LandXML: Deposited Plans But Not As You Know Them

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ABSTRACT

LandXML is an alternative format for information shown in a Deposited Plan (DP), available to surveyors for the lodgement of DPs with Land Registry Services (LRS). The format and opportunity to lodge LandXML files has existed for about 5 years. However, it has not been wholeheartedly adopted by the profession, with its current level of usage falling well short of the expectations of LRS and DFSI Spatial Services. This presentation intends to examine the possible reasons for this and to break down the LandXML concept into something that is relatable to how we currently prepare Deposited Plans. By providing a pathway on how to get started with LandXML, it is hoped to encourage the use of LandXML amongst the profession when preparing and lodging DPs. LandXML is a game-changing development to the status quo of DP preparation, and this presentation demonstrates the many and varied benefits it can provide to surveyors. More information on this topic can be found in the 2017 student thesis 'Software Ingestion of LandXML Files' by Ahmed El-Kiki, available from UNSW at http://www.sage.unsw.edu.au/Textbooks.

KEYWORDS: *LandXML, Deposited Plan, export format, metadata, Land Registry Services, DCDB.*

LandXML

The next generation of ePlan

LandXML (LXML) is replacing TIFF as the file format for digital lodgment of plans in the ePlan portal. LandXML services are available with level 3 ePlan access through the NSW LRS Online portal. For more information see the individual information sheets for approving authorities, developers and surveyors.

Minimum requirements to gain access to these services include a userid and login, with current level 2 access. For more information see the LXML User Guide (PDF 856.8 KB).

The Model and NSW LXML Recipe

Go to the LXML Model page for NSW technical specifications and schema files.

UPDATE JULY 2018

NSW LXML Recipe v9.0 has been finalised and is now available. See the Model and Recipe Page for details.

ePlan LXML Services

Two new services have been deployed in the utilities tab of the ePlan portal to assist surveyors in their development of LXML capability.

1. LXML Validation Service

All ePlan users can now check their plans online for compliance with over 100 business and surveying rules and regulations.

By simply uploading LXML plan files to the validation service, surveyors can have more certainty that their plans will avoid the requisitions that commonly hold up registration.

2. LXML Plan Rendering Service

An online plan rendering service has been deployed for surveyors in the ePlan lodgment portal in SIX to render plan files in LandXML format onto a deposited plan form. It should be noted that the service is currently in a 'prototype' stage and is undergoing significant enhancement work. New versions of the service will be deployed as enhancements are completed. The un-enhanced version has been released for use by surveyors to assist them in resolving issues in LandXML testing and lodgments.

When the rendering service is fully enhanced the lodging surveyor will not need to prepare a TIFF of the plan drawing sheet in most cases. The rendering service will also be available for surveyors to render their plans for use with councils, clients etc any time prior to lodgment.

Until the rendering service is fully enhanced a TIFF file of the plan drawing sheet may also be needed to be lodged to support the LandXML. This practice will continue until NSW LRS can produce a quality formal rendering of the LXML file onto the appropriate plan form.

Current status

To manage LXML Lodgments, the ePlan lodgment page has been redeveloped and all plans lodged in LXML format will be automatically validated and rendered. The lodging surveyor has the option of rejecting or accepting the plan rendering. If the rendering is rejected by the surveyor a TIFF file for the plan drawing sheet will be required to be included in the lodgment bundle before lodgment can proceed. NSW LRS will also have an option of rejecting the rendering at a later stage in the process.

Access to the lodgment of LXML files is restricted to surveyors that have completed testing with the ePlan project team and have been allocated **a new Level 3 ePlan user profile.**

NSW LRS will assist software vendors and surveyors to develop their LandXML functionality and welcomes submission of test LandXML files.

Survey software information

Go to the Software packages contact page for information about survey software packages used in NSW and their LXML capability.

Enquiries

Chris Wilcox 02 9228 6772 or chris.wilcox@nswlrs.com.au

Hwan Choi 02 8236 7028 or Hwan.Choi@nswlrs.com.au

Mark Deal 02 9228 6840 or mark.deal@nswlrs.com.au.

Software package contacts

AutoCAD

Civil Survey Solutions http://www.civilsurveysolutions.com.au provides Stringer ePlan on the following Platforms.
AutoCAD Civil3D
AutoCAD
AutoCAD Map3D
BricsCAD

Software download

http://www.stringersurvey.com.au/index.php/download#stringer-eplan

Stringer ePlan Video

https://www.youtube.com/watch?v=cvosolLQxkE

LXML4AutoCAD

Free LXML plug-in program and YouTube video tutorial

Program Package download

https://drive.google.com/file/d/0B1bC3V_Wc3UqeVp5eDZmOUczWWs/view?usp=sharing

YouTube video tutorial link

https://youtu.be/4avXgUxqek0

Bentley

www.bentley.com/en-au

BricsCAD

www.bricsys.com

Carlson

www.carlsonsw.com

Foresoft

www.foresoft.com

Geocomp GeoCivil/ePSALON

www.geocompconsult.com.au

Geosurvey

www.geodata.com.au

Keays Software

www.keays.com.au

Landmark

www.landmarksoft.com.au

Liscad

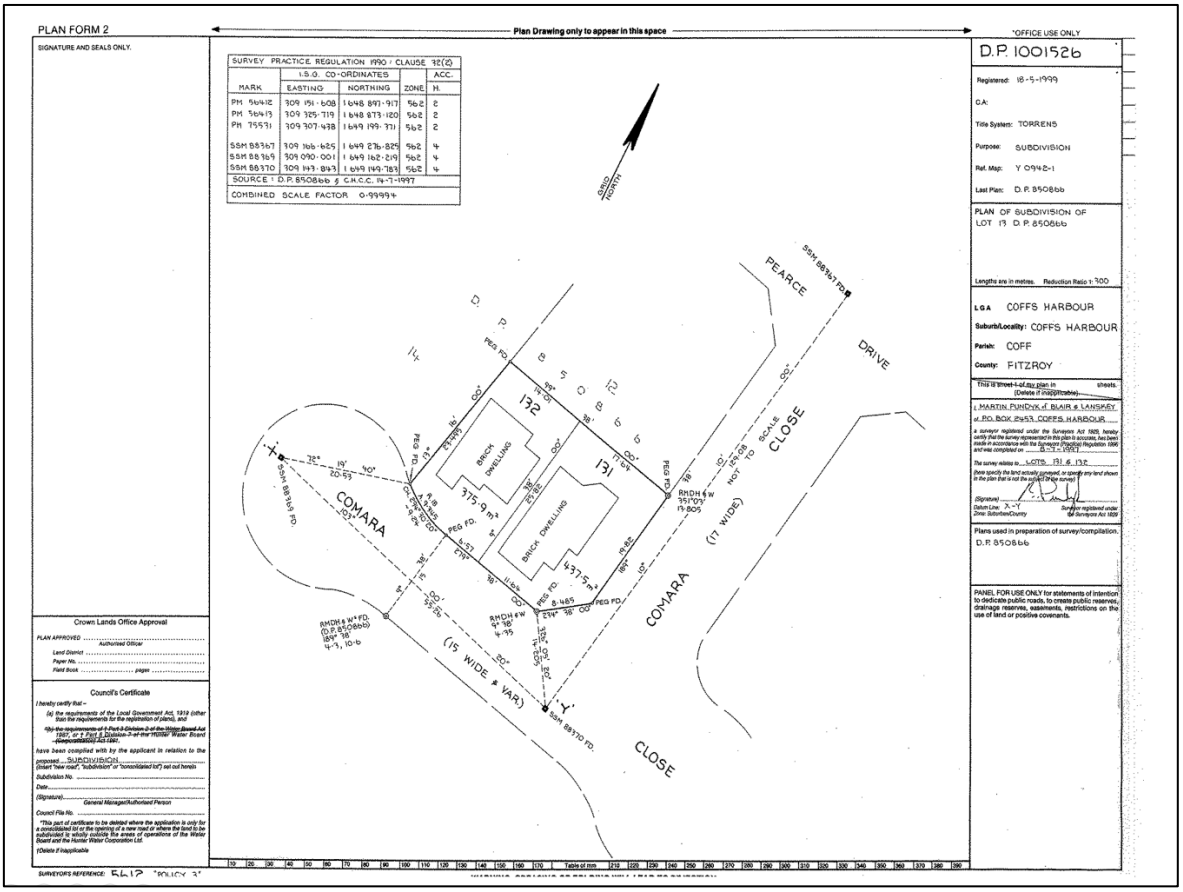
www.listech.com

Magnet Office (formerly Civilcad)

