University of Southern Queensland
Faculty of Engineering and Surveying

An Investigation on the High Water Mark as a Land Boundary

A dissertation submitted by

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Abstract

The process of defining a tidal boundary is far from being a simple one. A tide will rise and fall, varying in height depending on the combined gravitational forces exerted by the Sun, the Moon and the Earth's rotation. The tide will be at a different location at any particular point in time.

Tidal boundaries have been used by society to define where the land ends and the sea begins. Confusion over the specific location of a tidal boundary and associated ownership of adjacent land has been the subject of numerous courts throughout Australia.

This project has been undertaken to investigate the uncertainty in Queensland with regard to the definition of the high water mark. The long standing belief is that early surveyors would measure to a nature feature as defined by Directions issued from the Surveyor General and not the actual high water mark as defined by common law.

Differing determinations of a tidal boundary could occur due to the complexity of defining a tidal boundary. An analysis of Queensland Supreme Court cases regarding the definition of the high water mark will highlight the ambiguity that can occur in the definition of tidal boundaries. Issues in relation to ownership of, and public access to tidal areas, and the anticipated sea level rises will also be investigated.

The investigation illustrates that the guidance given to surveyors for defining the high water mark is vague and open for interpretation. The study also demonstrates that climate change is affecting the location of tidal boundaries and it is recommended that local and State planning authorities accommodate future sea level rises.

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ENG4111 Research Project Part 1 & ENG4112 Research Project Part 2

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28. 10. 2010

Date

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Chapter 1 Introduction

1.1 Project Background

> *'A tidal boundary is a boundary of land that is identified with reference to water, however described, that is subject to tidal influence; and having regard to how the boundary is identified, cannot appropriately be represented on a plan of subdivision as a straight line boundary.'* (Land Act 1994, QLD)

The definition of tidal boundaries has proven to cause great concern for the Registrar of Titles. So much concern, that the *Land Act 1994* and the *Land Title Act 1994* were amended in 2005 to place a stay on the registration of survey plans with tidal boundaries. The stay would enable the Registrar to refuse the registration of plans caught by the stay and halt the claims to beaches and areas of public interest by adjoining private landholders.

There have been amendments made in the *Natural Resources and Other Legislation Amendment Act 2010* (NROLA) which will commence by proclamation before the expiry of the tidal stay on May 8, 2010.

An ambulatory boundary as defined by the Department of Environment and Resource Management is a boundary where a body of water (sea or river) defines the boundary of land. An ambulatory boundary shifts with the ordinary movement of the sea or river through gradual change. (NROLA Bill 2010, QLD)

A land boundary that shifts through gradual and imperceptible movement (accretion and erosion) creates confusion in defining the location of the boundary. An ambulatory boundary at any particular time can deviate significantly from its original position as displayed on an original survey document.

Accretion in terms of water boundaries is the gradual accumulation of land by the deposition of sand or soil on the shore through naturally occurring processes. An opposing process is called erosion and involves the wearing away of soil and earth by natural processes or manmade causes.

A more ambiguous definition of a land boundary than that of a river or stream is one defined by a tide. Tidal water defined in the *Land Act 1994* means any part of the sea or of any harbour (including any tidal navigable river) ordinarily within the ebb and flow of the tides at spring tides. The high water mark can be defined by terms open to interpretation.

> *'Lands having frontage to the sea or tidal waters are to be bounded by high-water mark, sandy beaches, mangroves, and bare mud flats are to be deemed to be below high-water mark, but ground bearing tea-trees, swamp oak, or on which there is any description of grass or reeds, is to be dealt with as above high-water mark, and included in the computation of area.'* (General Directions for the Guidance of Surveyors 1878, QLD)

The interpretation of the High Water Mark as stated in clause 18 of the *1878 General Directions for the Guidance of Surveyors* would appear to have caused much deliberation in the definition of tidal boundaries for many years. This review will analyse the various definitions and resulting outcomes from surveying professionals' interpretation of the High Water Mark.

1.2 Project Aim and Objectives

1.2.1 Project Aim

The project aim is to investigate the definition of tidal boundaries and the ambiguity that can arise from definition of the high water mark as a tidal boundary.

1.2.2 Project Objectives

- Research cases in which the high-water mark has been an issue in the definition of a land boundary.
- Analyse these cases and determine the main issue in boundary definition of the high-water mark.
- Discuss the legal responsibilities of stakeholders for land boundaries affected by the high-water mark.
- Discuss how the ambiguity in tidal boundary definition can be resolved.

- Discuss whether the definition of high-water mark should anticipate future sea level rises.

1.3 Scope of Project

It is well documented that ambulatory boundaries will shift over time, be it by gradual and imperceptible degrees, or a sudden change due to storms, floods or human intervention. It is also well known that there are considerable inconsistencies in the terminology and legal descriptions when defining the location of a tidal boundary. This project will be an analysis of the suitability of the high-water mark as a land boundary, and the problems which arise when defining this portion of land. Relevant cases will be analysed to pinpoint the source of error or disagreement in interpretation of where the high-water boundary has been, or should have been located. An examination of the legal responsibilities of participants will demonstrate the importance of a clear definition of cadastral boundaries.

The ownership of land which abuts tidal waters allows access and use of the beaches and banks by the land owner. The beaches and banks are also accessible by the public. Therefore the extent of private and public rights over these areas must be defined. The project will address the issues in relation to ownership of, and public access to tidal areas.

The Department of Environment and Resource Management have released the Natural Resources and Other Legislation Amendment Act 2010 which may clarify the ambulatory boundary issue for the State of Queensland. The project will refer to this Act on several occasions to define various aspects of the high-water mark and to reinforce the importance of unambiguous cadastral boundary definition.

From analysing past cases of misinterpretation of the high-water mark or disagreement in the location of this boundary, this project will highlight the problems that can arise when defining a tidal boundary. To remove the High Water Mark as a definition of a cadastral boundary will pose the question as to what will replace it. An equitable solution is a matter of importance and must be sought by the surveying profession.

1.4 Justification

The need to define the boundary between the sea and land arose from disputes between kings and nobles over the ownership of cargoes carried by ships that were wrecked on coastlines (Baldwin 1982). This battle still exists between a landholder and the Crown in Australia. The High Water Mark was introduced as a land boundary to define this line but clear definition was difficult to produce.

Technical precision is essential in the establishment of boundaries defining a portion of land. However, a water boundary determined by tidal definition is not a fixed, visible mark and will differ at any particular point in time. An attempt to clearly define the boundary between land and sea was first espoused by Lord Chief Justice Hale in his treatise 'De Jure Maris' in 1878. He reasoned that the rights of the monarch extended only 'to land that is usually overflowed of the sea at ordinary tides' (Coutts 1988). 'Ordinary tides' is a statement that lacks definition and is subject to various interpretations. This is indicative of the problem of tidal boundary definition.

1.5 Summary Chapter 1

This research will aim to highlight the importance of unambiguous boundary definition and discuss the legal responsibilities of stakeholders for land boundaries affected by the high water mark. This will analyse several cases in which plans were lodged with the Registrar of Titles depicting a significantly greater land area than that shown on the original survey plan. One case in particular which instigated the moratorium against the registration of tidal boundary subdivision plans and halted claims by landowners to rights over beach areas and certain other coastal areas.

Chapter two, Literature Review will discuss several definitions and procedures given to surveyors in Queensland on how to perform boundary surveys including boundaries influence by the tide. Common Law definitions and current legislation amendments are discussed to stress the uncertainty faced by surveyors when performing tidal boundary surveys.

Chapter 2 Literature Review

2.1 Introduction

This review will illustrate the variety of guidelines and instructions made available for surveyors in Queensland, from the earliest known records to the current legislation, including amendments that will commence by proclamation in early May 2010. The likelihood of misinterpretation will also be apparent when analysing these guidelines.

There is a broad distinction between a water boundary and a boundary defined by measurement (Moore 1968). It has been convenient for man to define the limits of property, state or country by the edge of water. The edge of water for a tidal boundary will differ at any point in time. To claim ownership of this particular area of land will undoubtedly cause disputes between the title holder and the State. In reality the dispute will be between the surveyor employed to define the boundary and the Department to which the plan is registered. To dispel any confusion the *Land Act 1994* states:

> *s. 6 High water mark means the ordinary high water mark at spring tides.*
>
> *s. 9 Land below high-water mark owned by the State*
>
> *(1) All land below high-water mark, including the beds and banks of tidal navigable rivers-*
>
> *(a) is the property of the State; and*
>
> *(b) may be dealt with as unallocated State land.*

The Act also clarifies the natural occurrence of erosion and accretion.

> *s. 9 (2)(b) if the line of the high-water mark shifts over time by gradual and imperceptible degrees- the boundaries of the parcel shift with the high-water mark.*

If the land becomes raised above the high-water mark by the actions of carrying out of works, then that land will belong to the State and be dealt with as unallocated land (s.10 Land Act 1994, QLD).

2.2 Guidance of Surveyors

Redefining the high-water mark will affect three parties, the title holder, the State, and the public. Each party will claim rights to the land and will require the surveying profession to measure and report their findings and the service of the courts to determine who owns what rights.

The *General Directions for the Guidance of Surveyors* issued in 1878 are the earliest relevant directions available for surveyors in Queensland to define the location of the High Water Mark. It loosely defines land where grass grows to be above the high-water mark and land with sand or mud as below. An informal or draft hand written Direction by the first Surveyor General in Queensland has been documented but the effectiveness of its distribution is questionable.

Clause 65 of the *1898 General Rules and Directions for the Guidance of Surveyors* applies the 'General rule as to high-water mark' as:

> *'Sandy beaches, mangroves, bare mud-flats and salt swamps are generally to be considered as being below high-water mark, but land that can be easily reclaimed, small patches of mangroves, or mud-flats, nearly or quite isolated from the general contour of high-water mark, may be dealt with as being above it. Surveyors, while observing this Direction as far as it may fairly apply, must exercise discretion in dealing with the varying conditions to be found along such frontages.'*

Since this definition there have been numerous other variations to the terminology, hence variations to the interpretation of the law. It is common to find that surveyors would adopt a line of edge of vegetation, top of bank or cliff edge as the stated HWM labelled on the plan and the actual HWM would be located some distance closer to the sea.

The difference between the high-water mark and the high bank could differ substantially depending on the steepness of the bank. In the case of *Beames v*

Leader it could not be determined without doubt that the high-water mark was identified over the high bank in the survey conducted in 1915.

The Rules and Directions issued to surveyors remained relatively unchanged, with regard to the description of lands being above or below high water mark, until 1978. These Directions to Surveyors issued by the Surveyors Board of Queensland state:

> *(9) Water Course and Tidal Boundaries*
>
> *(a) The term "high water mark" has been used in previous regulations and by surveyors to describe the boundaries of land abutting tidal waters, subject to the qualifications that sandy beaches, mangroves, bare mud flats, etc. are generally to be considered to be below "high water mark".*
>
> *(b) "High water mark" is a common law term not yet clearly defined by statute and should not be used by surveyors when surveying a boundary between land and tidal waters. Where a surveyor is specifically required to define a boundary which is "high water mark" he should use the mean high water mark as defined by common law.*

Where tidal water, such as sea or a tidal river, constitutes the boundary, the mean high-water mark is, in the absence of any indication to the contrary in the Crown grant, taken as the tidal boundary, any land below that line being presumed to be vested in the Crown (Moore 1968). The Maritime Safety Queensland Notes and Definitions (2010) provides the following definitions for high waters-

> The Mean High Water (MHW) - The mean of all high waters observed over a sufficiently long period, this is the common law datum used for cadastral purposes in Australia unless amended by legislation, such as in Queensland.
>
> The Mean High Water Neaps (MHWN) - The long term mean of the heights of two successive high waters when the range of tide is the least at the time of the first and last quarter of the moon.

The Mean High Water Springs (MHWS) – The long term mean of the heights of two successive high waters during those periods of 24 hours (approximately once a fortnight) when the range of tide is greatest, at full moon and new moon.

The following figure displays the significant difference that occurs between definitions of the High Water Mark.

Guide to Semidiurnal Tidal Planes

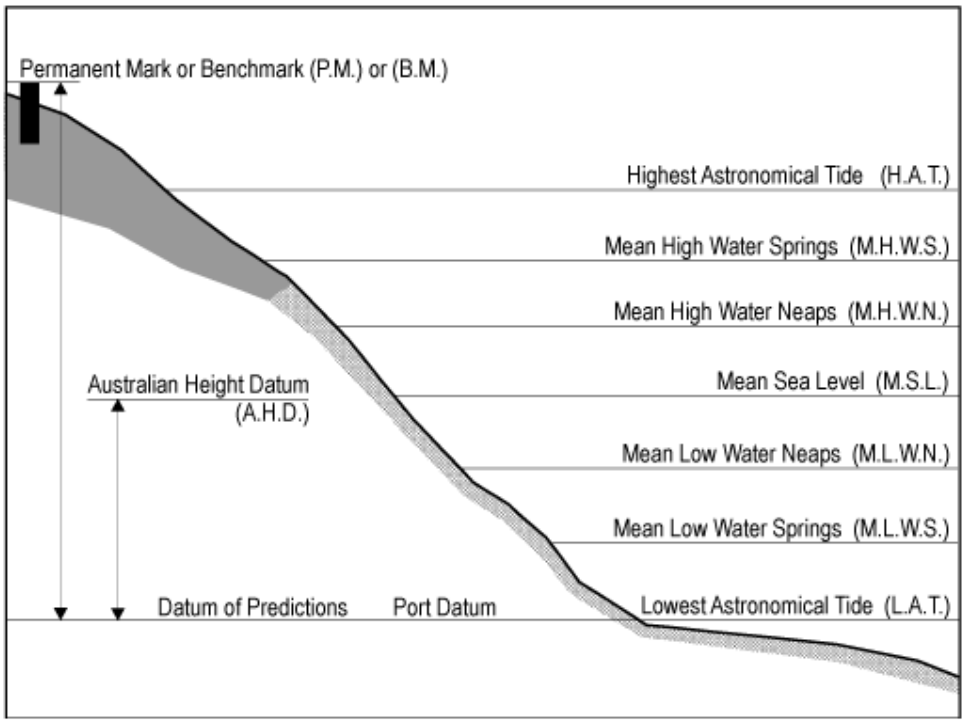


Figure 1. A guide to semidiurnal tidal planes (MSQ, 2010).

2.3 Common Law

According to our law it is not the limit of the highest tides of the year, but the limit reached by the highest ordinary tides of the sea which the limit of the shore belonging prima facie to the Crown (*Blundell v Catterall 1821*). 'Ordinary high tides' may have been the intended phrase used by the Court in this statement. The term 'ordinary high tide' is traceable to the English common law. From the time of Lord Hale (1609-1676) it was considered law in England that the title and the

dominion of the sea, and of the rivers and arms of the sea, where the tide ebbs and flows, and all of the lands below high-water mark, are in the King. Such waters, and the lands which they cover, either at all times, or at least when the tide is in, are incapable of ordinary and private occupation (*Shalowitz 1962*). Numerous Acts relating to activities carried out on the coast or shore failed to define the boundary relating to the high-water mark. The *Harbours Act 1955* contained a definition of high-water mark but was simply expressed as 'ordinary high water mark at spring tides'. Hallman's (1973) definition is a little more in-depth:

> *'Where the intended bound is the sea or a tidal inlet of the sea, such limit is presumed at Common Law to be, in the absence of evidence showing a contrary intention, the local mean high water mark, i.e. it is the mean of all ordinary local high tides, including the spring and neap, as read over a sufficiently long period of time.'*

In Queensland the Land Act 1994 defines 'the high-water mark as the ordinary high-water mark at spring tides.' This definition was later misinterpreted by the Supreme Court which would alter tidal boundary definition in Queensland greatly.

The common law definition adopted in Queensland from 1999 would be the Mean High Water Springs (MHWS). This was due to the Supreme Court decision in the case of *Svendsen v The State of Queensland* where a more literal interpretation of the Land Act was applied. The practical approach previously used by surveyors was to adopt a natural boundary such as a land based feature that in most cases was to the edge of useable land. This has been replaced by a tidal plane definition.

As result of this court decision, there has been the resurveying of at least 234 lots along the Queensland coast which have included land that would be considered public beach. There was such great concern about plans that were lodged depicting significantly larger land areas than the original survey plan that the *Land Act 1994* and *Land Title Act 2004* were amended to place a stay on the registration of survey plans with tidal boundaries. The proposed amendments require the Registrar of Titles not to register survey plans that depict the tidal boundary in a different location to that shown on the most recently registered

previous plan of subdivision, without the approval of the Minister (NRMW 2006).

2.4 Legislation Amendments

Due to the complex issues regarding the rights of individual landholders and the public's rights to access the beach the Department of Environment and Resource Management have released the Natural Resources and Other Legislation Amendment Act 2010 (NROLA) which will apply new rules and regulations to overcome these problems. The *NROLA Act* contains amendments to the *Land Act 1994*, *Surveying and Mapping Infrastructure Act 2003* and the *Water Act 2000* which will:

- introduce a feature-based methodology to determine the location of both tidal and non-tidal ambulatory boundaries
- provide the criteria for locating an ambulatory boundary into the *Surveying and Mapping Infrastructure Act 2003*
- clarify the extent of the State's ownership of a non-tidal watercourse
- clarify the extent of the State's management powers in a non-tidal watercourse under the *Water Act 2000*
- clarify the distinction between the State's jurisdiction over a watercourse and its ownership of a non-tidal boundary watercourse by moving the ownership provisions into the *Land Act 1994*

From the commencement of these changes, a landholder whose land adjoins tidal lands will not be able to take parts of the beach into private ownership through a resurvey. The *NROLA Act 2010* has applied 6 criteria which must be met to determine the location of a tidal boundary.

1. The tidal boundary must not be subject to tidal inundation under any combination of astronomical conditions and average meteorological conditions.
2. The tidal boundary must be on the landward side of any sandy beaches, foredunes, mangroves, sea grasses, salt grasses, salt marshes, salt pans, intertidal flats, tidal sand banks and other similar features.

