operating procedures. Consequently, site specific risk assessments, and processes were developed prior to commencing the site work. Our risk assessment identified a number of site specific issues that required further consideration.

2.1.1 Work Health and Safety

Terrain: The region is mountainous and there are several areas where there are significant cliff escarpments (100 m or higher) combined with smaller drop offs, often not visible due to the thick vegetation. Consequently, it was necessary for all personnel to be well aware of their surroundings, maintaining a safe working distance from cliff faces and drop offs, whilst ensuring fatigue is managed to avoid heightened risk due to a lack of awareness (Figures 2 & 3).



Figure 2: View of the escarpment along the northern boundary of lot 14, from Hawkesbury River bank.

Wildlife: Whilst Australia is known for its deadly wildlife such as sharks, spiders and snakes, this is not always a major factor in the surveying environment. However, in this case, it was common knowledge to locals (and regularly reinforced) that the area was known for its snake population, particularly death adders (particularly around higher escarpments such as Mt White trig station), black, red belly and brown snakes. Again, alertness is a key element in the avoidance of this risk, and several were encountered throughout the survey without incident.

To manage this risk, first aid kits were carried with field crews at all times. The key treatment for snake bite is to apply a compression bandage, minimise movement and seek medical help urgently. In isolated regions of the site, the only effective means to comply with this requirement is to evacuate personnel by helicopter. Consequently, all crews carried personal EPIRB beacons which could be activated should this need arise.



Figure 3: (a) View from the southernmost corner of lot 10 south to Marlow and the Hawkesbury River, and (b) access to TS4746 Mount White.

Isolation: EPIRBs were also essential for managing other risks such as bushfire and falls. Some of the site had no mobile phone reception so it was essential that personnel could be located accurately and evacuated if required. Management also remained in contact with the local Rural Fire Service control centre and National Parks and Wildlife Service (NPWS) so that the risk of bushfire and controlled burning could be managed.

Chainsaw use: As this is a rural survey, many of the marks and reference marks were trees, particularly in the northern and western sector of the project. In accordance with the Surveying and Spatial Information Regulation, it is also necessary to clear and blaze the boundary lines in the course of completing the survey. Consequently, it was determined that chainsaw use would be a regular requirement during the course of the survey to expose reference tree shields (Figure 4) and also increase the speed with which boundaries could be cleared and blazed.

The use of chainsaws required third-party training to be completed by three of our personnel. New chainsaws were also purchased along with necessary safety and maintenance equipment. Ultimately, fuel efficiency, reliability and (most importantly) weight were factors which determined the model of chainsaw to be used.

Adjoining land use: The conduct of the field survey also needed to consider the impact on adjoining land owners and particularly their business operations. Adjoining land use is varied, ranging from simple rural residence, through to residential and holiday caravan parks, sandstone quarry, adventure park, equine industry and grazing.



Figure 4: Opening a shield (before and after).

Each situation required cooperation and flexibility on the surveyors' part in order to minimise impacts, whilst operating as efficiently as possible. Risks and issues included upset residents and visitors, injuring livestock (some very expensive), danger from operating machinery, injuring bushwalkers and inexperienced horse riders (Figures 5 & 6). Some arrangements also took weeks or months to coordinate, such as tracking down an owner living in China or operating in certain areas only during school terms.



Figure 5: Stock at the Glenworth Valley Adventure Park.



Figure 6: Machinery at the Gosford Quarries Mt White facility (Mt White in the background).

2.1.2 Aboriginal Heritage

In accordance with the National Parks and Wildlife Act, it is inherent upon all persons to make themselves aware of the presence of Aboriginal heritage and artefacts in their location (Department of Environment, Climate Change & Water, 2010). Given the nature of the survey was for an Aboriginal land grant (creating some heightened awareness of this issue) and the relatively undisturbed nature of the terrain, it was considered likely that Aboriginal heritage could be encountered in the course of completing the survey. It was therefore arranged for personnel to complete training with the DLALC heritage officer. This training demonstrated some of the types of artefacts and features likely to be encountered, combined with an understanding of the areas of the landscape which were more likely to contain heritage items.

As a part of this training, it was recognised that the placement of survey marks in rock escarpments, whether they be stations, boundary marks or reference marks, may be damaging Aboriginal heritage. Often rock escarpments may be obstructed with ground coverings so it is not possible to know what artefacts are in the area. Our training demonstrated that, even where specific engravings or carvings may not be affected, the placing of survey marks in close proximity to artefacts, such as on the same rock shelf, may be offensive to Aboriginal culture. Consequently, it was necessary to modify our survey traverse and marking methods in order to minimise the risk of damaging heritage items. This included not placing survey marks in large sandstone escarpments (suitable for engraving), particularly in the elevated regions of exposed rocky outcrops. Other items to consider included middens (collections of crustation shells), rock arrangements (such as around campfires), grinding stones and grooves, sharpening stones and spearheads. Residents were also aware of many locally known (although undocumented) heritage sites.

Whilst heritage items were speculated to have been identified and avoided throughout the course of the project, Aboriginal heritage was identified and reported at only one location, near the south-eastern corner of lot 6. This heritage was a cave which was located only metres from the corner (Figure 7). Once identified, the area was avoided and a report, location and photos sent to the NPWS and DLALC. Whilst it is not always possible for the untrained eye to be certain of the authenticity of potential artefacts encountered throughout the course of the survey, our awareness of the types of artefacts, combined with a policy of extreme caution and avoidance in all situations, minimised the risk of any impacts on Aboriginal heritage.

2.2 Resources

In order to meet the project timeframe, it was determined that it would be necessary to allocate, on average, at least 1.5 field crews per week to the project, i.e. 7.5 days per working week. Whilst this was quite manageable, it also meant being sensible about other opportunities and projects which should (or should not) be pursued by the company in order to maintain timeframes and service standards to existing commitments.

Due to the unique nature of the project, it was also considered an opportunity for professional development of key personnel with the company to obtain experience and training. Consequently, two of the company's long-serving graduate surveyors were allocated to the project, combined with the most experienced technical surveyor, to deliver the majority of the field work (under supervision). Consequently, one of the graduates is now using the survey of lots 9-14 (south of Morgans Road) as his rural project for the Board of Surveying and Spatial Information (BOSSI) candidate assessment.



Figure 7: (a) Cave containing Aboriginal drawings, and (b) charcoal drawings within the cave.

2.3 Management

The unique nature of the project required management systems to be implemented to ensure the project would operate as efficiently and effectively as possible. This included matters such as on-site monitoring of field work as appropriate, review of field notes, electronic data and record keeping on a weekly or shorter interval (as appropriate) and management of workflows on a weekly basis. Other factors also included the extent to which investigations were made on site for the location of survey marks. To this end, it was necessary to ensure all avenues and possible scenarios and calculations were considered prior to consider classifying marks as ‘gone’, ‘destroyed’ or ‘not found’.

Consultation with adjoining land owners was also a unique element of the project as it was often necessary to obtain access through adjoining owners’ property to the Crown land, whilst also garnering local knowledge of risks and site constraints. Ultimately, there were 21 different adjoining owners to liaise with and this was a key management role for the registered surveyor, in case it was necessary to invoke the ‘Power of Entry’ rights under the Surveying and Spatial Information Act. Ultimately this was not required, although in some cases as properties were not regularly occupied, it took some weeks or months to contact owners to arrange access.

3 BOUNDARY DEFINITION

With regard to the Plan of Subdivision in the appendix, the purposes of the lots within the plan are:

- Lots 1, 2, 5, 7, 8, 9, 10, 11, 12: Land to be transferred to Darkinjung LALC in accordance with Ministerial Grant of part of ALC 5831.
- Lots 3, 4, 6, 13, 14 and 15: Land within the subject parent lots not granted to Darkinjung LALC and to be retained by the Crown (residue lots).

Whilst the survey covered some 42 km of boundary marking and 58 km of traversing, this section focuses on the areas covering the older and more challenging aspects of the boundary redefinition. This incorporates the northern boundaries of the survey, generally from the junction of Mangrove and Popran Creeks, east across to Popran National Park, including lots 6 & 7 and the northern boundaries of lot 5 (Figure 8). The remaining areas of the survey, whilst significant in length and area, were generally defined by modern surveys of the 20th and 21st century and the definition is explained clearly within the Plan.

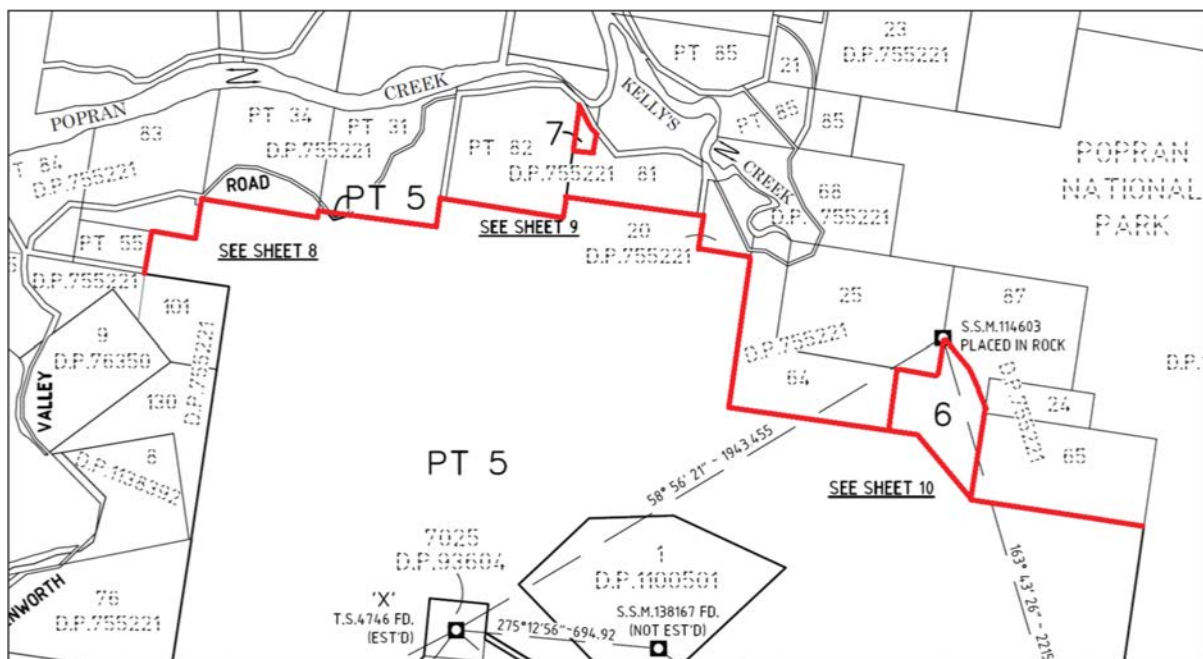


Figure 8: Area of boundary subject of this section highlighted in red.

Broadly, the field survey commenced at the Pacific Highway adjacent to lot 2, proceeding clockwise via TS4746 Mount White, south to Morgans Road, then north-west along Morgans Road and then northerly along the western boundary. It was considered less efficient to progress anticlockwise, as the boundary between lot 5 and 45/1197008 (Popran National Park) had never been surveyed and was only created by a simplistic description in the simplistic reserve gazettal. That boundary was ultimately agreed by the Crown and NPWS to be an extension of the eastern boundary of portion 65, southward to lot 1. A separate loop was undertaken for the definition of lots 9 to 14 inclusive, south of Morgans Road.

3.1 Northern Boundary – Stage 1: Ph 101, 55, 84 and 83

Initially, as had been the approach for the entire survey, the aim was to traverse the abuttal boundary with a view to finding marks that had been placed in the original adjoining surveys. This approach allowed for the hierarchy of marks, particularly in relation to Crown grant surveys and occupations, and had been relatively successful for the earlier survey.

Leading up to this, during the course of the definition of the western boundary, several reliable original marks had been found which defined adjoining portions 76, 101 and 130. A traverse connection had also been completed from the eastern boundary of portion 76, across to control on Mount White trig station. Consequently, it was considered that the calculations north and eastward from portion 55 and 101 were reliable.

Having regard to Figure 9, during the course of the abuttal traverse, original marks were found at corners A, B and C. Corner A (Figure 10) had been placed in the course of the survey for portion 101 (N4505, circa 1910) whilst at corner B (Figure 11), the original corner mark is noted as found from Ph 55 (N3824, c. 1903) and the reference tree was created in N4505. Corner C (Figure 12) had been placed for the survey of Ph 83 (N1021, c. 1883). Distance A-B is per original (PO).

In the absence of a mark being found at corner D, it was necessary to confirm the abuttal by means of extending the survey to corners E and F. The distance between corner marks found at E and F is 0.15 m in excess of N1021 (Ph 84) and 0.55 m in excess of N3824 (Ph 55). Distance C-E was 0.555 m short of PO vide N1021 (Ph 83).

Due to the shortage of line C-E and in order to confirm the position of corner D, the survey was extended southwards to corner G where a peg and reference tree were found. It should be noted that the tree was originally referenced in N3824 (Ph 55), however this was re-referenced in N4505 (Ph 101) due to what appears to be a typographical error (typographical or transcription) of approximately 30°. The reference changed from 159°00' 54 lks. to 189°45' 53.5 lks.

Whilst the original intention, as represented in N3824 is for line D-G to be straight, due to discrepancies in both angles and dimensions between plans N3824 and N4505, it was decided to maintain the abuttal dimensions of line D-E as PO of 247.435 m and create a bend at corner B. It is also noted that N1021 was modified to include a subsequent diagram showing different bearings to the original survey. Indeed, the original plan drawing (Figure 13) was embellished with new (non-cardinal) bearings in red, along with the diagram. These details are generally consistent with plan N3824 of Ph 55.

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Figure 10: Corner A, c. 1910.



Figure 11: Corner B, c. 1903.



Figure 12: Corner C, c. 1883.