www.positionpartners.com.au

12D

www.12d.com



Land XML

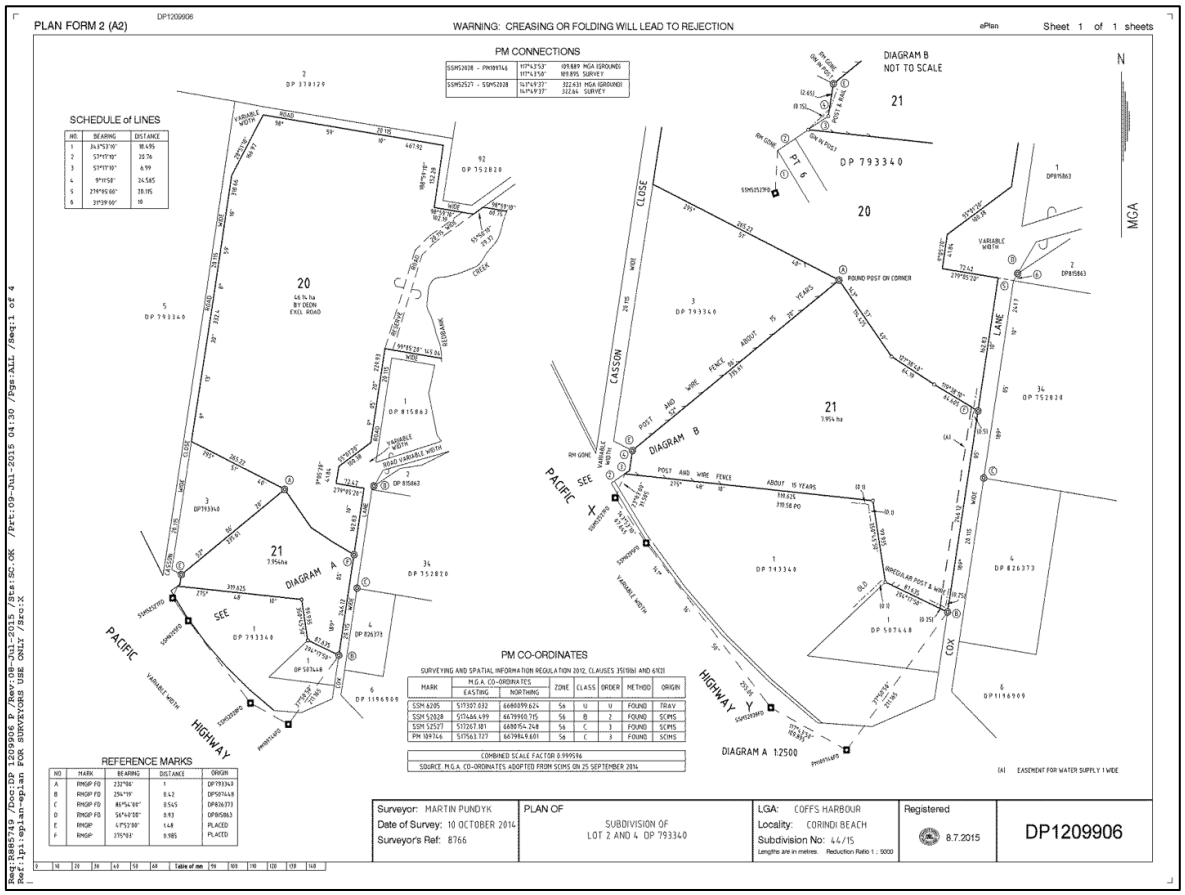
What is it?

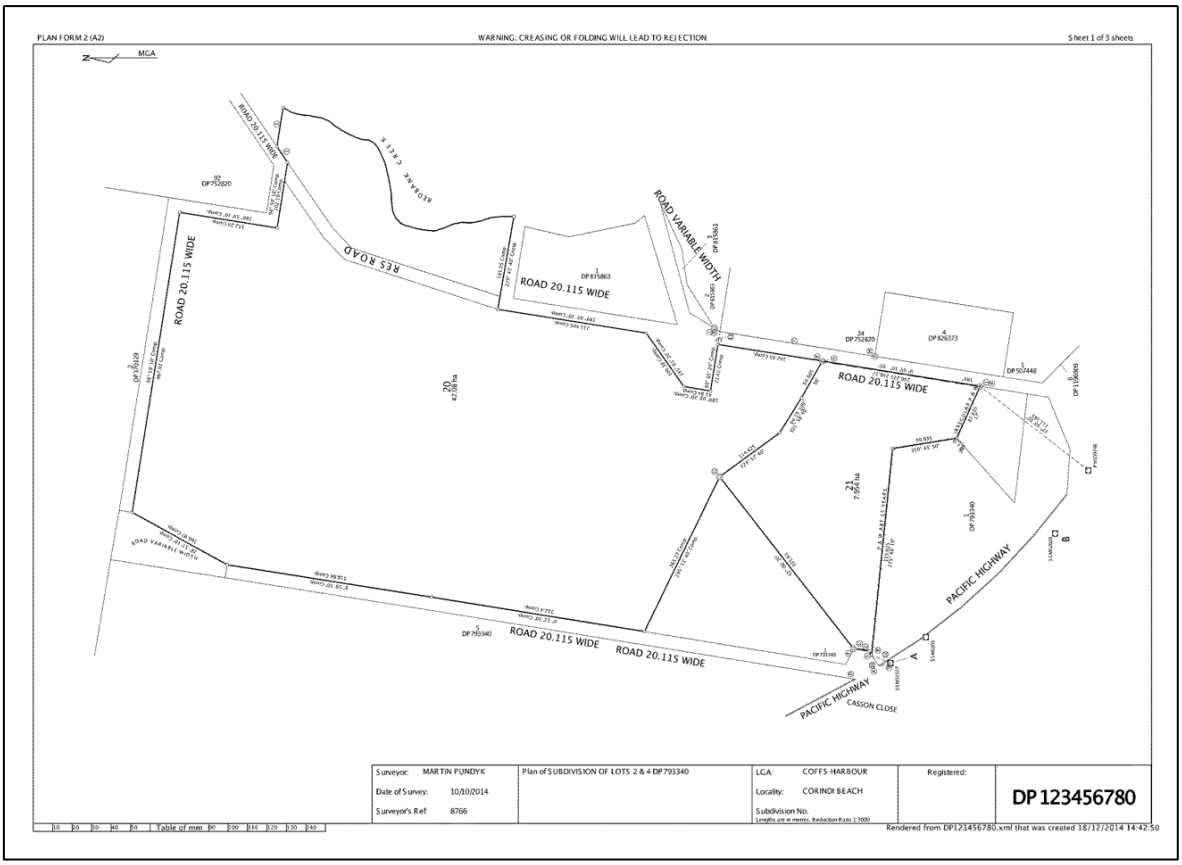
Why should I use it?