3. The location of the tidal boundary must be consistent with the public interest.
4. The tidal boundary –
    a. Must be in stable location that has been shown to have long term sustainability under normal seasonal events; and
    b. Must not require any construction to keep it free from complete or partial inundation.
5. A natural feature must be adopted as the tidal boundary unless there is no natural feature in reasonable proximity to where the tidal boundary must be located, having regard to the description of the boundary in the source material for the land.
6. If the fourth criterion cannot be complied with, and no natural feature can be adopted under the fifth criterion, the tidal boundary chosen must nevertheless be on the landward side of any sandy beaches or sandy dunes and any active erosion areas that have no natural vegetation.

In Queensland the *Land Act 1994*, *Water Act 2000* and *Surveying Mapping and Infrastructure Act 2003* will substitute the term 'high-water mark' with the term 'tidal boundary'. Where land is bounded by a tidal boundary, a natural feature approximating the tidal boundary as shown in the current survey plan will be the tidal boundary at law. More importantly, from the registration of the first new survey plan after commencement of the new rules, the natural feature cannot be the intersection of a tidal plane with land (Dunphy 2010). The difficult task of determining the Mean High Water Springs will no longer be a surveyors concern.

Figure 2 displays the vesting of land adjacent to a 'tidal boundary' as defined by the Department of Environment and Natural Resources. The current plan of survey for lots 1 and 3 depicts a natural feature as the high-water mark boundary, while the current plan of survey for lot 2 depicts the line of Mean High Water Springs.

Vesting of land with a tidal boundary immediately after commencement.

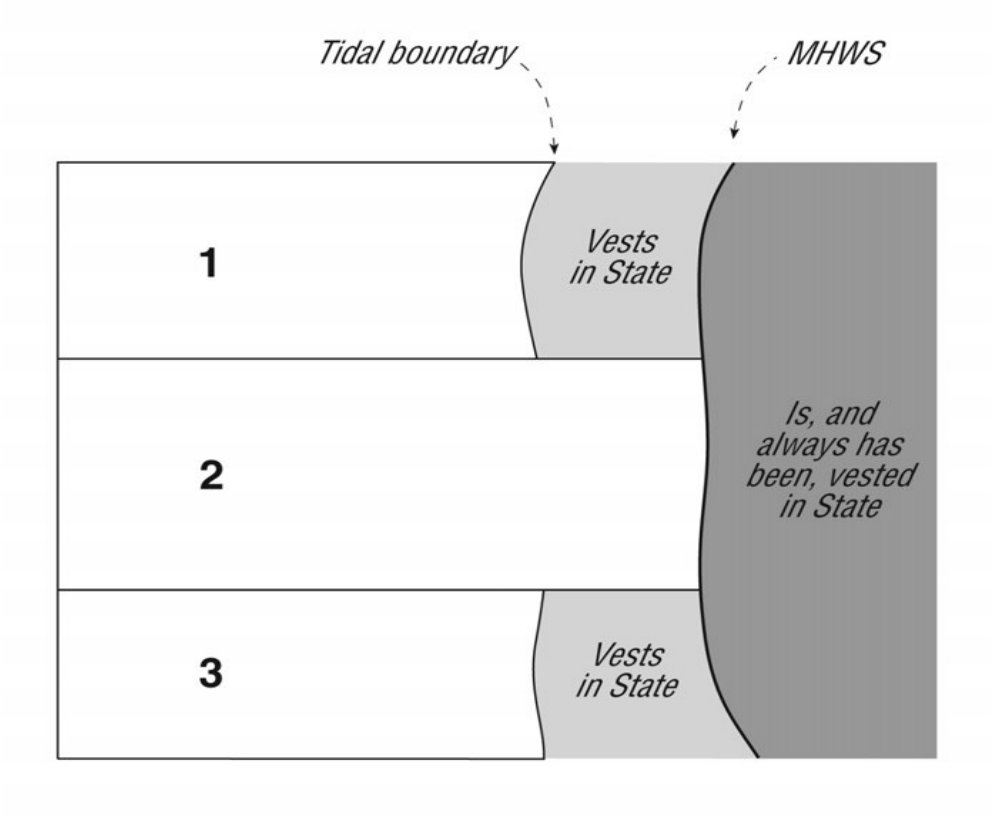


Figure 2. Vesting of land with a tidal boundary immediately after commencement (NROLA Bill, 2010).

Due to amendments to the Surveying and Mapping Infrastructure Act 2003, the tidal boundaries of lots 1 and 3 are located at the natural feature. Previously they would have been located at the high-water mark, defined by the Land Act 1994 as the Mean High Water Springs. The land between the tidal boundary and the Mean High Water Springs will now vest in the State. The tidal boundary of lot 2 will remain at its current location of Mean High Water Springs until the owner seeks a resurvey of the land, in which case the boundary will return to the natural feature.

2.5 Right Line Boundaries

How accurate can a tidal boundary survey be? A parcel of land defined by metes and bounds is fixed for all time. A tidal boundary, however defined in an Act would still be open for interpretation or the accuracy of a survey could be challenged by a title holder. This is the nature of ambulatory boundaries.

However, a 'right line tidal boundary' has been introduced by the NROLA Act 2010 and defines it as a right line boundary of the land that is located approximately where a tidal boundary might otherwise be located. The example given in the Act describes a lot which includes a tidal boundary. Because of difficulties arising in relation to the location at law of the tidal boundary, or for some other reason, the registered owner of the lot agrees to surrender the lot to the State. The lot is resurveyed, and a new deed of grant is issued for the lot, but without the tidal boundary. The deed of grant and associated plan of survey now provide for a right line boundary in a location that is the approximate location of the previous tidal boundary (NROLA Act 2010, QLD).

Currently the only circumstance in which a right line boundary can be introduced to an ambulatory boundary is through a State Land action. The land can be surrendered to the State under Section 358 of the *Land Act 1994* and a new deed of grant will be issued. However, the only time this approach is adopted is when the owner has purchased reclaimed land from the State.

2.6 Summary Chapter 2

This literature review should give an indication of the guidance given to surveyors through general directions provided by the Surveyor General and the intentions sought by the surveyor to define a boundary being ambulatory in nature and subject to the doctrine of accretion and erosion.

Chapter 3 Tidal Boundary Analysis

3.1 Introduction

This project is aimed at investigating the definition of a tidal boundary and the uncertainty involved in determining the high water mark as the boundary. This chapter will analyse several cases in which the high water mark has raised concern for participating parties over its particular location.

With the increasing value of tidelands as recreational and aesthetic areas, the conflict between private land owners and the general public have become more prevalent. The right of public access to these areas should be protected and a balance between title holders and the public must be sought.

3.2 High Water Mark Court Cases

3.2.1 Court Case 1: Svendsen v The State of Queensland

The Supreme Court of Queensland 1996

3.2.1.1 Background

The subject land is located at Svendsen Road, Emu Park, Central Queensland and is currently described as Lot 1 on SP182278, Portion 346, County of Livingstone, Parish of Hewittville. The registered proprietor at the time of trial was Nestor Svendsen.

The lands as previously described by words in the Deed of Grant of Land are:

> *'All that Parcel of Land in Our said State, containing by admeasurement One thousand three hundred and thirty-four acres, be the same more or less, situated in the County of Livingstone, Parish of Hewittville, Portion three hundred and forty-six, Commencing on high water mark of Keppel Bay (South Pacific Ocean) at the east termination of the southern-most boundary of portion of 53, and bounded thence by portions 55 and 54 bearing 270 degrees 10 minutes 30 seconds 49 chains 12 links, by portions 54 and 55 and a line bearing 10 minutes 30 seconds 65 chains 60 links to high water*

mark of a mangrove swamp, by that high water mark southerly and south-westerly to Cawarral Creek by high water mark of that creek downwards to Keppel Bay (South Pacific Ocean), and by high water mark of that bay north-easterly to the point of commencement: Exclusive of sixty-six acres one rood for a surveyed road, as shown on Plan of Survey deposited in the Survey Office, with all the Rights and Appurtenances whatsoever thereto belonging.'

The parties involved in this case are:

Nestor Svendsen	-	Plaintiff
The State of Queensland	-	First Defendant
Registrar of Titles	-	Second Defendant

3.2.1.2 Boundary Dispute

In an affidavit submitted to the courts by Nestor Svendsen, he stated that a dispute had arisen between himself and the Department of Lands concerning the true and proper boundaries of land of which he is the registered proprietor. The plaintiff is concentrating his attention on the western boundary of the allotment which is referred to as being "to High Water Mark of a mangrove swamp". That swamp forms the margin of two tidal creeks called Emu Park Creek and Spring Creek. The boundary runs along Emu Park Creek into Spring Creek until it joins with Cawarral Creek then follows the high water mark of that creek to Keppel Bay.

The Department contends that the true boundary is a surveyed line which has come to be placed on plans registered with the Department of Lands. The location of this surveyed line is well in from physical location of the High Water Mark and would be a significant loss in land area for Nestor Svendsen.

3.2.1.3 Plan History and Analysis

LIV4057 (Appendix B)

Plan LIV4057 (August 28, 1871) was the original survey of Portion 346, bounded on the north by a Reserve, the west by mangrove swamp, mudflat and saltmarsh, on the south by Cawarral Creek and the east by the Pacific Ocean.

From investigation of this plan of survey, it has drawn attention to the fact that the surveyor was surveying a natural feature. On one side of the western boundary are mud flats, saltmarsh and mangroves and the other being well grassed ridges and timbered flats. No mention was made of High Water Mark in the lot description.

LN1255 (Appendix C)

Plan LN1255 (August 23, 1953) surveyed a road through Portion 346. The road traverses the north-west boundary of Portion 346 in a south westerly direction to intersect with Cawarral Creek. The plan shows connections to the descriptor "HWM" (High Water Mark) and the location of this feature is similar to that located on the original survey plan.

LN1314 (Appendix D)

Plan LN1314 (June 20, 1956) is a compiled plan from information shown on the original survey plan LIV4057 and as such cannot change the boundary definition. It adjusts the boundaries of Portion 54 & 346 as a result of the road survey through Portions 54 & 346 on LN1255.

RP610150 (Appendix E)

RP610150 (October 10, 1970) delineates encumbrance easements A & B for water pipeline purposes and does not affect the boundaries of Portion 346. It does define the intersection of the easement with Cawarral Creek as High Water Mark.

RP617261 (Appendix F)

RP617261 (March 15, 1983) subdivides Portion 346 on LN1314 into Lots 1 to 4 and easements A, B & C in Lot 4. The balance of Portion 346 is described as Lot 4 and does not resurvey these boundaries. The HWM boundary is compiled from plan LN1314.

RP618331 (Appendix G)

RP618331 (August 13, 1985) subdivides part of Lot 4 on RP617261 into Lots 1, 5, 6 & 7. The boundary of Lot 4 is described as High Water Mark and excludes the mangrove swamp from lot calculations. The plan has been amended by the licensed surveyor to cross out the descriptor 'High Water Mark'. A gross

miscalculation in area has occurred and areas marked on the plan have also been amended. It is established that the error in area is not related to the determination of boundaries, but is due to a mathematical error by the Surveyor.

RP618334 (Appendix H)

RP618334 (March 8, 1988) is a survey of Lot 4 on RP618331 to cancel the balance. This is a compiled plan; therefore no boundary definition has been made.

RP801128 (Appendix I)

RP801128 (July 21, 1990) subdivides Lot 8 on RP618334 into Lots 1 & 2 on either side of the road. Lot 2 is the balance of Lot 8 on RP618334 so none of these boundaries have been resurveyed.

The western boundary of Lot 1 has been resurveyed and is similar in location to that surveyed on plan LIV4057. The description given to this boundary is High Water Mark and excludes the mangrove swamp from the area.

LN836481 (Appendix J)

LN836481 (August 26, 1991) is a resurvey of Lot 1 on RP801128. Parts of this survey agree with previous locations of the western boundary. A large portion of this lot boundary is located beyond the feature located on previous surveys.

Plan LN836481 now shows a new right line boundary between station 21 and station 29.

SP126776 (Appendix K)

SP126776 (January 7, 2000) is a resurvey of Lot 1 on RP801128. The western boundary has moved significantly in location when compared to the previously registered plan RP801128. The area of Lot 1 is also significantly greater. The description 'High Water Mark' has been excluded from the boundary except when connecting the road boundaries. This plan displays the tidal boundary defined by MHWS.

SP148537 (Appendix L)

SP148537 (March 6, 2002) is a survey opening road from Lot 1 on SP126776 and closing road from unallocated state land. Lot 1 is a balance area and the

boundaries have not been re-surveyed. Original information has been compiled from SP126776.

SP182278 (Appendix M)

SP182278 (May 10, 2005) is a compiled plan showing original information from SP126776 and SP148537. This plan opens new road and includes the descriptor HWM on the boundary of the Mangrove Swamp and Cawarral Creek.

3.2.1.4 Investigation

The earliest Directions for the Guidance of Surveyors were issued in 1878. However, a memorandum titled *'Memorandum relative to the description of Boundaries of Land granted with Frontage to the Sea, navigable Rivers – or Water Courses'* was issued from the Surveyor Generals Office dated 24 March 1871 which would have given guidance assuming it was distributed effectively. This memorandum stated that in the case of land having frontage to the sea shore High Water Mark is deemed to be the Boundary.

On numerous survey plans the western boundary of Original Portion 346 is plotted excluding the Mangrove Swamp from the area calculation. This mangrove swamp boundary is also in a similar location on RP801128 and each preceding survey.

Plan LN836481 is a resurvey of the western boundary and is the first plan to show the High Water Mark in a significantly different location from previous plans. The new location is predominantly beyond that located on RP801128.

The submission of this plan to the Department of Lands and consequential court case to follow was a pivotal moment in the registration of survey plans with ambulatory boundaries.

Capricorn Survey Consultants Pty Ltd submitted with the plan a letter stating in part:

> *"My client contends that the boundary of part of his property is significantly different to that shown on his Certificate of Title and he wishes to have this situation rectified. To this end we have carried out a re-survey and redefinition of the boundary in accordance with*

principles which we believe embody the intent of the original surveyor and title documents."

Together with the survey plan and letter addressing the Department of Lands were several drawings. One drawing in particular (Appendix N) displayed the area of disputed land between the title boundary and a Mean High Water Mark calculated by the consulting surveyor. The Mean High Water Mark was calculated by erecting a Tidal Gauge in a small creek near the disputed land and making several observations to determine Mean High Water Springs (MHWS) over three days.

The results of the observations were used to create a local datum for MHWS. MHWS was calculated to be RL -0.37 on the local datum. The surveyors adopted an RL 0.0 on the local datum to redefine the boundary and create a right line boundary in close proximity to that reduce level.

In response to the letter from the consulting surveyor, the Department stated in part that:

"On plan RP801128 you determined a "High Water Mark" that agreed closely with the definition on plan LIV4057. This "High Water Mark" followed the existing vegetation, which appears to be the intention of the original surveyor. In your report it stated "we believe this new definition embodies the intent and spirit of the original survey..."

"How can this be so if your first determination of the boundary on RP801128 agrees closely with LIV4057 and its intention of following the vegetation and keeping the saltmarshes out of the subject block?"

The Department conducted a site inspection, and concluded that the first interpretation of the boundary as shown on RP801128 was the correct location for the disputed boundary and as such the plan LN836481 was not registered.

Capricorn Survey Consultants states in a replying letter that the definition of High Water Mark in Queensland is not clearly established by legislation or precedent, however, the Common Law definition enunciated by Hallman which is

commonly used in NSW states, inter alia, "the mean of all ordinary local high tides, including the spring and neap, as read over a sufficiently long period of time" thus reinforcing the patent ambiguity of ambulatory boundary definition.

It also notes that the route taken by the early surveyor was to attempt to exclude from the title areas "non-useable" land such as mud flats and mangrove swamps, similar intention as shown in the survey on plan LN836481.

The Property Owner

Nestor Svendsen was the registered proprietor of the subject land at the time of the Court hearing. Mr Svendsen requested the re-survey of Lot 1 on RP801128 to define the western boundary. The previous survey makes note on the plan that the boundary is defined by 'High Water Mark' and Mr Svendsen reiterates the description of the boundary contained in the Deed of Grant as being "to High Water Mark of a mangrove swamp". The Department of Lands contends that the true boundary is a surveyed line which has come to be placed on Plans registered with the Department. Mr Svendsen claims that such a surveyed line will be well in from the actual High Water Mark and will deprive him of a significant and valuable area of land.

Mr Svendsen stated in an affidavit that at the time that the Livingstone Shire Council approached his father to resume land for the purpose of creating a road the boundaries of the land were boarded by the South Pacific Ocean, Cawarral Creek and the mangrove swamp. These boundaries as drawn do not in fact conform to the High Water Mark that existed at the time that the resumption of land was under consideration.

Nestor Svendsen states in part:

> *'I have a clear recollection that my father had discussions with officers of the Department of Lands at the time concerning the additional expense that would be required to resurvey the land to ensure that the actual boundary shown on the plan matched the actual High Water Mark.'*

The descriptor 'High Water Mark' was permitted to describe these boundaries and save the Department further expense in re-surveying the land. Furthermore there was a letter from the Land Administration Board to the Titles Office, Rockhampton making reference to the new road extending down "to the High Water Mark" thus reflecting the assumption that all parties regarded the boundary of land to be the High Water Mark.

Since Mr Svendsen has owned the land he has used it to the extent of the High Water Mark. He has at all times believed that the boundary of his land extended to the High Water Mark, as indicated on the Certificate of Title.

The Consulting Surveyor

Mr Grant Phillips is a licensed surveyor and a director of the company Capricorn Survey Consultants Pty Ltd. It was this company that had been retained by Mr Nestor Svendsen and Grant personally carried out surveys of the land subject to this case.

In an affidavit submitted by Mr Phillips, he states that in the first survey of the land shown on Plan LIV4057 the boundary to the west and north-west of the land and bordering the mangrove swamp is not drawn on the high water mark even as it may have existed in 1871. The present high water mark is well to the west of that boundary and it is not now known where precisely the high water mark may have been.

In 1985 Mr Phillips resurveyed the boundary of Mr Svendsen's land which bordered the mangrove swamp. The Registered Plan No 618331 was created showing the north-western boundary in a different location to that of the original survey plan LIV4057. Mr Phillips stated that this boundary is what he considered to be the true high water mark as defined by common law. Because this plan differed from the original survey plan an officer of the Department of Lands was required to inspect the site and approve the changes to the boundary. This did occur and the plan was registered.

