ITOOLS CADASTRAL PROCESSING SYSTEM

Landsoft Sdn Bhd

Mr. Yap & Ms. Kayvie

ITOOLS INTRODUCTION

- iTooLS can be considered as Data Conversion Tools, which is convert the Hardcopy FieldBook in to Digital Form.
  - Data Key in for Field Data (measured Line), PO Lines
  - With graphic
- iTooLS also used to process the Field Data,
  - Definition of Coordinate, Traverse, Lot, Missing Line
  - Computation of Traverse/Lot Misclose, Missing Line, PO & New Comparison, Datum & Refixation.
- iTooLS will be able to generate the ASCII files as per Jupem required format.

WHY USING ITOOLS

- iTooLS can convert all the RAW data in conventional method to digital form
- User Friendly, easy understanding and faster to key in as our data entry form design is similar to the conventional Field Book.
- Linked Graphic display
- All the computation will be done by iTooLS, no more manual calculation
- Easier checking with reports.

REQUIREMENT

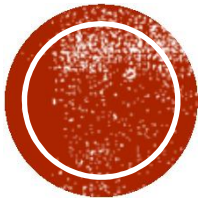
- Compatibility with Window 7 or above
- 32/64 bit OS
- Installation on Desktop PC or Note Book
- Microsoft Office (optional for reporting)
- PDF Reader (optional for reporting)

ITOOLS FEATURES

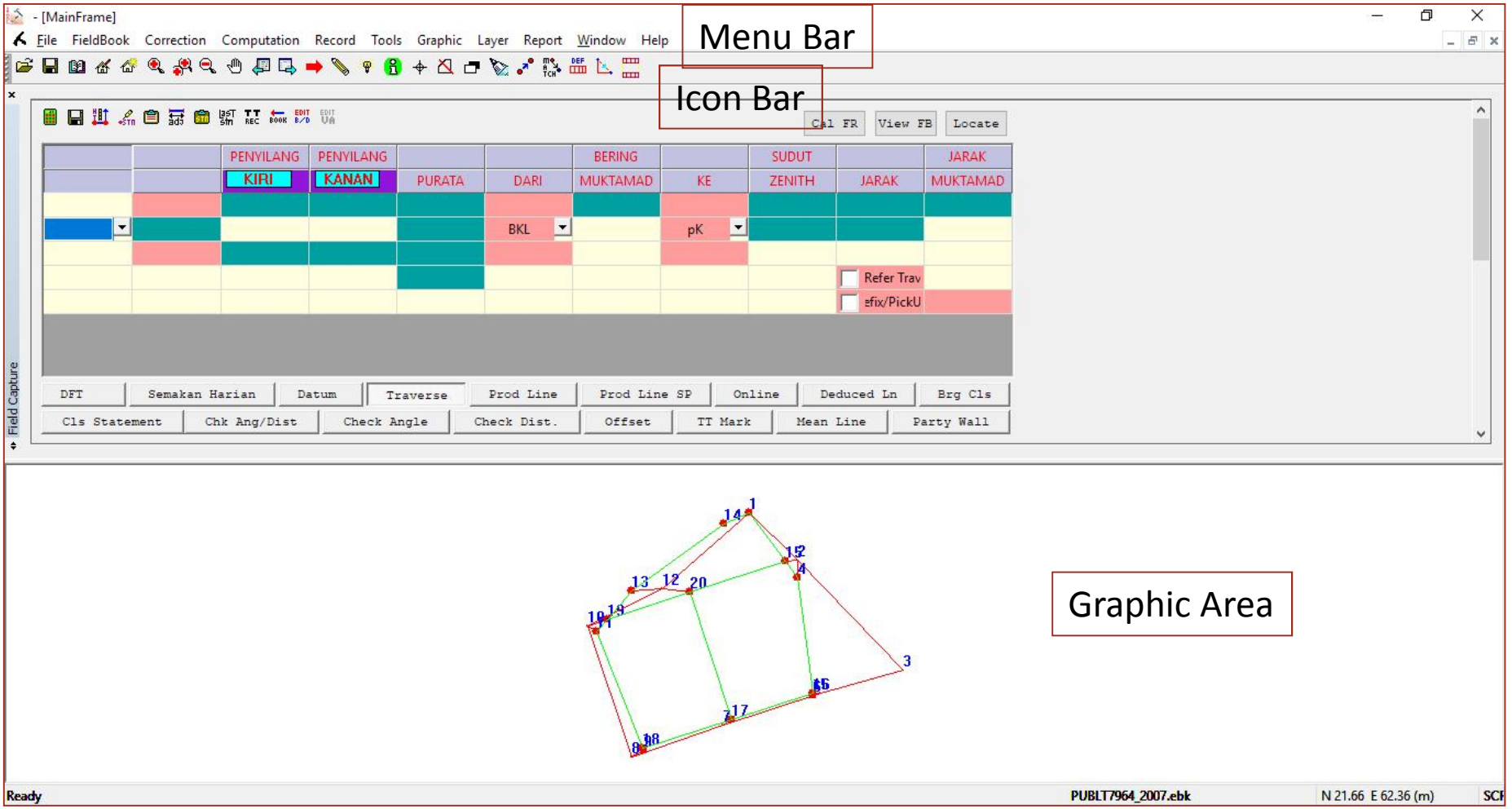
1. Job Information Entry
2. Data Entry
   - Sun Observation (If any)
   - Field data
     - DFT
     - Datum
     - Traverse / Online Point / Offset Details
     - Check Angle & Distance
     - Bearing Close
     - Close Statement
   - PO Line
   - Precomp Area (if do not have PU ASCII Return from J2u)
3. Data Editing

4. C or M Correction
5. Definition
   - Coordinate
   - Traverse
   - Lot
   - Direct Line (Missing Line)
   - Connection Line (If any)
6. Computation
   - Traverse
   - Direct Line
   - Lot
   - Coordinate
   - Area Comparison

7. Baseline & Refixation
   - PO & New Comparison
   - PO Adjustment & Refixation
8. Bookkeeping
   - Date Time of Observation Record
   - Sequence of Observation Record
9. Import & Export
   - Import PU ASCII (Precomp ASCII) for Area Comparison
   - Export 16 ASCII file (Compliant with DIGITAL ASCII files by Jupem)
   - Export DXF File (Sketch)

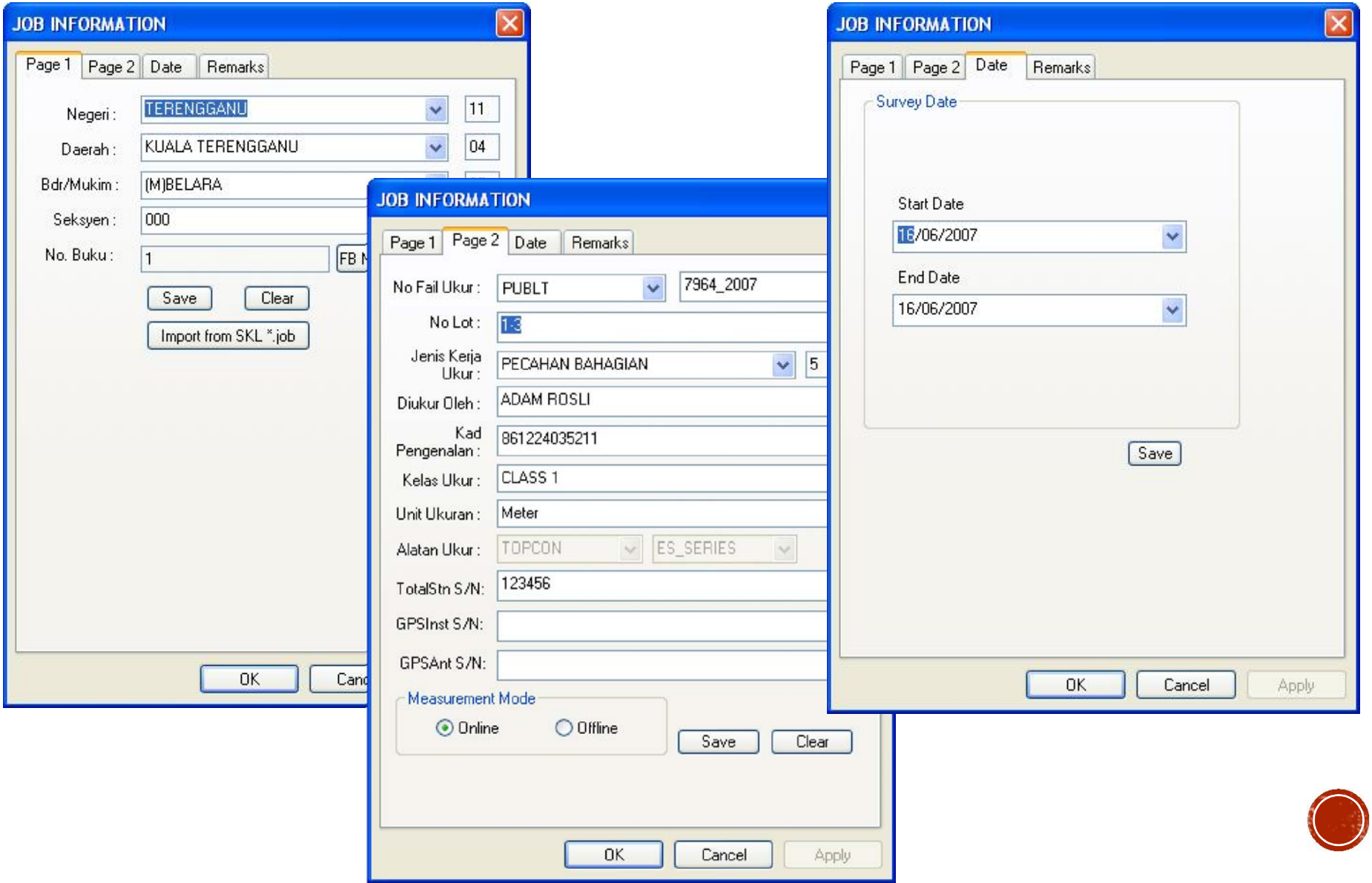


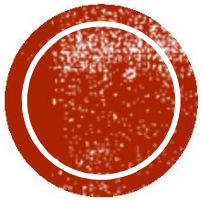
ITOOLS OVERVIEW


- [MainFrame]
File FieldBook Correction Computation Record Tools Graphic Layer Report Window Help
Menu Bar
Icon Bar
Cal FR
View FB
Locate
PENYILANG KIRI
PENYILANG KANAN
PURATA
DARI
BERING MUKTAMAD
KE
SUDUT ZENITH
JARAK
JARAK MUKTAMAD
BKL
pK
Refer Trav
efix/PickU
Field Capture
DFT
Semakan Harian
Datum
Traverse
Prod Line
Prod Line SP
Online
Deduced Ln
Brg Cls
Cls Statement
Chk Ang/Dist
Check Angle
Check Dist.
Offset
TT Mark
Mean Line
Party Wall
Graphic Area
Ready
PUBLT7964_2007.ebk
N 21.66 E 62.36 (m)