How do I use it?

What is it?

- Export format generated by survey software like eg DXF, ASCII, TXT
- XML file contains and conveys all information that is shown in a DP in digital form
- TIFF image required to accompany XML to provide DP information to other users




PLAN FORM 2 (A2)
WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION
Sheet 1 of 3 sheets
MGA
ROAD 20.115 WIDE
RES ROAD
ROAD VARIABLE WIDTH
PACIFIC HIGHWAY
CASSON CLOSE
Surveyor: MARTIN PUNDYK
Date of Survey: 10/10/2014
Surveyor's Ref: 8766
Plan of SUBDIVISION OF LOTS 2 & 4 DP793340
LGA: COFFS HARBOUR
Locality: CORINDI BEACH
Subdivision No.
Registered:
DP 123456780
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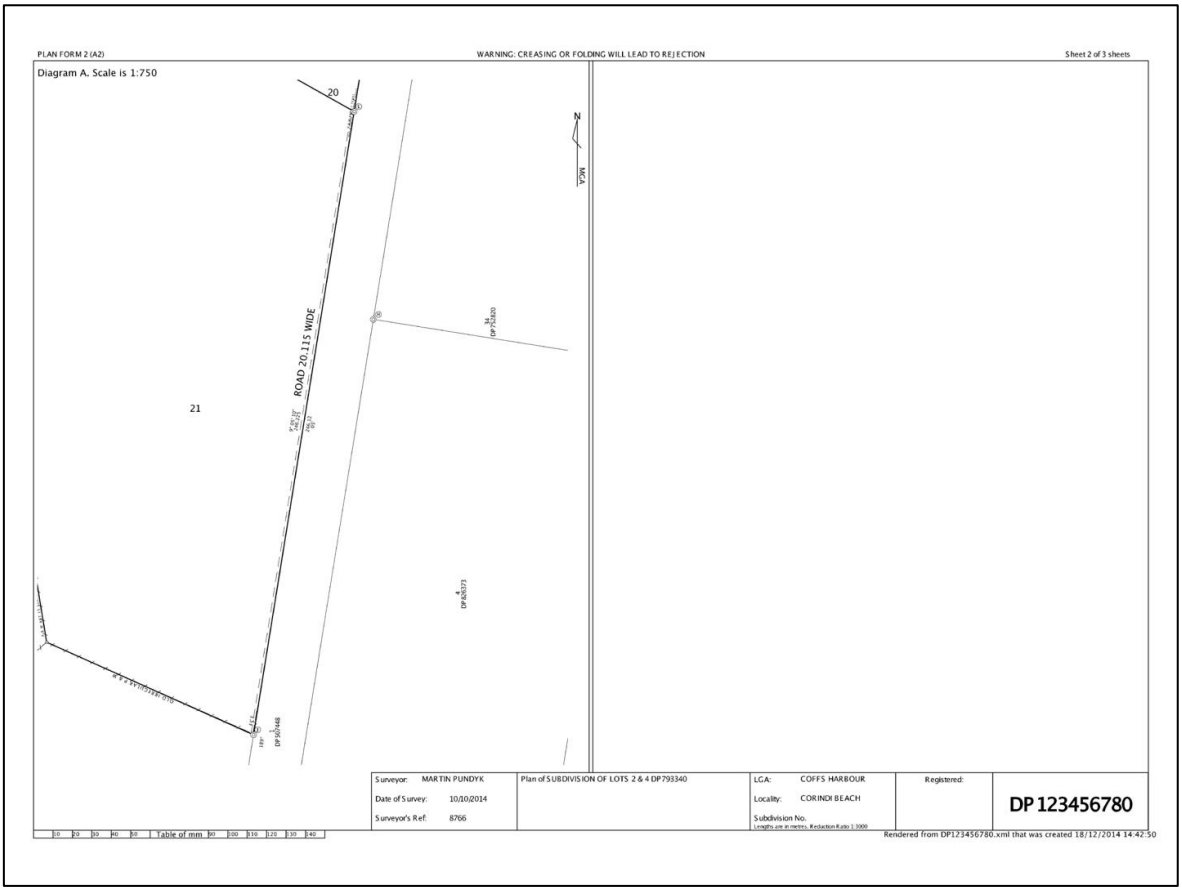
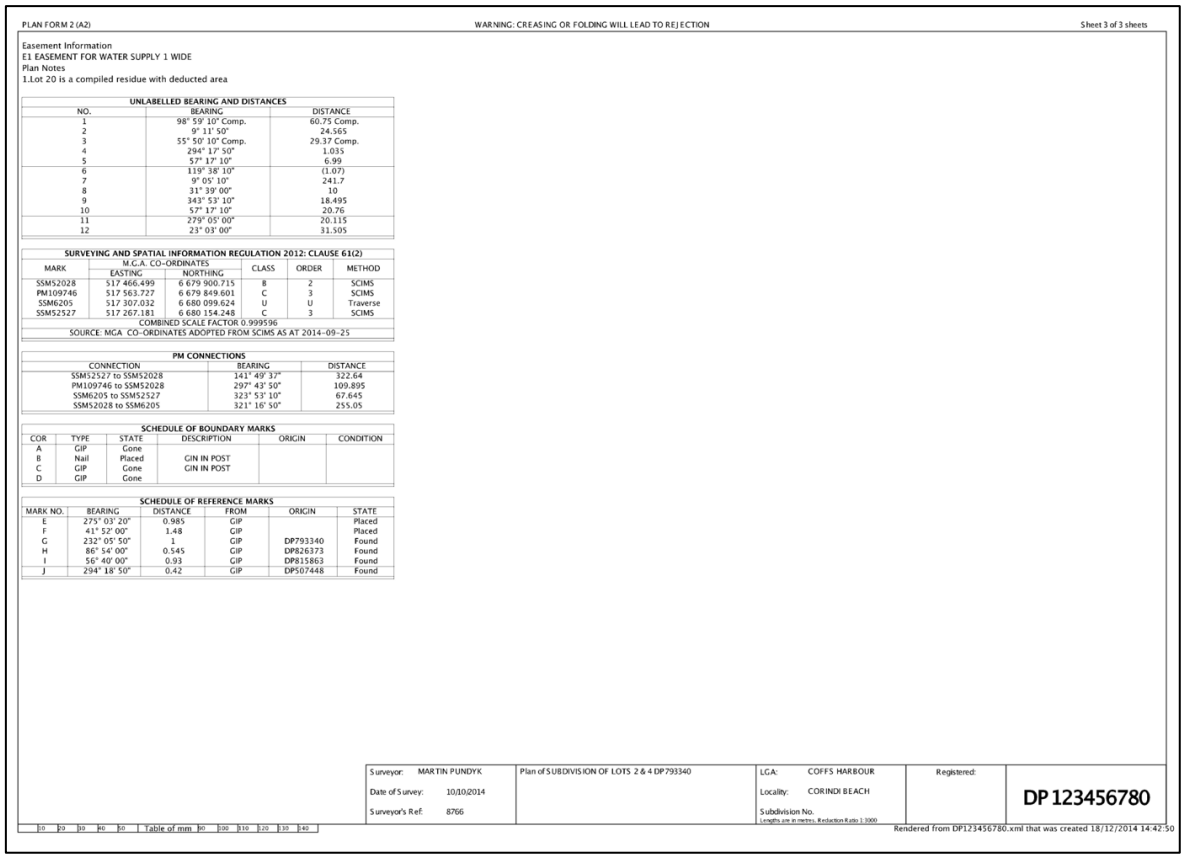