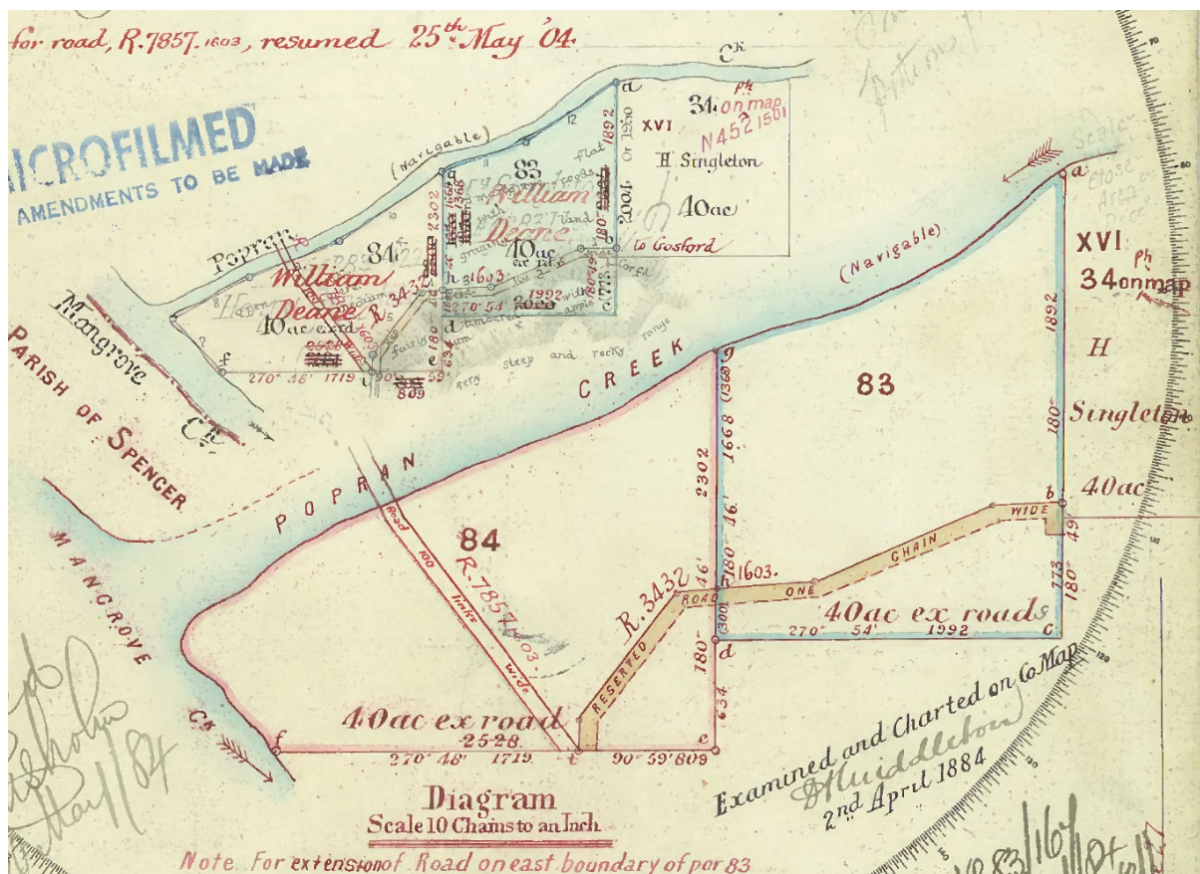


Figure 13: N1021, Ph 83 and 84, extract.

3.2 Northern Boundary – Stage 2: Ph 83, 34, 31 and 82

3.2.1 Historical Survey Practice

Ph 31 and 34 were two of the older plans associated with the survey. At this point, it is important to recognise the different practices of surveyors throughout various iterations of directions and circulars to surveyors. Indeed, the 19th century was a formative time in the surveying profession in the Colony of New South Wales and there were significant events that defined the conduct of surveyors, many of which remain in force today.

The period encompassing these two plans was particularly significant as noted in Marshall (2002, p.13): *“The period between 1833 and 1864 is critical in the development of survey practice in New South Wales. Prior to 1836 very little appears to have been formalised regarding survey directions and the earliest directions so far found are in the form of circulars to improve marking and identification of errors.”*

Plans N397 (Ph 31) and N452 (Ph 34) were both completed by Licenced Surveyor Commins. Indeed, the plans show they were both transmitted to the Surveyor General of the day (Mr Walker Davidson) on the same date being 1 January 1863. Of course, this day represents a significant milestone in land tenure in NSW, being the day that the Real Property Act commenced and the Torrens Title system was introduced – a system that remains in place today and is recognised as one of the most effective land tenure models throughout the world.

Indeed, the most recent direction prior to the 1862 surveys was on 9 July 1853 by Acting Deputy Surveyor General Mr J. Thompson (Marshall, 2002, p.19). This direction was entitled *“Instructions for Marking Crown Land by Government Surveyors”* and known particularly for the introduction of the requirements for blazing of lines (to a width of 3 feet), lock-spitting of corners (although only in plain country) and the numbering of reference trees.

This circular makes no mention of marking corners where pegs cannot be placed, such as in rock. In this instance, the prior direction of 10 April 1848 still applies, which states *“The marks in the rocks are to be broad arrows, crosses, triangles or squares, and each licenced surveyor is requested to preserve uniformity in his own marks, so that they may be easily described and recognised”* (Marshall, 2002, p.17). As a consequence, it was necessary to keep an open mind as to the type of mark that may be found, particularly where it is apparent that a peg is unlikely to have been the original corner mark.

It is also important to note the referencing of Truscott (1894) in Marshall (2002, p.13), which states *“...during the period 1830 to 1850, in surveys over rough broken ground there is little likelihood of old marks being found because often in portions with river frontages extending back to cliffs, the back lines were generally not run and if the back corners were not easily accessible marking was also omitted.”* Whilst this statement applies to surveys a decade prior to the subject portions, the geography (Figure 14) and methods of measurement are similar and good practice to consider.

Another factor to be considered was that it was common practice up until about 1864 for reference marks to be quoted from the mark to the corner. It was not until after the Real Property Act of 1862, which set out requirements for the licencing of surveyors, that the first regulations were introduced in 1864 for ‘Licenced Surveyors Employed by the Lands Dept.’ (Marshall, 2002, p.24), showing that reference be made from the mark to the corner. In spite

of this, there was still a practice for special marks to be shown from the corner to the mark on Lands Department plans prior to 1933 (Marshall, 2002, p.14). Consequently, throughout the course of the entire survey, it was prudent to investigate references in both forward and reverse bearing directions from a corner.



Figure 14: View looking east along the southern boundary of Ph 31. The south-east corner of this portion is near the red arrow.

Figures 15 & 16 show a corner mark from Ph 130, being plan N5944. Despite the custom of chiselling the number at the corner mark, where possible, as shown in Figure 16, the portion number has been chiselled adjacent to the reference mark.

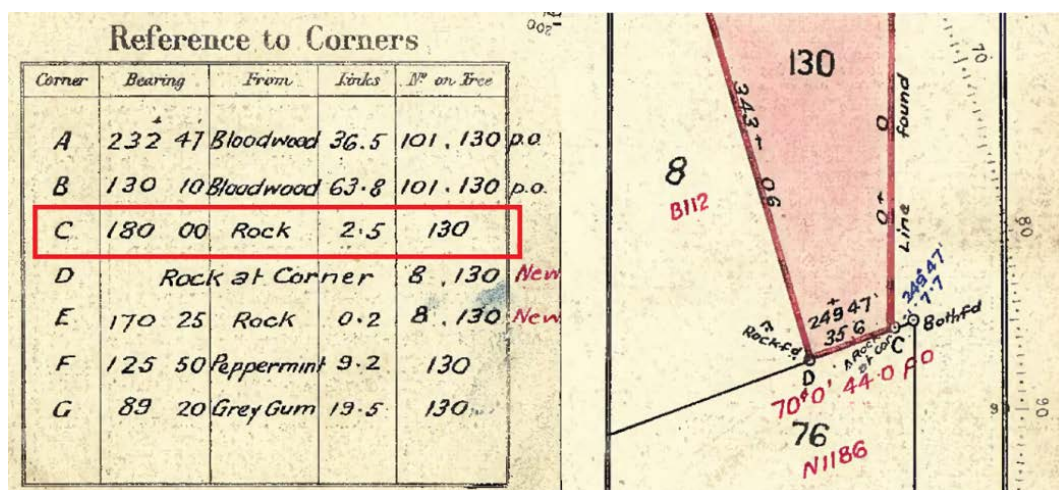


Figure 15: Reference mark C in N5944 (Ph 130), c. 1922.



Figure 16: Reference mark C in N5944 (Ph 130), c. 1922. North is to the right as confirmed by the shadowing.

3.2.2 Site Survey

The establishment of the southern boundary of Ph 83 provided an orientation for further calculations moving clockwise through portions 83, 34, 31 and 82. Figure 17 shows the various abuttal plans, surveyors and dates of survey.

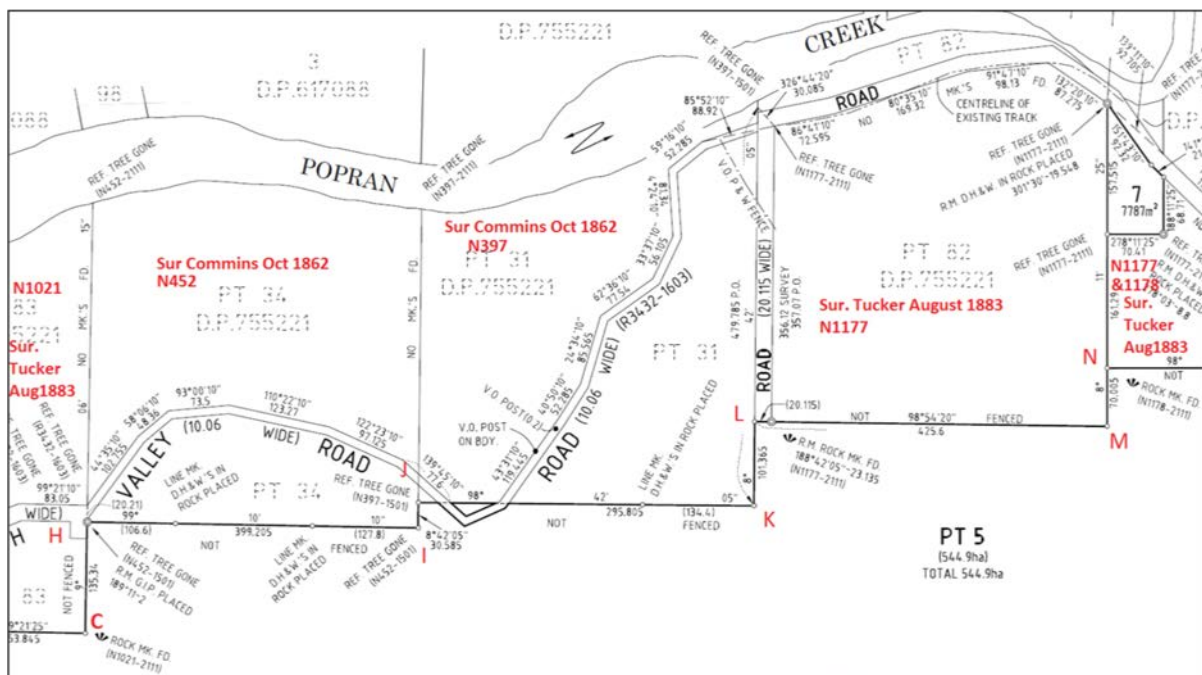


Figure 17: Extract of page 9 of the Plan of Subdivision.

Calculations were extended using original dimensions from corners C to N. The traverse was extended along these calculated boundaries from C to L. At this point no marks had been found, including the reference mark near corner L which was found later. Given the age of the surveys and terrain, it was decided to proceed northwards in order to (1) search for other marks relating to portions 31 and 34 along the reserve roads and other boundaries, and (2) close the traverse to verify the accuracy of the control. Unfortunately, no marks were found and only a couple of very old fence posts were located within Ph 31 (Figure 18).



Figure 18: Very old fence post found in Ph 31 (on the reserve road boundary).

The next course of action was to extend the traverse eastward from the north-east corner of Ph 31 along the reserve road. Again, no marks were found along the road or near the old water reserve, which is now partly represented by lot 7. The survey proceeded south along the common boundary of Ph 81 and 82 with a view to connecting back to corner L. At corner N, the corner mark broad arrow was found as shown in N1178 (Figure 19). It should be noted that Ph 81, whilst originally defined in N1177 by Surveyor Tucker, was subsequently amended in N1178 of March 1886 by Surveyor Percy Cowley affecting the southern and eastern boundaries. It was then a recalculation to corners M and L. Ultimately, the reference mark was found in the cliff face adjacent to corner L (Figure 20). No other original marks were found and, as will be explained later, the plan R3432 defining the Crown road was later used to assist with the definition of Ph 31 and 34.



Figure 19: Corner N (“on high rock”) vide N1178 (Ph 82), c. 1886.



Figure 20: Reference mark adjacent to corner L vide N1177 (Ph 81), c. 1883.

3.3 Northern Boundary – Stage 3: Ph 81, 20 and 64

With the lack of success in defining Ph 34 & 31, it was decided to push forward to more modern surveys in the hope of finding other evidence that may help in back-tracking older definition. As the rock mark was found at corner N in Figure 21, further calculations were made through Ph 81 (N1178), Ph 20 (N171) and Ph 64 (N4072). Indeed, N4072 was a more recent survey from 1906 and so it was considered probable some marks would be found.