JOB INFORMATION

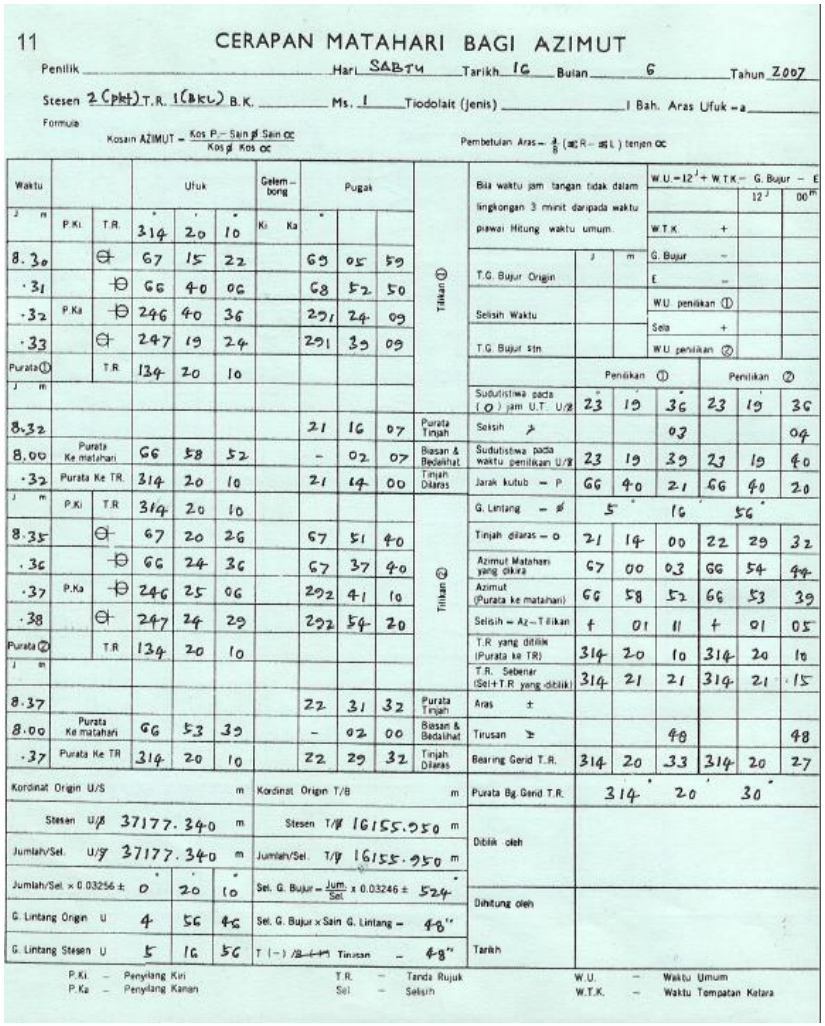
This information will be generated in file *.FAH





DATA ENTRY & PROCESSING

SUN OBSERVATION RECORD IN FIELD BOOK (CONVENTIONAL METHOD)



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CERAPAN MATAHARI BAGI AZIMUT

Penilik _____ Hari SABTU Tarikh 16 Bulan 6 Tahun 2007

Stesen 2 (Pkt) T.R. 1 (BKL) B.K. _____ Ms. 1 Tiodolait (Jenis) _____ I Bah. Aras Ufuk = a _____

Formula

Kosain AZIMUT = $\frac{\text{Kos P} - \text{Sain } \phi \text{ Sain oc}}{\text{Kos } \phi \text{ Kos oc}}$ Pembetulan Aras = $\frac{a}{6}$ (oc R − oc L) tenjen oc

Waktu			Ufuk			Gelembong	Pugak				Bila waktu jam tangan tidak dalam lingkongan 3 minit daripada waktu piawai Hitung waktu umum.	W.U. = 12^j + W.T.K. − G. Bujur − E		
j m	P.Ki.	T.R.	°	'	"	Ki Ka	°	'	"				12^j	00^m
8.30		⊖	67	15	22		69	05	59	Tiikan ①		W.T.K. +		
.31		⊖	66	40	06		68	52	50		T.G. Bujur Origin	j m	G. Bujur −	
.32	P.Ka	⊖	246	40	36		291	24	09		Selisih Waktu		E −	
.33		⊖	247	19	24		291	39	09		T.G. Bujur stn		W.U. penilikan ①	
Purata ①		T.R	134	20	10								Sela +	
j m													W.U. penilikan ②	
												Penilikan ①		Penilikan ②
8.32							21	16	07	Purata Tinjah	Sudutistiwa pada (O) jam U.T. U/B	23 ° 19 ' 36 "	23 19 36	
8.00	Purata Ke matahari		66	58	52		−	02	07	Biasan & Bedalihat	Selisih ⊁	03		04
.32	Purata Ke TR.		314	20	10		21	14	00	Tinjah Dilaras	Sudutistiwa pada waktu penilikan U/B	23 19 39	23 19	40
j m	P.Ki	T.R	314	20	10						Jarak kutub − P	66 40 21	66 40	20
8.35		⊖	67	20	26		67	51	40	Tiikan ②	G. Lintang − ϕ	5 ° 16 ' 56 "		
.36		⊖	66	24	36		67	37	40		Tinjah dilaras − o	21 14 00	22 29	32
.37	P.Ka	⊖	246	25	06		292	41	10		Azimut Matahari yang dikira	67 00 03	66 54	44
.38		⊖	247	24	29		292	56	20		Azimut (Purata ke matahari)	66 58 52	66 53	39
Purata ②		T.R	134	20	10						Selisih = Az − T.Iikan	+ 01 11	+ 01	05
j m											T.R yang ditiiik (Purata ke TR)	314 20 10	314 20	10
8.37							22	31	32	Purata Tinjah	T.R. Sebenar (Sel+T.R yang diblik)	314 21 21	314 21	15
8.00	Purata Ke matahari		66	53	39		−	02	00	Biasan & Bedalihat	Aras ±			
.37	Purata Ke TR		314	20	10		22	29	32	Tinjah Dilaras	Tirusan ⊁	48		48
											Bearing Gerid T.R.	314 ° 20 ' 33 "	314 20	27
											Purata Bg. Gerid T.R.	314 ° 20 ' 30 "		

Kordinat Origin U/S	m	Kordinat Origin T/B	m
Stesen U/B 37177.340	m	Stesen T/B 16155.950	m
Jumlah/Sel. U/B 37177.340	m	Jumlah/Sel. T/B 16155.950	m
Jumlah/Sel. × 0.03256 ± 0 ° 20 ' 10 "		Sel. G. Bujur = $\frac{\text{Jum.}}{\text{Sel}}$ × 0.03246 ± 524 "	
G. Lintang Origin U 4 56 46		Sel. G. Bujur × Sain G. Lintang = 48"	
G. Lintang Stesen U 5 16 56		T (−) /24 Tinusan − 48"	