PLAN FORM 2 (A2)
WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION
Sheet 2 of 3 sheets
Diagram A. Scale is 1:750
MGA
ROAD 20.115 WIDE
Surveyor: MARTIN PUNDYK
Date of Survey: 10/10/2014
Surveyor's Ref: 8766
Plan of SUBDIVISION OF LOTS 2 & 4 DP793340
LGA: COFFS HARBOUR
Locality: CORINDI BEACH
Subdivision No.
Registered:
DP 123456780
Rendered from DP123456780.xml that was created 18/12/2014 14:42:50



PLAN FORM 2 (A2) WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION Sheet 3 of 3 sheets

Easement Information
E1 EASEMENT FOR WATER SUPPLY 1 WIDE
Plan Notes
1.Lot 20 is a compiled residue with deducted area

UNLABELLED BEARING AND DISTANCES

NO.	BEARING	DISTANCE
1	98° 59' 10" Comp.	60.75 Comp.
2	9° 11' 50"	24.565
3	55° 50' 10" Comp.	29.37 Comp.
4	294° 17' 50"	1.035
5	57° 17' 10"	6.99
6	119° 38' 10"	(1.07)
7	9° 05' 10"	241.7
8	31° 39' 00"	10
9	343° 53' 10"	18.495
10	57° 17' 10"	20.76
11	279° 05' 00"	20.115
12	23° 03' 00"	31.505

SURVEYING AND SPATIAL INFORMATION REGULATION 2012: CLAUSE 61(2)

MARK	M.G.A. CO-ORDINATES		CLASS	ORDER	METHOD
	EASTING	NORTHING			
SSM52028	517 466.499	6 679 900.715	B	2	SCIMS
PM109746	517 563.727	6 679 849.601	C	3	SCIMS
SSM6205	517 307.032	6 680 099.624	U	U	Traverse
SSM52527	517 267.181	6 680 154.248	C	3	SCIMS

COMBINED SCALE FACTOR 0.999596
SOURCE: MGA CO-ORDINATES ADOPTED FROM SCIMS AS AT 2014-09-25

PM CONNECTIONS

CONNECTION	BEARING	DISTANCE
SSM52527 to SSM52028	141° 49' 37"	322.64
PM109746 to SSM52028	297° 43' 50"	100.895
SSM6205 to SSM52527	323° 53' 10"	67.645
SSM52028 to SSM6205	321° 16' 50"	255.05

SCHEDULE OF BOUNDARY MARKS

COR	TYPE	STATE	DESCRIPTION	ORIGIN	CONDITION
A	GIP	Gone			
B	Nail	Placed	GIN IN POST		
C	GIP	Gone	GIN IN POST		
D	GIP	Gone			

SCHEDULE OF REFERENCE MARKS

MARK NO.	BEARING	DISTANCE	FROM	ORIGIN	STATE
E	275° 03' 20"	0.985	GIP		Placed
F	41° 52' 00"	1.48	GIP		Placed
G	232° 05' 50"	1	GIP	DP793340	Found
H	86° 54' 00"	0.545	GIP	DP826373	Found
I	56° 40' 00"	0.93	GIP	DP815863	Found
J	294° 18' 50"	0.42	GIP	DP507448	Found

Surveyor: MARTIN PUNDYK Date of Survey: 10/10/2014 Surveyor's Ref: 8766	Plan of SUBDIVISION OF LOTS 2 & 4 DP793340	LGA: COFFS HARBOUR Locality: CORINDI BEACH Subdivision No. Lengths are in metres. Reduction Ratio 1:1000	Registered:	DP 123456780

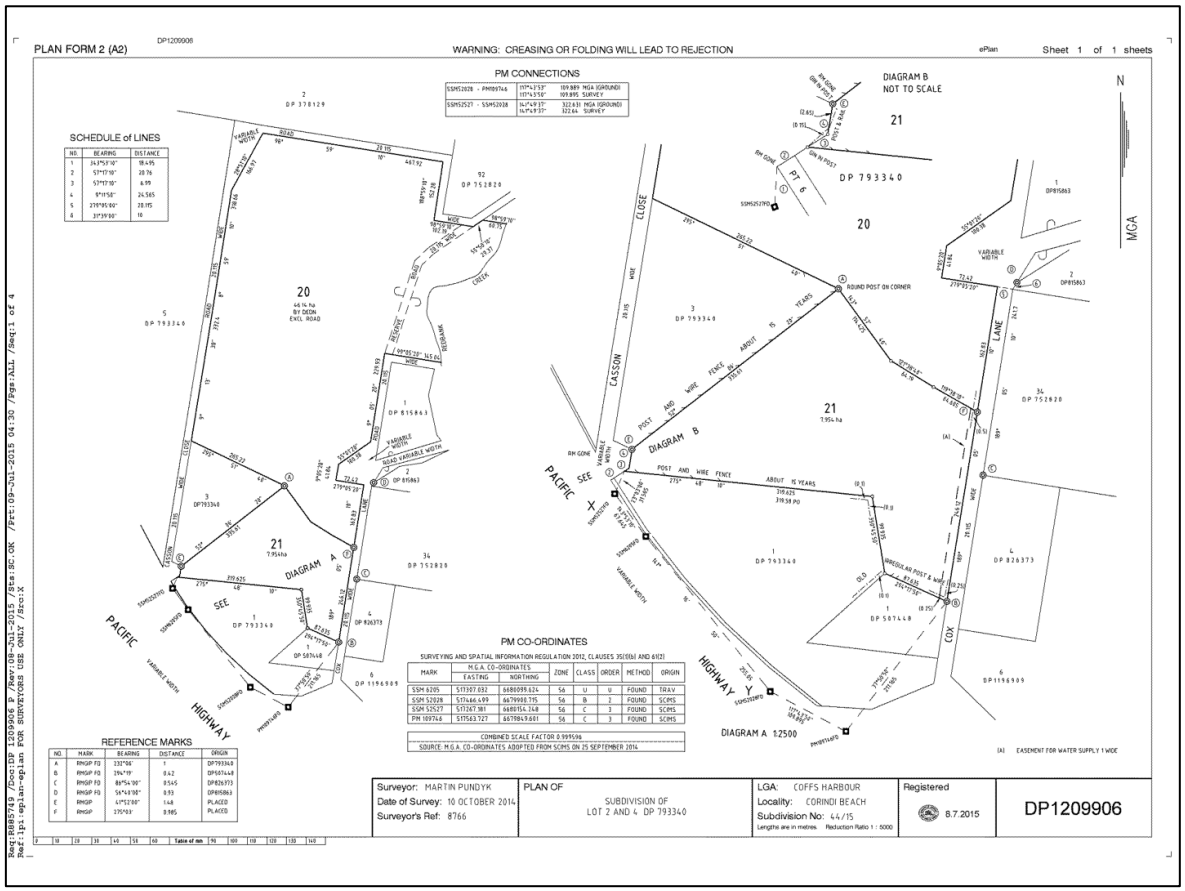
Table of mm 0 100 110 120 130 140
Rendered from DP123456780.xml that was created 18/12/2014 14:42:50