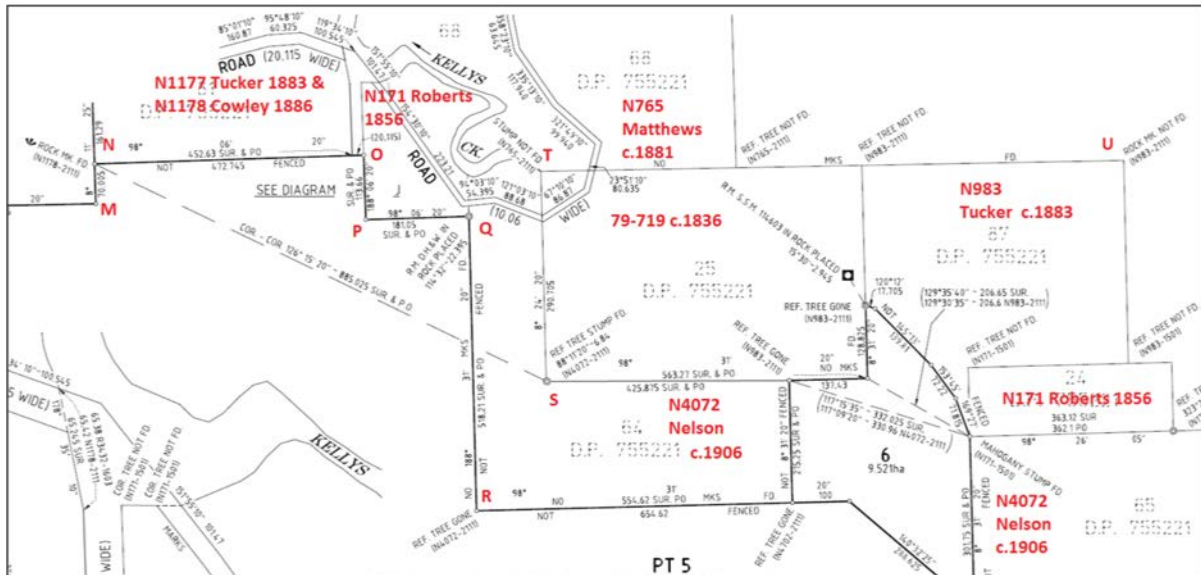


Figure 21: Extract of page 10 of the Plan of Subdivision.

The traverse was extended along the line N-O-P-Q-R with a branch off to corner S. Ultimately, no marks were found here other than a stump at corner S. With a lack of reliable connections through these various surveys at this time, it was considered insufficient evidence to be confident in the current definition. Investigations were also undertaken around the northern boundary of portions 81 and 20 as there were several reference marks, corners and road boundaries in this area. Again, no marks were found. It was likely that much of this area had been cleared and farmed over the intervening 150 years and more recently was being ploughed and seeded for agistment. It was also observed that some of the creek alignments had been diverted or channelled for farming and irrigation purposes.

Having traversed to corner R, it was also possible to see across the valley southward to the Gosford Quarry. Consequently, observations were made to connect the traverse back to the starting azimuth in order to confirm the reliability of the control. Again, as had been done along the western boundary, this ensured that the survey integrity was maintained and the connections and calculations between portions was reliable.

Following the lack of cadastral evidence found, it was considered necessary to extend the survey investigation north and east into adjoining portions in order to determine if the current calculations were reliable. This included Ph 25 (79-719), Ph 87 (N983) and Ph 68 (N765). Firstly, the survey was extended to the south-east corner of portion 25, along with the north-east corner of portion 64. Neither corner was found, nor the south-west corner of portion 87.

At this point, it was decided to investigate for other rock marks in the area which may have been more likely to last. Consequently, the traverse was extended to the boundary line T-U

with a view to trying to locate the rock mark at the north-east corner of portion 87 at corner U. A number of calculation options were undertaken, and corners investigated along this line. Ultimately, after several attempts, no marks were found, despite the relatively undisturbed nature of this country.

Of course, it has always been the custom for a new survey to connect to the adjoining surveys. To this end, each portion investigated in this survey had generally been connected to its adjoining portion, wherever they existed. However, with the varying survey standards, accuracy of measurements and observations, and different surveyors, significant variations can be found when extending across several portions. And of course, these multi-portion surveys have generally not been required until now. Consequently, it was difficult to make calculations with certainty about the location of corners of each subsequent portion, having not found any in the adjoining one. So as in this case, having only found a mark at the south-west corner of portion 81 (corner N in Figure 21), there was little confidence in calculations to marks further afield such as portions 20, 64 and 25. Having not found any on portions 68 and 87 created further doubt and a reluctance to proceed on the survey route (through to portion 65) without other information.

3.4 Northern Boundary – Stage 4: Parish Road

To the benefit of this region and this survey particularly, a road survey had been undertaken in 1887. This survey defined the parish road extending from what is now Wendoree Park (near the junction of Mangrove Creek and the Hawkesbury River), north along Mangrove Creek and extending upstream adjacent to Popran Creek to its original junction with Gosford Road, in the proximity of the Glenworth Valley Adventure Park and Riding School facilities. This included Little Mooney Mooney Creek, which is now known as Kelly's Creek. The road survey extended 7 miles, 40 chains and 13 links, being just in excess of 12 km in length. The road adjoins the subject land to the west and north throughout the abutments discussed herein as shown in Figures 9, 17 & 21.

As required, the road survey connected to many cadastral monuments and corners throughout the course of the road. Consequently, this survey provided some comparison of azimuth throughout the valley. Mile markers and other reference marks were also placed along the survey. Part of this survey is shown in Figure 22 to which the subject boundary has been added in red.

Having been completed in 1887, this plan provided connections to corners of abutment portions that were remaining at the time of survey. Of course, being for road purposes, it was not essential for the surveyor, Mr Finn, to define entire portions, merely the relevant boundaries as he was required and could readily define. Nevertheless, his survey connected to many of the portion marks relevant to this survey. These measurements, in many cases, either confirmed the original survey dimensions and orientation as reliable, or in a few cases, confirmed discrepancies.

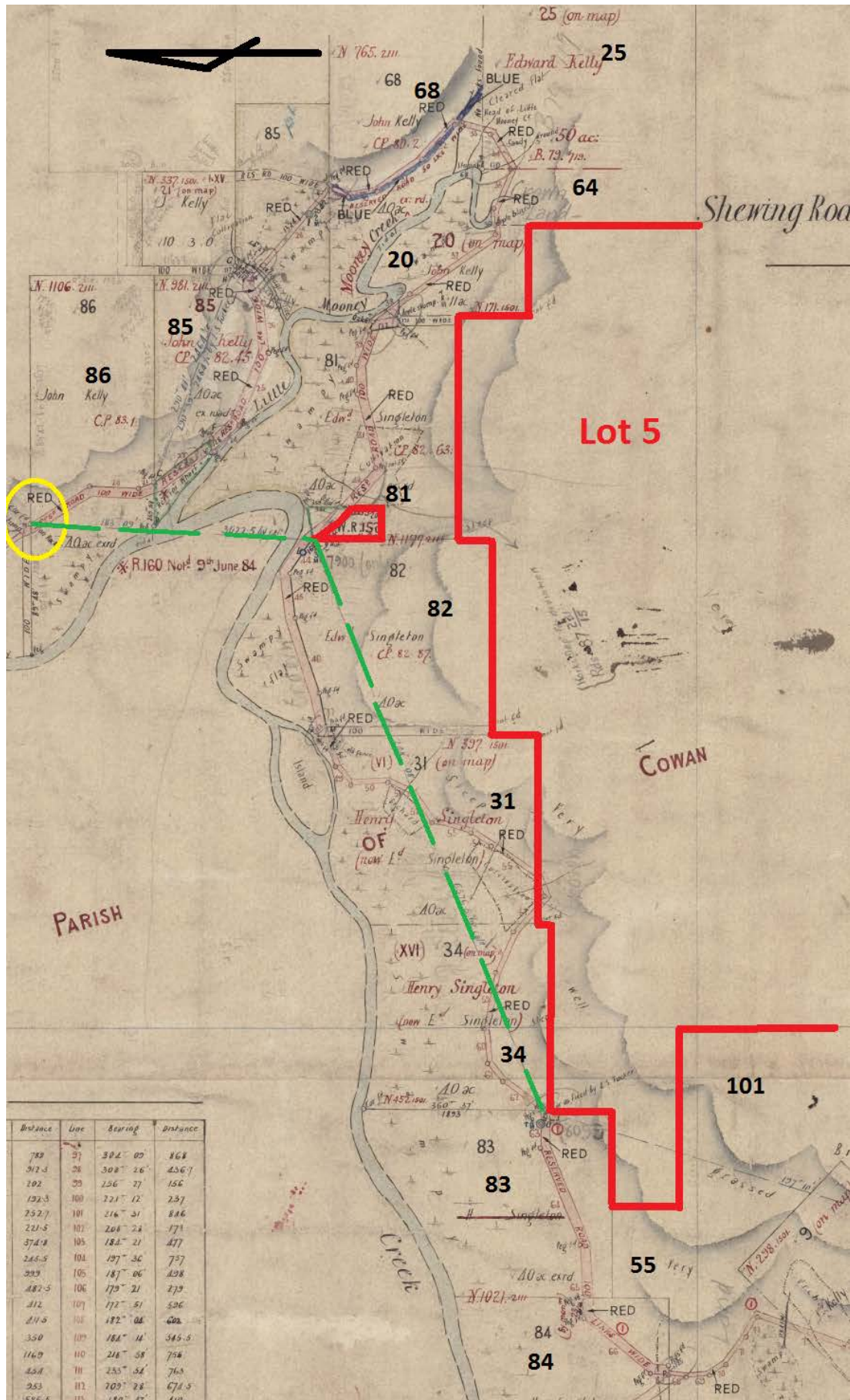


Figure 22: Extract of road plan R3432-1603.

Of course, as may have been noted by the studious reader, it was necessary to define this road, at least in part, as it extends within lot 5, cutting this lot into two parts adjacent to portion 31 (see Figure 17). With the lack of marks found from portion 83 through to portion 64, investigations were made on other plans further afield. Referring again to the road plan in Figure 22, the yellow circle shows the next nearest rock mark. This mark was placed in the original portion 86 plan, N976 of 1883, and subsequently shown in the replacement plan N1106 of 1884 (although this mark did not change). The traverse was extended to this mark following calculations via the road plan and was found as shown in Figure 23. This was a significant find for the survey definition and resulted in tightening up calculations throughout this section of the survey.

Figure 22 also shows the calculation lines from the survey in green dashed lines. These connections were to corners of relevance to the survey as it connects from the rock mark directly to the north-western corner of lot 7 and then on to the corner of portion 34.



Figure 23: Rock mark on portion road.

It was not possible to make direct comparisons on the road plan calculations, because no other marks were found. However, referring back to Figure 9, given that the line B-F had been re-established from original marks, it was decided to produce this line westerly by adopting the PO dimension in order to re-establish the road corner as shown in parish road plan R3432 and portion 84, plan N1021. Ultimately, this showed up a difference in overall length, from here to the rock mark, of 0.885 m shortage using the short line table.

Following this encouraging result, other comparisons were made. This included corner C to H (Figure 17) which showed an excess of 0.05 m to PO. Further, at corner L, calculations north to corner L1 (Figure 24) show a shortage of 0.955 m compared to PO, whilst at corner N, comparison north to corner N1 identified an excess of 2.57 m. It should also be noted that the road plan shows corner L (and K) as not found and whilst the corner mark was not found, the reference mark remains. Further, the road plan did not connect to corner N.

These comparisons give a reflection of the reliability of the earlier plans and were considered quite reliable, given the age and nature of the various surveys, and were used as a basis for further calculations and comparisons. Ultimately, this was also used for the definition of the road within lot 5 and assisted with the definition of the abutments around portions 83, 34 and 31 in particular.

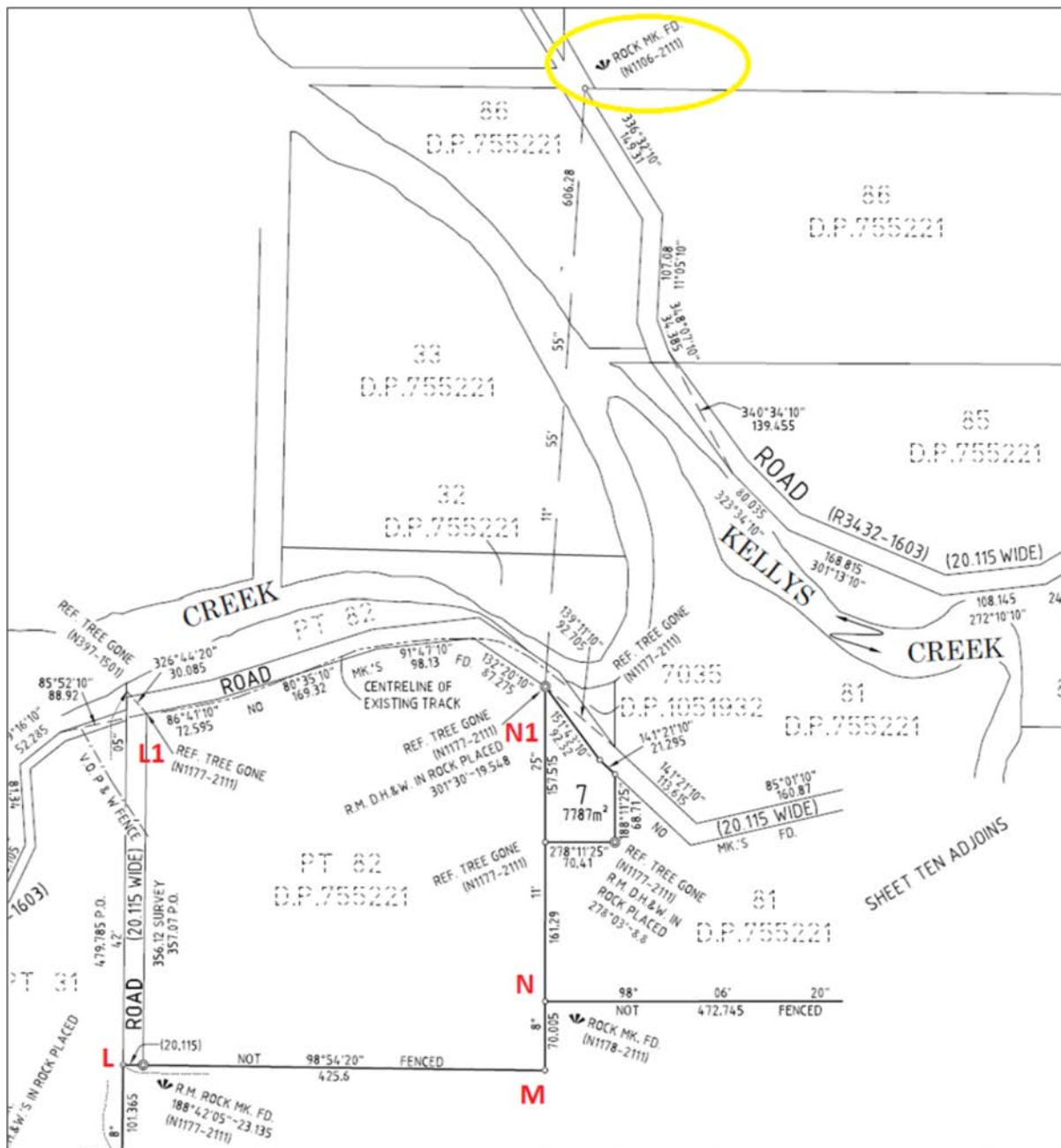


Figure 24: Extract of page 9 of the Plan of Subdivision.