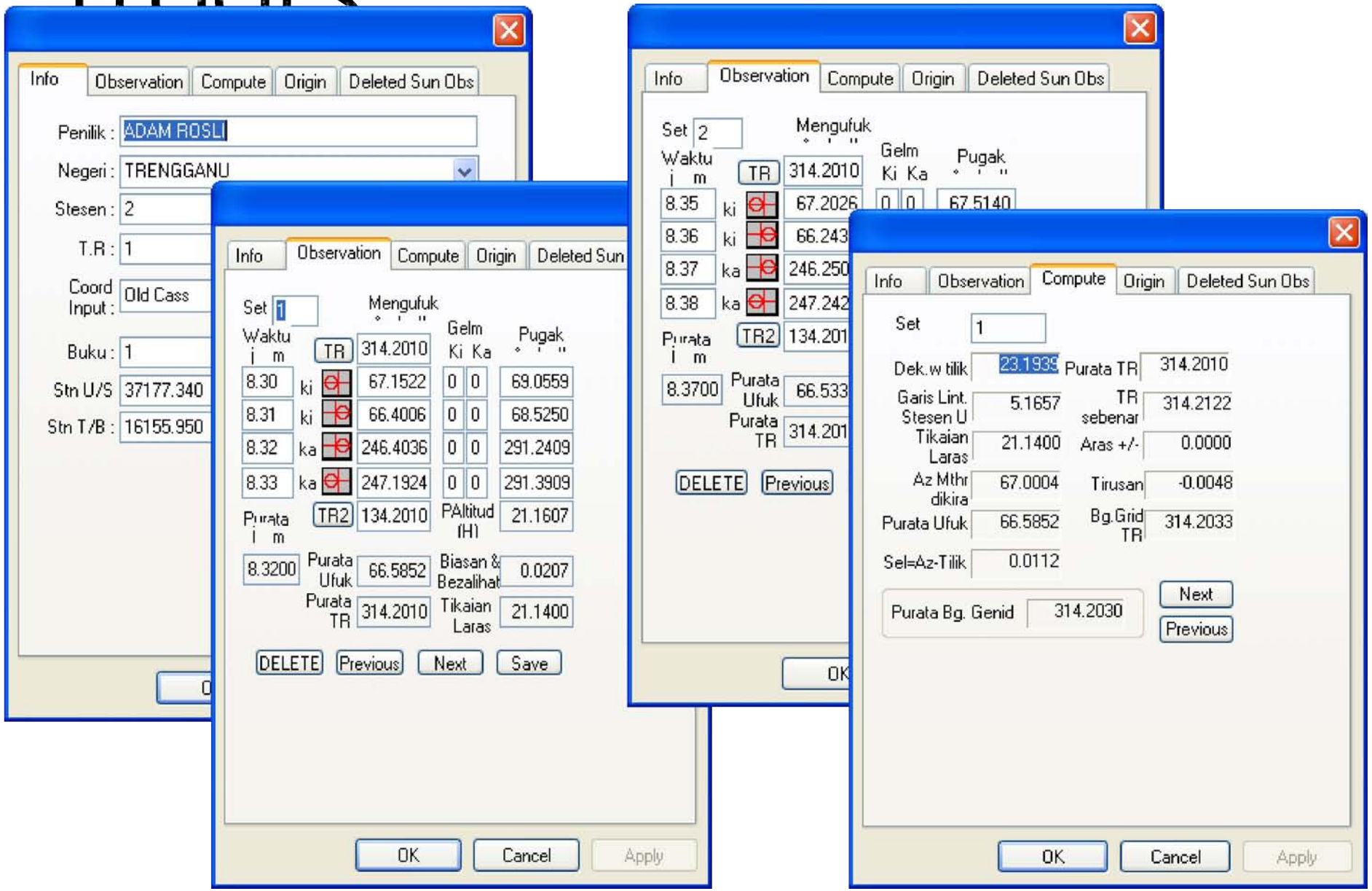
Dibiik oleh

Dihitung oleh

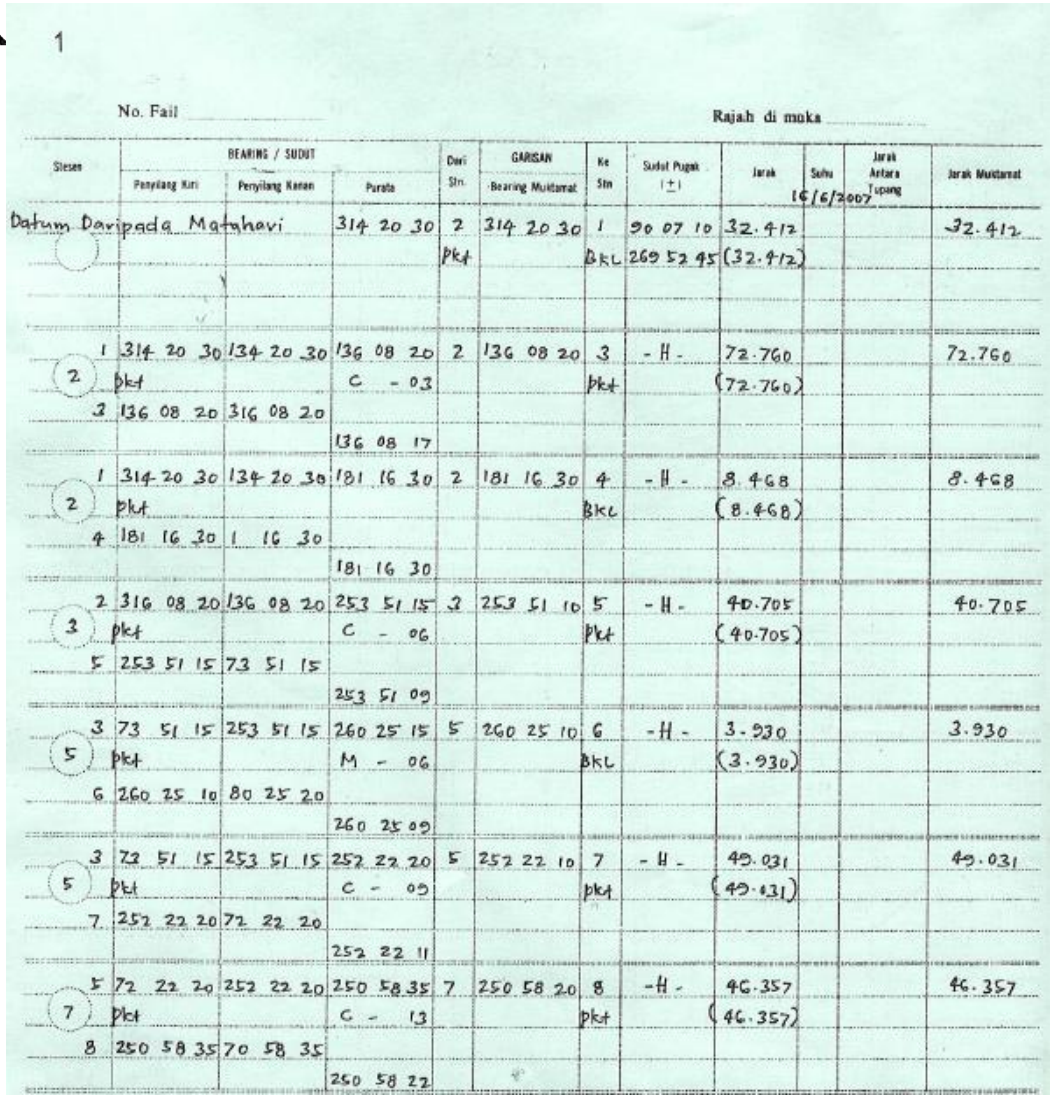
Tarikh

P.Ki. – Penyilang Kiri
P.Ka – Penyilang Kanan
T.R. – Tanda Rujuk
Sel – Selisih
W.U. – Waktu Umum
W.T.K. – Waktu Tempatan Ketara

SUN OBSERVATION ENTRY IN ITOOLS



FIELD DATA BOOKING IN CONVENTIONAL FIELD BOOK

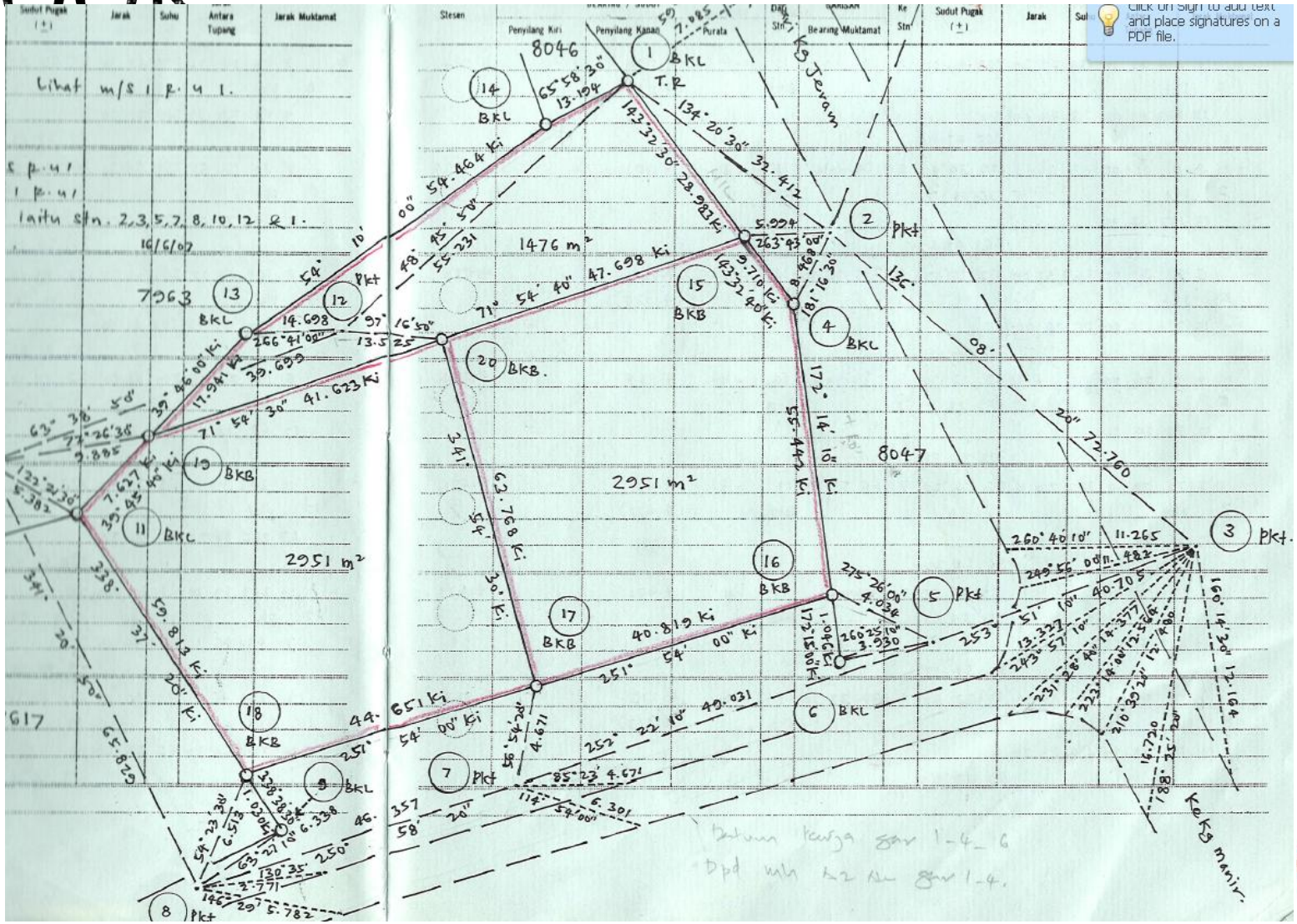


1

No. Fail _____ Rajah di muka _____

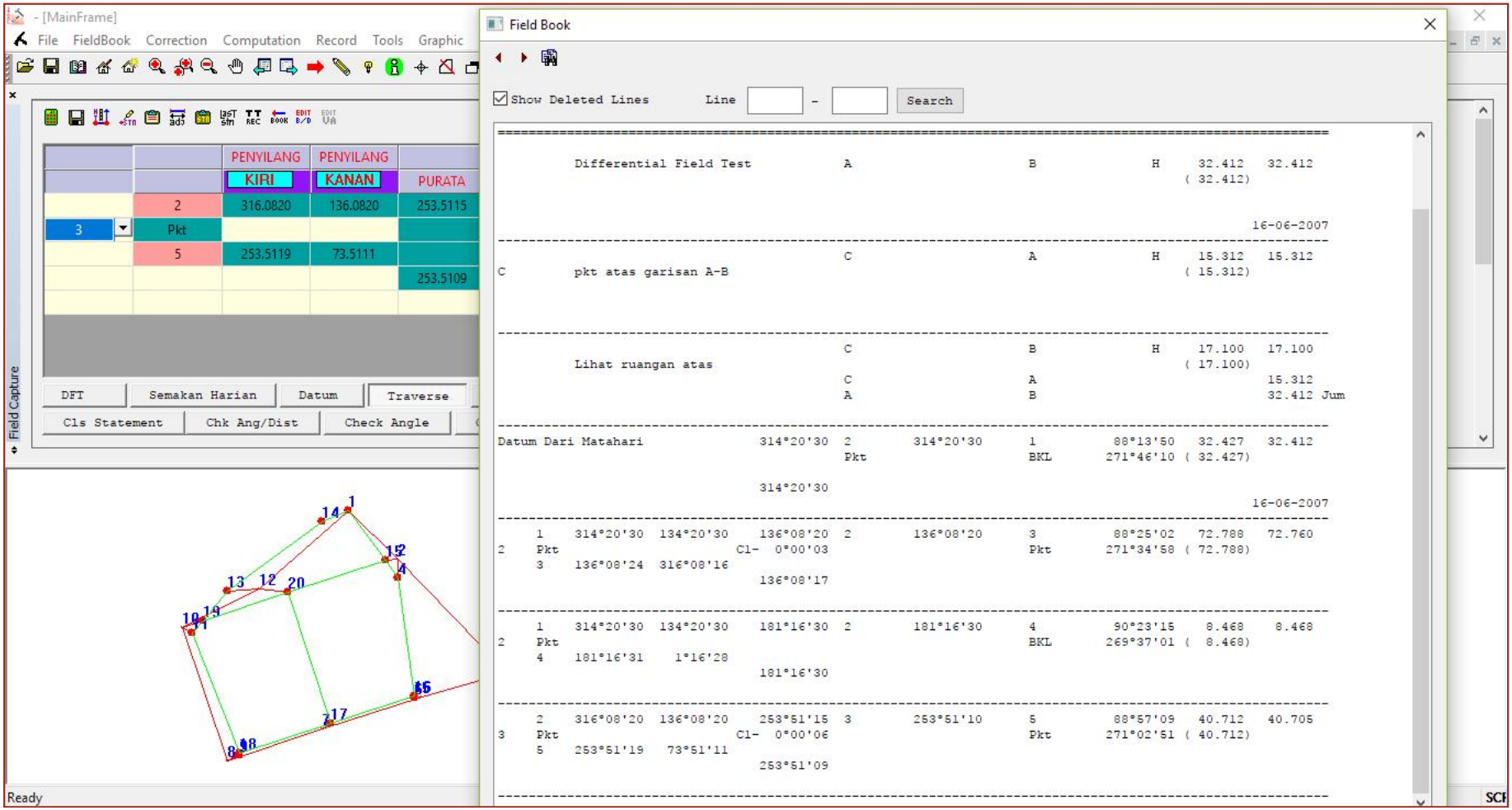
Stesen	BEARING / SUDUT			Dari Stn.	GARISAN	Ke Stn	Sudut Pugak (±)	Jarak	Suhu 16/6/2007	Jarak Antara Tiang	Jarak Muktamat
	Penyilang Kiri	Penyilang Kanan	Purata		Bearing Muktamat						
Datum Daripada Matahevi			314 20 30	2	314 20 30	1	90 07 10	32.412			32.412
				Pkt		BKL	269 52 45	(32.412)			
1	314 20 30	134 20 30	136 08 20	2	136 08 20	3	- H -	72.760			72.760
2	pkt		C - 03			pkt		(72.760)			
3	136 08 20	316 08 20									
			136 08 17								
1	314 20 30	134 20 30	181 16 30	2	181 16 30	4	- H -	8.468			8.468
2	pkt					BKL		(8.468)			
4	181 16 30	1 16 30									
			181 16 30								
2	316 08 20	136 08 20	253 51 15	3	253 51 10	5	- H -	40.705			40.705
3	pkt		C - 06			pkt		(40.705)			
5	253 51 15	73 51 15									
			253 51 09								
3	73 51 15	253 51 15	260 25 15	5	260 25 10	6	- H -	3.930			3.930
5	pkt		M - 06			BKL		(3.930)			
6	260 25 10	80 25 20									
			260 25 09								
3	72 51 15	253 51 15	252 22 20	5	252 22 10	7	- H -	49.031			49.031
5	pkt		C - 05			pkt		(49.031)			
7	252 22 20	72 22 20									
			252 22 11								
5	72 22 20	252 22 20	250 58 35	7	250 58 20	8	- H -	46.357			46.357
7	pkt		C - 13			pkt		(46.357)			
8	250 58 35	70 58 35									
			250 58 22								