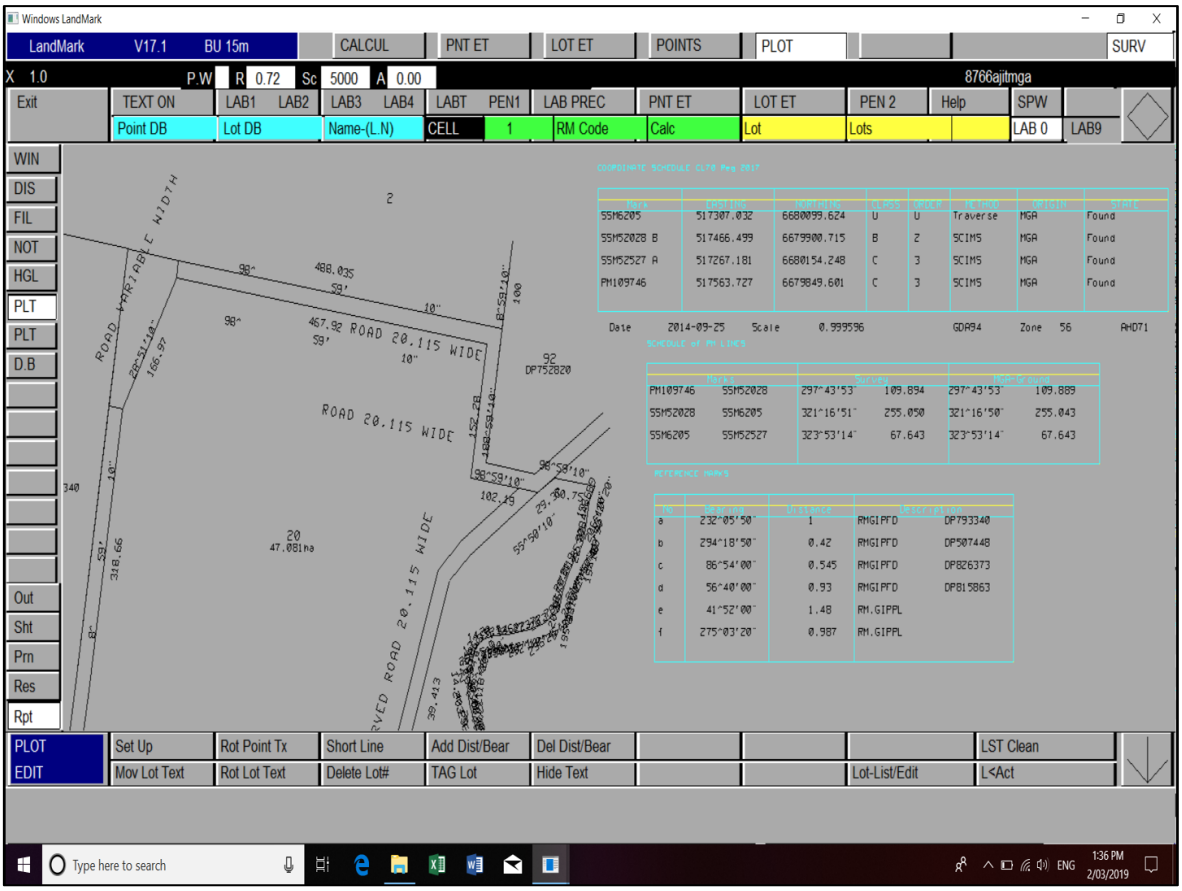
Why should I use it?

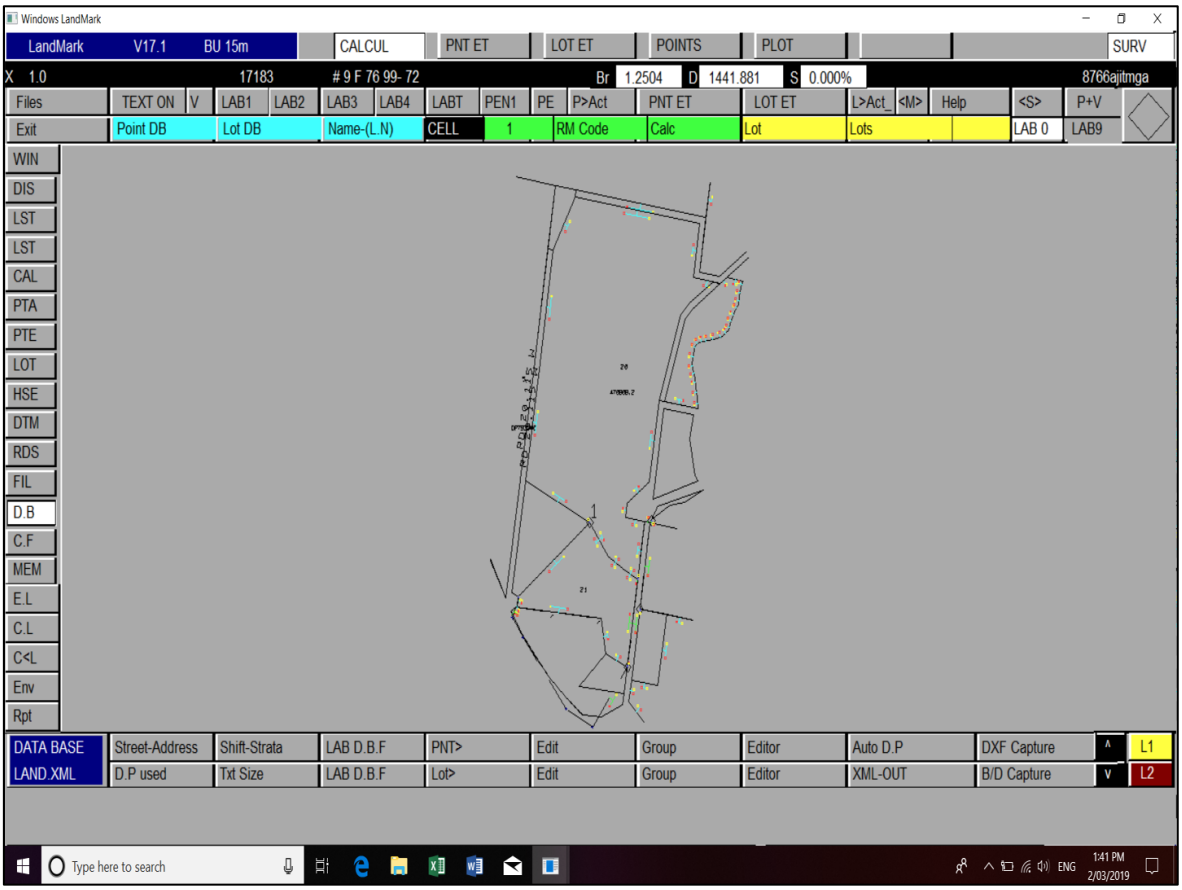
- DP preparation methods
- Integrity of information maintained when exported from survey software to DP TIFF
- DP information is checked by validation
- Faster registration of plans
- DP survey information easily imported/exported
- Greatly reduced potential for requisitions (No Fines)
- Checklists

Survey file – Calculations + Bdy Definition fixed
Plot setup – Linework + dimensions, areas, Pm locations & Rm table
Export to DXF
Import DXF into CAD software – add Planform template & symbols
Print paper draft and add further detail by hand
Issue draft and CAD file to draughtsperson to complete plan
Check plan using Checklist
Lodge Plan via e-plan
Registration

Survey file – Calculations + Bdy Definition fixed
Setup for LandXML file creation
Export to XML file
Validate XML file on LRS website
Plot tiff image on LRS website
Plot setup – Linework + dimensions, areas, Pm & Rm table, Co-ord comparisons, Street names etc
Export to DXF
Import DXF into CAD software – add Planform template
Print paper draft
Issue draft and CAD file to draughtsperson to complete plan
Check plan using Checklist
Lodge Plan & XML file via e-plan
(Faster) Registration