Mr Grant Phillips would also prepare the survey plan RP801128. This particular plan shows the western boundary as the high water mark but it does not in fact accurately depict where the high water mark now lies. The true high water mark

is, in places, up to 300 metres further towards the mangrove swamp. Mr Philips states in his affidavit that at the time he prepared the plan he was quite conscious of the fact that the high water mark was located some distance away from the point marked on the original survey plan. However the plan was required as a matter of urgency and the true location of the boundary was of no significance for the purpose that required the plan. If the true high water mark as defined by common law was to be surveyed, it would have taken a considerable amount of time and cost the client a considerable amount of money.

In Mr Phillips opinion the boundary as shown in 1871 is so far from the probable true high water mark that the surveyor did not attempt to accurately show it. If the boundary as drawn is accepted as an ambulatory boundary defining the area of "useable land" will the boundary move in accordance with what may be "useable land" at any one time.

If surveyor Landsberg did take a feature as the boundary then he was acting contrary to accepted surveying practice as Mr Phillips believed it existed in 1871. The General Directions for the Guidance of Surveyors 1878 required that "lands having frontage to the sea or tidal waters are to be bounded by high water mark…" The Directions then go on to give guidance as to what particular features may be considered to be generally above, or below, high water mark (HWM). This interpretation is symptomatic of the problem of tidal boundaries.

He also states that a line drawn by a surveyor on a map that is intended to show the HWM is accepted by all surveyors as merely a representation that the boundary is HWM. It purports to be an accurate depiction of where HWM might be but is subject to the skills, knowledge and methods used by the surveyor at the time. The actual unambiguous determination of true HWM would often require a great deal of time and effort, involving tidal efforts, calculations and accurate levelling survey. Therefore the use of an ambulatory boundary is taken as an indication that the boundary is High Water Mark.

It is Mr Phillips belief that it has been accepted by surveyors since a time well prior to 1871, that HWM is defined by common law definition i.e. "the position reached on the land by the mean height of all tides, including spring and neap tides, recorded over a long period of time". The notion that changes in the colour

or quality of the soil or the type of vegetation are features which fix a boundary is entirely foreign to surveying practice.

He agrees that the original surveyor in 1871 probably did use identifiable features to assist him in determining where he thought the HWM probably was. That does not mean that surveyor Landsberg properly surveyed the correct location of HWM as defined by the common law at the time.

The land he sought to be included in Mr Svendsen's title on LN836481 was the same type of land as the Department had previously allowed in RP618331. Mr Phillips also expresses in his affidavit that with regard to Registered Plan 801128 the High Water Mark as defined by common law would be well into the mud flats in a number of areas. He did not propose that line as the boundary in the survey to avoid a dispute with the Department which in fact happened regardless. He was also well aware that the right line boundary proposed on Plan LN836481 did not coincide with the common law definition of High Water Mark.

The expert opinion

During these court proceedings, the expert opinion of Mr George Enever was also sought. Mr Enever is a licensed surveyor and has over forty years' experience. He states in an affidavit that throughout his time in practice, and from his extensive studies of the past practices of surveyors, that the meaning of the phrase "high water mark" was not in doubt in 1956 at the time Plan LN1314 was compiled and nor was it in doubt in 1871 when LIV4057 was created. It refers to a boundary determined by the intersection of the line of the mean of all high tides (both spring and neap) with the adjacent upland.

Mr Enever affirms that it has long been recognised by experienced surveyors that when dealing with tidal boundaries, measurements are shown rarely to the legal boundary. It has been the understanding of surveyors that the line drawn as indicating the tidal boundary is merely a representation, and not necessarily a precise depiction of the location of the boundary.

His interpretation of the original survey on Plan LIV4057 and Deed of Grant is that the surveyor, as instructed by the Surveyor General, marked and measured the usable land that was to be paid for by the grantee. This Deed of Grant would

extend to the legal boundary of tidal waters and included the non-productive land described as 'mangrove swamp'.

The Department of Natural Resources

Peter Swan of the Department of Natural Resources stated in his report titled *'Report on investigation of the boundary of Lot 1 on RP801128'* that he doubted whether Surveyor Landsberg would have had access to the memorandum issued by the Surveyor General in March 1871 when he received his instructions from the District Surveyor to perform the survey of Portion 346 on LIV4057.

In Peter's opinion, the *'General Directions for the Guidance of Surveyors'* issued in 1878 would not be dissimilar to the Directions issued since the separation from New South Wales in 1859. In particular Clause 18 stating:

> *'Lands having frontage to the sea or tidal waters are to be bounded by high water mark, sandy beaches, mangroves, and bare mud flats are to be deemed to be below high-water mark, but ground bearing tea-trees, swamp oak, or on which there is any description of grass or reeds, is to be dealt with as above high-water mark, and included in the computation of area. Small patches of mangrove, and mud-flats which are nearly isolated and included in within the general limits of a portion, should be included in the computation of area, as they are of a character to admit reclamation.'*

The description of a feature has been referred to in this clause, not a vertical determination. There is also no suggestion on how to carry out tidal observations to determine the High Water Mark.

Peter verified by a site visit that the current high water mark, meaning the observable mark on the ground left by operation of high tides over an indefinitely long period of time, would have closely corresponded to the feature surveyed by surveyor Landsberg. The feature adopted by Capricorn Survey Consultants Pty Ltd in the survey conducted in 1985 also closely follows the same feature.

3.2.1.5 Conclusions

It is certainly true that in most cases surveyors used common sense, expertise and powers of observation to decide that some features might approximate the High Water Mark. This is done because it is not feasible, nor economic, in most cases, to carry out the type of tidal observations necessary to determine the High Water Mark as defined by common law. Surveyor Landsberg would not have used any rigorous observation technique in determining the high water mark. However, he may have used the change of grade coincident with the edge of vegetation or useable land. He also excluded from the area certain features considered to be below High Water Mark consistent with the Direction to Surveyors available at the time.

If Surveyor Landsberg was intending to mark the boundary in accordance with features, rather than the boundary in accordance with the High Water Mark, an ambulatory boundary should not have been used as its use would be misleading. Ambulatory boundaries are natural boundaries that ambulate through natural changes in accordance with the doctrine of erosion and accretion. An ambulatory boundary cannot be given a permanent mathematical description or reference. The characteristic of a fixed location being implied by the Department suggests that the boundary is in the location as shown on the current plan of survey. However, the true limit of an ambulatory boundary, such as one defined by the High Water Mark, is always 'on the ground' rather than where it is drawn on a plan.

The actions by Capricorn Survey Consultants Pty Ltd in abandoning the contour line obtained from their tidal observations suggest that they found the results of their tidal observations not to be appropriate for the position of the boundary. It was impracticable to locate the boundary at this contour and is confirmation that the attempted use of tidal observations was not appropriate.

Capricorn Survey Consultants Pty Ltd have adopted a natural feature (edge of grasses and vegetation) and proposed a right line boundary in an approximate location to this feature. It may well have been a compromise between the original position of the boundary location and the common law definition of High Water Mark to include useable land in the title.

The Reasons for Judgment states that because there are variations in the height of successive high tides and variations from month to month, the definition of Mean High Water Springs shall be accepted to be the long term average of the heights of two successive high waters during those periods of 24 hours when the range of tide is highest. This identifies the point on the shore which is for most part of the year reached and covered at spring tides.

3.2.2 Court Case 2: Beames v Leader

The Supreme Court of Queensland 1997

3.2.2.1 Background

The subject land is located at Gillian Street, Norman Park and is currently described as Lot 29 on RP12574 and Lot 1 on SP104231, Original Portion 7A, County of Stanley, Parish of Bulimba. The registered proprietor at the time of trial was Douglas McLeod Beames.

The land described as Lot 29 on RP12574 is defined by the learned trial judge Mr Justice Muir as:

> *'Lot 29 has 3 boundaries. One is a surveyed line which marks the boundary between the lot and Gillian Street, another is a surveyed line which marks the boundary between lot 29 and lot 28. The remaining boundary is Norman Creek.'*

The parties involved in this case are:

Douglas McLeod Beames	-	Plaintiff
Loren Leader, Registrar of Titles	-	Respondent

3.2.2.2 Boundary Dispute

The plaintiff, Douglas McLeod Beames, is the registered proprietor of Lot 29 on RP12574 at the time of disputing the boundary. He asserts title to all of the land between the 3 boundaries as described by Mr Justice Muir above; and contends that the Norman Creek boundary is the High Water Mark of the creek.

Mr Beames requested a plan of survey providing redefinition of a lot on a resurvey as per the *Land Title Act 1994.*

s.49 Meaning of plan of subdivision

A plan of subdivision is a plan of survey providing for-

(d) redefinition of a lot on a resurvey.

The consulting surveyor lodged the plan with the Department of Natural Resources who responded by letter stating that the plan "is incapable of registration. An area of unallocated State land has been incorrectly been included in lot 29."

The survey plan shows the high water mark of the creek as a line 5 meters beyond the line shown as the bank of Norman Creek in RP12574 registered in 1915.

The plaintiff contends that the area of land falling between the line of the creek bank as shown on RP12574 and the re-surveyed High Water Mark shown on plan 905522 is part of his title.

The Registrar disagrees with the plaintiff and takes the position that at least part of the additional area has come about through filling or reclamation works and is thus Crown land.

3.2.2.3 Plan History and Analysis

RP12574 (Appendix O)

RP12574 (August 24, 1915) is the subdivision of Lot 2 on RP12572 into lots 1 to 62. The original survey of Lot 29 is bound on the north by Lot 28, the east by Gillan Street and the remaining by Norman Creek. No descriptor has been given as to what the surveyor has located in regard to the creek boundary other than the creek name, Norman Creek.

CP896475 (Appendix P)

CP896475 (September 8, 1995) is a crown plan re-surveying Lots 28 and 29 on RP12574, relocating the boundary of Norman Creek. The redefined creek boundary is a significant distance towards the water and has been labelled 'High

Water Mark'. This survey has increased the lot area from 556 m² to 1110 m². This plan was not registered with the Land Titles Office.

RP905522 (Appendix Q)

RP905522 (March 13, 1997) is a re-survey of Lot 29 on RP12574 and also relocates the boundary of Norman Creek in similar fashion to that of crown plan 896475. The survey increases the lot area from 556 m² to 1157 m². The creek boundary is given the descriptor High Water Mark (Common Law Definition).

SP104231 (Appendix R)

SP104231 (March 17, 2008) does not alter the definition of Lot 29 on RP12574 but creates an allotment from unallocated State land being Lot 1 containing 531 square meters.

3.2.2.4 Investigation

The current '*General Rules and Directions for the Guidance of Surveyors'* at the time the original lot was created, stated that the general rule as to high-water mark as being:-

> *'Sandy beaches, mangroves, bare mud-flats and salt swamps are generally to be considered as being below high-water mark, but land that can be easily reclaimed, small patches of mangrove, or mud-flats, nearly or quite isolated from the general contour of high-water mark, may be dealt with as being above it, or be included within the boundaries of portions. Surveyors, while observing this direction as far as it may fairly apply, must exercise discretion in dealing with the varying conditions to be found along such frontages.'*

The survey conducted in 1915 by a Mr C E James to create Lot 29 shows the location of Norman Creek but it cannot be determined as to whether he identified the mean high water mark, the creek bank or some other feature.

The services of a geotechnical engineer were employed to help determine the location of the creek boundary line as shown in Mr James' 1915 survey plan, the high water mark and the extent of fill. After thorough analysis by Mr George Enever, the consulting surveyor, he indicated that there was likely to have been a

creek bank at about the line of the creek shown on the 1915 survey plan and that such line was unlikely to have represented the mean high water mark.

The Property Owner

Mr Douglas Beames argues that the Registrar of Titles is in breach of its high duty of trust to maintain the freehold land register and the public record so as not to mislead or be likely to mislead any person who refers to the freehold land register or the public record. He states in an affidavit that:

> *"The Registrar, in considering an application to register a plan, is not entitled to consider and make a determination having regard to whether or not the land the subject of the application is, in the view of the Registrar, land which in whole or part is Crown land or is not contained within the applicant's certificate of title or deed of grant."*

His argument relied heavily on section 30 of the *Land Title Act 1994*. That section provides:

> *s.30 Registrar must register instrument*
>
> *(1) On lodgement of an instrument, the registrar must register the instrument if-*
>
> *(a) the person who lodged it complies with the requirements of this Act for its registration; and*
>
> *(b) the instrument is not inconsistent with another Act or law; and*
>
> *(c) if the instrument is a plan of survey – it is not inconsistent with another plan of survey.*

In support of his claim, section 50 of the same Act states:

> *s. 50 Requirements for registration of plan of subdivision*
>
> *(1) A plan of subdivision must –*

(h) have been approved by the relevant planning body, unless the plan of subdivision provides for –

(ii) the redefinition of a lot on a resurvey.

The Consulting Surveyor

In a report prepared by Mr Enever titled *'Report on Investigation of the Norman Creek Boundary of Lots 28 and 29 on Crown Plan 896475'* stated that based on information contained in the geotechnical report, it can be speculated that the original survey, completed by Mr James, determined the boundary of the Norman Creek as the top of the high bank.

The report also made note of the reasons for the difference in the boundary location of Norman Creek determined by Mr James in 1915 and Keilar Fox and McGhie in 1995. The reasons, ranked in order of significance, are due to:

- Filling
- Changes in determination of ambulatory boundaries by surveyors
- Minor accretion

Mr Enever states in his report that:

(a) he knew, based on his experience, it to be common practice at around the time of the 1915 survey to measure to the high bank and not to the correct boundary of a stream;
(b) it is more probable than not that Mr James measured the 'high bank'.
(c) there can be a substantial difference between mean high water mark and the high bank.

He also makes the point that:

(a) the 1915 survey should not be regarded as expressing some fundamental truth as "survey plans lodged in the early part of this century were rarely examined for survey content." Moreover, the evidence tends to establish that the 1915 survey did not attempt to ascertain mean high water mark.
(b) Mr Collin (and through him the Registrar) was erroneously concerned with the size of the accretions rather than their cause.

The Registrar of Titles

The boundary of Lot 29 on RP12574, which caused the Registrar to reject the registration of RP905522, is defined by the edge of Norman Creek. The surveyor representing the Registrar of Titles inspected several survey plans prepared after the 1915 survey and concluded that due to the location of man-made features on the land such as the retaining wall, concrete slipway, remains of a jetty and a wooden jetty, that the additional area shown between surveys could not have been as a result of natural slow and imperceptible accretion.

He states that:

> *"The variation in the position of the retaining wall in relation to the high water marks shown in each of the plans drawn in 1915 and 1997 is clear evidence of the action of man reclaiming land external to the title boundary and is not an increase in the land content by natural slow and imperceptible accretion..."*.

On behalf of the Registrar of Titles, the senior surveyor wrote to Mr Beames stating in part:

> *"The plan was assessed as not being in conformity with the Survey Requirements of the Department. The plan is incapable of registration. An area of Unallocated State Land has incorrectly been included in Lot 29."*

The Registrar stated that there had been alterations to the Norman Creek boundary of land which were due to filling of the creek and not a result of accretion as defined by common law.

The Registrar showed concern that in the situation where a bona fide purchaser of Lot 29 on the resurveyed plan 905522 will obtain an indefeasible title to land which contains unallocated Crown land. Therefore a caveat was lodged under section 17 of the *Land Title Act 1994*.

> *s.17 Registrar may prepare and register caveat*

(1) The registrar may prepare and register a caveat over a lot, or an interest in a lot, in favour of a person.

(2) The registrar may act under subsection (1) to prevent a dealing with the lot that may prejudice –

(a) the Commonwealth, a State or a local government.

The Court's Decision

The Registrar's willingness to embrace the 1915 survey as establishing mean high water mark was ill-founded. The Registrar placed undue emphasis on the extent of the accretions.

It was Mr Justice Muir's opinion that the Registrar issued a "requisition" which amounted to a rejection of the survey plan on the basis of inaccuracy. The inaccuracy found to exist was that the additional area had not come about through accretions. In Mr Muir's view the Registrar acted erroneously in reaching that conclusion. He states in his judgement that Mr Collins (and through him the Registrar):

- incorrectly concluded or assumed that the 1915 survey fixed the Norman Creek boundary of the land by reference to mean high water mark;
- placed undue emphasis on the extent of the accretions and failed to give due weight to the possible causes of the accretions;
- stated his enquiry or assessment from the premise that the 1915 survey showed the correct Norman Creek boundary of the land.

The Registrar of Titles is obliged to register instruments which have complied with all the "requirements" of the Act for the registration of such an instrument.

The court accepts that the Registrar would not be obliged to register an instrument which was not in respect of freehold land, referring to the unallocated State land thought to be included in Mr Beames title by resurvey. In this case it is

a plan of resurvey of freehold land contained in the Certificate of Title and is the subject of an existing registered plan of survey.

The *Reasons for Judgement* stated by Mr Muir explicate that if the Registrar's suspicions are well founded as to the survey plan encompassing an area of Crown land, the registration of the survey plan will not have the consequence that land not under the Act will become land contained in a Certificate of Title. Nor will registration of a plan of subdivision, subsequently found to be inaccurate, give rise to claims against the Registrar. The *Land Title Act 1994*, section 189 states:

> *s. 189 Matters for which there is no entitlement to compensation*
>
> *(1) A person is not entitled to compensation from the State for deprivation, loss or damage-*
>
> *(f) because of an error in the location of a lot's boundaries or in a lot's area; or*
>
> *(g) because of an error or shortage in area of a lot according to a plan lodged in the land registry.*

If the creek boundary shown on the survey plan is subsequently determined to be incorrect, the Crown, merely by virtue of registration of the survey plan, will not be prevented from asserting its title.

The *Land Title Act 1994* makes provisions for the Registrar so that if a plan lodged for registration complies with the requirements of section 50 and appears on its face to be capable of registration then the Registrar must register it. If the plan is later proven to have the incorrectly described the boundaries, the registered proprietor of the lot does not obtain indefeasibility of title to land apparently within the lot because of the incorrect description of the boundaries on the plan. A plan of resurvey merely re-defines a lot that is already registered under the Act.

The learned judge states in the *Reasons for Judgement* that Plan 905522 can be no more objectionable than the existing registered plan which all parties agree no longer represents the present topographical position of the tidal boundary.