Throughout the course of the investigation of marks along the road plan, the existing track was also located at appropriate sections. Some of this information has been reproduced on the Plan of Subdivision, noted as 'Centreline of Existing Track'. The track is well established, particularly in those undisturbed regions of the survey, such as from portions 83 through to 81.

As noted earlier, fencing was also located throughout this survey and whilst it did not prove beneficial to the definition, it did exist in a position that indicated it was the same fencing shown in the road plan of 1887. Figure 25 includes an extract of part of R3432 showing fencing around a cultivated area of portion 31. Red dots on this extract indicate the approximate position of very old fence posts which were found as shown in the extracts from the Plan of Subdivision. Figure 26 shows a couple of these original posts (see also Figure 18).

This evidence combined assisted in confirming that the road redefinition was consistent with its original position.

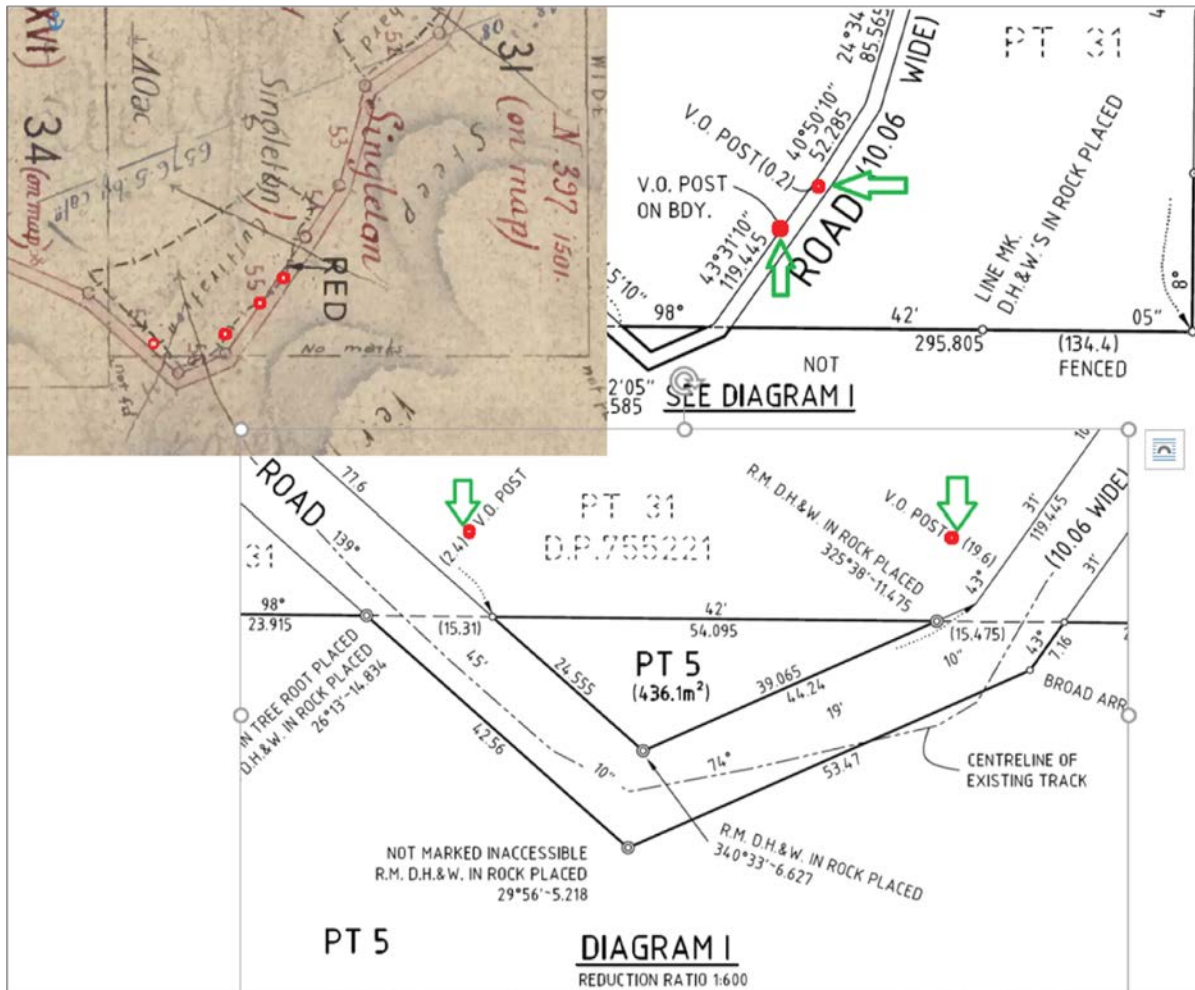


Figure 25: Extract from R3432 and Plan of Subdivision indicating fencing.



Figure 26: Sample of very old fence posts.

Another item of note is the old hut as depicted upon portion 82 in R3432, an extract of which is shown in Figure 27. A retaining wall of local rock was found in this general vicinity as shown in Figure 27, and it may be that this was the location of the cottage in 1887.

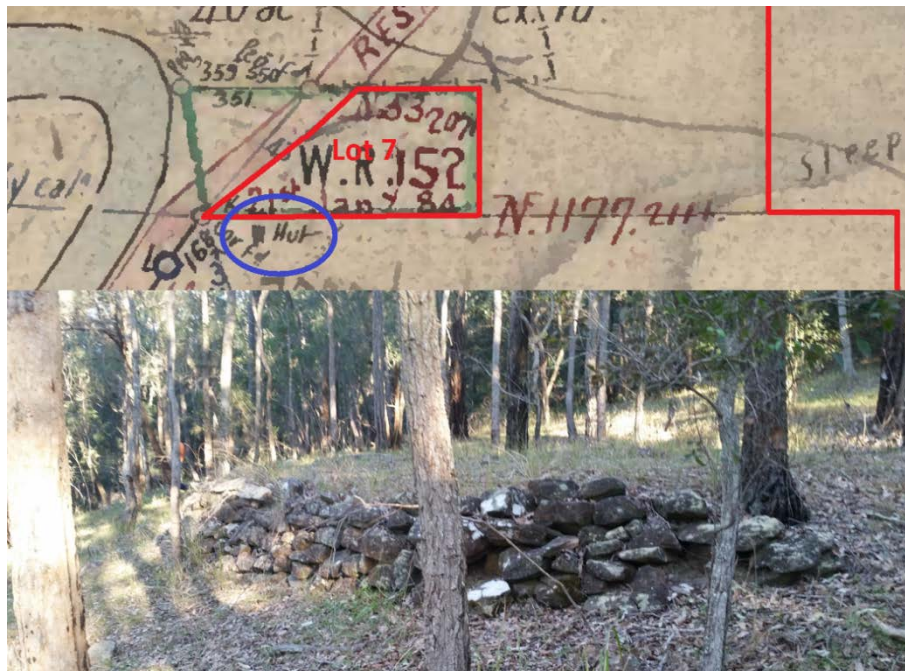


Figure 27: Retaining wall of local rock, possible site of hut in 1887.

3.5 Northern Boundary – Stage 5: Ph 81, 20, 64 and 65

Having re-established the parish road with some certainty, further calculations were then completed in relation to the reference tree found at corner S (see Figure 21) and other comparisons in the portion 64-65 plan, N4072. As shown in Figure 21, an accurate comparison was established from corner N to corner S in comparison to original dimensions.

With some renewed confidence that the calculations were reliable, the line T-U was revisited to further investigate for any marks based on the new calculations. Extensive efforts were made to find marks along this line, particularly the rock mark at corner U (Figure 28), however to no avail. The investigations extended south from corner U to the northern boundary of portion 24. Again, no marks were found.

At this point, the survey approach returned to the abuttal boundary at corner R, having closed off the traverse loop at this point. The traverse pushed eastwards along the southern boundary of Ph 64 and then looped back through the cleared valley (via corner V) to corner W. Again no marks were found, and so the traverse extended around the valley down to corner X where a stump was found in the position calculated for this corner from N4072 (Ph 65) (Figure 29).

The traverse then returned to corner V and continued along the abuttal southwards to corner Y and then across the valleys to corner Z. At Z, lockspit remains were found which agreed well with the orientation and distance from the Mahogany stump at corner X (see Figure 29).

The traverse then proceeded eastward toward corner AA. Again no line marks, blazed trees or other evidence was found. At corner AA, no tree or corner mark was found. However, this corner is not far from a transmission tower within the relevant easement, and given the regrowth nature of the flora, it is quite possible that the area had been cleared during the installation of the high voltage transmission.

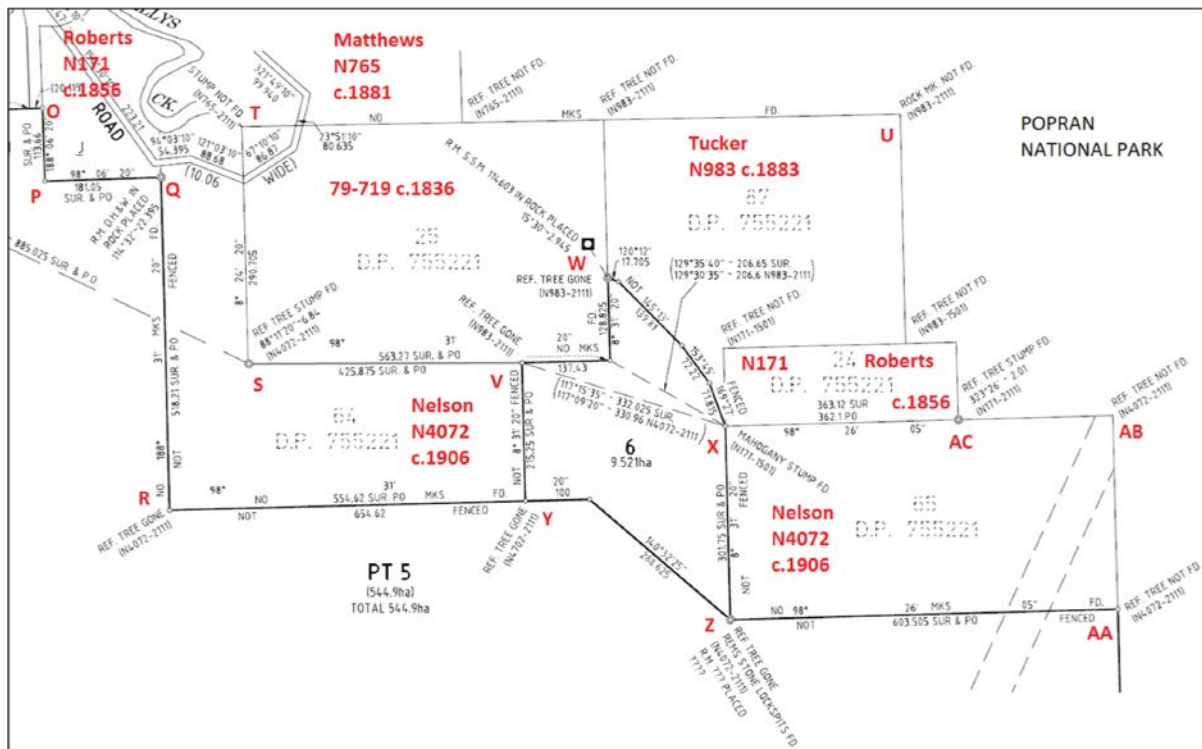


Figure 28: Extract of page 10 of the Plan of Subdivision.



Figure 29: Remains of lockspit at corner Z, Mahogany stump at corner X, and reference stump at corner AC.

At this point, it should be noted that consultation had been completed with NPWS in order to confirm the agreed definition of the common boundary extending south from corner AA. This boundary was to be a prolongation of line AA-AB southwards to lot 1. Consequently, it was necessary to investigate the definition of corner AB.

As can be seen in Figure 28, the corner AB plots within the alignment of the transmission easement. This easement, as noted earlier, is occupied and maintained regularly to protect critical infrastructure. Consequently, upon laying the corner back in, it was evident that the corner mark and tree were destroyed for the purpose of the transmission line.

The survey then investigated corner AC where the original corner was found from the Ph 24 plan (N171) by Nelson in 1906 (N4072). As noted previously, prior to the 1860s it was common for references to be noted from the corner to the mark. This corner is a case in point. Figure 29 shows the stump found and as can be seen in the Plan of Subdivision (Figure 28), the comparison was reasonable, being 1 m in excess of the N171 dimensions. Whilst the intention of N4072 was for Ph 65 to be rectangular, this was not possible based on the evidence found, and there was a 5'15" variation from square.

As can be seen from Figure 28, based on the marks found, at corners N, S, X and Z the original dimensions including bearings and distances were able to be maintained across portion 64 to the western boundary of portion 65. Further, having compared the connections between these portions, on both plans N4072 and N983, the comparisons from the Mahogany stump at corner X back to portions 25 and 64 are reasonable.

It should also be noted that the connection from the north-east corner of Ph 64 to the north-west corner of Ph 65 on N4072 is a calculation shown on the plan in red which appears to have been added after the survey was lodged with the Surveyor General. Whereas the connections shown in N983 (Ph 87) from this Mahogany stump at X (north-west corner Ph 65) to the south-east corner of portion 25 forms part of the survey information in the short line table. Consequently, this appears to be somewhat more reliable to represent actual surveyed lines rather than calculations. Indeed, it is this calculation to which the survey marks bear a reliable comparison, as the Plan of Subdivision extract in Figure 28 shows a difference of only 5' in bearing and 0.05 m in length.

Line X-AC shown in Figure 28, from the Mahogany stump to the reference gum tree, was used as the orientation for the southern boundary of Ph 65, being the survey abuttal. The portion is no longer square, but 5'15" askew as noted earlier. As a consequence, the common boundary with Popran National Park was kept parallel to the western boundary of Ph 65, consistent with the intention outlined earlier.