TRAVERSE OR LOT SKETCH IN CONVENTIONAL FIELD BOOK

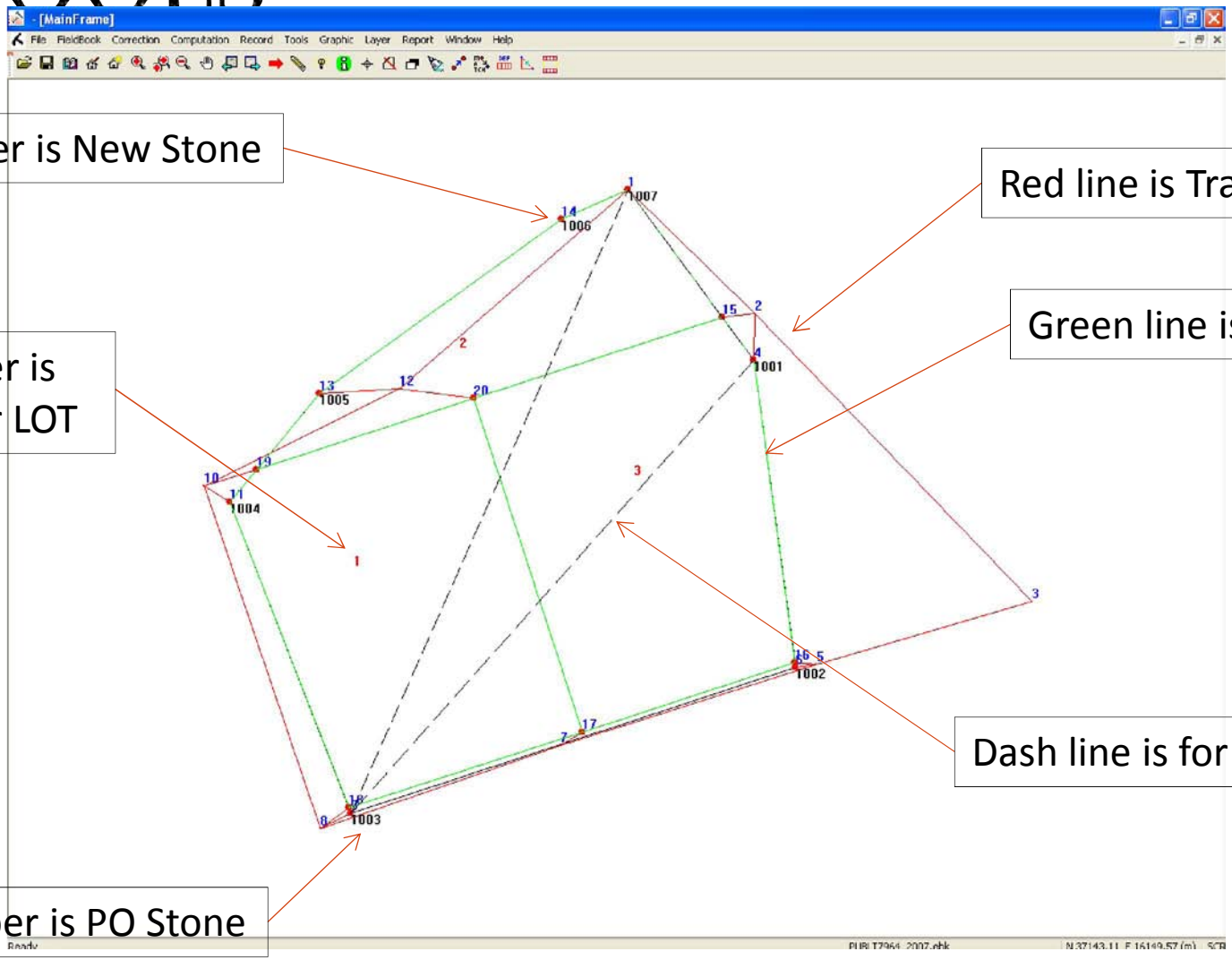


FIELD DATA ENTRY, FIELD BOOK & SKETCH IN ITOOLS

Field Book & Sketch will be auto generated



SKETCH DIGITAL ASCII IN ITOOLS



Blue Number is New Stone

Red line is Traverse

Red Number is for Number LOT

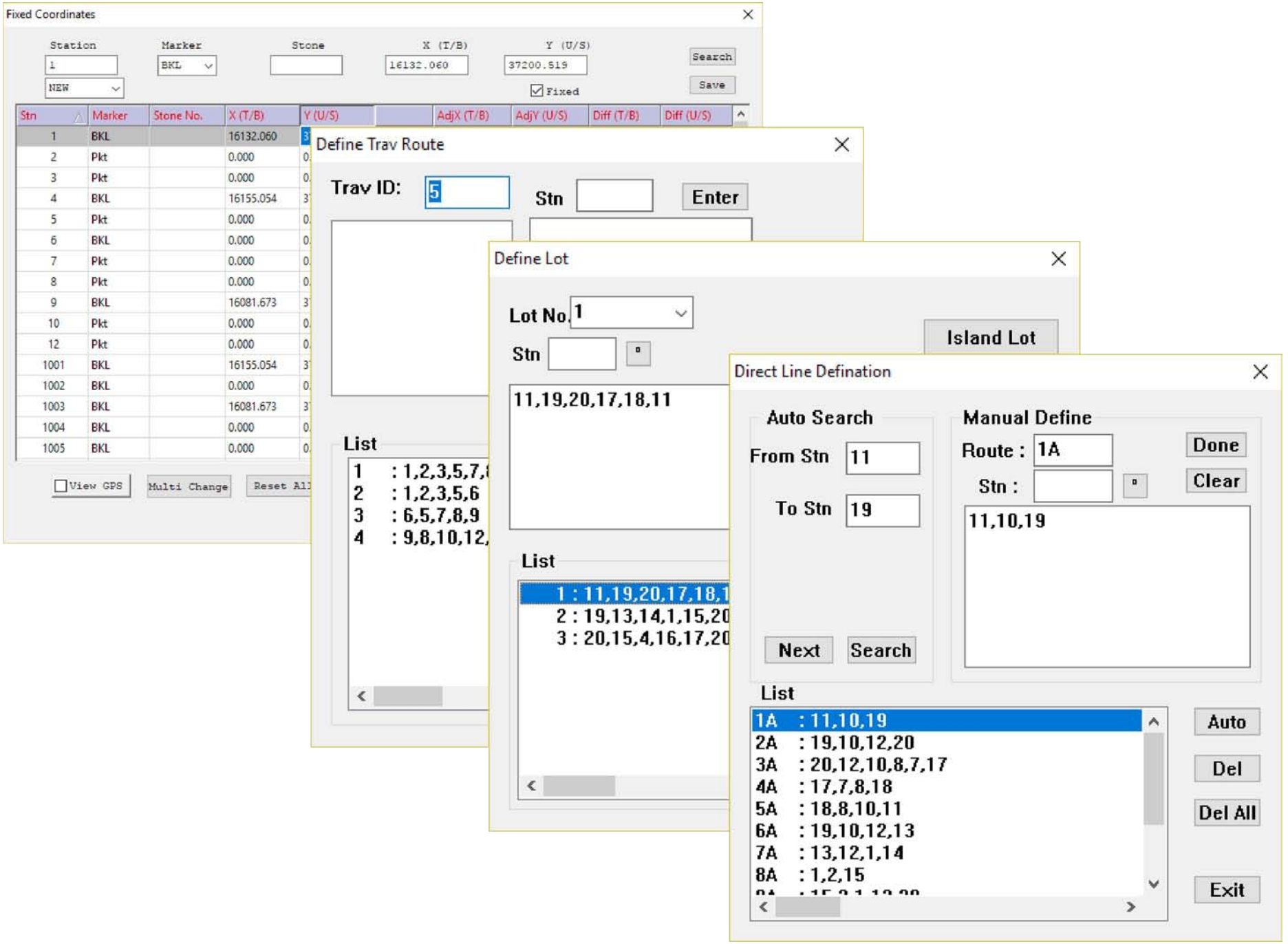
Green line is LOT

Dash line is for Refixation

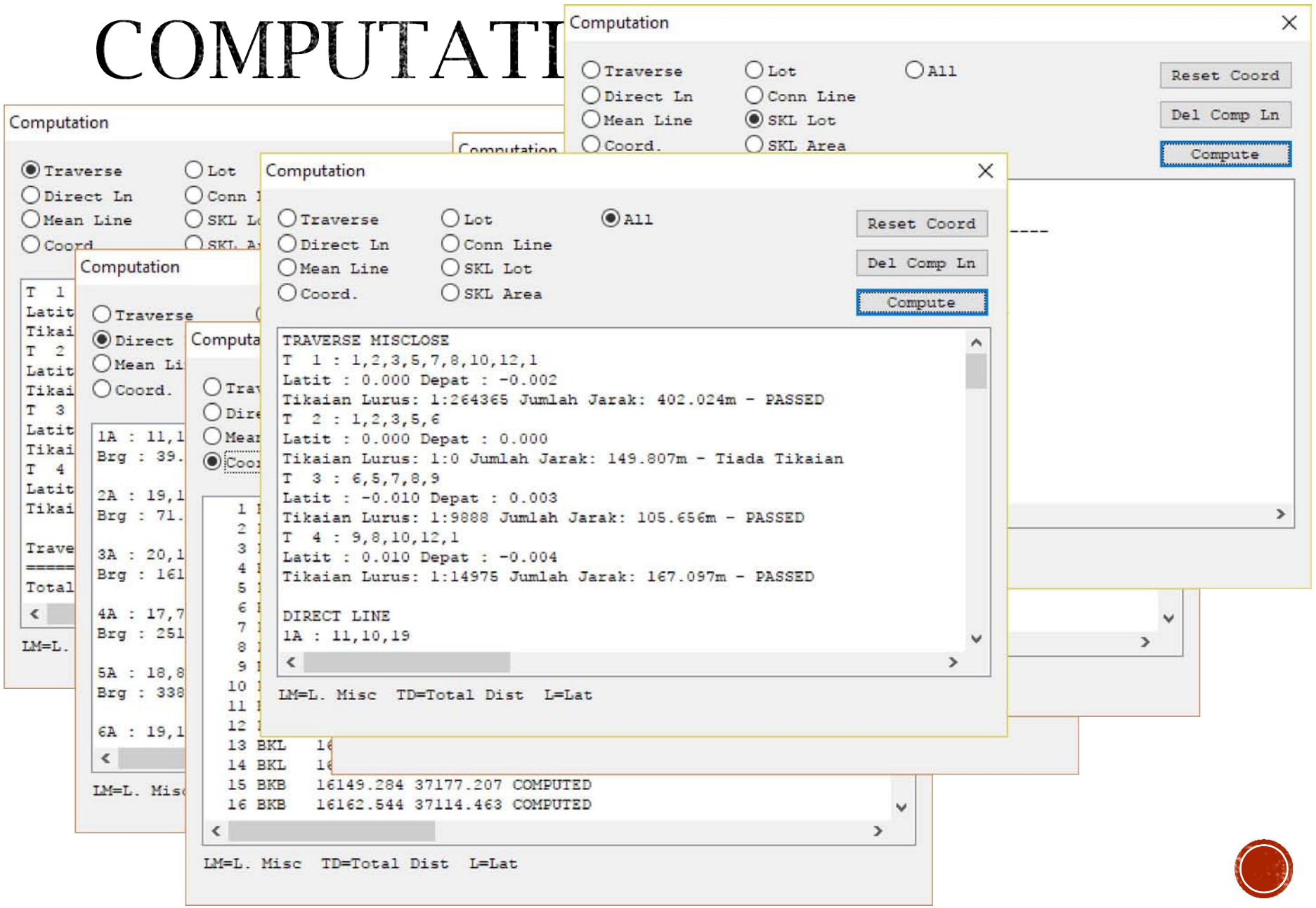
Black Number is PO Stone

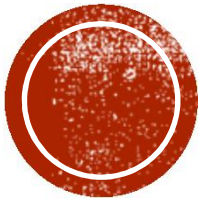
DEFINITION & COMPUTATION

1. Coordinate
   - Min with 3 fix coordinate from NDCDB Coordinate (need to check in J2U website)
2. Traverse
   - To Compute Traverse Misclosure by definition (Loop Close / Open Traverse)
   - To Compute Accuracy for Fix point to Fix point
   - To bring over the Coordinate
3. Lot
   - To define Lot Boundaries
   - To Compute Lot Misclosure & Area
4. Direct Line (Missing Line)
   - Can Auto search after Lot Definition
5. Connection Line (if Any)
6. Area Comparison (Precomp vs Surveyed) – after import PU ASCII (Precomp ASCII)


Fixed Coordinates
Station
Marker
Stone
X (T/B)
Y (U/S)
1
BKL
NEW
16132.060
37200.519
Search
Save
Fixed
Stn
Marker
Stone No.
X (T/B)
Y (U/S)
AdjX (T/B)
AdjY (U/S)
Diff (T/B)
Diff (U/S)
1 BKL 16132.060
2 Pkt 0.000
3 Pkt 0.000
4 BKL 16155.054
5 Pkt 0.000
6 BKL 0.000
7 Pkt 0.000
8 Pkt 0.000
9 BKL 16081.673
10 Pkt 0.000