As a consequence of this court case it has been made evident that it is not a function of the Registrar to resolve possible points of contention between persons interested in the same parcel of land. The registration of a plan of survey will not change the lawful boundaries of the land contained in the Certificate of Title.

In this case, the plan of survey has complied with the requirements of section 50 of the *Land Title Act 1994* and the Registrar erred in taking up the cudgels of the Crown instead of leaving it to the two parties, being the property owner and the State, to fight it out themselves.

The Court of Appeal

The State of Queensland appealed the court's decision with regard to the registering of Plan 905522. This plan shows an increase of 601 square metres in the area of Lot 29 over that shown on the previous plan of survey. The statement of claim by the State of Queensland alleges that the increase in area was not caused by a shift in the ordinary high water mark at spring tide by gradual and imperceptible degrees of accretion and erosion.

At the time of the survey the *Land Act 1994* section 10 stated:

> *s. 10 Accretions owned by the State*
>
> *Land that becomes raised above high-water mark, whether gradually and imperceptibly or otherwise, because of the carrying out of works, belong to the State and may be dealt with as unallocated State land.*

The State claim the increase in area was caused by the reclamation of Norman Creek, by works on and adjacent to Lot 29, which raised up the land, which previously had been below the ordinary high water mark at spring tides.

They claim the following relief:

1. *A declaration that the State of Queensland is the owner of the land compromising the bed and banks of Norman Creek, Brisbane in the State of Queensland contiguous with or adjacent to Lot 29 on Registered Plan 12574:*

a. *below the ordinary high water mark at spring tides, being the long term average of the heights of two successive high waters during those periods of 24 hours when the range of tide is greatest at full and new moon:*

b. *alternatively below the mean high water mark, being the line of the medium high tide between the highest tide each lunar month, being the springs, and the lowest tide each lunar month, being the neaps, averaged out over the year.*

But in either case, ignoring the effect of any reclamation works undertaken on or adjacent Lot 29.

2. *A consequential declaration as to the true boundaries of such lands.*

3. *An order that the Registrar of Titles bring in and register a re-survey plan reflecting such true boundaries.*

Mr Beames counter-claimed for:

(a) a declaration that Lot 29 as resurveyed by Registered Plan 905522 has an area of 1157 square metres subject to the ambulatory boundary;

(b) alternatively a declaration as to the position of the ambulatory boundary of Lot 29.

The main argument for the property owner is that whatever the facts are as to how or when the accretions to his land occurred, he is entitled to whatever gradual and imperceptible accretions there have been down to the high-water mark defined by common law. He disputes that the State of Queensland is entitled to the relief which it seeks on the basis of section 9 or section 10 of the *Land Act 1994*.

3.2.2.5 Conclusions

Section 10 of the *Land Act 1994* applies to land raised above high-water mark. If this applies to a parcel of land, implying that the high-water mark has been altered by the carrying out of works, then the boundary of that land will not shift

accordingly. The boundary at law may be located some distance away from the current high water mark.

The legislation contained in sections 9 and 10 of the *Land Act 1994* purports to resume the part of Lot 29 in contention (being the part between high-water mark defined by common law and high-water mark as defined on Registered Plan 12574) without compensation. In Queensland the State can acquire land on any terms they choose, even though the terms are unjust (PJ Magennis Pty Ltd v Commonwealth 1949).

The *Judgement of the Court* states that Mr Beames has failed in all his contentions of the counter-claim. The assumption that he is entitled to whatever gradual and imperceptible accretions there have been down to the high-water mark defined by common law is incorrect.

Disregarding the question of the effect of reclamation work on Lot 29 the State is entitled to a declaration that it is the owner of the land compromising the bed and banks of Norman Creek below the ordinary high-water mark at spring tides and a subsequent resurvey reflecting such boundaries.

The result of the court's decision is shown on Survey Plan 104231. The area of land located between the high water mark defined by common law and the previous location of the boundary of Norman Creek has been defined as Lot 1 Cancelling part of unallocated State land being part of Norman Creek adjacent to Lot 29 on RP12574.

3.3 Summary Chapter 3

This chapter has analysed two court cases from the Supreme Court of Queensland which set precedence for future tidal boundary definitions. Varying interpretations of the term High Water Mark and their effect on the location of a boundary have been displayed in each of these cases. Both investigations emphasise the problem which stems from using a tidal plane for boundary determinations.

Chapter 4 Discussion of the High Water Mark and alternative boundary mechanisms

4.1 Introduction

This chapter will discuss the legal responsibilities of stakeholders for land boundaries affected by the high-water mark and compare the rights pertaining to resumption by the Commonwealth and by the State. Alternative boundary determinations will be discussed together with their associated impacts and implementation possibilities.

4.2 Legal Responsibilities

The Commonwealth Constitution state that the Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to the acquisition of property on just terms from any State or person for any purpose in respect of which the Parliament has power to make laws (s.51 (xxxi) Commonwealth of Australian Constitution Act).

However, the Constitution of Queensland does not contain any provisions requiring compensation for acquisition of property or any lesser modification of any property right. State legislation may modify the common law position without requiring the payment of compensation. If a State Act provides for the resumption of land on terms which are thought not to be just, that is of no consequence legally: it cannot affect in any way the validity of the Act or of what is done under the Act. The Commonwealth cannot itself acquire land except upon just terms, but a State can resume land on any terms, just or unjust, authorised by its Parliament (Pye v Renshaw 1951).

New section 94 of the Natural Resources and Other Legislation Amendment Act 2010 (NROLA Act) provides that a person is not entitled to compensation from the State or anyone else under the SMIA, the Land Title Act compensation provisions, relief under the *Property Law Act 1974* or otherwise, for deprivation of an interest of any type in land, or for loss or damage of any kind arising from the operation of division 2 (tidal boundaries) or division 3 (miscellaneous issues in the tidal environment). Subparagraph 94(a) rules out compensation arising

from the relocation at law of a tidal boundary on commencement and on the first resurvey after commencement (Explanatory Notes NROLA Bill 2010, Qld).

Therefore, if under the new legislation a tidal boundary is relocated in a position further from the water than displayed on the plan of survey, essentially it will be resumed without compensation.

4.3 Public Access

As a result of the Supreme Court applying an alternative interpretation of the high water mark boundary to that of the State, some landholders were able to incorporate large areas of beach into private ownership. The fear that public access to beaches was under threat by the claims of adjoining landowners brought about the introduction of the statutory stay on the registration of survey plans regarding a tidal boundary.

Because one of the most valuable and significant aspects of oceanfront property is its contact with, and access to, ocean waters, the right to maintain contact with the ocean has long been recognised as a significant legal right attendant to the ownership of oceanfront property (Kalo 1968). This is a boundary of contention as the public also desire the right to maintain contact with the ocean.

A Florida Supreme Court made a powerful statement concerning the public's right to enjoy privately owned beach land. The court majority stated: 'If the recreational use of sandy area adjacent to mean high tide has been ancient, reasonable, without interruption and free from dispute, such use, as a matter of custom, should not be interfered with by the owner,' (The Ledger 2009). The public must be given both access to and use of privately owned dry sand areas as are reasonably necessary and must be afforded reasonable access to the foreshore as well as a suitable area for recreation on the dry sand (*Matthews v Bay Head Improvement Association 1984*).

The sandy portion of a beach does not serve a purpose for traditional uses of land, such as farming or residency, but has provided a place for fishermen, bathers and recreation. The interest and rights of the public to access and traverse the shoreline regardless of whether the tide is higher than Mean High Water Springs

should be maintained as a means of preventing the act of trespass by the public and relinquishing a duty of care from the landowner.

The naturally accreted beaches of Snapperman Beach North Sydney (figure 3) are a prime example where the inclusion of gradual accretions has negatively affected the accessibility of the foreshore. The variation of one landowners title to include gradual accretion was closely followed by four the following year and six the year after that. This part of the beach was frequently used as a public recreational area and these boundary redefinitions received considerable public protest. Despite the local council and community opposing the variation in land title, it was supported by the Department of Conservation and Land Management.

Figure 3 is a photo of Snapperman Beach, North Sydney where land value is at a premium, therefore sought to be included in the certificate of title.

Figure 3. Snapperman Beach, Sydney (Chancellor 2009).

Similar situations to Snapperman Beach have occurred along Queensland's coast and rivers and justly caused considerable concern about public access. Appendix S displays an example of a Smart Map supplied by the Department of Environment and Resource Management's Digital Cadastral Data Base. This map emphasises where the public concern originated.

There is a growing perception that the doctrine of accretion is contrary to the public interest. Its primary function is only advantageous to private landowners abutting the foreshore. The Supreme Court of South Australia established that public policy preferred the public interest in access to foreshores over the interests of private landowners. Zelling states that there ought to be a substantial area set back from the actual seafront or waterfront vested in the Crown for public purposes (*Southern Centre of Theosophy Incorporated v South Australia 1979*). An example of such a setback is the esplanade. This will be discussed in greater detail as an alternative boundary mechanism.

The Queensland Government have recognised the concerns associated with the location of the high water mark at spring tides by introducing the statutory stay but current legislation retain the common law principle that allows a boundary of land to shift if the natural feature forming that boundary shifts by gradual and imperceptible degrees (Dunphy 2010).

4.4 Alternative Boundaries

The term 'high water mark' has generated various interpretations for a boundary adjacent to a body of water. Being ambiguous by definition it is not suitable as a cadastral boundary. Brian Coutts (1989, p. 328) posed the question: 'To dispense with the Mean High Water as a cadastral boundary, avoids the question as to with what it may be replaced'. This is a question of significant importance which requires an objective response. Several alternatives to the high water mark defining the boundary between private ownership and State land will be discussed.

4.4.1 Esplanades

Clause 19 of the General Directions for the Guidance of Surveyors issued in 1878 stated that a reserve or esplanade 150 links wide should in all cases be reserved along a water course of navigable rivers or creeks; and a similar reservation should be marked off along the sea coast where a road is practicable. The implementation of an esplanade along tidal boundaries would have been a solution best suited to resolving the ambiguity associated with the location of the boundary between the private landowner and the State.

The standard under the Surveying Mapping and Infrastructure Act state that the position of an esplanade is fixed at the time of alienation of the lot. The landward boundary of the esplanade is also fixed at the time of alienation, is not subject to accretion or erosion (McGrath v. Williams 1912 vol. 12), and when surveyed is advised to be marked by right lines. The seaward boundary of the esplanade is subject to the doctrine of accretion and erosion.

By instigating the esplanade reserve and defining the landward boundary by right line it will alleviate the ambiguity of tidal boundary location. This procedure, though difficult to apply, has had success in New Zealand. It has become a priority throughout New Zealand's Councils to provide adequate means of access, water conservation and recreational use along its waterways and coast.

The Resource Management Act 1991 is New Zealand's main piece of legislation used to manage the environment. Under this Act, esplanade reserves or esplanade strips are required of any subdivision, the reserve or strip apply to all certificates of title being subdivided regardless of the size of the allotment created. This creates an area used to conserve the environment and provides opportunities for public access and recreational use.

Land required for use as an esplanade can be acquired in the following three ways:

1. Land shown as proposed esplanade reserve is vested to Council when land adjacent to the coastal area is subdivided.

2. Land not shown as proposed esplanade reserve can be purchased when land adjacent to the marine area is subdivided.

3. Land nit shown as proposed esplanade reserve can be purchased when this acquisition via the ordinary property market as opportunity may arise.

This acquisition scheme is a slow process, dependant on subdivisions initiated by the landowner. It does, however, relieve the burden for Council's to purchase large portions of land at any one point in time. Queensland should specify that an esplanade be a requirement in all future developments where a tidal boundary forms a boundary of the subject lot.

4.4.2 Right line tidal boundaries

A right line tidal boundary means a right line boundary of land that is located approximately where a tidal boundary might otherwise be located (NROLA Act 2010, QLD). This form of boundary can only be implemented in Queensland when a landowner purchases reclaimed unallocated State land. The principles of a right line boundary would serve as a means of relieving the difficulties associated with the High Water Mark.

The principles associated with right line boundaries that make reinstating a boundary an easier process are:

(a) the boundary is represented on a plan of survey as a straight line or series of straight lines;

(b) the boundary's location is fixed;

(c) the boundary's location is marked on the ground by the placement of survey marks that-

(i) delineate the boundary; or

(ii) allow the location of the boundary to be worked out by reference to them; or

(iii) are a combination of subparagraphs (i) and (ii).

Removing the term High Water Mark as a definition of a tidal boundary of land is an obvious solution for alleviating the ambiguity but the logistics of implementing such principles would be too costly for the government and pose an immense scope of work by resurveying each boundary. The strength of the description given on a Certificate of Title would then be compared to that of legislation.

4.4.3 Natural feature

The Department of Environment and Resource Management have released the new rules referring to the location at law of a water boundary. The Cadastral Survey Requirements state that the new rules reflect the principle that the location

of ambulatory boundaries may be subjected to continuous change, because of naturally occurring processes. It recognises that a plan of survey reflects the location of the boundary at a specific time.

The Department of Environment and Resource Management require that a tidal boundary meet certain criteria. The key objectives of the new criteria are to ensure:

- stability and sustainability;
- conservation and protection; and
- preservation of the public interest.

These rules contain new criterion on how a tidal boundary is to be surveyed, the old common law precedents no longer apply, existing common law rules about accretion and erosion have been retained and new powers to declare a boundary in difficult cases have been added.

An example of a natural feature, supplied in the NROLA Bill 2010, may be the landward edge of mangroves, seaward edge of grassy dune, or the stable toe of a dune. These examples describe similar features as those given in the early Rules and Direction for Surveyors.

The process of locating boundaries by reference to natural features will present a difficult task that will require the assistance of expert advice. A new area of debate will be the specific location of the nature feature and the accuracy by which it was defined.

The NROLA Act 2010 has provided new rules about how land must be surveyed with regard to a tidal boundary and states that no person is entitled to relief or compensation. However, by making freehold land acquired by the State available for compensation the acquisition would be more readily accepted. The tidal boundary would be removed and the landowner could not claim title to accretions.

4.5 Future Sea Level Rises

There has been a systematic trend of rising sea levels affecting the shores of Australia and this is emerging as a significant issue in planning development and environmental decision making. These rises pose an uncertain future for coastal development and the rights of property owners' adjacent tidal water. If the location of a tidal boundary continues to encroach on private landowner's property, the duties of the land surveyor to define this boundary will become more complex. Therefore it seems appropriate to discuss preventative actions adopted by other jurisdictions.

Some of the courses of action local authorities could administer are rolling easements, setback requirements, coastal armouring and beach renourishment.

4.5.1 Rolling Easements

A rolling easement is a procedure that allows publicly owned tide affected land to migrate inland as the sea rises. It allows construction near to the shore, but only on the condition that the structure will be removed if and when it becomes vulnerable to sea level rises. Numerous American States have recognised that large amounts of beaches and wetlands are being lost as a result of erosion and natural migration processes are being altered by engineering structures such as seawalls and jetties. These States, in an effort to balance public and private land rights, have implemented versions of the rolling easement.

A rolling easement does not require the tidal boundary to be a surveyed line as shown on a survey plan but the boundary still remains to be the Mean High Water Mark as defined by common law.

4.5.2 Setback Requirements

Erosion setback requirements are effective regulations that protect the homeowner and public resources. Chapman (1982, p. 143) asserts 'the beach is a natural self-regulating system which will adjust to, and recover from, erosional events provided sufficient room is allowed for shoreline fluctuations to occur'. This supports the benefit of implementing a setback to prevent or restrict development near tidal boundaries but an obvious difficulty with sea level rises is

that eventually the shore would retreat to any setback that is established (Titus, 1998).

The State of Victoria is making the issue of climate change an important factor in planning and environment decision-making. The Civil and Administrative Tribunal have recently refused a development application due to unacceptable impacts from predicted climate change. Issues such as sea level rise, storm surge, coastal processes and local topography are being included in the assessment of development applications.

Perhaps a development proposal should not be refused but amended with suitable conditions that mitigate the impact of future sea level rises. Queensland should acknowledge the related risks of development in sensitive coastal areas and consider the needs for long term planning for future consequences.

4.5.3 Coastal Defence

Coastal protection structures are built to control the erosion of coastal foreshores by withstanding the force of wave action. Some examples of coastal protection structures are seawalls, groins and jetties. These hardened structures, though designed to protect the shore, also destroy it in other ways. The structures can reflect wave energy and as a result can scour sand away from the sides of the structure; and disrupt sediment transport by blocking the sand movement along the shoreline. Many of these coastal defences are no longer used as such structures can cause significant adverse impacts to public beach and adjacent properties.

4.5.4 Beach Renourishment

Beach renourishment is the replenishing of sand on a beach lost due to natural processes. This is a favourable technique for protecting the foreshore, though it is an expensive one. Beach renourishment attempts to reinstate the beach to the state in which it was before eroding. It allows for a wider beach, which provides better amenity for the public.

In extreme cases of erosion, the State of Florida can invoke the Beach and Shore Protection Act which allows the state to change the legal boundary of land

between submerged public lands and private waterfront landowners. The boundary as defined by Mean High Water Mark is replaced by a new boundary called the Erosion Control Line. This is a fixed boundary based on beach measurements made prior to commencement of beach renourishment.

4.6 Future Planning

The precise scale of climate change is unknown; therefore a precautionary approach to decision-making is required. The principle planning tool in Queensland is the *State Coastal Management Plan 2002*, which addresses the risk created by flood, landslide and storm wave inundation. The key objective is to promote coastal management that protects life and property from natural coastal fluctuations including those related to climate change and rising sea levels.

The *South East Queensland Regional Plan 2009* obliges local authorities to assess the impact of potential climate change and ensure that the use and management of the coast allows for climate related events and processes. Both the Management Plan and Regional Plan provide a useful basis for addressing climate impacts in planning decisions, but there is a clear need for better implementation (McDonald 2008).

Queensland has mixed responses with regard to the effects of climate change and sea level rises. The Queensland Planning and Environment Court rejected a challenge by the Cairns City Council for a development approval to be amended to accommodate inundation levels at a height that would protect the development from cyclonic wave effects greater than those for comparable developments. The Court stated that the level of caution was neither reasonable nor reasonably required.