Having resolved the position of the majority of the boundaries of portions 64 and 65, comparisons were then made in relation to the position of the parish road as re-established versus the position as shown in N4072 (Ph 64 & 65). Figure 30 shows the results of these comparisons in yellow. On the western side, near corner Q, calculations between the road as redefined and the PO boundary indicate a minor excess of 0.255 m north-south and 0.275 m east-west. South of corner T, within diagram K, the results indicate a slight shortage north-south of 0.265 m and a discrepancy east-west of 0.45 m.

It would be speculation to attribute these differences to any one factor. However, these are considered to be quite reasonable comparisons, taking into account the evolution of the surveys, method of measurement, instrumentation and geographical factors.

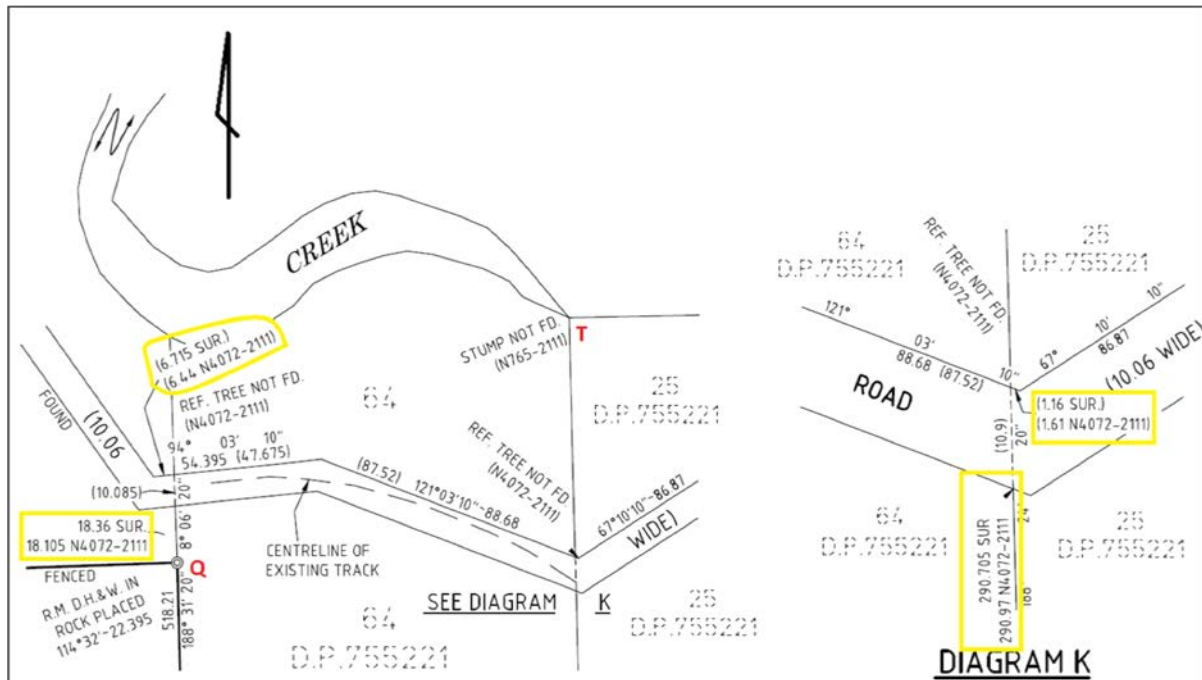


Figure 30: Extract of diagram J and K on page 10 of the Plan of Subdivision.

3.6 Northern Boundary – Stage 6: Ph 31 and 34

Having resolved the definition of the remaining northern boundary abutments and investigated all avenues for remaining survey infrastructure in this area, focus was returned to the final definition of portions 31 & 34 shown in Figure 17. These parcels had been surveyed at the same time in October 1862 by Surveyor Commins. However, there was no survey infrastructure remaining from either plan to confirm the original boundary position along the abuttal.

Survey investigations extended northwards to the Popran Creek natural boundary in the hope that the original marks may still remain. However, no marks were found on either of the three creek boundaries. It should be noted that this is generally flat swampy marshland north of the parish road. Indeed, both plans describe the land as “large flats covered with rushes and swamp oak”. All the reference trees on the plans were swamp oaks which have a relatively short life span of less than 50 years. Combining this with a high moisture content and regular flooding may contribute to the lack of any evidence remaining today.

This left a situation where, having exhausted all options for remaining survey infrastructure, the nearest marks remaining were at corner C on portion 83 and corner L on portion 82 (Figure 31), combined with what is shown to be a reliable redefinition of the parish road from R3432 through these portions.

As with all the portions, lot closes were always done in order to verify the reliability of the plan. In the case of both of these lots, miscloses were found. These were calculated as Ph 31 to be 6° for 19.5 lks (or 3.9 m) and Ph 34 to be 4° 7 lks (or 1.41 m). As these miscloses were in roughly the same direction, the accumulated misclose for Mr Commins' survey was 5° 40' for 26.5 lks (or 5.33 m).

Further, there is also some doubt as to the traverse connections shown within the two plans. In Figure 31, the common northern corner of the two portions is circled in blue. This corner is referred to as corner A in both of the plans. In Figure 32, the same corner is also circled blue for reference.

In the case of N397, a traverse extended westward in order to connect to the mouth of Popran Creek with a series of lines extending from corner A as shown in Figure 31. Again in N453, the traverse extended westwards in order to complete the traverse across the water frontage of Popran Creek.

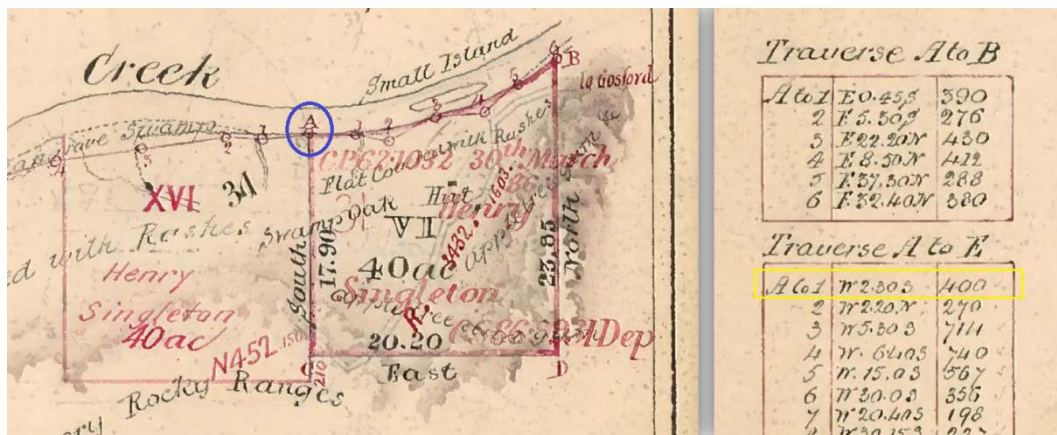


Figure 31: Extract from N397 (Ph 31) and traverse notes.

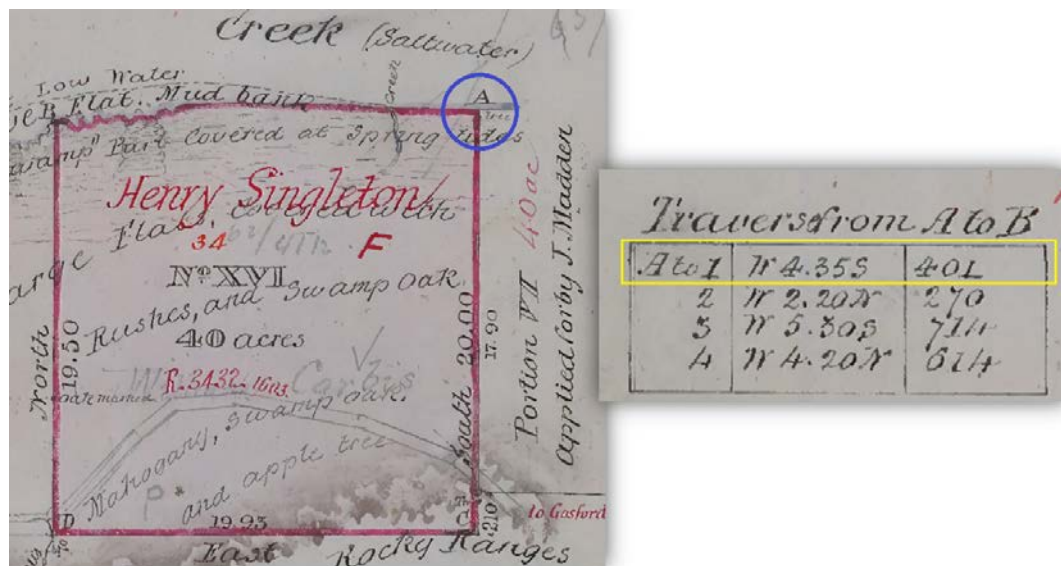


Figure 32: Extract from N453 (Ph 34) and traverse notes.

Interestingly, the first connection from corner A in each plan is different, whereas the second and third lines in each traverse are identical. It seems unusual that a traverse would have been exactly identical and parallel to the first survey. Why would the same surveyor not utilise the same traverse line when doing the survey of these parcels at the same time?

By calculating the misclose between these two lines, we come up with a line bearing due north for 14.6 lks. This compares very closely with the reference tree connection at corner A, being shown from the corner to the tree as south 15 lks. These differences seem to suggest

that the calculations may have been from the reference tree itself rather than the corner. Ultimately, these results create doubts as to the reliability of the surveys.

Consequently, the definition of the portion 31 & 34 boundaries relied in the main on the definition of the adjoining portions. Referring to Figure 33, corner H was defined from using the position of the corner shown in the parish road survey, R3432. This proved a reliable comparison in distance to the original mark found at corner C.

The southern boundary of portion 34 was ultimately determined from the last survey on record of this location, being the road plan R3432. An extract of this section of the plan shown in Figure 34 indicates that Surveyor Finn had found both the intersection of the road boundary and portion 83 (as per Tucker in 1883) as well as the north-west corner of Ph 34 (as per Commins in 1862). The comparison of azimuth between R3432 and this orientation results in a bearing for the southern boundary of Ph 34 being 99°10'10".

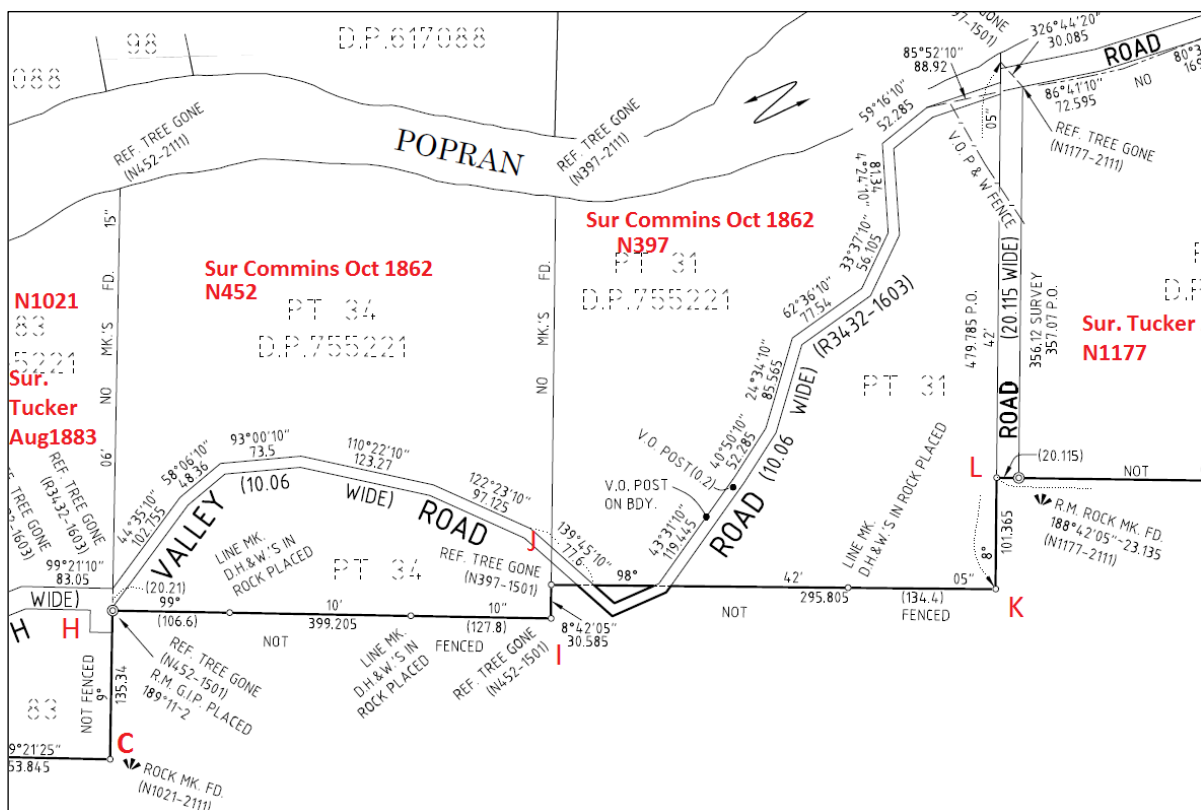


Figure 33: Extract from page 9 of the Plan of Subdivision.

Turning to the eastern boundary of Ph 31, the north-east corner of Ph 82 was re-established from the connections provided in the parish road plan R3432. Using the reference mark broad arrow found at L (see Figure 33), the boundary of Ph 31 was re-established at PO length. A right angle was then maintained at the south-east corner of Ph 31, such that the bearings of lines L-K-J-I are square as shown in the Ph 31 plan (397-1501).

The length of the southern boundaries of Ph 31 & 34 combined to be a total of 807.29 m. However, based on the refixed position of corners H and K, the survey length is 803.79 m, leaving a shortage of 3.5 m. Consequently, in the absence of any evidence for the position of the common north-south boundary between Ph 31 and Ph 34, the shortage was proportioned

between these two portions, resulting in the final dimensions and position of line I-J as shown in the Plan of Subdivision.