12 Pkt 0.000
1001 BKL 16155.054
1002 BKL 0.000
1003 BKL 16081.673
1004 BKL 0.000
1005 BKL 0.000
View GPS
Multi Change
Reset All
Define Trav Route
Trav ID:
5
Stn
Enter
List
1 : 1,2,3,5,7,
2 : 1,2,3,5,6
3 : 6,5,7,8,9
4 : 9,8,10,12,
Define Lot
Lot No.
1
Stn
Island Lot
11,19,20,17,18,11
List
1 : 11,19,20,17,18,1
2 : 19,13,14,1,15,20
3 : 20,15,4,16,17,20
Direct Line Defination
Auto Search
From Stn
11
To Stn
19
Next
Search
Manual Define
Route :
1A
Stn :
Done
Clear
11,10,19
List
1A : 11,10,19
2A : 19,10,12,20
3A : 20,12,10,8,7,17
4A : 17,7,8,18
5A : 18,8,10,11
6A : 19,10,12,13
7A : 13,12,1,14
8A : 1,2,15
Auto
Del
Del All
Exit

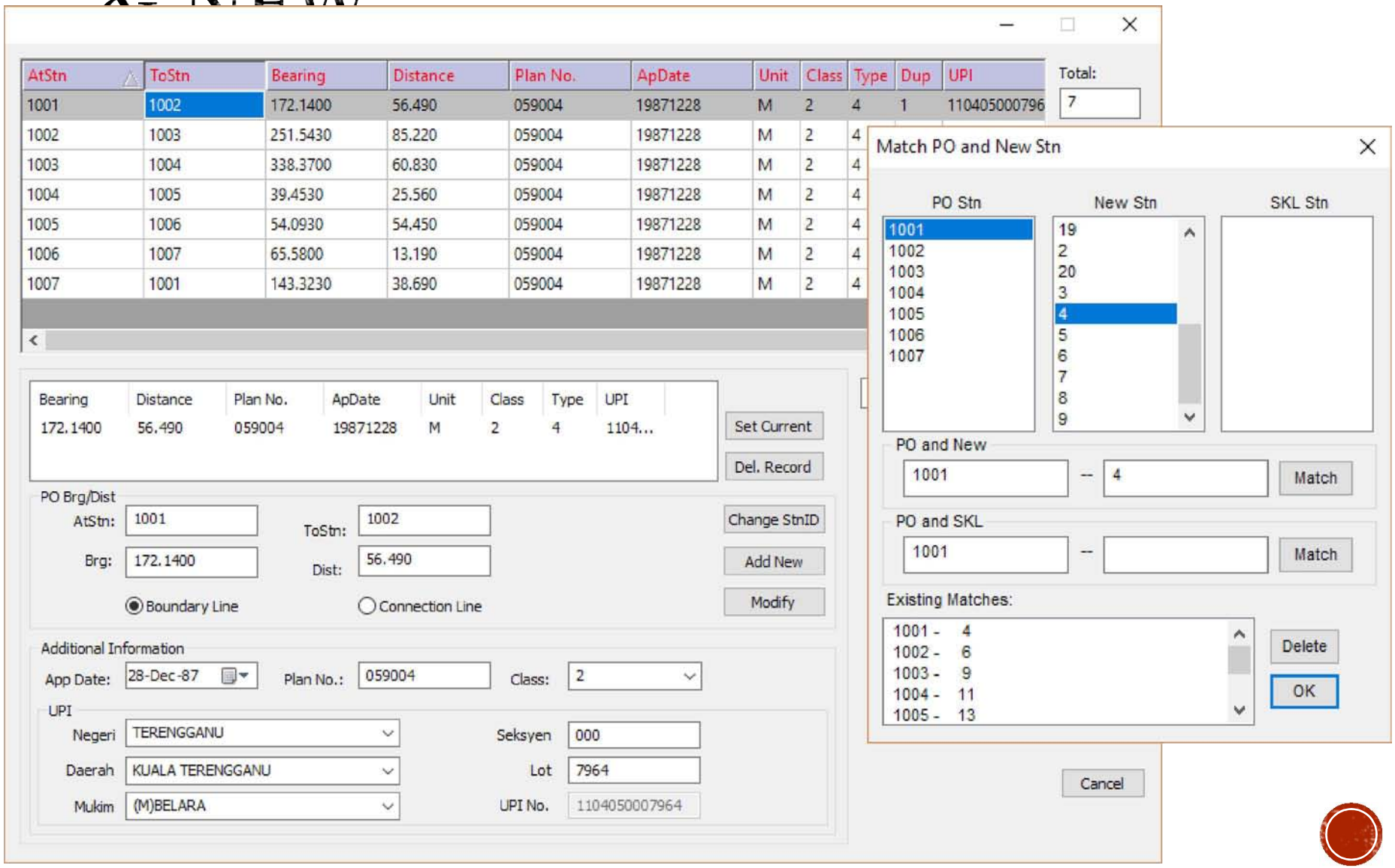
COMPUTATI


Computation
Traverse
Direct Ln
Mean Line
Coord.
Lot
Conn Line
SKL Lot
SKL Area
All
Reset Coord
Del Comp Ln
Compute
TRAVERSE MISCLOSE
T 1 : 1,2,3,5,7,8,10,12,1
Latit : 0.000 Depat : -0.002
Tikaian Lurus: 1:264365 Jumlah Jarak: 402.024m - PASSED
T 2 : 1,2,3,5,6
Latit : 0.000 Depat : 0.000
Tikaian Lurus: 1:0 Jumlah Jarak: 149.807m - Tiada Tikaian
T 3 : 6,5,7,8,9
Latit : -0.010 Depat : 0.003
Tikaian Lurus: 1:9888 Jumlah Jarak: 105.656m - PASSED
T 4 : 9,8,10,12,1
Latit : 0.010 Depat : -0.004
Tikaian Lurus: 1:14975 Jumlah Jarak: 167.097m - PASSED
DIRECT LINE
1A : 11,10,19
LM=L. Misc TD=Total Dist L=Lat
13 BKL
14 BKL
15 BKB 16149.284 37177.207 COMPUTED
16 BKB 16162.544 37114.463 COMPUTED