Environmental planning relating to beach protection in Victoria depends on the *Victorian Coastal Strategy 2008*. Implementing the strategy is a response to climate change, including sea level rise; rapid population growth in coastal areas; and marine ecological integrity. The Strategy outlines the following policies that could be implemented in Queensland:

1. Apply the precautionary principle to planning and management decision-making when considering the risks associated with climate change.

2. Ensure new development is located and designed as that it can be appropriately protected from climate change risks and impacts, and coastal hazards.

3. Ensure that land subject to coastal hazards are identified and appropriately managed to ensure that future development is not at risk.

4. Avoid development within primary sand dunes and in low-lying coastal areas.

4.7 Summary Chapter 4

This chapter has highlighted that in Queensland, a person is not entitled to relief for compensation from the State under the Surveying Mapping and Infrastructure Act 2003.

The public's freedom to enjoy beaches and foreshores that have long been in public use should be maintained and a compromise between tidal boundary landowner's and the public must be sought.

Chapter 5 Conclusion

5.1 Introduction

This investigation has analysed the tidal boundary definition and how contention between stakeholders has been resolved. In the future the legal responsibilities of local authorities and the State will be greater than a disputed boundary with an individual landowner.

5.2 Rising tide

Given the continual rise in sea level, defining the boundary between public lands and private properties will increase in being a boundary of controversy. A greater importance needs to be placed on the consequences of not anticipating future sea level rises. The location of a tidal boundary should be redefined to accommodate these consequences and the government need to take preventative actions rather than reactive actions to reduce the effects.

Queensland is confronted with a significant problem as to how best to protect its beaches, foreshore and adjacent properties. The problem has arisen as a result of private landowners, councils and State agencies use of these areas with unplanned, unapproved and uncaring consequences. The outcome of such activities have diminished beach widths, limited public access and destroyed the beach amenity.

If the rights of private landowners to protect their properties from coastal erosion are reduced, the question arises as to whether the owner should be compensated. When a public authority has authorised such developments in areas subject to coastal erosion, it has failed to protect private lands from foreseeable hazards. It must become a Councils responsibility to consider the implications of climate change and associated seas level rises.

The long-term impact of sea level rises on the legal description of a boundary must be given careful thought.

5.3 Project Achievements

This investigation has highlighted the ambiguity that can arise from definition of the high water mark as a tidal boundary and the complications faced by a surveyor required to define it. Through thorough analysis of the Supreme Court cases it has also become apparent that many surveyors look to determine who owns what rights. Essentially they can only offer a professional opinion based on training, experience, measuring and analysing. It is the responsibility of the Courts to determine who owns what.

Attempting to define a boundary of land that shifts with the ordinary movement of the sea or a river combined with anticipated future sea level rises will be a difficult procedure. To resolve the ambiguity associated with tidal boundary definition the doctrine of accretion and erosion must not influence its location and therefore its position should be relocatable by future surveyors.

Nevertheless, we must recognise and respect the property rights of private landowners while providing for the public use of the water and foreshore.

Appendix A

Project Specification

University of Southern Queensland

FACULTY OF ENGINEERING AND SURVEYING

ENG 4111/4112 Research Project

PROJECT SPECIFICATION

FOR: **Christopher Aaron KLIBBE**

TOPIC: AN INVESTIGATION ON THE HIGH WATER MARK AS A LAND BOUNDARY.

SUPERVISOR: Mr Shane Simmons

ENROLMENT: ENG 4111 –S1, 2010;
ENG 4112 –S2, 2010

PROJECT AIM: The project aim is to investigate the definition of tidal boundaries and the ambiguity that can arise from definition of the high water mark as a tidal boundary.

PROGRAMME: Issue B, 07 April 2010

1. Research cases in which the high water mark has been an issue in the definition of a land boundary.
2. Analyse these cases and determine the main issue in boundary definition of the high water mark.
3. Discuss the legal responsibilities of stakeholders for land boundaries affected by the high water mark.
4. Address issues in relation to ownership of, and public access to tidal areas.
5. Discuss how the ambiguity in tidal boundary definition can be resolved.
6. Discuss whether the definition of high water mark should anticipate future sea level rises.

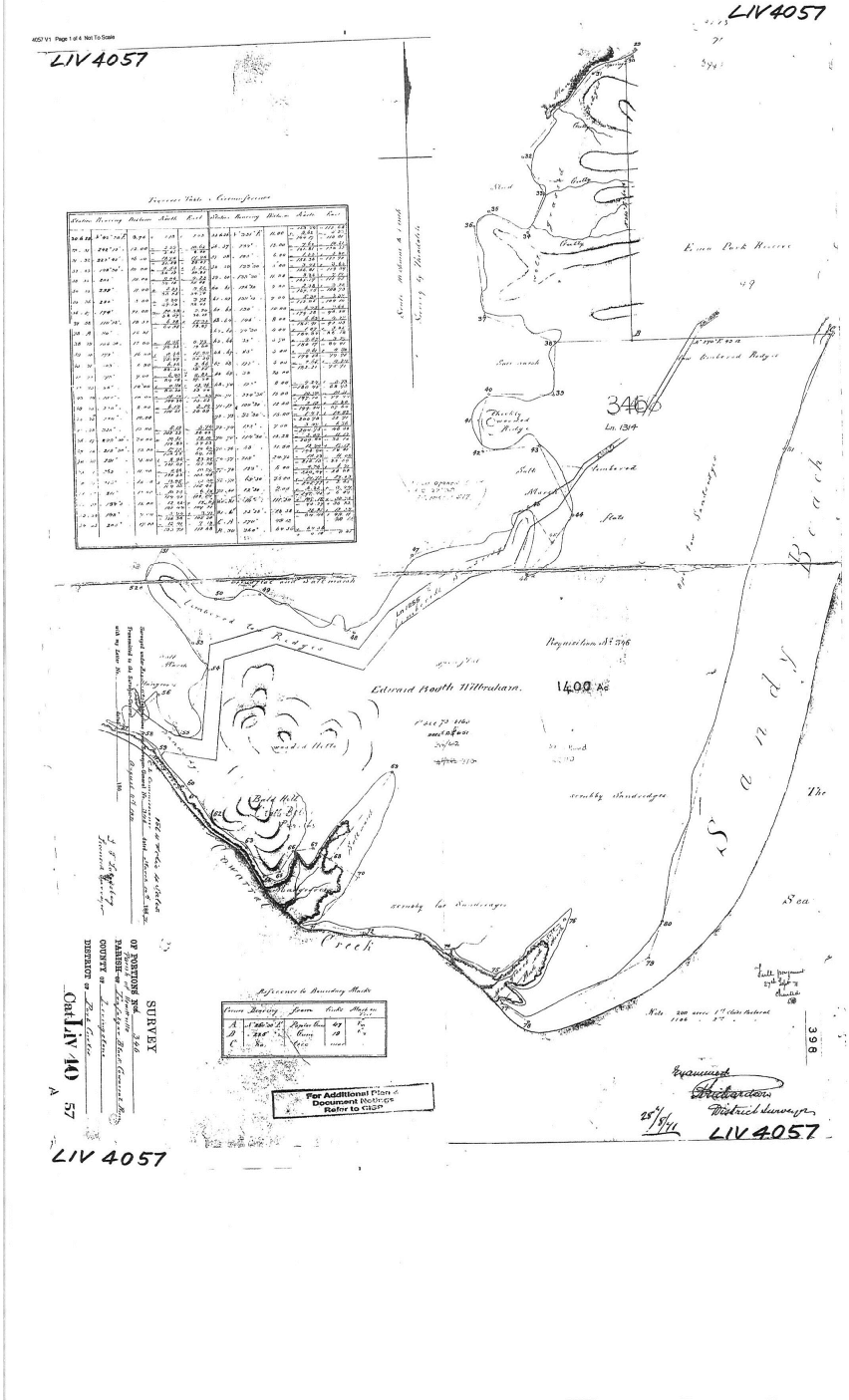
AGREED: _____ (student) C Klibbe
(supervisor)