Windows LandMark
LandMark V17.1 BU 15m
CALCUL
PNT ET
LOT ET
POINTS
PLOT
SURV
8766ajitmga
Exit
TEXT ON
LAB1 LAB2 LAB3 LAB4
LABT PEN1
LAB PREC
PNT ET
LOT ET
PEN 2
Help
SPW
Point DB
Lot DB
Name-(L.N)
CELL
RM Code
Calc
Lot
Lots
LAB 0
LAB9
WIN
DIS
FIL
NOT
HGL
PLT
D.B
Out
Sht
Prn
Res
Rpt
ROAD 20.115 WIDE
47.081ha
PLOT
EDIT
Set Up
Rot Point Tx
Short Line
Add Dist/Bear
Del Dist/Bear
LST Clean
Mov Lot Text
Rot Lot Text
Delete Lot#
TAG Lot
Hide Text
Lot-List/Edit
L<Act
Type here to search
ENG
1:36 PM
2/03/2019


Windows LandMark
LandMark V17.1 BU 15m
CALCUL
PNT ET
LOT ET
POINTS
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8766ajitmga
Files
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TEXT ON
LAB1 LAB2 LAB3 LAB4
LABT PEN1 PE
P>Act
PNT ET
LOT ET
L>Act_ <M>
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<S>
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LAB 0
LAB9
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DIS
LST
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D.B
C.F
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C.L
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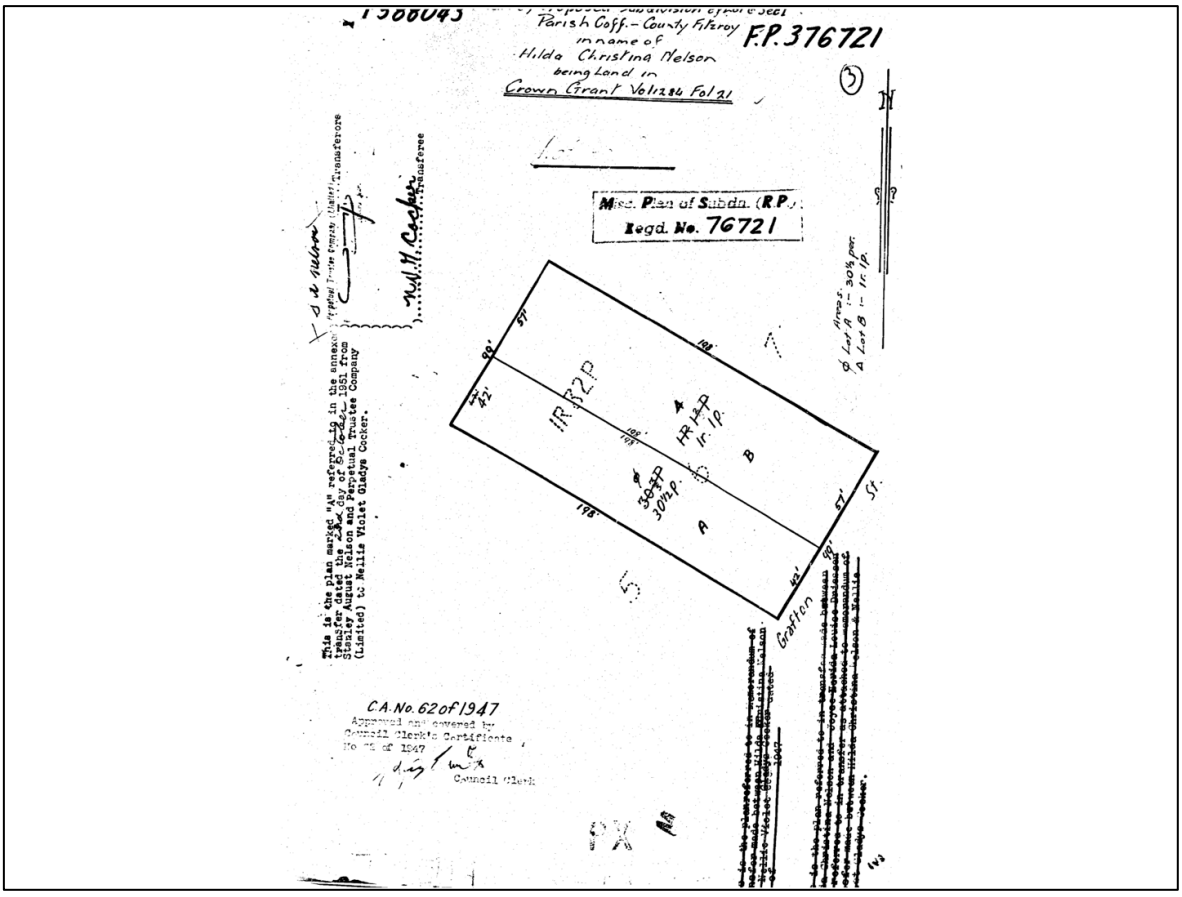
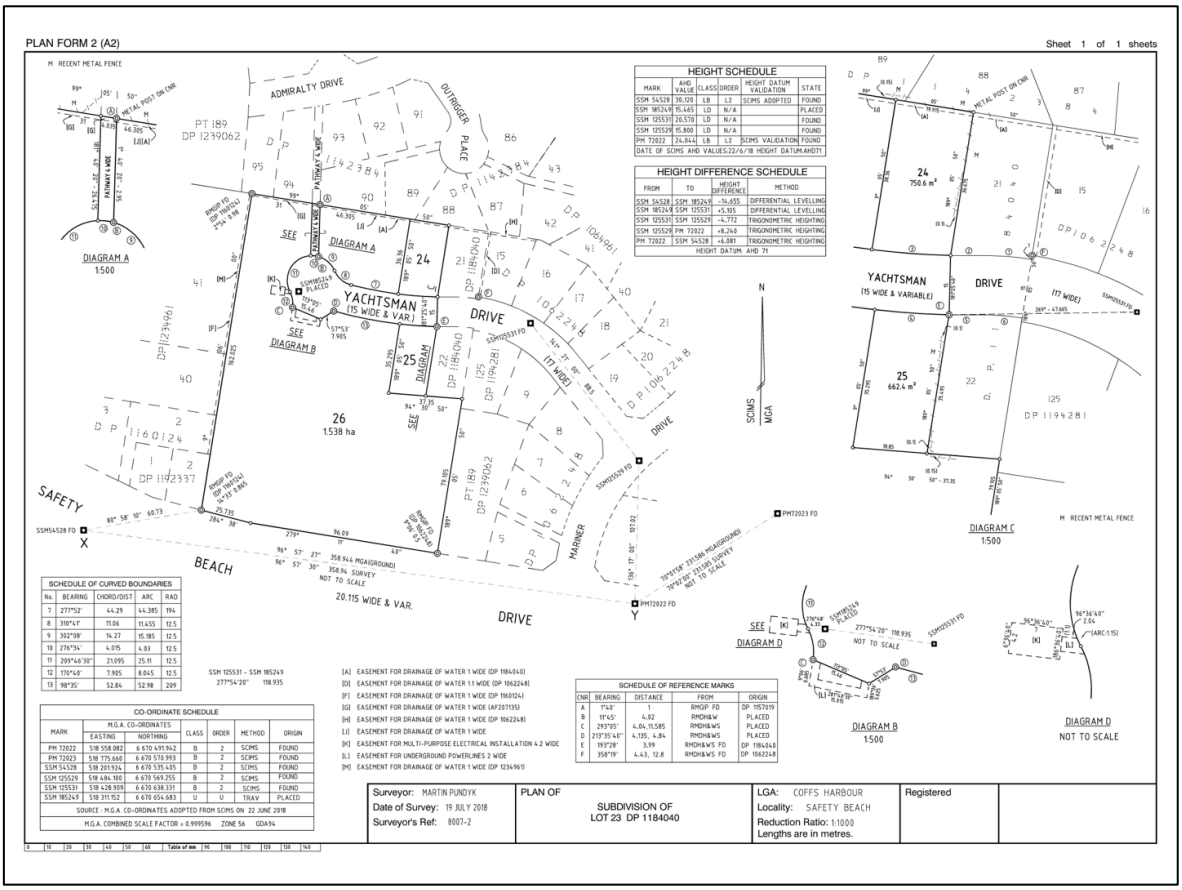
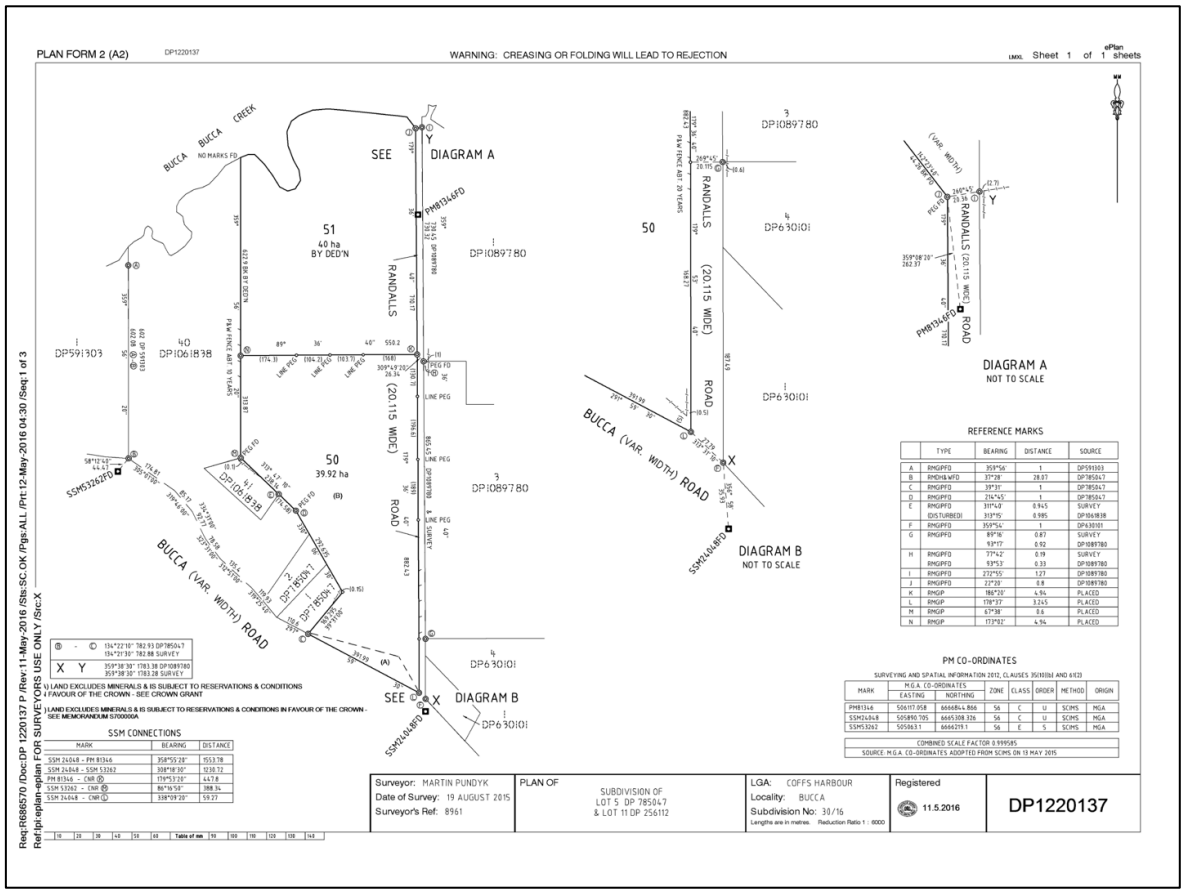
Street-Address
Shift-Strata
LAB D.B.F
PNT>
Edit
Group
Editor
Auto D.P
DXF Capture
L1
D.P used
Txt Size
LAB D.B.F
Lot>
Edit
Group
Editor
XML-OUT
B/D Capture
L2
Type here to search
ENG
1:41 PM
2/03/2019