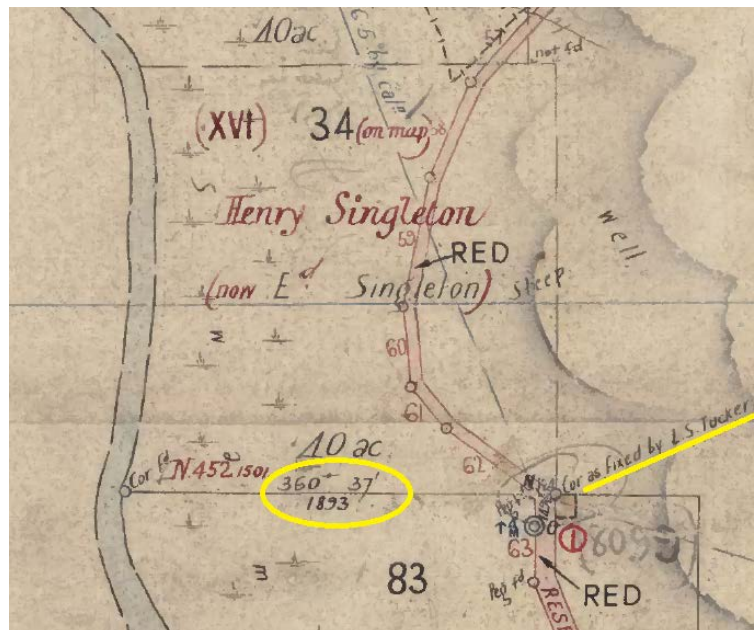


Figure 34: Extract from R3432 showing the connection to Ph 83 and 34 marks.

The resultant length of line I-J, being 30.585 m, was 11.66 m shorter than PO. Whilst it is disappointing to disagree with a previous survey by such a large amount, the passage of time, loss of infrastructure and method of measurement all contribute to these circumstances. Further, the issues encountered with the misclose within these portions also create doubt as to the reliability of the original survey. Ultimately, these differences are not only reflected in this survey, but also in the earlier survey of the parish road.

4 CONCLUDING REMARKS

This paper has demonstrated some of the challenges that surveyors face in redefining boundaries. The colloquialism that ‘surveying is an art not a science’ is reflective of the challenges, interpretations and judgments that have been made in undertaking this survey. The project has been a schooling of the project team in the historical methods of surveying, combined with the means to interpret them in the modern landscape. The project surveyors have gathered a detailed understanding of traditional methods, resources and techniques used to complete portion surveys in a very different time.

Indeed, on many occasions it has been reinforced that it is our role to imagine and place ourselves in the mindset of the original surveyor, taking into account their reliance on angular measurement, their need to minimise manual calculations and use the resources available to them on site.

The results of the various ages of the surveys have also been a demonstration of the value in good technique and complying with sound survey practice. Indeed, the older plans from pre-1860 have been a challenge to redefine, whereas in comparison the 1860-1910 surveys, followed by the surveys of the last century, show an incremental improvement in existence of marks, accuracy and subsequent reliability.

The contracting of such a large project has created the opportunity for young surveyors to experience such challenging definitions, whereas previously these surveys may have been completed by government survey teams. The contracting of more of these surveys may also provide opportunity for a broader sector of the profession to experience this surveying environment.

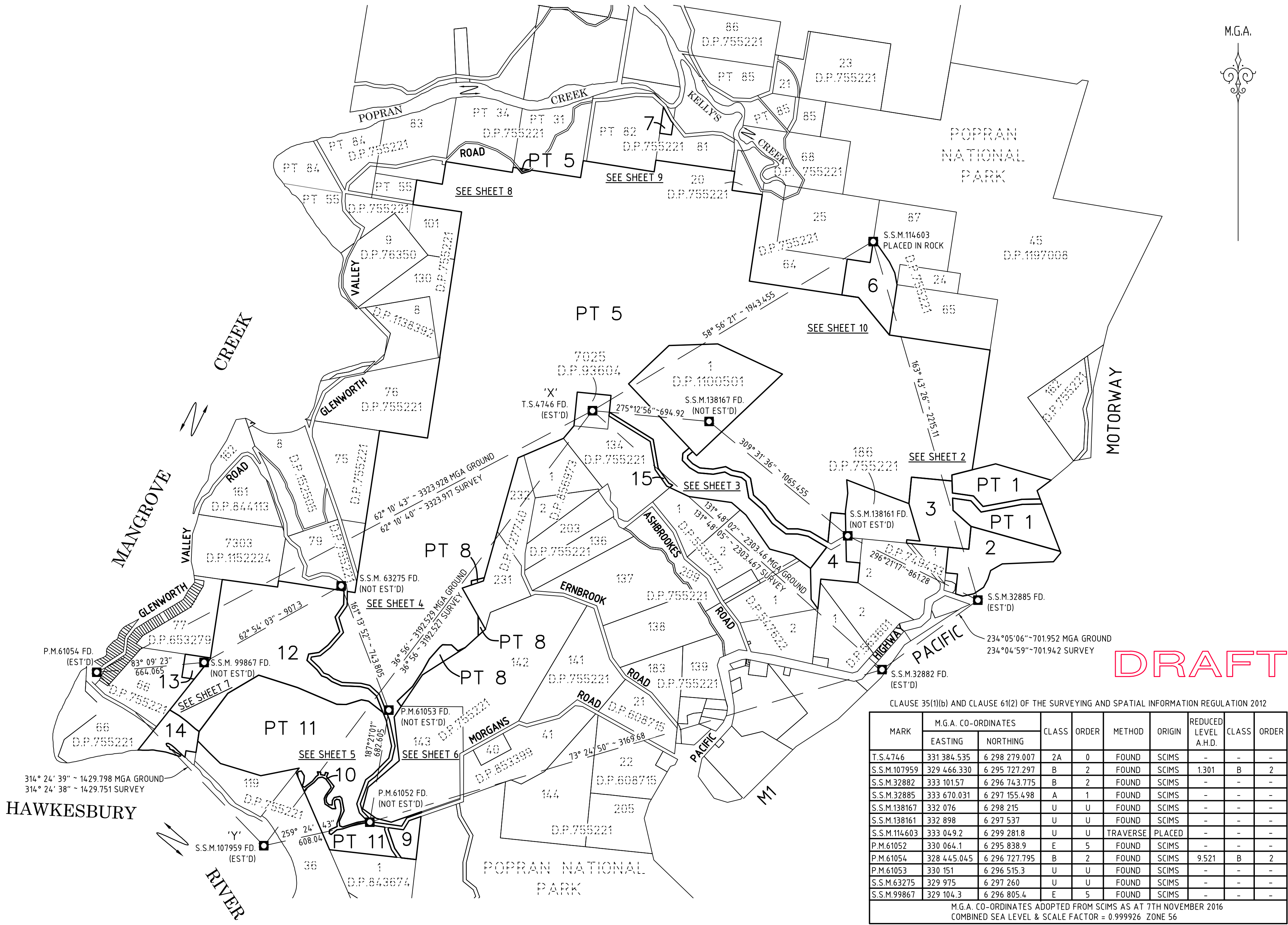
REFERENCES

- Department of Environment, Climate Change & Water (2010) Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, <http://www.environment.nsw.gov.au/resources/cultureheritage/ddcop/10798ddcop.pdf> (accessed Feb 2017).
- DFSI Spatial Services (2016a) Surveyor General's Direction No. 3: Control for Cadastral Surveys, http://spatialservices.finance.nsw.gov.au/surveying/publications/surveyor_generals_directions (accessed Feb 2017).
- DFSI Spatial Services (2016b) Surveyor General's Direction No. 10: Surveys of Crown Land, http://spatialservices.finance.nsw.gov.au/surveying/publications/surveyor_generals_directions (accessed Feb 2017).
- Marshall I.H. (2002) *Marking the landscape: A short history of survey marking in New South Wales* (2nd edition), Land and Property Information, Bathurst, 128pp.

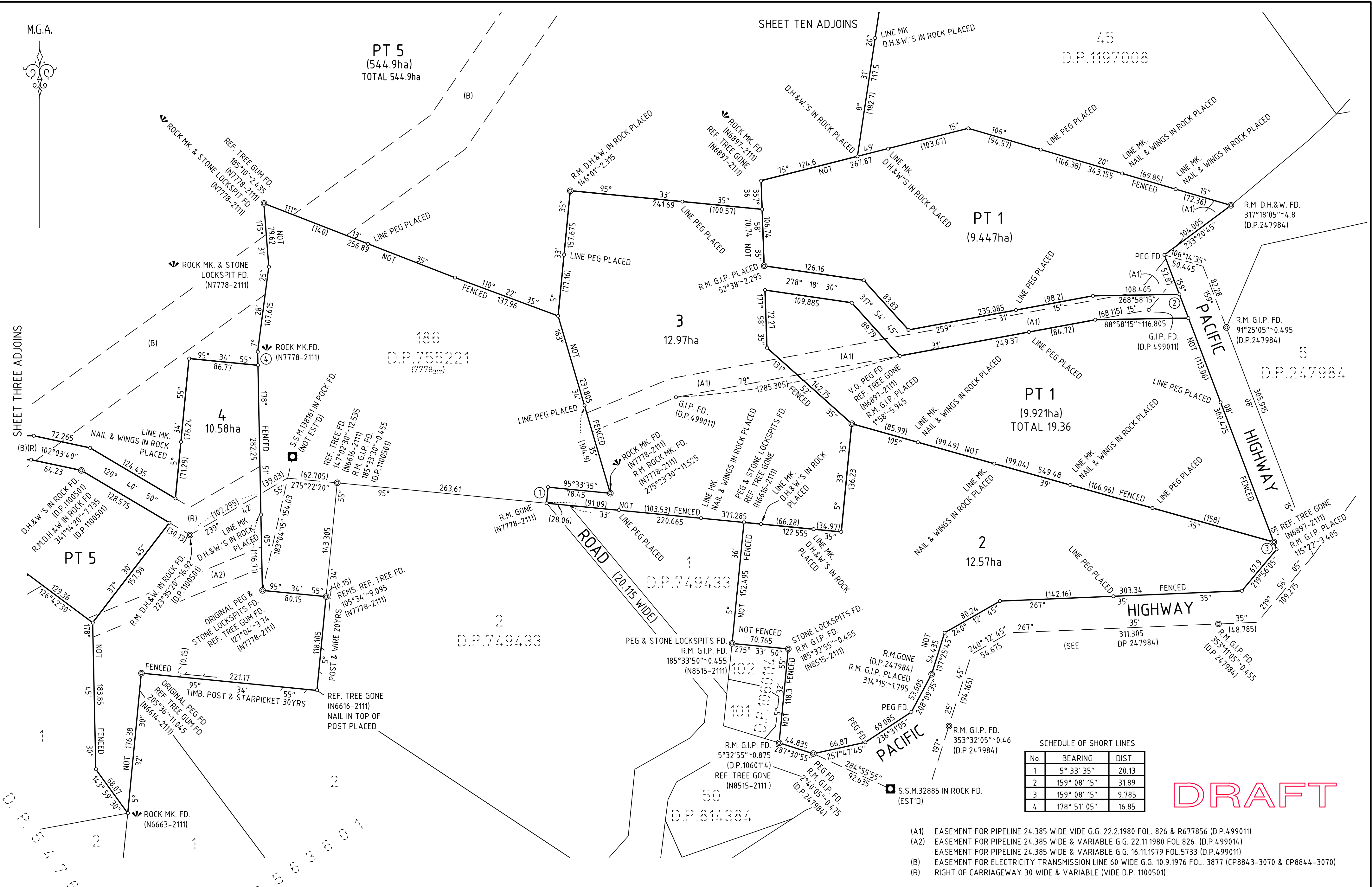
APPENDIX

The following 12 pages of the appendix contain the Plan of Subdivision of:

- Lot 161 in DP 755221.
- Lot 7020 in DP 1065007.
- Lot 7021 in DP 1114447.
- Lot 7310 in DP 1155132.
- Lot 7040 in DP 1116103.
- Lot 7027 in DP 1051931.
- Lot 7041 and 7042 in DP 1116109.
- Lot 2597 in DP 1205726.



<div>Surveyor: ANTHONY JAMES OLIVER Date of Survey: Surveyor's Ref: 190299S-DP-001-B 2016M7100(428) PARTIAL SURVEY 2016M7100(1746) ADDITIONAL SHEETS</div>	<div>PLAN OF SUBDIVISION OF LOT 161 IN D.P. 755221, LOT 7020 IN D.P.1065007, LOT 7021 IN D.P.1114447, LOT 7310 IN D.P.1155132, LOT 7040 IN D.P.1116103, LOT 7027 IN D.P.1051931, LOT 7041 & 7042 IN D.P.1116109 AND LOT 2597 IN D.P.1205726.</div>	<div>LGA: CENTRAL COAST Locality: GLENWORTH VALLEY, MOUNT WHITE AND WENDOREE PARK Subdivision No: N/A Lengths are in metres. Reduction Ratio: 1:15000</div>	<div>Registered</div>	<div>D.P.</div>
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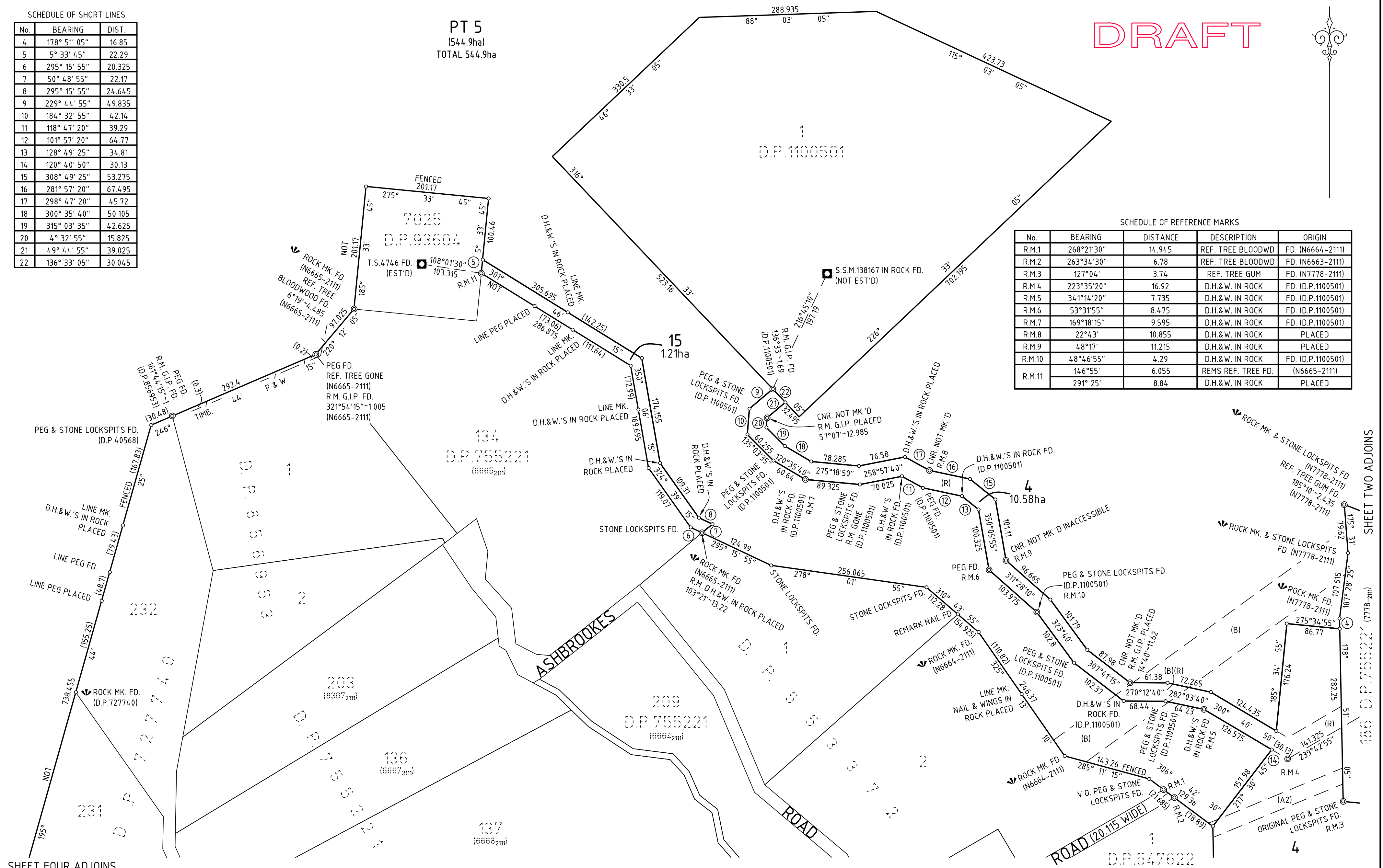