Date: / /2010 Date: 23 /03/2010

Examiner/Co-examiner: _____

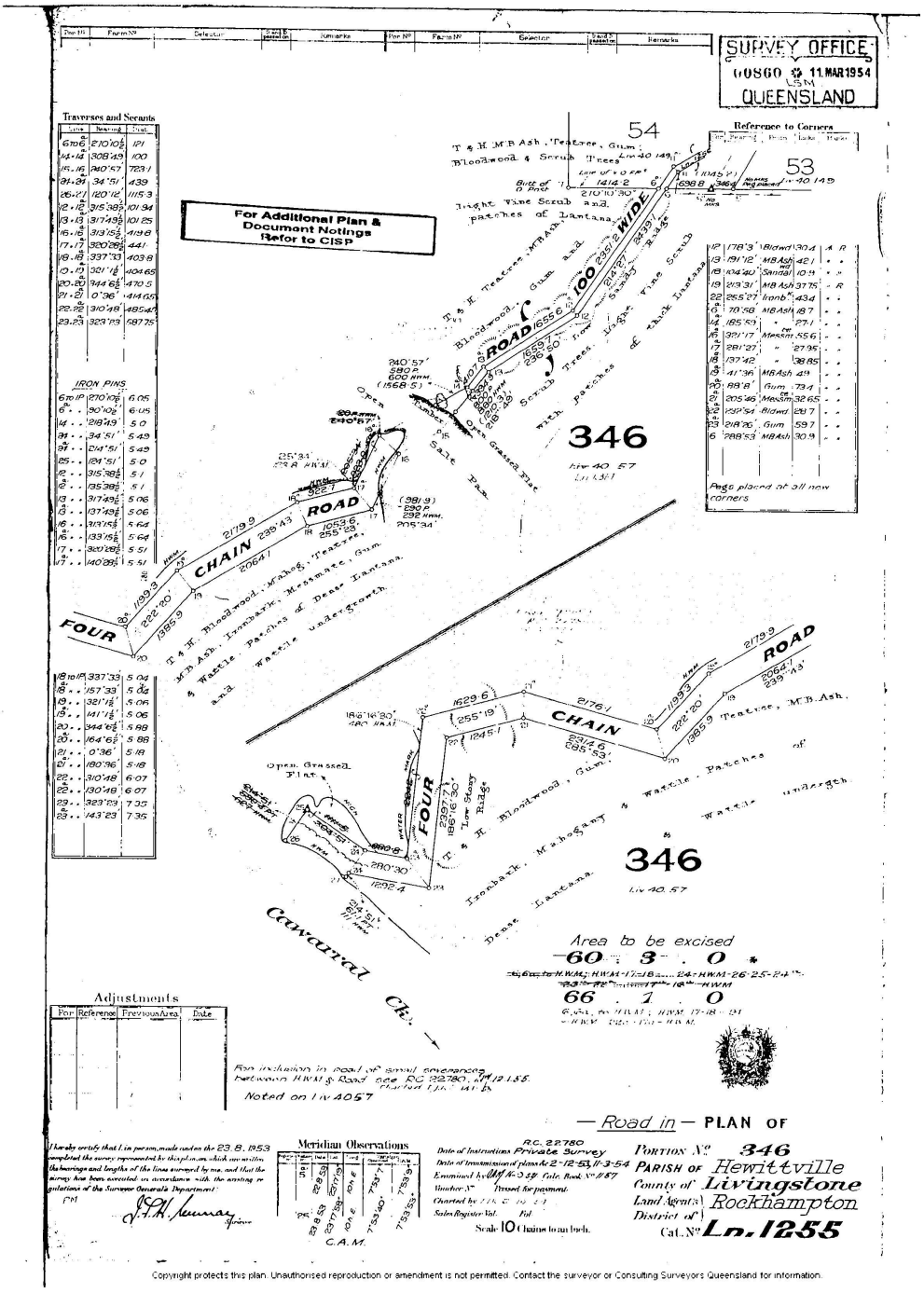
Appendix B

LIV4027



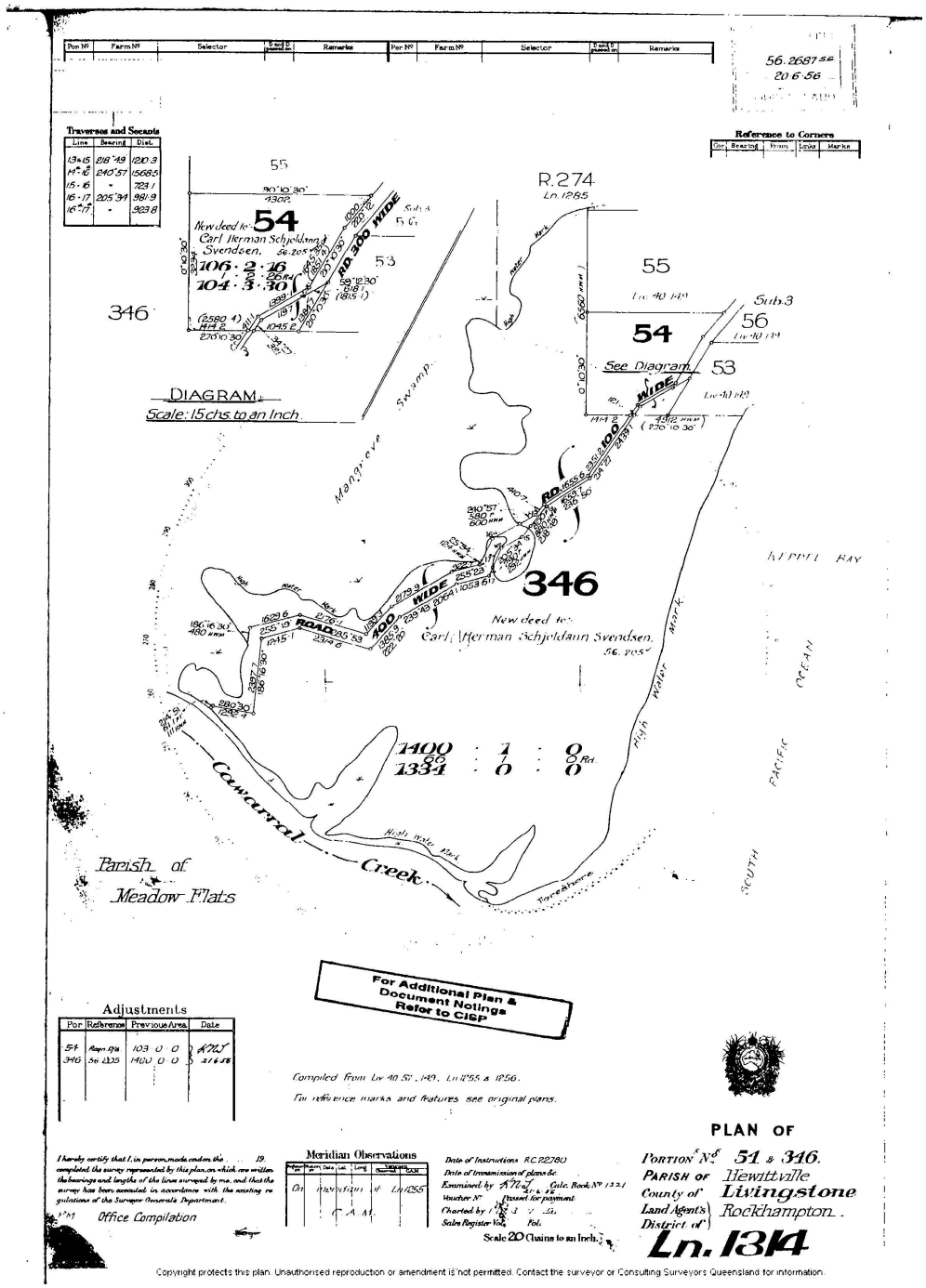
Appendix C

LN1255



Appendix D

LN1314



Appendix E

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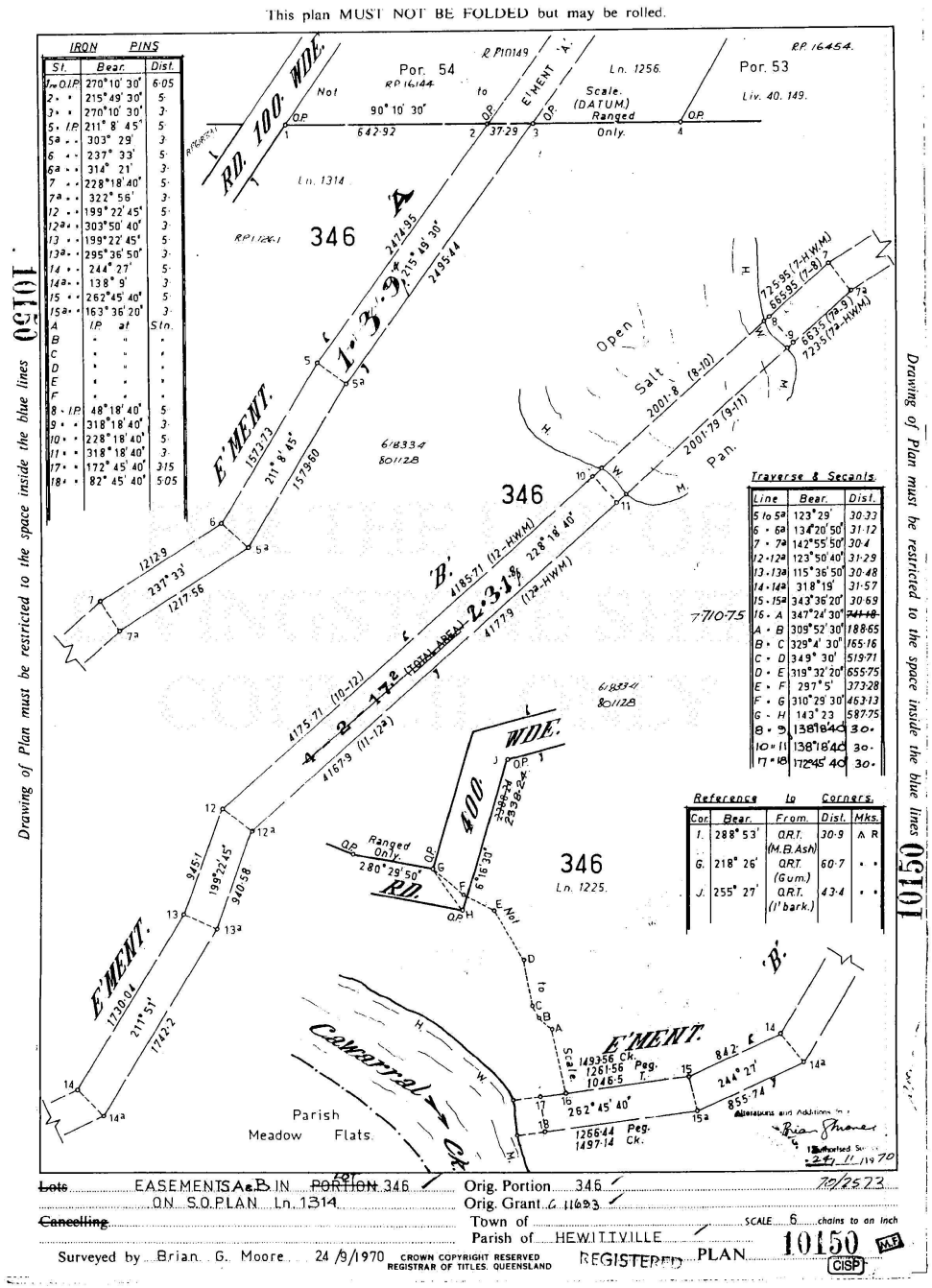
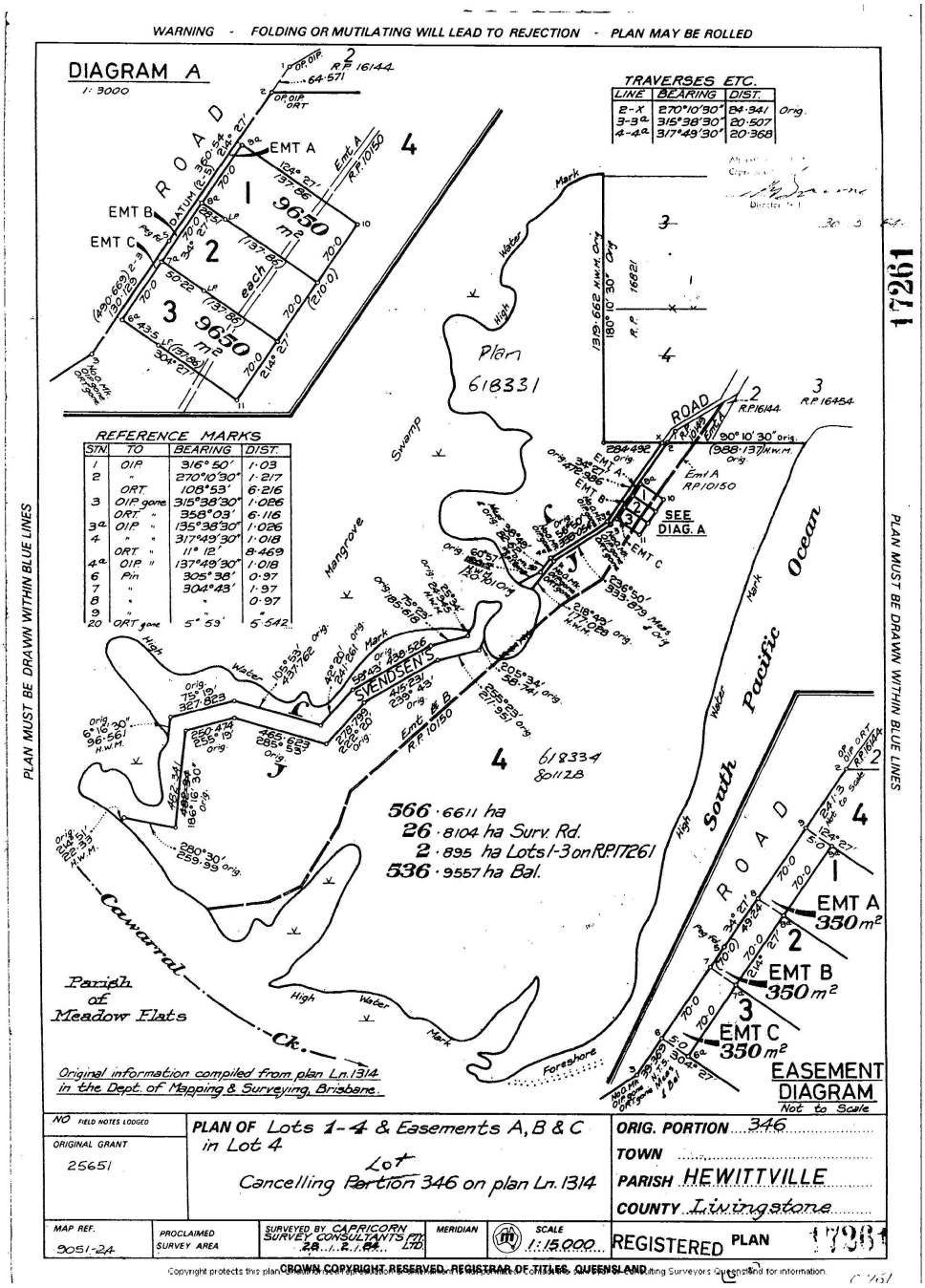


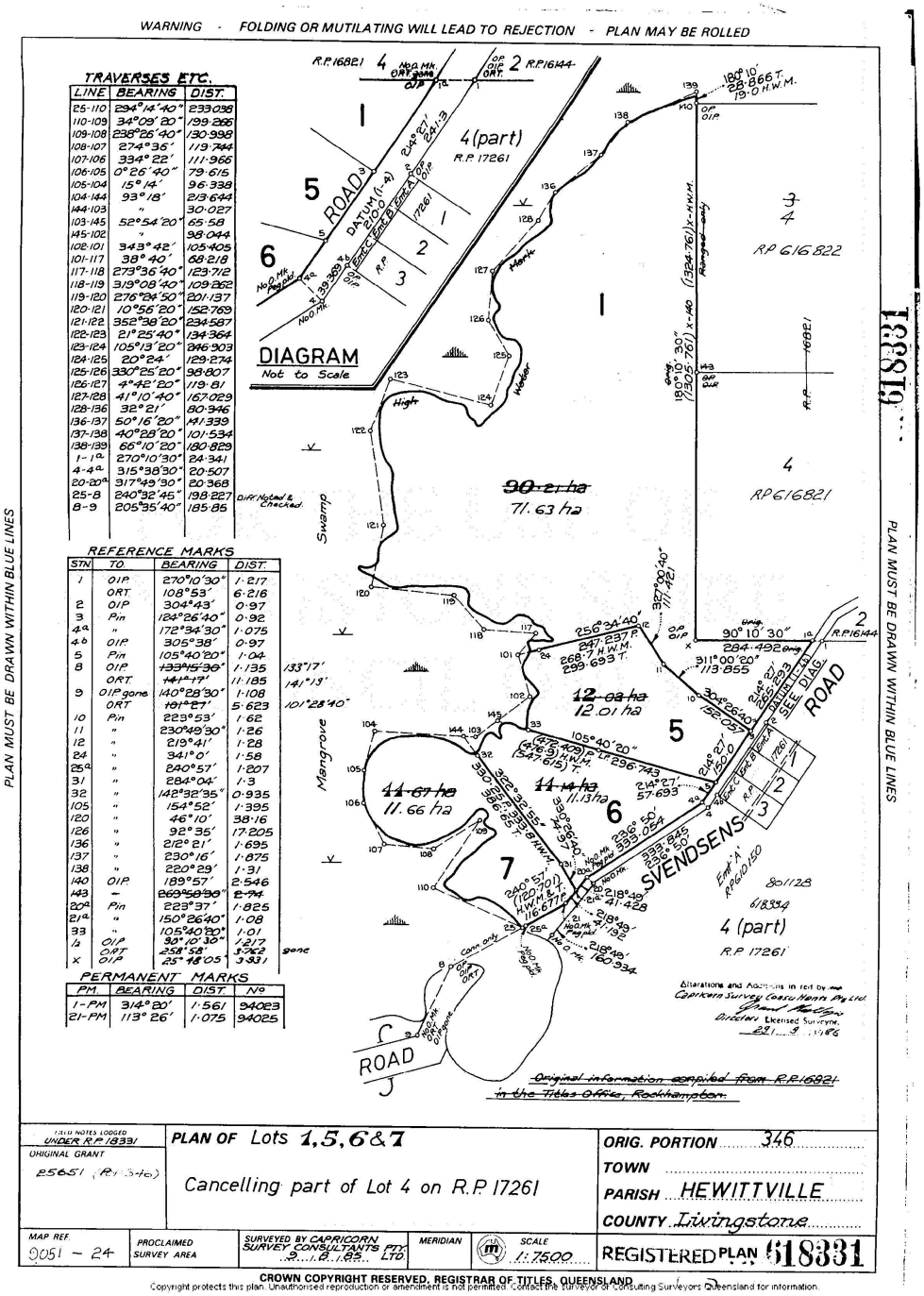
Appendix F

RP617261



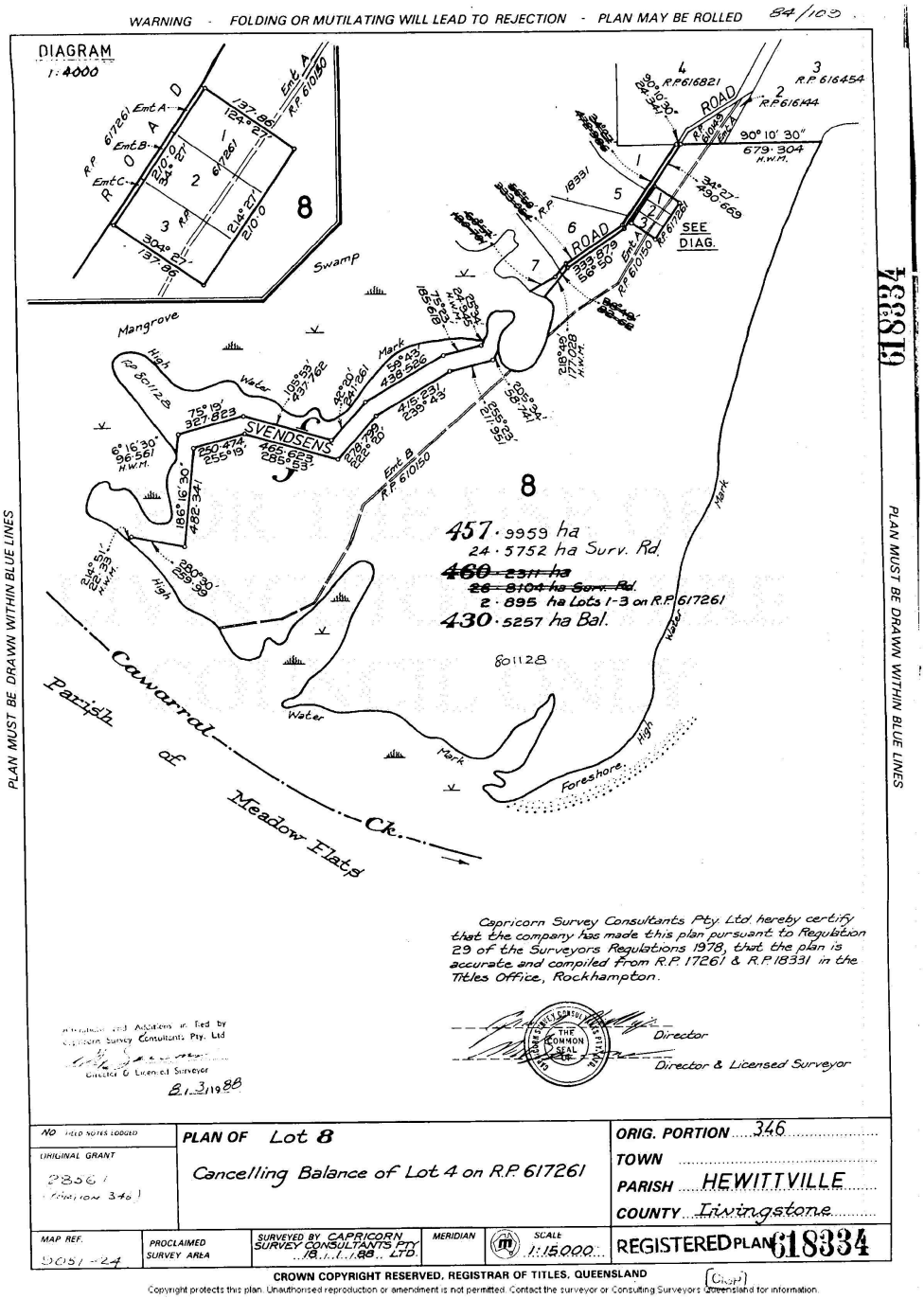
Appendix G

RP618331



Appendix H

RP618334



Appendix I

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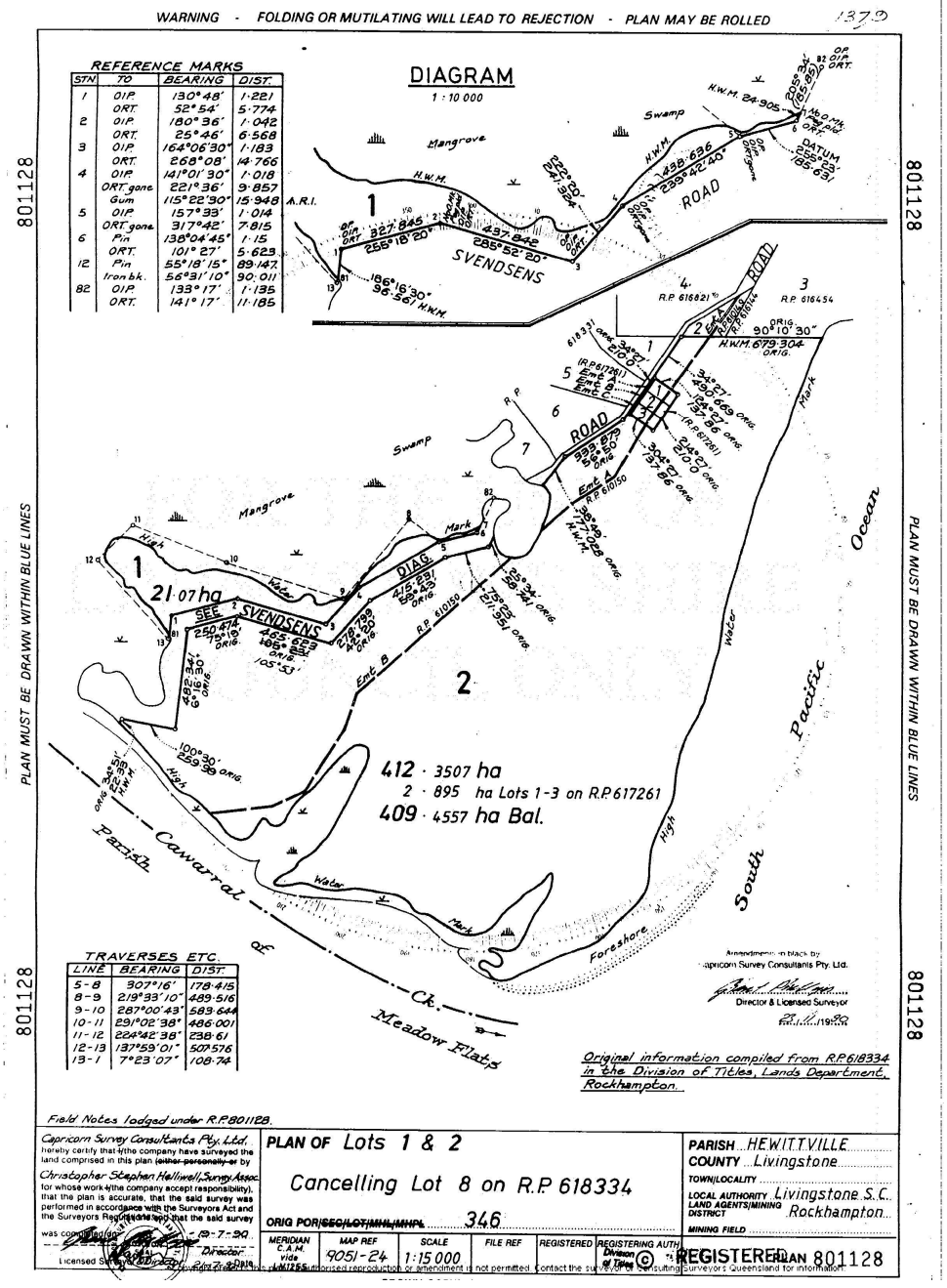