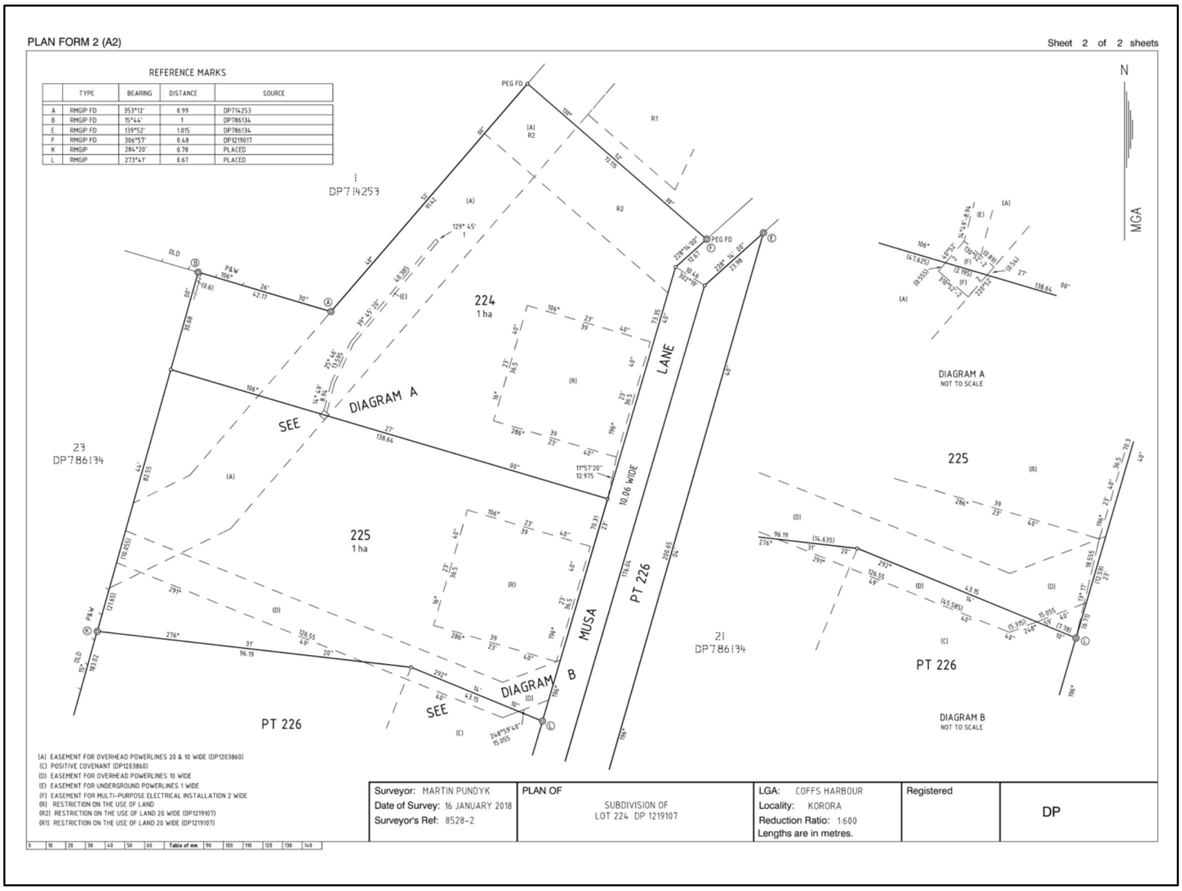

Parish Coff.-County Fitzroy
F.P.376721
Hilda Christina Nelson
being Land in
Crown Grant Vol1286 Fol21
Misc. Plan of Subdn. (R.P.)
Regd. No. 76721
Grafton
C.A. No. 620 of 1947
Approved and covered by
Council Clerk's Certificate
No. 75 of 1947
Council Clerk