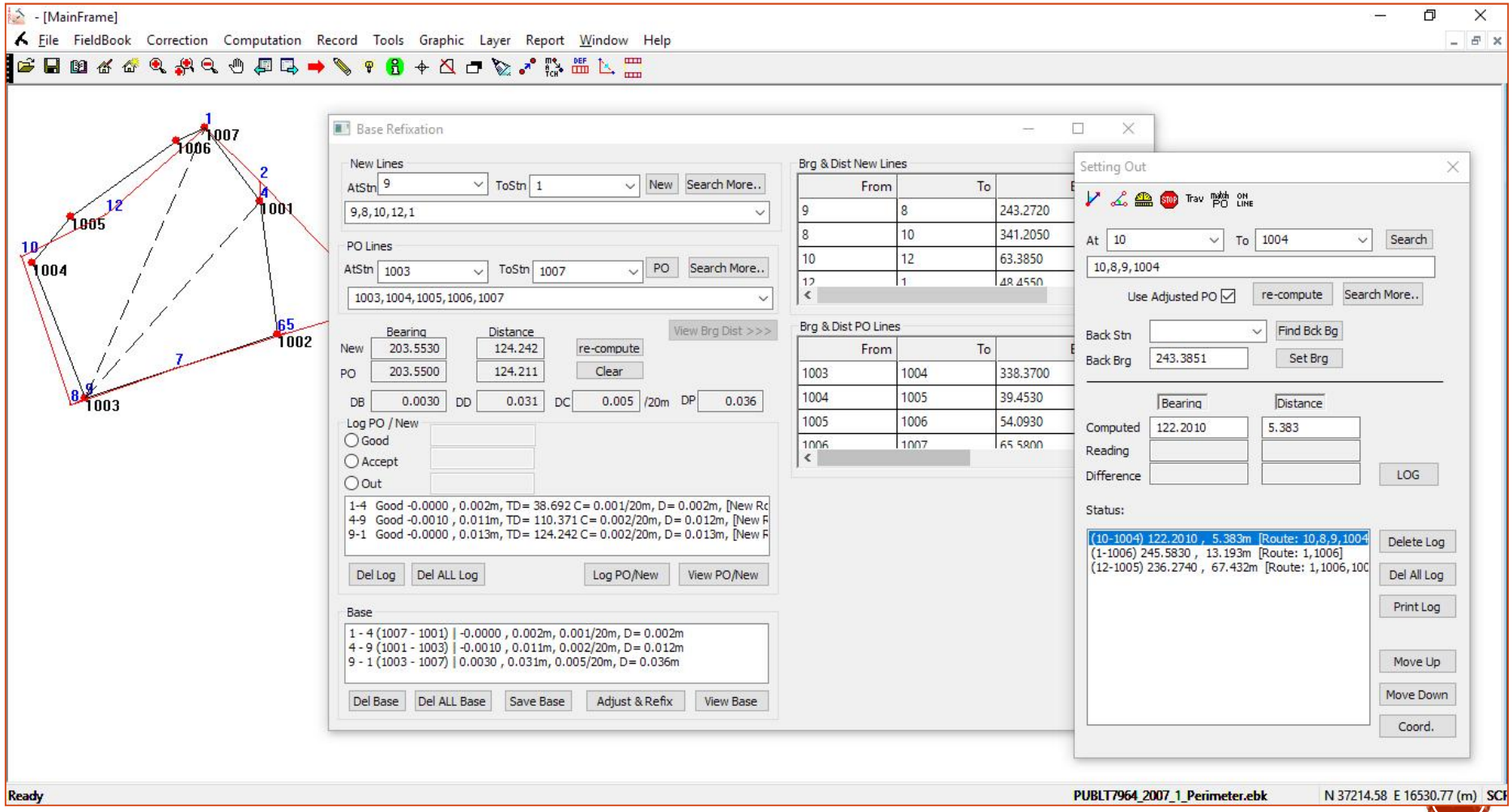


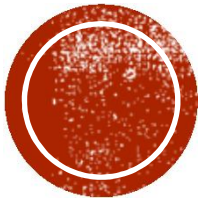
BASELINE & REFIXATION

PO LINE ENTRY & MATCH PO & NEW



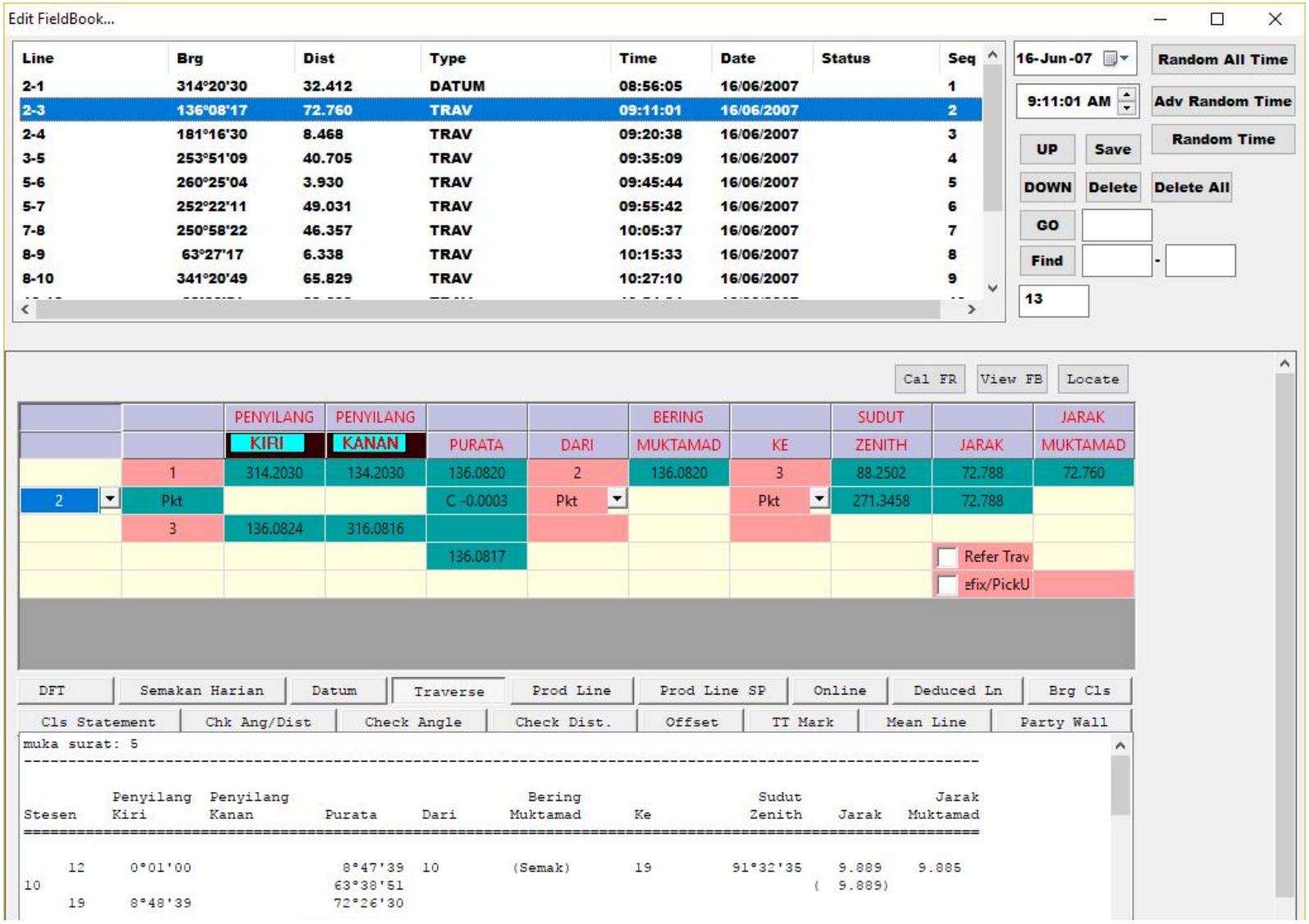
PO & NEW COMPARISON, PO ADJUSTMENT AND REFIXATION

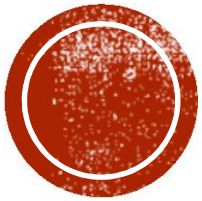




BOOK KEEPING

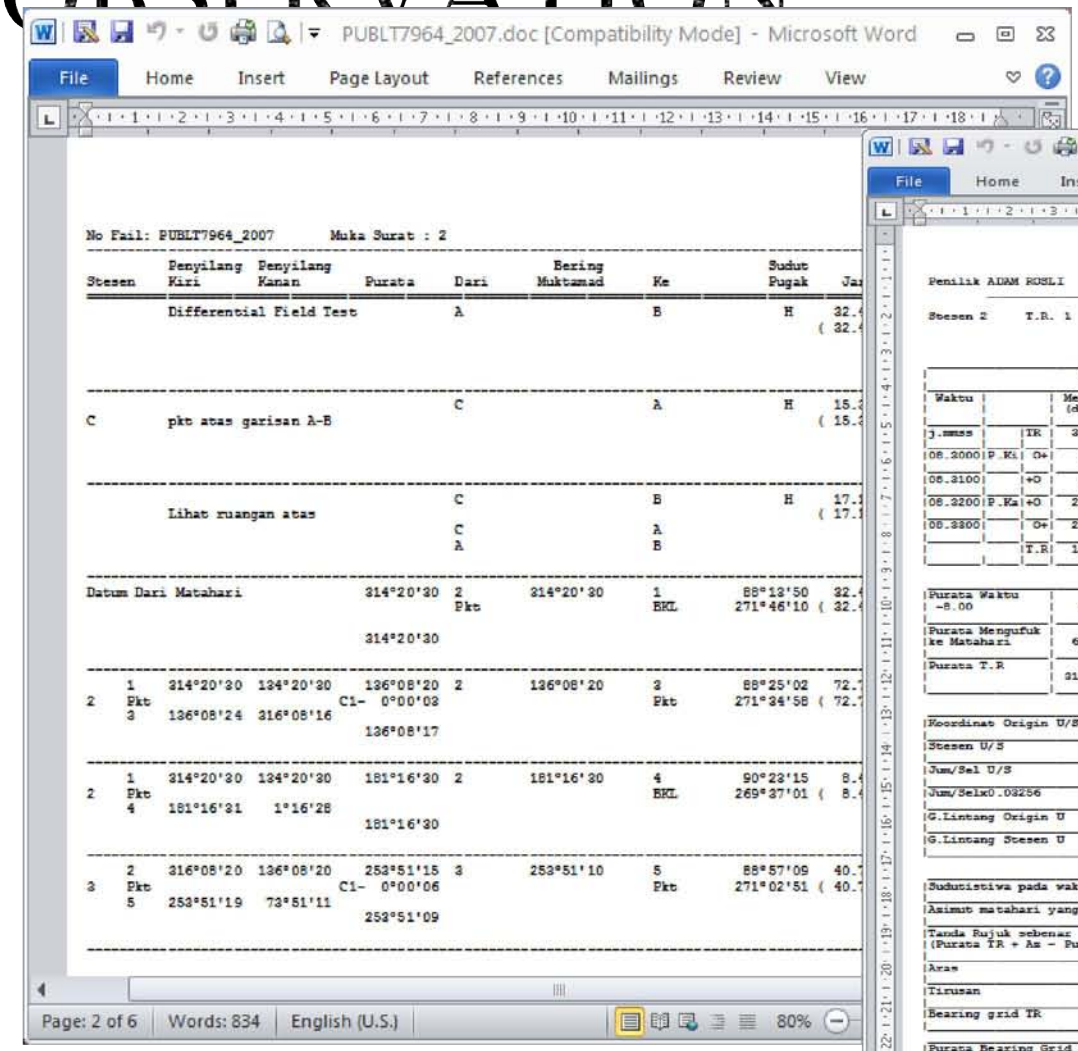
BOOKKEEPING





EXPORT / OUTPUT / REPORTING

REPORT: FIELD BOOK & SUN OBSERVATION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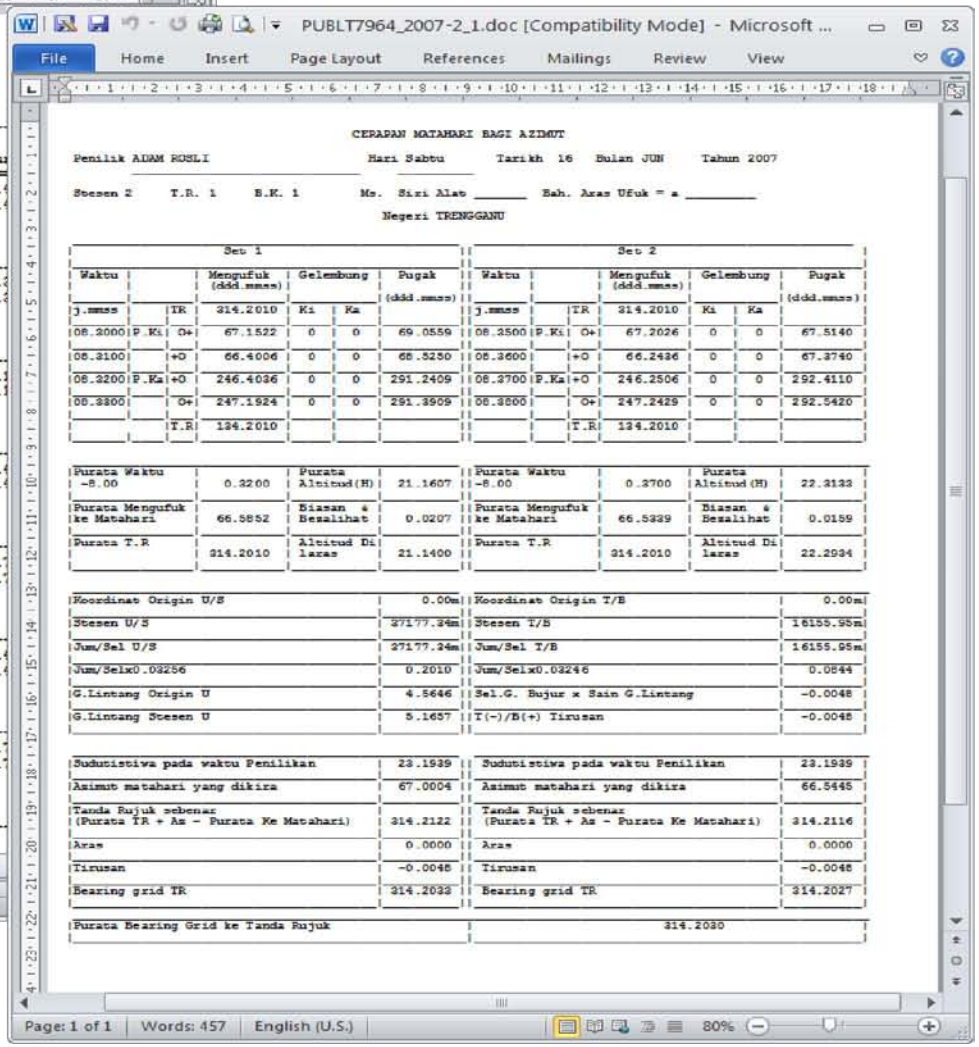
File Home Insert Page Layout References Mailings Review View

No Fail: PUBLT7964_2007 Muka Surat : 2

Stesen	Penyilang Kiri	Penyilang Kanan	Purata	Dari	Bering Muktamad	Ke	Sudut Pugak	Ja
	Differential Field Test			A		B	H	32.4
								(32.4
				C		A	H	15.3
C	pkt atas garisan A-B							(15.3
				C		B	H	17.1
	Lihat ruangan atas							(17.1
				C		A		
				A		B		
Datum Dari Matahari			314°20'30	2 Pkt	314°20'30	1 EKL	88°12'50 271°46'10	32.4 (32.4
			314°20'30					
2	1 Pkt 3	314°20'30 136°08'24	134°20'30 316°08'16	136°08'20 C1- 0°00'03 136°08'17	2	136°08'20	3 Pkt	88°25'02 271°34'58 (72.7
2	1 Pkt 4	314°20'30 181°16'31	134°20'30 1°16'28	181°16'30 181°16'30	2	181°16'30	4 EKL	90°23'15 269°37'01 (8.4
3	2 Pkt 5	316°08'20 253°51'19	136°08'20 73°51'11	253°51'15 C1- 0°00'06 253°51'09	3	253°51'10	5 Pkt	88°57'09 271°02'51 (40.1

Page: 2 of 6 Words: 834 English (U.S.) 80%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File Home Insert Page Layout References Mailings Review View

CERAPAN MATAHARI BAGI AZIMUT

Penilik ADAM ROSLI Hari Sabtu Tarikh 16 Bulan JUN Tahun 2007

Stesen 2 T.R. 1 B.K. 1 Ms. Siri Alat _____ Sah. Aras Ufuk = a _____