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5	5° 33' 45"	22.29
6	295° 15' 55"	20.325
7	50° 48' 55"	22.17
8	295° 15' 55"	24.645
9	229° 44' 55"	49.835
10	184° 32' 55"	42.14
11	118° 47' 20"	39.29
12	101° 57' 20"	64.77
13	128° 49' 25"	34.81
14	120° 40' 50"	30.13
15	308° 49' 25"	53.275
16	298° 57' 20"	67.495
17	281° 47' 20"	45.72
18	300° 35' 40"	50.105
19	315° 03' 35"	42.625
20	4° 32' 55"	15.825
21	49° 44' 55"	39.025
22	136° 33' 05"	30.045

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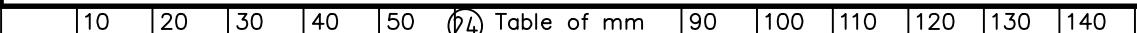
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R.M.2	263°34'30"	6.78	REF. TREE BLOODWD	FD. (N6663-2111)
R.M.3	127°04'	3.74	REF. TREE GUM	FD. (N7778-2111)
R.M.4	223°35'20"	16.92	D.H.&W. IN ROCK	FD. (D.P.1100501)
R.M.5	341°14'20"	7.735	D.H.&W. IN ROCK	FD. (D.P.1100501)
R.M.6	53°31'55"	8.475	D.H.&W. IN ROCK	FD. (D.P.1100501)
R.M.7	169°18'15"	9.595	D.H.&W. IN ROCK	FD. (D.P.1100501)
R.M.8	22°43'	10.855	D.H.&W. IN ROCK	PLACED
R.M.9	48°17'	11.215	D.H.&W. IN ROCK	PLACED
R.M.10	48°46'55"	4.29	D.H.&W. IN ROCK	FD. (D.P.1100501)
R.M.11	146°55'	6.055	REMS REF. TREE FD.	(N6665-2111)
	291° 25'	8.84	D.H.&W. IN ROCK	PLACED

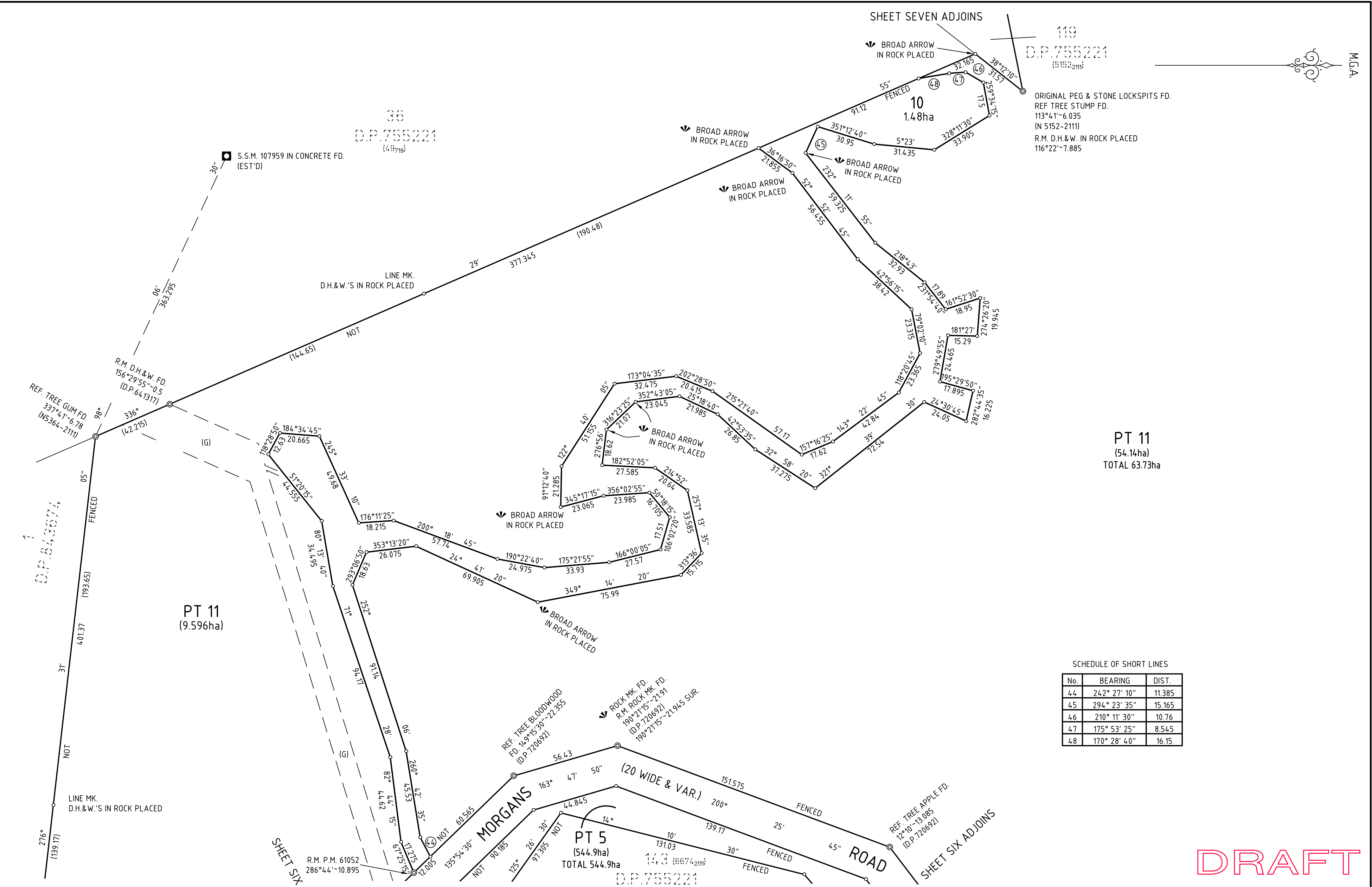


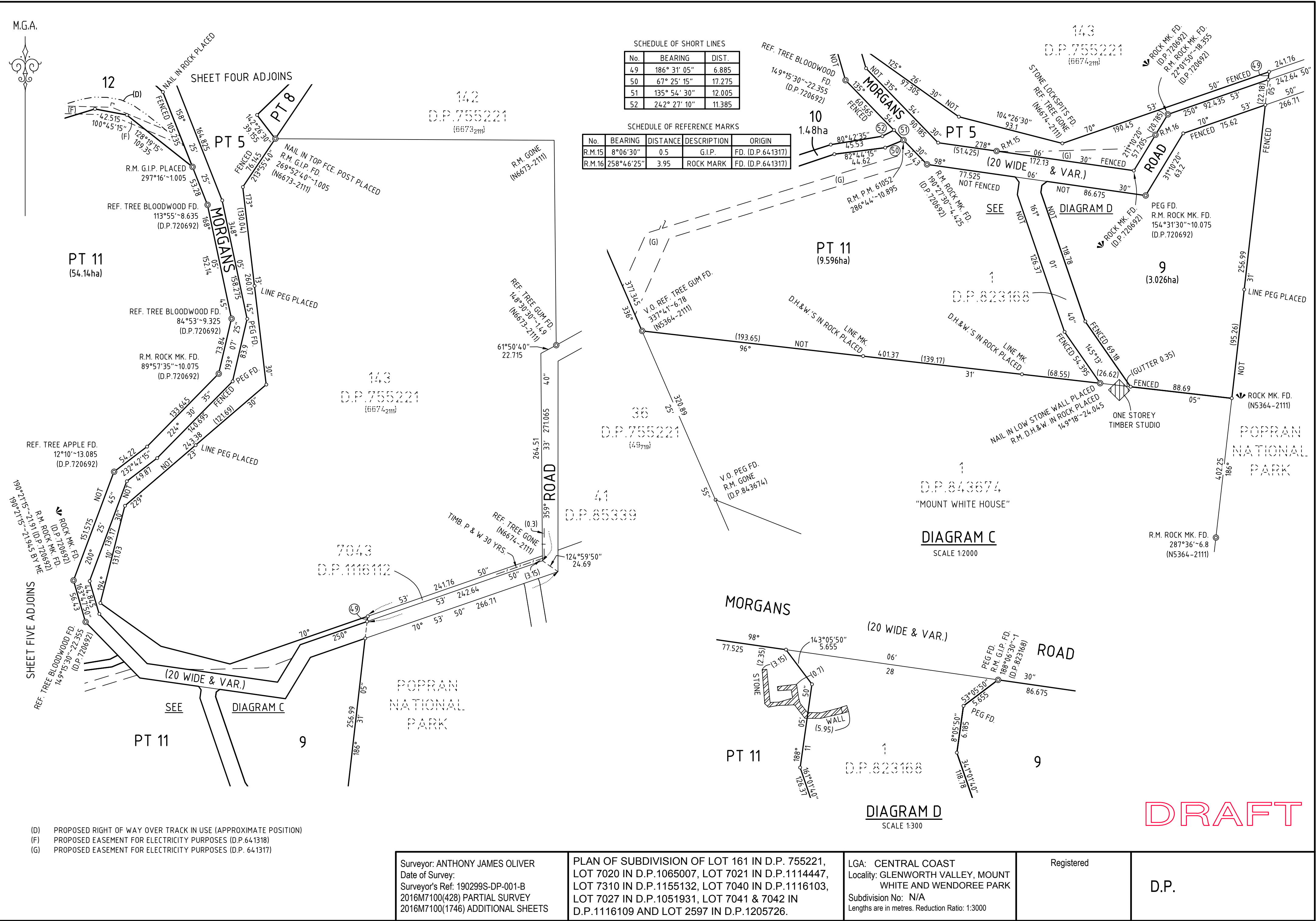
SHEET TWO ADJOINS

D.P.

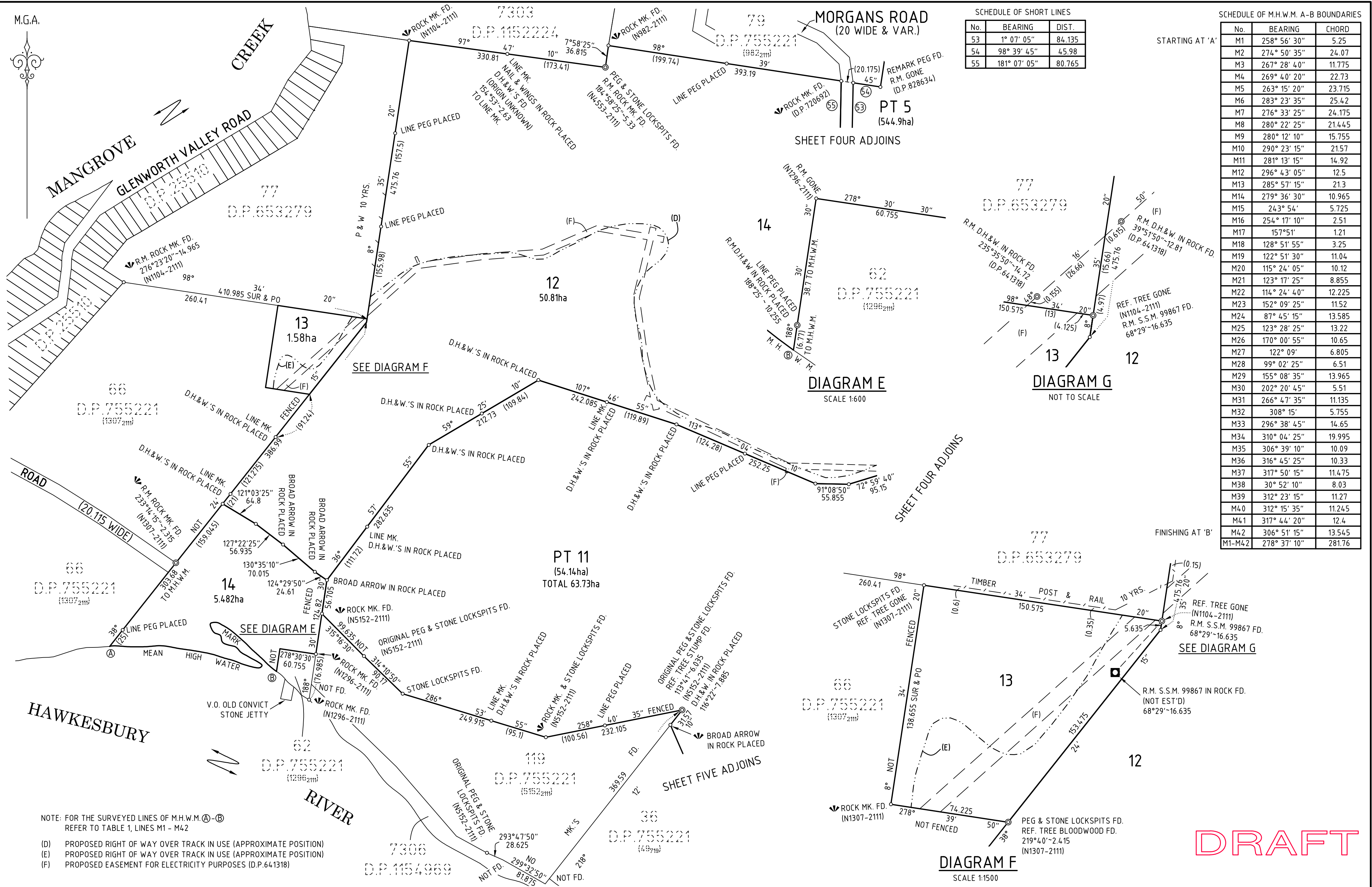
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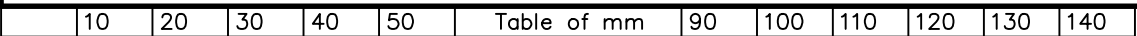
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55	181° 07' 05"	80.765