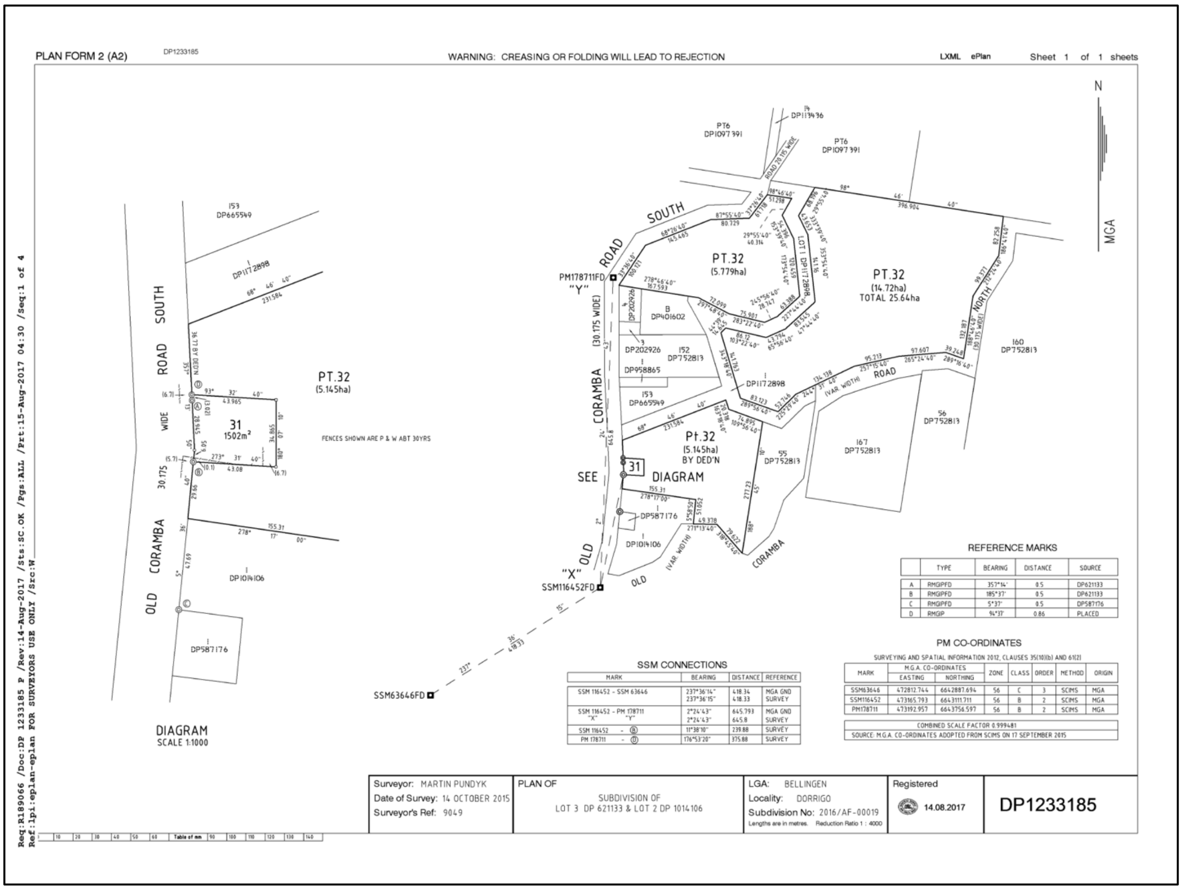

PLAN FORM 2 (A2)
Sheet 1 of 1 sheets
HEIGHT SCHEDULE
HEIGHT DIFFERENCE SCHEDULE
SCHEDULE OF CURVED BOUNDARIES
CO-ORDINATE SCHEDULE
SCHEDULE OF REFERENCE MARKS
ADMIRALTY DRIVE
OUTRIGGER PLACE
YACHTSMAN (15 WIDE & VAR.) DRIVE
SAFETY BEACH
MARINER DRIVE
DIAGRAM A
DIAGRAM B
DIAGRAM C
DIAGRAM D
SURVEY NOT TO SCALE
Surveyor: MARTIN PUNDYK
Date of Survey: 19 JULY 2018
Surveyor's Ref: 8007-2
PLAN OF
SUBDIVISION OF
LOT 23 DP 1184040
LGA: COFFS HARBOUR
Locality: SAFETY BEACH
Reduction Ratio: 1:1000
Lengths are in metres.
Registered

How do I use it?

- Most of the DP information is entered/set up in the survey software
- PMs, RMs, Connections, Easements, Road and Creek names, Adjoining information etc
- Survey points joined with different line types which convey data information to XML file
- Some info has to be shown in a specific way in LXML
- Compiled residue lots with natural feature boundary
- Non MGA azimuth
- Easements
- Part lots




PLAN FORM 2 (A2)
Sheet 2 of 2 sheets
REFERENCE MARKS
DIAGRAM A
DIAGRAM A
NOT TO SCALE
DIAGRAM B
NOT TO SCALE
224
1 ha
225
1 ha
PT 226
MUSA LANE
10.06 WIDE
Surveyor: MARTIN PUNDYK
Date of Survey: 16 JANUARY 2018
Surveyor's Ref: 8528-2
PLAN OF
SUBDIVISION OF
LOT 224 DP 1219107
LGA: COFFS HARBOUR
Locality: KORORA
Reduction Ratio: 1:600
Lengths are in metres.
Registered
DP


PLAN FORM 2 (A2)
DP1233185
WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION
Sheet 1 of 1 sheets
PT.32
(5.779ha)
PT.32
(14.72ha)
TOTAL 25.64ha
Pt.32
(5.145ha)
BY DED'N
SEE
DIAGRAM
OLD CORAMBA ROAD SOUTH
DIAGRAM
SCALE 1:1000
REFERENCE MARKS
SSM CONNECTIONS
PM CO-ORDINATES
Surveyor: MARTIN PUNDYK
Date of Survey: 14 OCTOBER 2015
Surveyor's Ref: 9049
PLAN OF
SUBDIVISION OF
LOT 3 DP 621133 & LOT 2 DP 1014106
LGA: BELLINGEN
Locality: DORRIGO
Subdivision No: 2016/AF-00019
Registered
14.08.2017
DP1233185

Lodging XML files for registration

- File is validated as part of the lodgement
- Checked by the Land XML team at LRS for any structural issues and comparison with TIFF
- Plan examiners run file through software called Plantest which compares XML with the base plan and other plans used in the survey. Plantest can automatically adjust for differing azimuths in each plan. Any issues outside tolerances are identified and reported.
- If there are no requisitions plan sent for registration
- XML file is sent to Spatial Services in Bathurst to update the DCDB

Non-XML plans & DP back capture

- Newly registered DPs not in XML and Existing DPs are being converted to LandXML by Spatial Services Bathurst
- Currently abt 300k and forecast to be completed in 3-4 years
- Contact LandXML team to search the XML repository for XML files near your survey
- Eventually will be able to be ordered from your search provider