Appendix J

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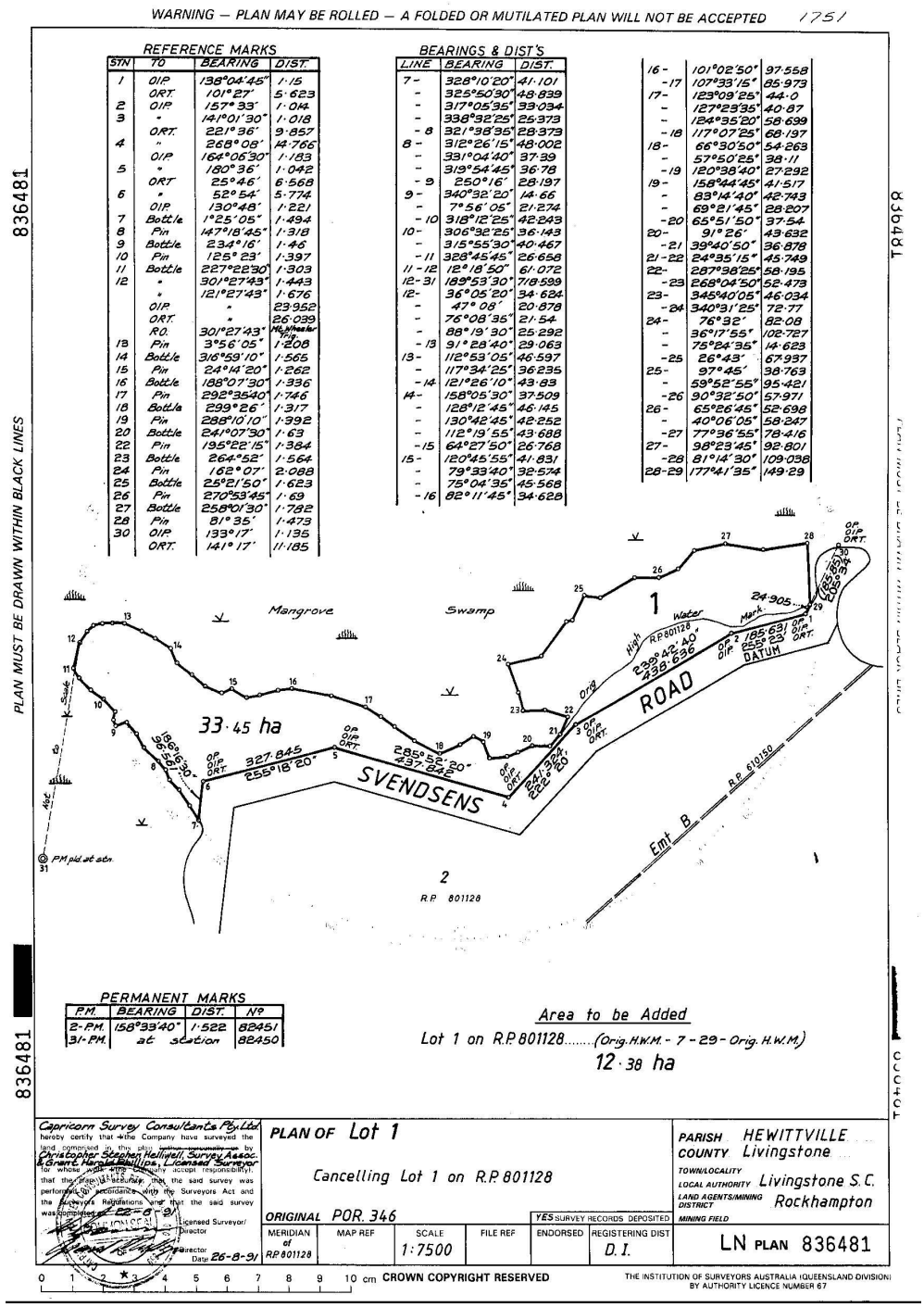
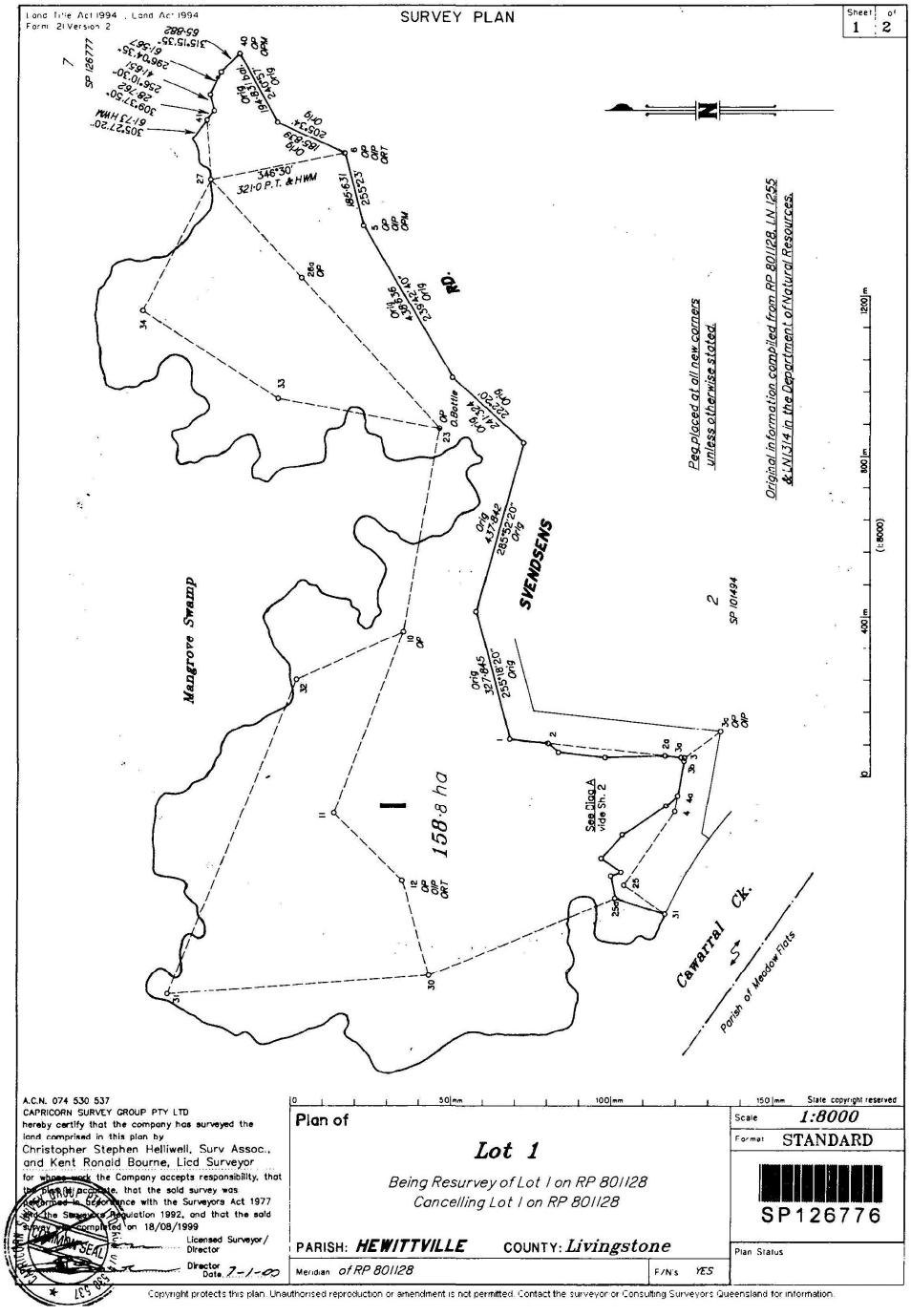


Appendix K

SP126776



Appendix L

SP148537

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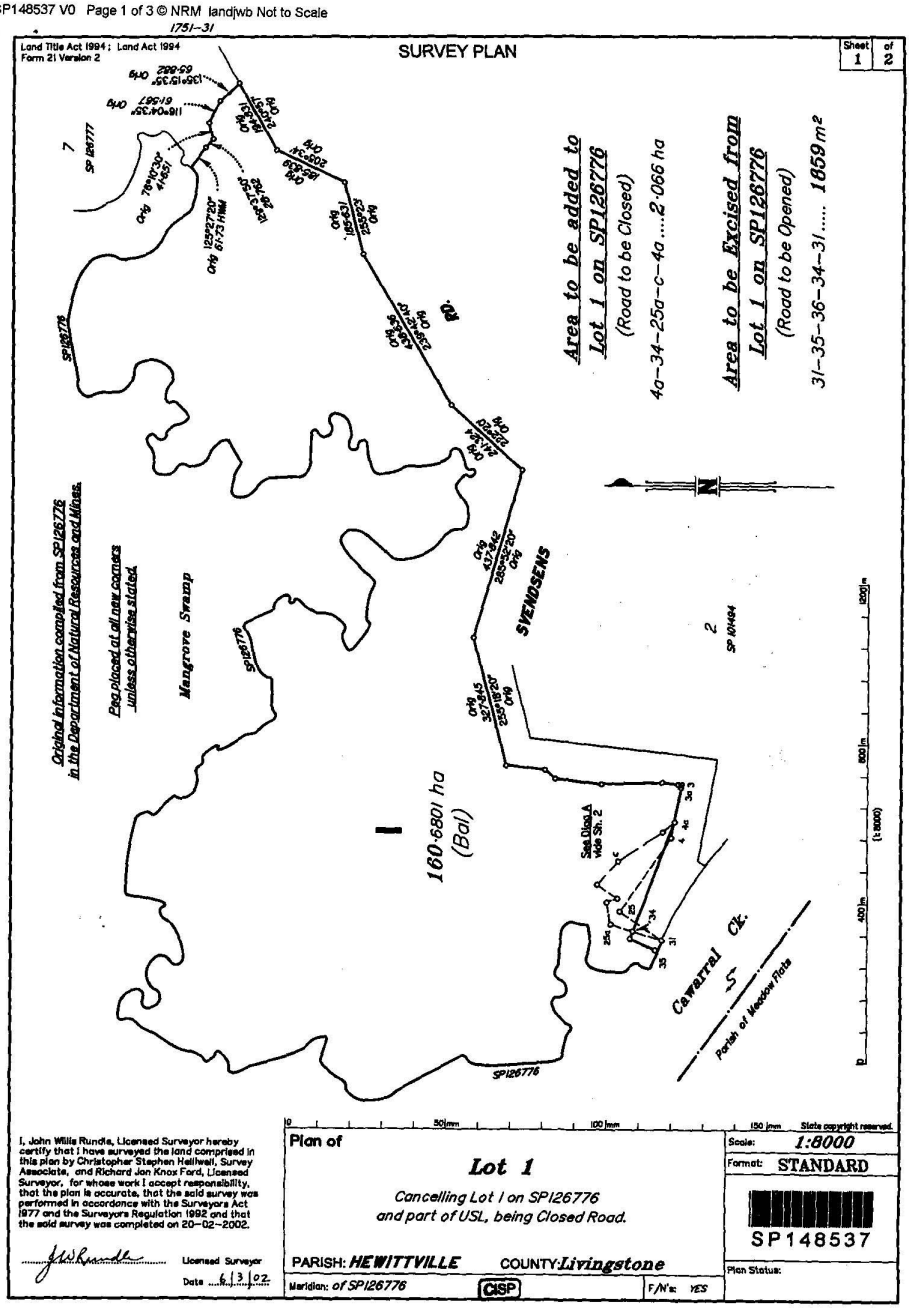
SP148537 V0 Page 1 of 3 © NRM landjwb Not to Scale



Appendix M

SP182278

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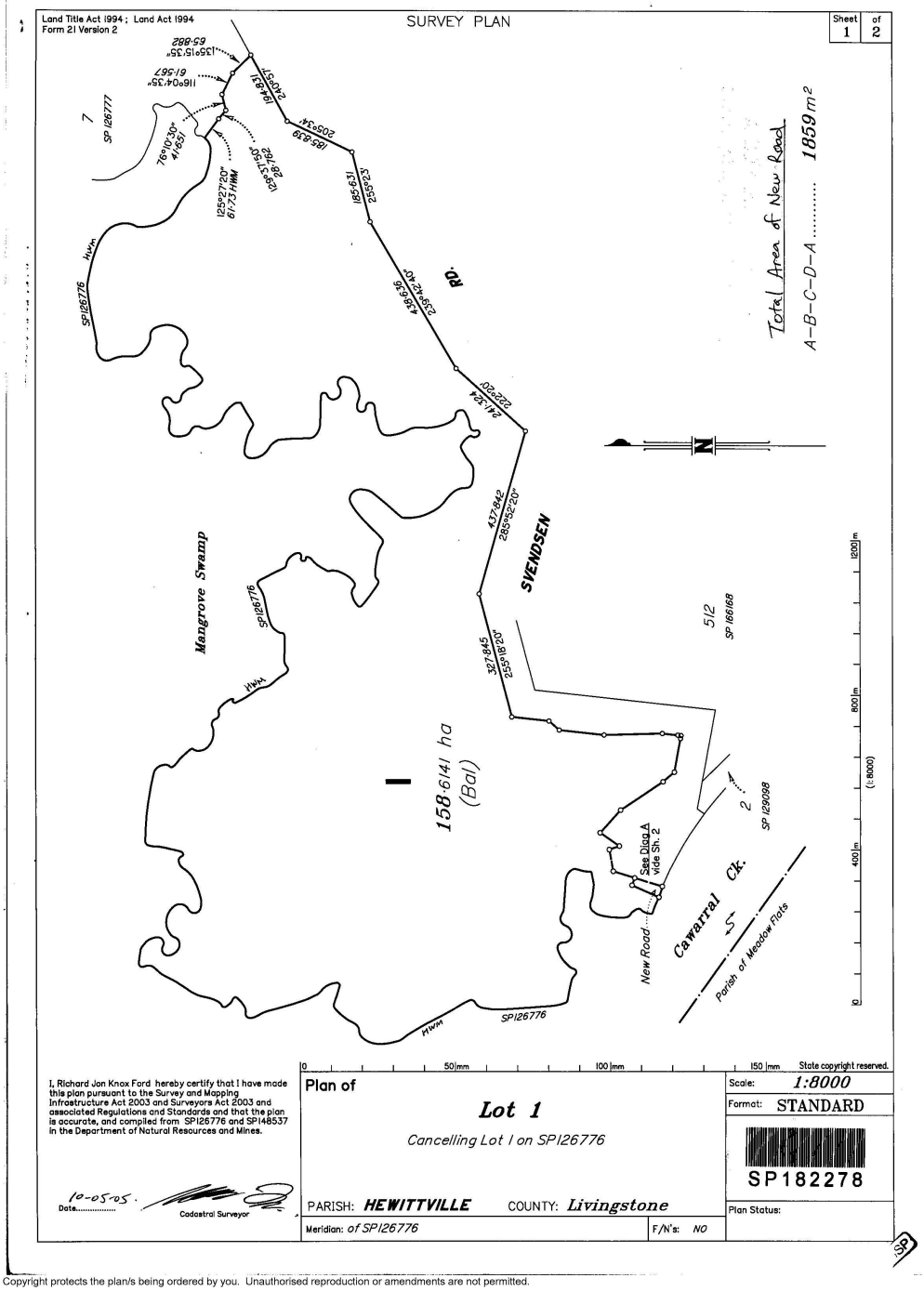
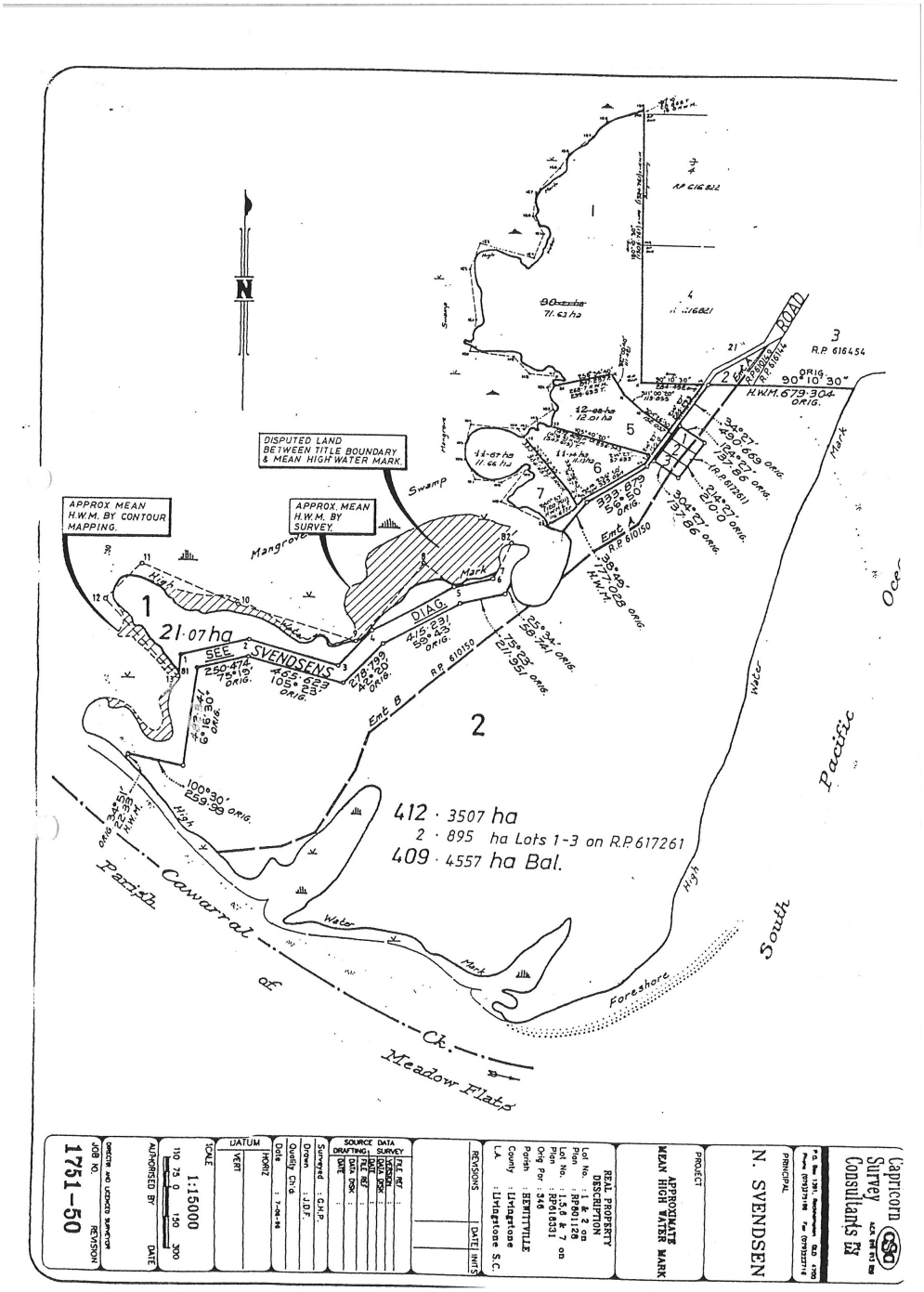