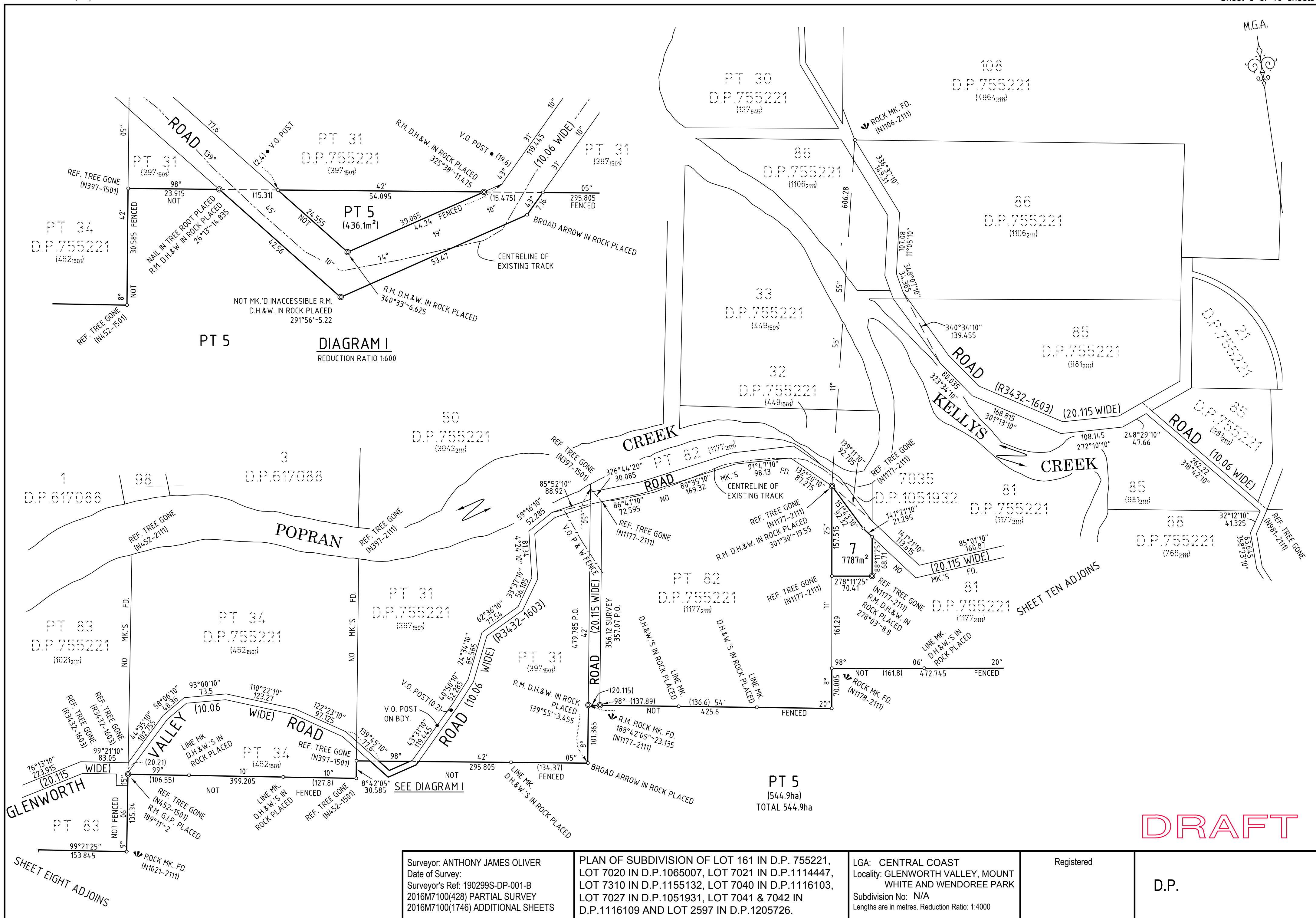
SCHEDULE OF M.H.W.M. A-B BOUNDARIES		
No.	BEARING	CHORD
M1	258° 56' 30"	5.25
M2	274° 50' 35"	24.07
M3	267° 28' 40"	11.775
M4	269° 40' 20"	22.73
M5	263° 15' 20"	23.715
M6	283° 23' 35"	25.42
M7	276° 33' 25"	24.175
M8	280° 22' 25"	21.445
M9	280° 12' 10"	15.755
M10	290° 23' 15"	21.57
M11	281° 13' 15"	14.92
M12	296° 43' 05"	12.5
M13	285° 57' 15"	21.3
M14	279° 36' 30"	10.965
M15	243° 54'	5.725
M16	254° 17' 10"	2.51
M17	157° 51'	1.21
M18	128° 51' 55"	3.25
M19	122° 51' 30"	11.04
M20	115° 24' 05"	10.12
M21	123° 17' 25"	8.855
M22	114° 24' 40"	12.225
M23	152° 09' 25"	11.52
M24	87° 45' 15"	13.585
M25	123° 28' 25"	13.22
M26	170° 00' 55"	10.65
M27	122° 09'	6.805
M28	99° 02' 25"	6.51
M29	155° 08' 35"	13.965
M30	202° 20' 45"	5.51
M31	266° 47' 35"	11.135
M32	308° 15'	5.755
M33	296° 38' 45"	14.65
M34	310° 04' 25"	19.995
M35	306° 39' 10"	10.09
M36	316° 45' 25"	10.33
M37	317° 50' 15"	11.475
M38	30° 52' 10"	8.03
M39	312° 23' 15"	11.27
M40	312° 15' 35"	11.245
M41	317° 44' 20"	12.4
M42	306° 51' 15"	13.545
M1-M42	278° 37' 10"	281.76

NOTE: FOR THE SURVEYED LINES OF M.H.W.M. (A)-(B) REFER TO TABLE 1, LINES M1 - M42

- (D) PROPOSED RIGHT OF WAY OVER TRACK IN USE (APPROXIMATE POSITION)
(E) PROPOSED RIGHT OF WAY OVER TRACK IN USE (APPROXIMATE POSITION)
(F) PROPOSED EASEMENT FOR ELECTRICITY PURPOSES (D.P.641318)

Surveyor: ANTHONY JAMES OLIVER Date of Survey: Surveyor's Ref: 190299S-DP-001-B 2016M7100(428) PARTIAL SURVEY 2016M7100(1746) ADDITIONAL SHEETS	PLAN OF SUBDIVISION OF LOT 161 IN D.P. 755221, LOT 7020 IN D.P.1065007, LOT 7021 IN D.P.1114447, LOT 7310 IN D.P.1155132, LOT 7040 IN D.P.1116103, LOT 7027 IN D.P.1051931, LOT 7041 & 7042 IN D.P.1116109 AND LOT 2597 IN D.P.1205726.	LGA: CENTRAL COAST Locality: GLENWORTH VALLEY, MOUNT WHITE AND WENDOREE PARK Subdivision No: N/A Lengths are in metres. Reduction Ratio: 1:4000	Registered	D.P.
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D.P.

	10	20	30	40	50	Table of mm	90	100	110	120	130	140
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DEPOSITED PLAN ADMINISTRATION SHEET

SHEET 1 OF 2 SHEET(S)

Registered: Title System: TORRENS Purpose: SUBDIVISION	<div>Office Use Only</div> D.P.
PLAN OF SUBDIVISION OF LOT 161 IN D.P. 755221, LOT 7020 IN D.P.1065007, LOT 7021 IN D.P.1114447, LOT 7310 IN D.P.1155132, LOT 7040 IN D.P.1116103, LOT 7027 IN D.P.1051931, LOT 7041 & 7042 IN D.P.1116109 AND LOT 2597 IN D.P.1205726.	LGA: CENTRAL COAST Locality: GLENWORTH VALLEY, MOUNT WHITE & WENDOREE PARK Parish: COWAN County: NORTHUMBERLAND
Crown Lands NSW/Western Lands Office Approval I (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given. Signature:..... Date:..... File Number:..... Office:.....	Survey Certificate I, ANTHONY JAMES OLIVER of ADW JOHNSON PTY LIMITED P.O. BOX 3717 TUGGERAH NSW 2259 a surveyor registered under the Surveying and Spatial Information Act 2002, certify that: * (a) The land shown in the plan was surveyed in accordance with the Surveying and Spatial Information Regulation 2012, is accurate and the survey was completed on *(b) The part of the land shown in the plan (*being/*excluding ^ PART OF LOT 5 . . .) was surveyed in accordance with the Surveying and Spatial Information Regulation 2012, is accurate and the survey was completed on,..... the part not surveyed was compiled in accordance with that Regulation. * (c) The land shown in this plan was compiled in accordance with the Surveying and Spatial Information Regulation 2012. Signature: Dated: Surveyor ID:8357..... Datum Line: 'X' - 'Y' Type: *Urban/*Rural The terrain is *Level Undulating / *Steep-Mountainous. *Strike through if inapplicable. ^Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.
Subdivision Certificate THE PLAN IS EXEMPT FROM SUBDIVISION CERTIFICATE UNDER SECTION 23G (k) OF THE CONVEYANCING ACT 1919.	
Statements of intention to dedicate public roads, public reserves and drainage reserves.	Plans used in the preparation of this survey / compilation- 49-719 452-1501 1186-2111 5944-2111 6897-2111 53-2071 453-1501 1296-2111 6614-2111 7778-2111 70-2071 765-2111 1307-2111 6616-2111 8114-3070 70-3070 976-2111 1505-2111 6663-2111 8307-2111 79-719 981-2111 2122-3070 6664-2111 8843-3070 83-2111 982-2111 3824-2111 6665-2111 8844-3070 112-719 983-2111 3877-2111 6666-2111 R3432-1603 171-1501 1021-2111 4072-2111 6667-2111 R7857-1603 298-1501 1104-2111 4505-2111 6672-2111 R19911-1603 331-1501 1106-2111 4533-2111 6673-2111 R23786-1603 337-1501 1177-2111 4553-2111 6674-2111 DP25510 397-1501 1178-2111 5152-2111 6686-2111 DP40568 If space insufficient continue on PLAN FORM 6A SEE SHEET 2
Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A	SURVEYOR'S REFERENCE: 190299-DP-001-B 2016M7100(428) PARTIAL SURVEY, 2016M7100(1746) ADDITIONAL SHEETS

DEPOSITED PLAN ADMINISTRATION SHEET

SHEET 2 OF 2 SHEET(S)

Registered:	Office Use Only	Office Use Only
PLAN OF SUBDIVISION OF LOT 161 IN D.P. 755221, LOT 7020 IN D.P.1065007, LOT 7021 IN D.P.1114447, LOT 7310 IN D.P.1155132, LOT 7040 IN D.P.1116103, LOT 7027 IN D.P.1051931, LOT 7041 & 7042 IN D.P.1116109 AND LOT 2597 IN D.P.1205726.		D.P.
Subdivision Certificate No: Date of Endorsement:		This sheet is for the provision of the following information as required: <ul style="list-style-type: none">• A schedule of lots and addresses - See 60(c) <i>SSI Regulation 2012</i>• Statements of intention to create and release affecting interests in accordance with section 88B <i>Conveyancing Act 1919</i>• Signatures and seals- see 195D <i>Conveyancing Act 1919</i>• Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

Plans used in the preparation of this survey / ~~compilation~~ (continued)

DP93604	DP641318	DP1052984
DP207158	DP644092	DP1060114
DP247984	DP653279	DP1065007
DP253871	DP720692	DP1100501
DP444175	DP727740	DP1114447
DP445868	DP749433	DP1116103
DP446135	DP802793	DP1116109
DP499011	DP814384	DP1138392
DP499014	DP823168	DP1155132
DP539733	DP828634	DP1152224
DP547622	DP843674	DP1173880
DP553372	DP844113	DP1197008
DP563601	DP853399	DP1205726
DP639733	DP856953	
DP641317	DP1051931	

CERTIFIED CORRECT FOR THE PURPOSES OF THE REAL PROPERTY ACT 1900

.....
Kevin Thompson
SENIOR REGISTERED SURVEYOR
DEPARTMENT OF PRIMARY INDUSTRIES - LANDS

BY DELEGATION PURSUANT TO SECTION 180 OF THE CROWN LANDS ACT 1989 AND WITH THE
AUTHORITY UNDERSECTION 13L OF THE REAL PROPERTY ACT 1900 FROM THE MINISTER
ADMINISTERING THE CROWNS LANDS ACT 1989 ON BEHALF OF THE STATE OF NEW SOUTH WALES

STREET ADDRESSES OF ALL LOTS ARE NOT AVAILABLE

If space insufficient use additional annexure sheet