Negeri TRENGGANU

Set 1						Set 2					
Waktu			Mengufuk (ddd.mmss)	Gelembung Ki	Gelembung Ka	Pugak (ddd.mmss)	Waktu		Mengufuk (ddd.mmss)	Gelembung Ki	Gelembung Ka	Pugak (ddd.mmss)
j.mmss		TR	314.2010				j.mmss	TR	314.2010			
08.2000	P.Ki	O+	67.1522	0	0	69.0559	08.3500	P.Ki O+	67.2026	0	0	67.5140
08.3100		+O	66.4006	0	0	68.5250	08.3600	+O	66.2436	0	0	67.3740
08.3200	P.Ka	+O	246.4036	0	0	291.2409	08.3700	P.Ka +O	246.2506	0	0	292.4110
08.3800		O+	247.1924	0	0	291.3909	08.3800	O+	247.2429	0	0	292.5420
		T.R	134.2010					T.R	134.2010			

Purata Waktu -8.00	0.3200	Purata Altitud(H)	21.1607
Purata Mengufuk ke Matahari	66.5852	Biasan & Bezalihat	0.0207
Purata T.R	314.2010	Altitud Di laras	21.1400

Purata Waktu -8.00	0.3700	Purata Altitud(H)	22.3133
Purata Mengufuk ke Matahari	66.5339	Biasan & Bezalihat	0.0159
Purata T.R	314.2010	Altitud Di laras	22.2934

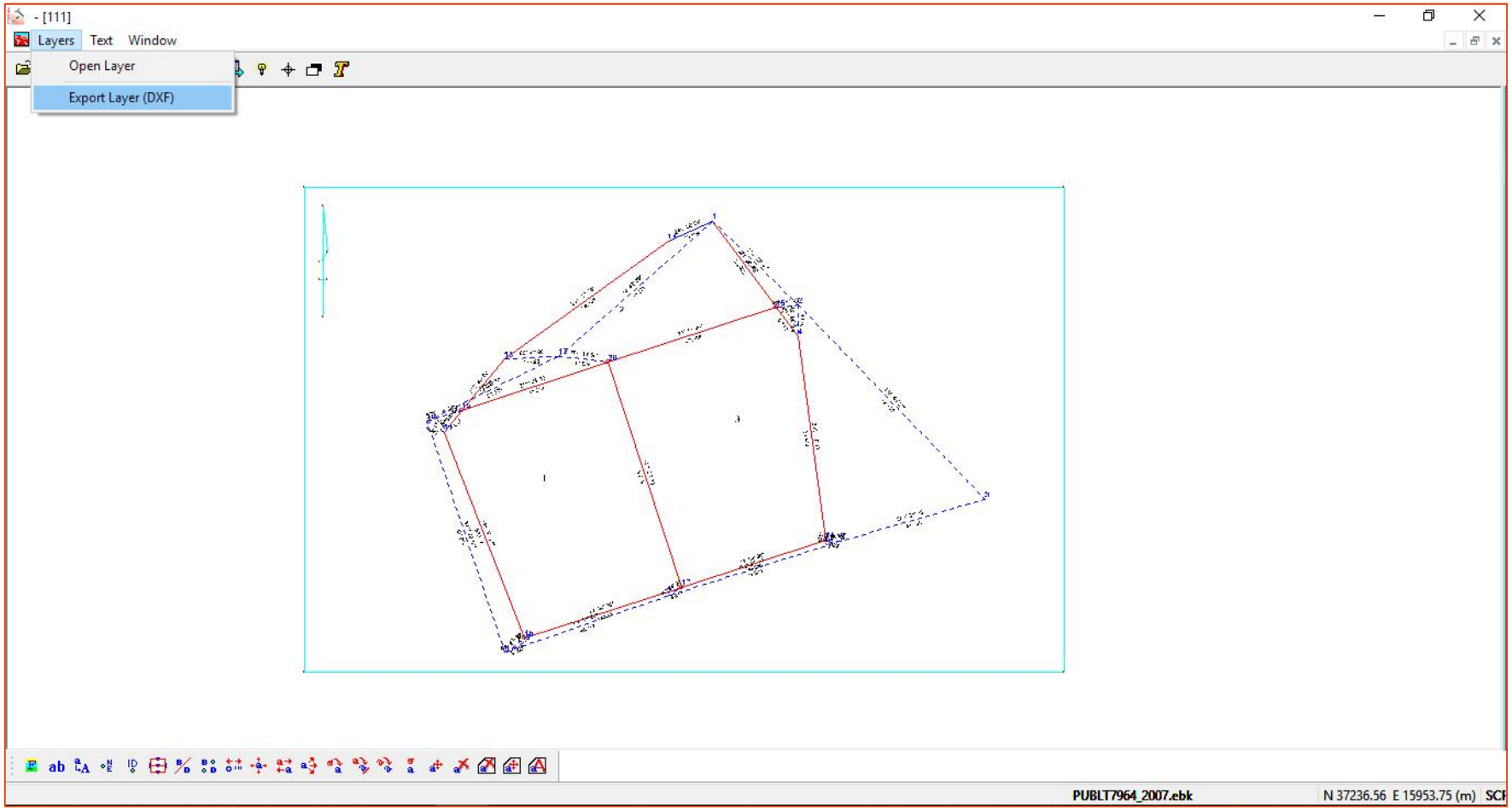
Koordinat Origin U/S	0.00m	Koordinat Origin T/B	0.00m
Stesen U/S	27177.24m	Stesen T/B	16155.95m
Jum/Sel U/S	27177.24m	Jum/Sel T/B	16155.95m
Jum/Selx0.03256	0.2010	Jum/Selx0.03246	0.0844
G.Lintang Origin U	4.5646	Sel.G. Bujur x Sain G.Lintang	-0.0048
G.Lintang Stesen U	5.1657	T(-)/B(+) Tirusan	-0.0048

Sudutistiwa pada waktu Penilikan	23.1939	Sudutistiwa pada waktu Penilikan	23.1939
Asimut matahari yang dikira	67.0004	Asimut matahari yang dikira	66.5445
Tanda Rujuk sebenar (Purata TR + As - Purata Ke Matahari)	314.2122	Tanda Rujuk sebenar (Purata TR + As - Purata Ke Matahari)	314.2116
Aras	0.0000	Aras	0.0000
Tirusan	-0.0048	Tirusan	-0.0048
Bearing grid TR	314.2033	Bearing grid TR	314.2027