Appendix N

Drawing 1751-50 Approximate Mean High Water Mark



Appendix O

RP12574

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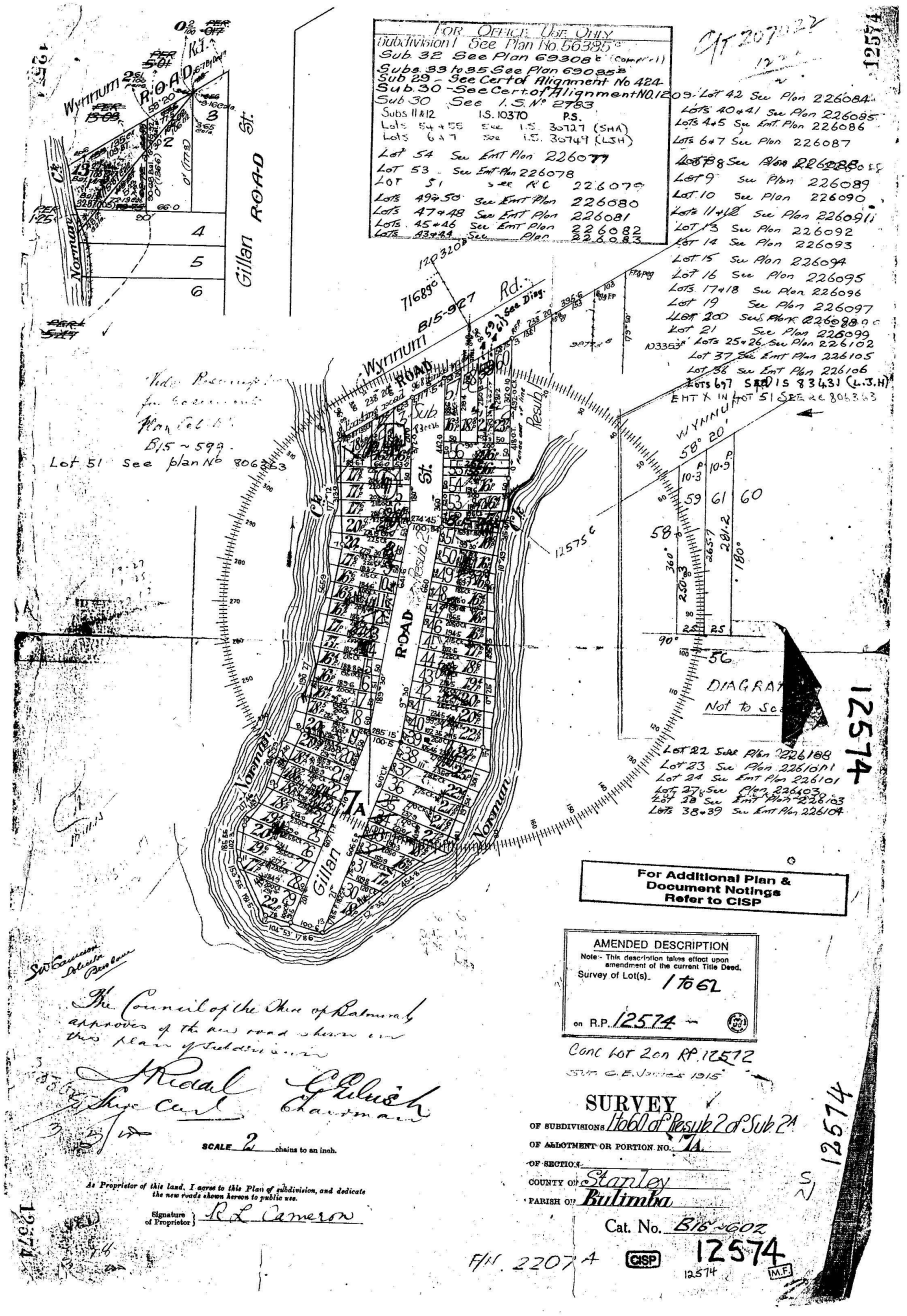

Appendix P

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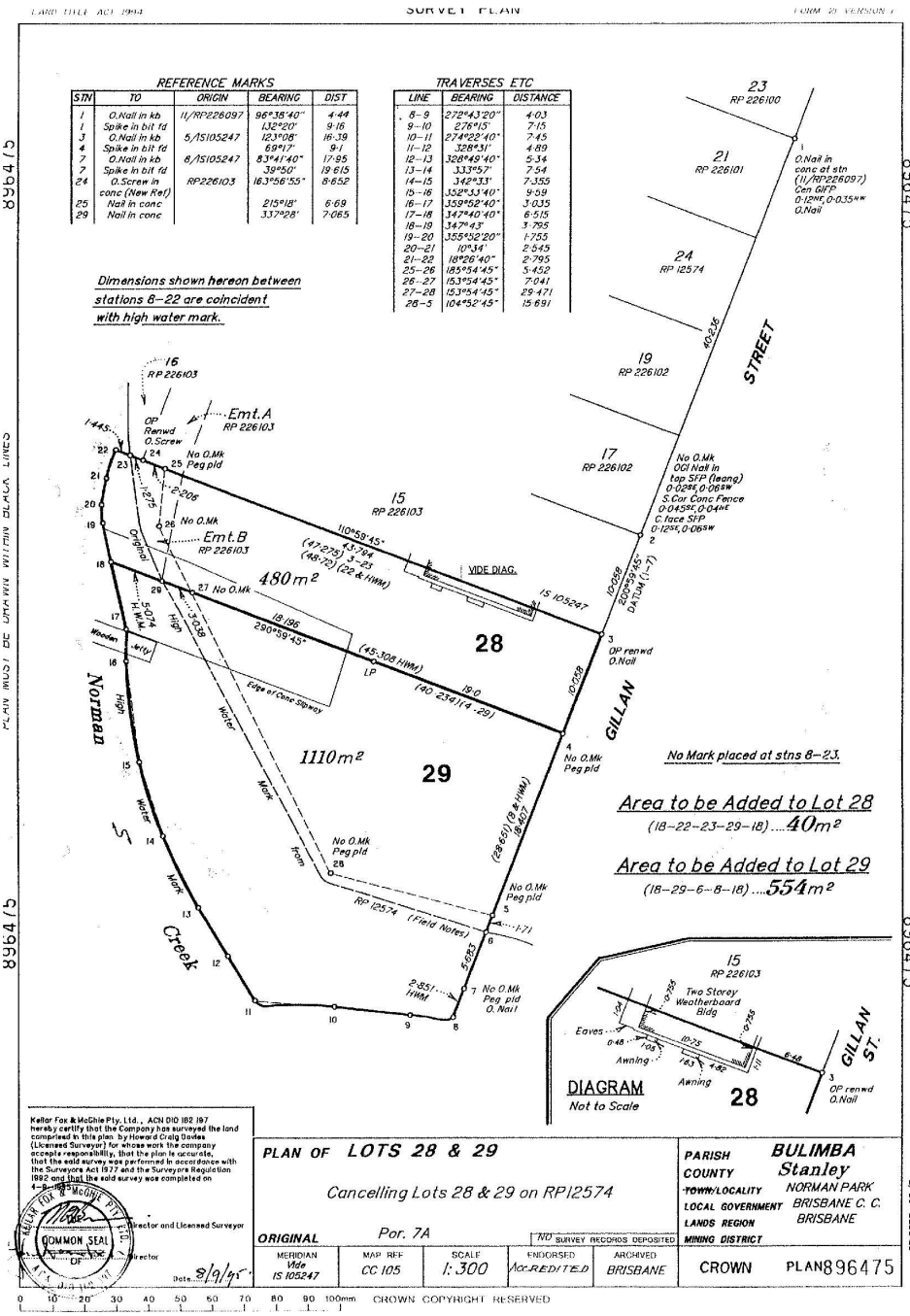
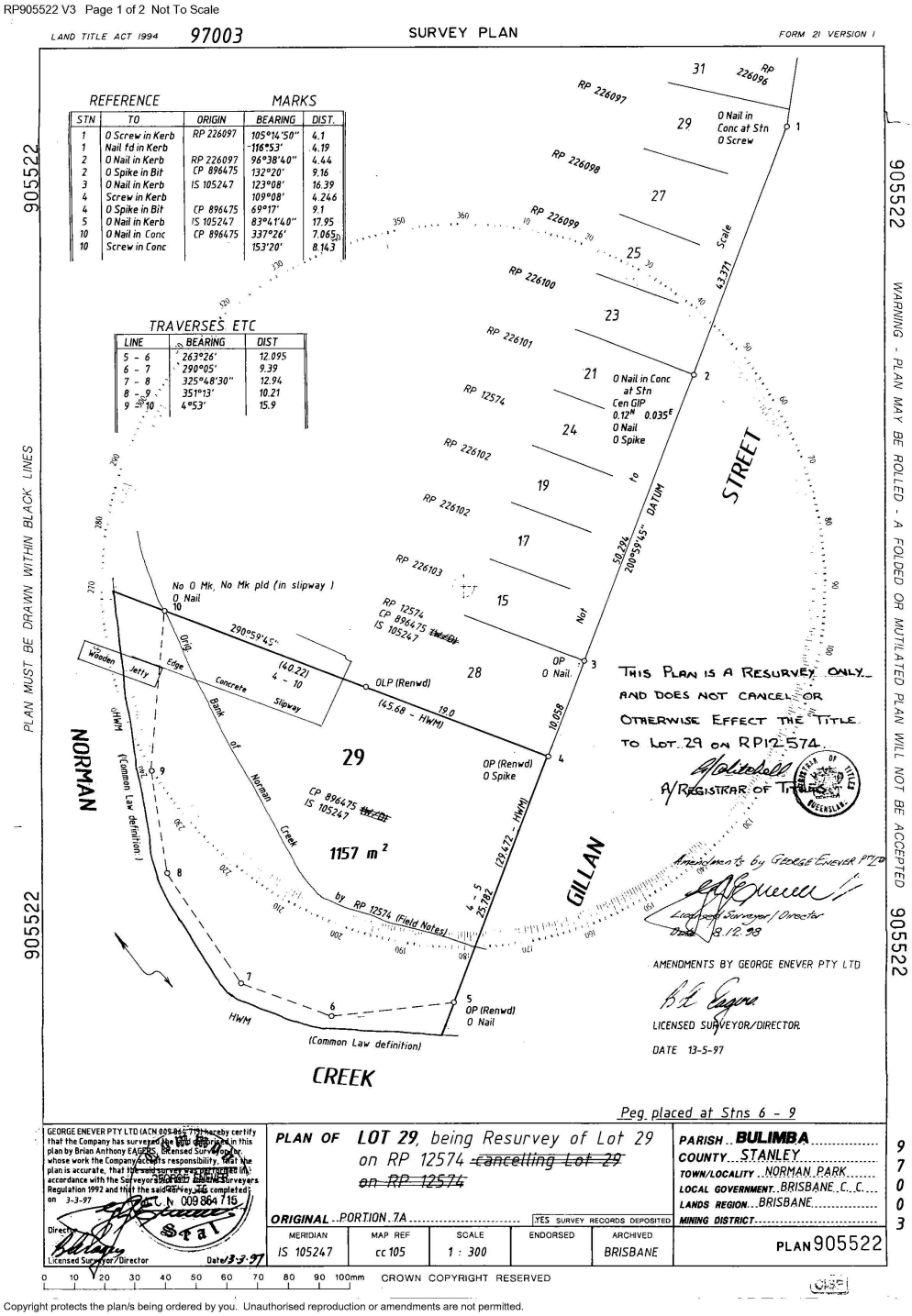


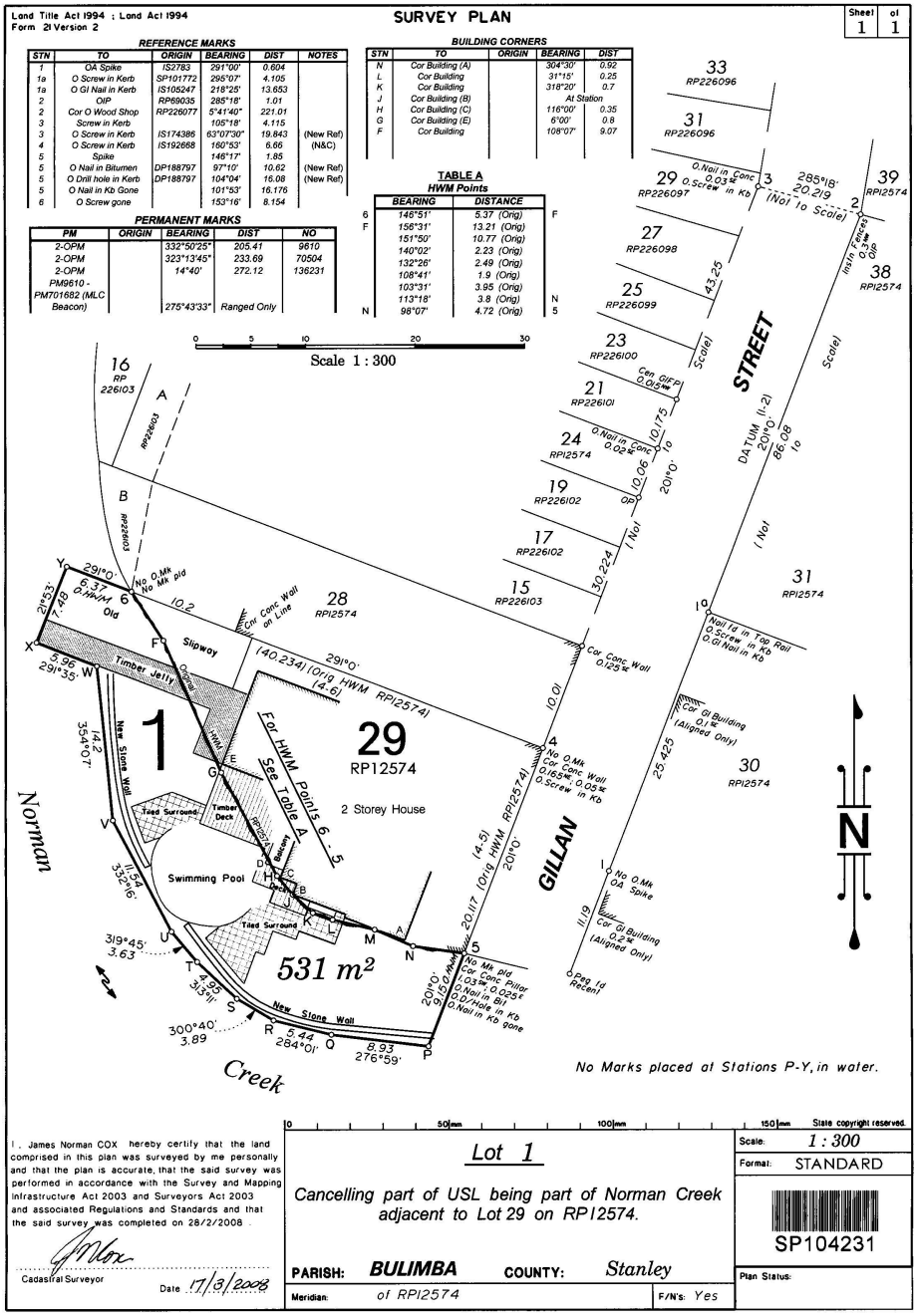
Appendix Q

RP905522



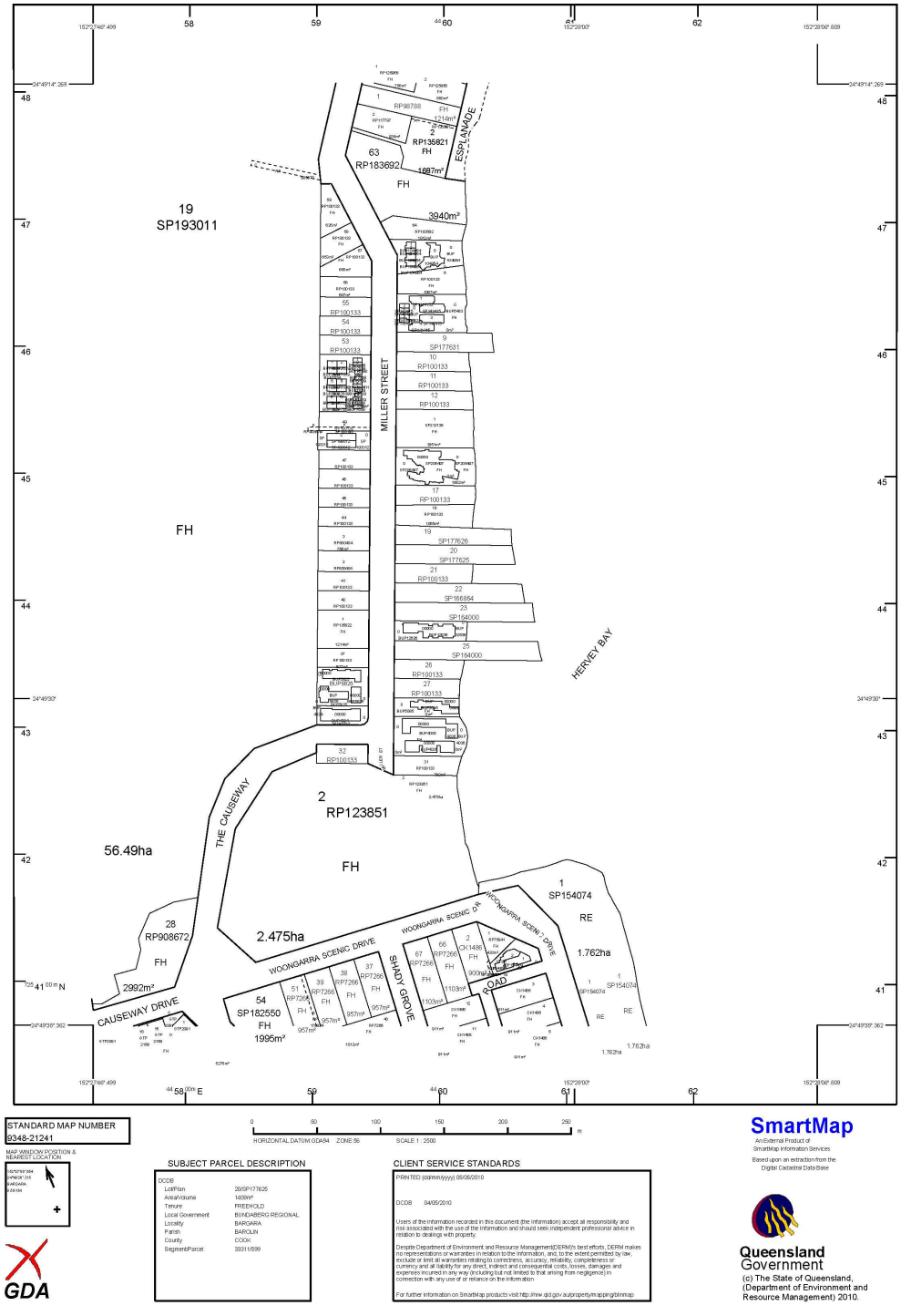
Appendix R

SP104231



Appendix S

Bargara Smart Map



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