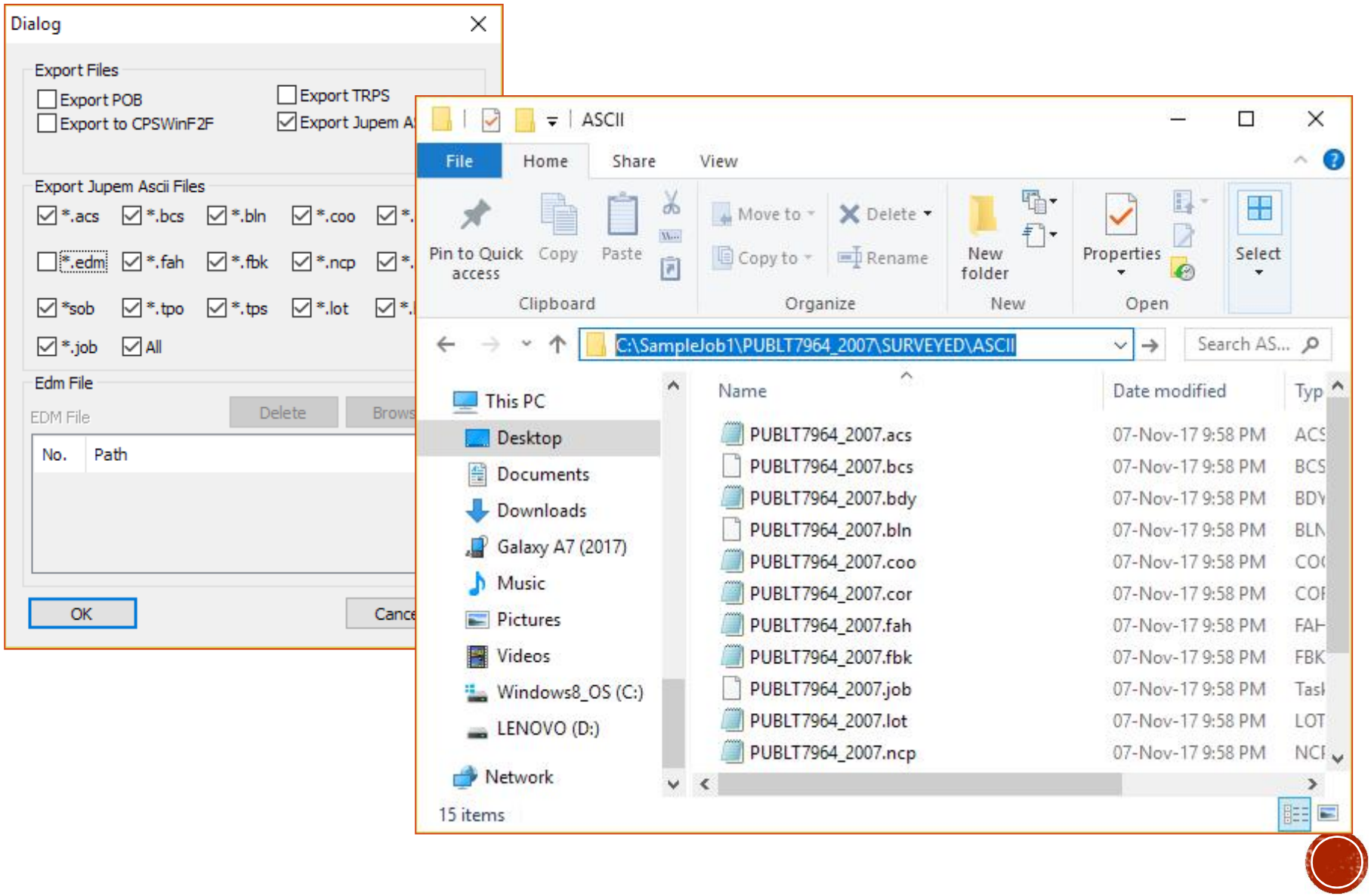
Purata Bearing Grid ke Tanda Rujuk	314.2030

Page: 1 of 1 Words: 457 English (U.S.) 80%

EXPORT FIELD SKETCH TO DXF



EXPORT ASCII



16 ASCII

JTB hendaklah menghantar format data berdigit dalam bentuk ASCII yang terdiri daripada:

i. .fbk – Field Observation Data
ii. .cor – Corrections
iii. .sob – Solar Observation Data
iv. .bcs – Bearing Close Statement
v. .acs – Area Comparison
vi. .ncp – Deduced Field Data
vii. .tps – Traverses
viii. .lot – Lot Details
ix. .bdy – Bearing, Distance & Coordinates
x. .job – Job Details
xi. .edm – EDM Test
xii. .fah – Fahrasat
xiii. .coo – Coordinates Information
xiv. .bln – Base Line
xv. .tpo - Topography
xvi. .po - Old Value

- Serta;

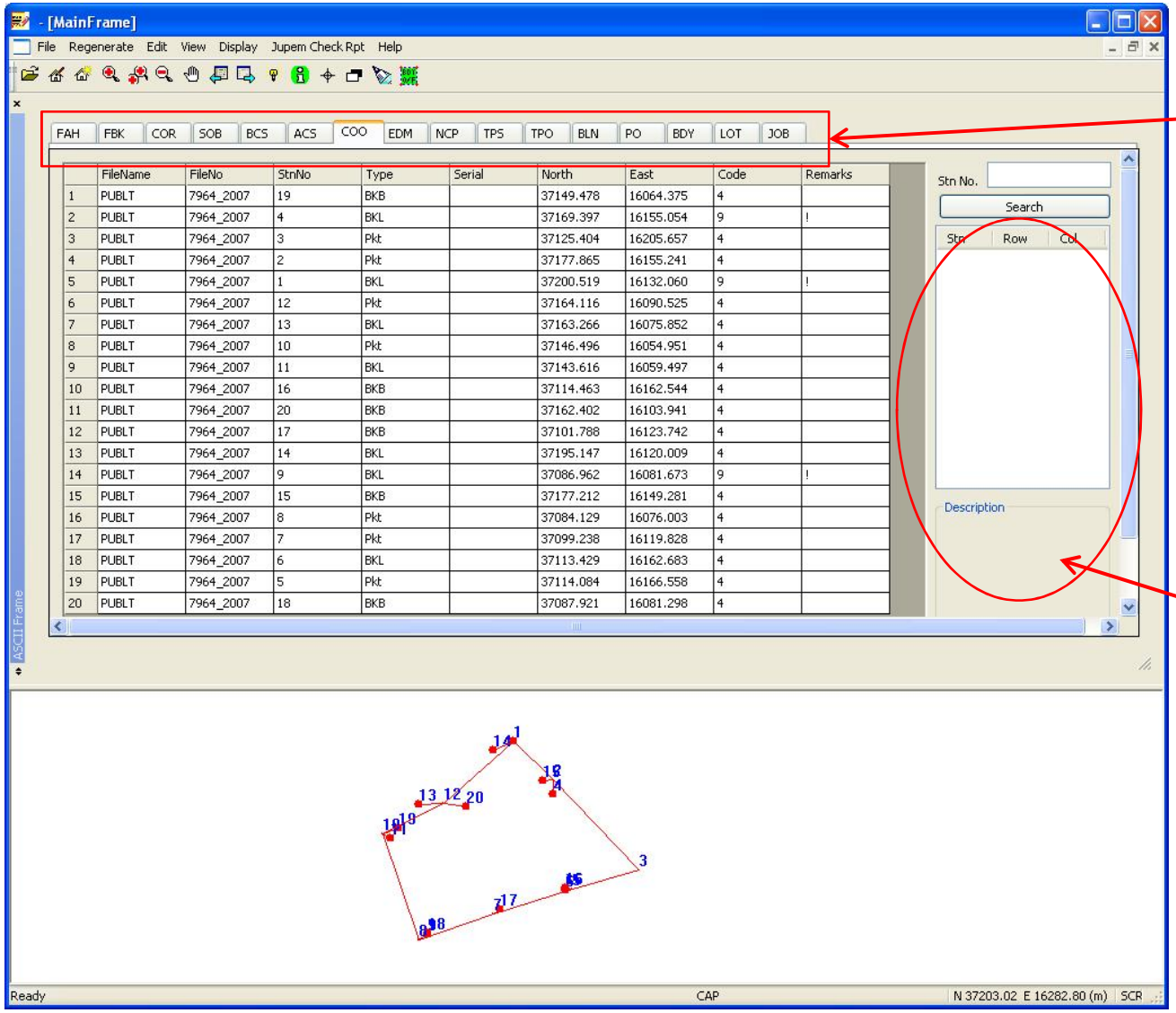
i. .xml - Digital Signature

ITOOLS UPGRADE IN FUTURE

1. Precomp PU ASCII Processing
2. Export StarNet DAT
   - For Least Square Adjustment

ASCII CHECKER (DIFFERENT SOFTWARE)

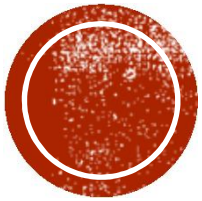
ASCII CHECKER FOR 16 ASCII



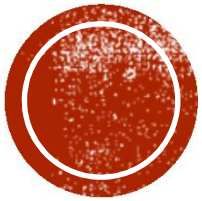
	FileName	FileNo	StnNo	Type	Serial	North	East	Code	Remarks
1	PUBLT	7964_2007	19	BKB		37149.478	16064.375	4	
2	PUBLT	7964_2007	4	BKL		37169.397	16155.054	9	!
3	PUBLT	7964_2007	3	Pkt		37125.404	16205.657	4	
4	PUBLT	7964_2007	2	Pkt		37177.865	16155.241	4	
5	PUBLT	7964_2007	1	BKL		37200.519	16132.060	9	!
6	PUBLT	7964_2007	12	Pkt		37164.116	16090.525	4	
7	PUBLT	7964_2007	13	BKL		37163.266	16075.852	4	
8	PUBLT	7964_2007	10	Pkt		37146.496	16054.951	4	
9	PUBLT	7964_2007	11	BKL		37143.616	16059.497	4	
10	PUBLT	7964_2007	16	BKB		37114.463	16162.544	4	
11	PUBLT	7964_2007	20	BKB		37162.402	16103.941	4	
12	PUBLT	7964_2007	17	BKB		37101.788	16123.742	4	
13	PUBLT	7964_2007	14	BKL		37195.147	16120.009	4	
14	PUBLT	7964_2007	9	BKL		37086.962	16081.673	9	!
15	PUBLT	7964_2007	15	BKB		37177.212	16149.281	4	
16	PUBLT	7964_2007	8	Pkt		37084.129	16076.003	4	
17	PUBLT	7964_2007	7	Pkt		37099.238	16119.828	4	
18	PUBLT	7964_2007	6	BKL		37113.429	16162.683	4	
19	PUBLT	7964_2007	5	Pkt		37114.084	16166.558	4	
20	PUBLT	7964_2007	18	BKB		37087.921	16081.298	4	

Checker for 16 ASCII File except *.EDM

If have any Error the box Description will detail the error where to fixed it.



DEMO



Q & A

Thanks ☺