What makes a good Sprint course?

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SLOW/IOF Foot-O Commission

My background

- Member of FOC whilst Sprint was developed
- Introduced Sprint into WMOC
- WMOC SEA for 2008 (first Sprint competition)
- WMOC SEA for 2012
- WMOC SEA for 2013
- GBR – Sprint officially included in JK in 2008
- GBR – Planned JK Sprint in 2008

IOF Sprint History

- Today's three individual disciplines developed over past 10-12 years
- Need for distinctly different disciplines
- FOC: "IOF Sprint Race Criteria" document (May 2001)
- WOC 2001 – Sprint introduced
- Appendix 6 in today's Competition Rules describes all three disciplines

Sprint features
IOF Competition Rules – Appendix 6

- Winning Time 12 – 15 minutes
- Map – scale is 1:5000/4000 plus 2.5m VI
- Map – ISSOM and not ISOM
- Terrain – predominantly park or urban maybe with some (fast runnable) forest
- Start interval 1 minute
- Controls are technically easy but route choice is difficult requiring high concentration
- Running is “very high speed”

Sprint features
IOF Competition Rules – Appendix 6

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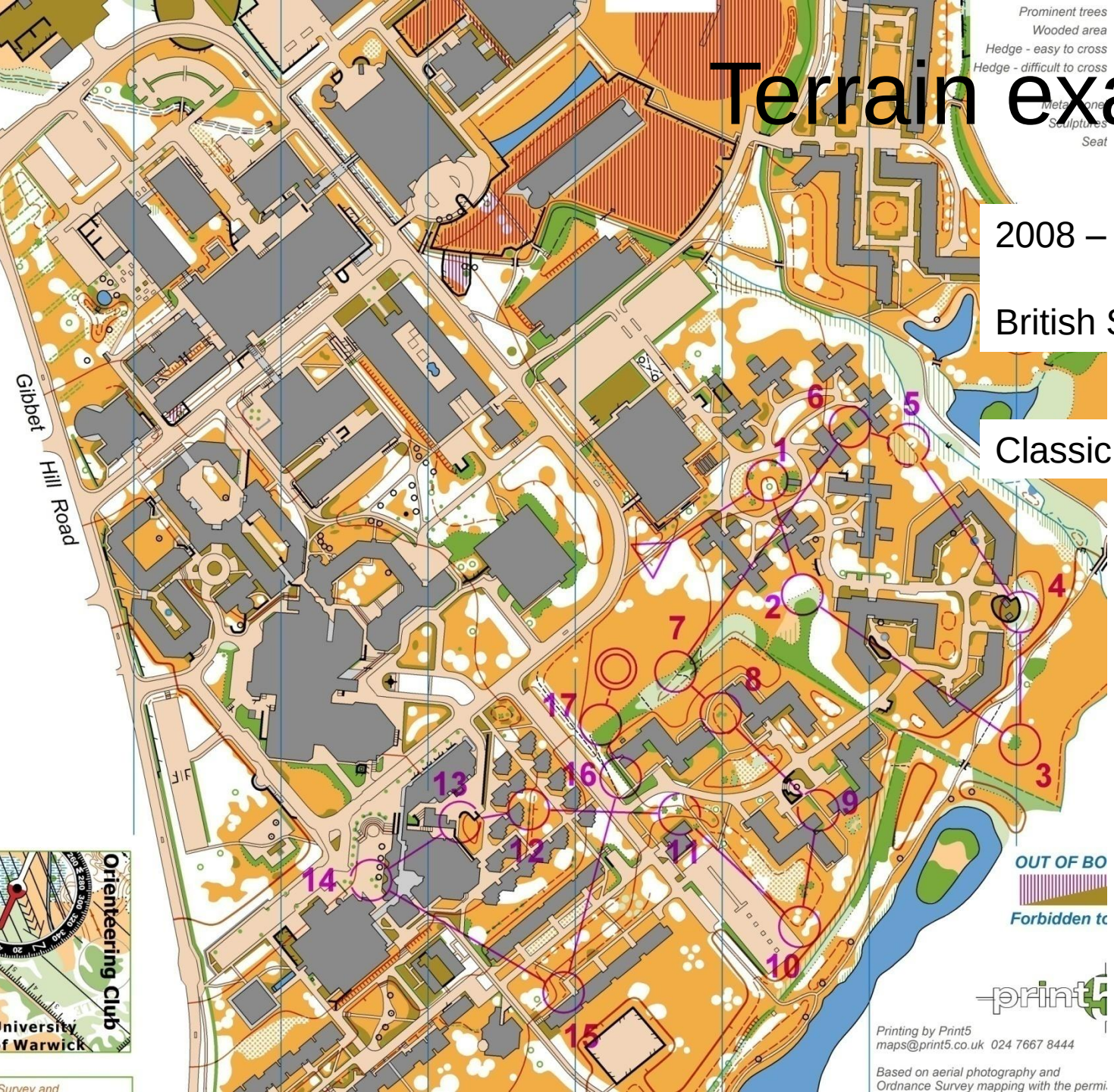
What makes a good course?
1 - Terrain selection

- "predominantly park or urban maybe with some (fast runnable) forest"
  - Sprint should be distinctly different from Middle or Long
- Major IOF events in past 10 years have not always obeyed the terrain criteria
- (personal view) It should be possible for the WOC Sprint winner never to have orienteered in a forest …

Terrain example 1



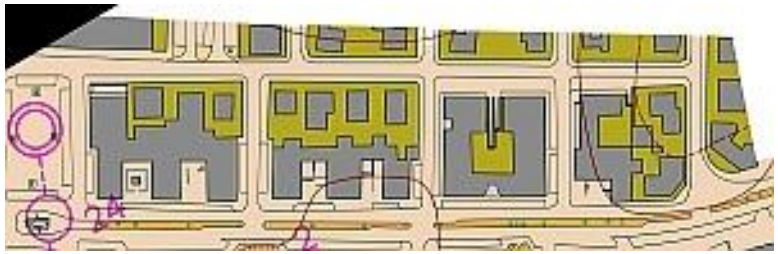
2008 – Great Britain

British Sprint Champs

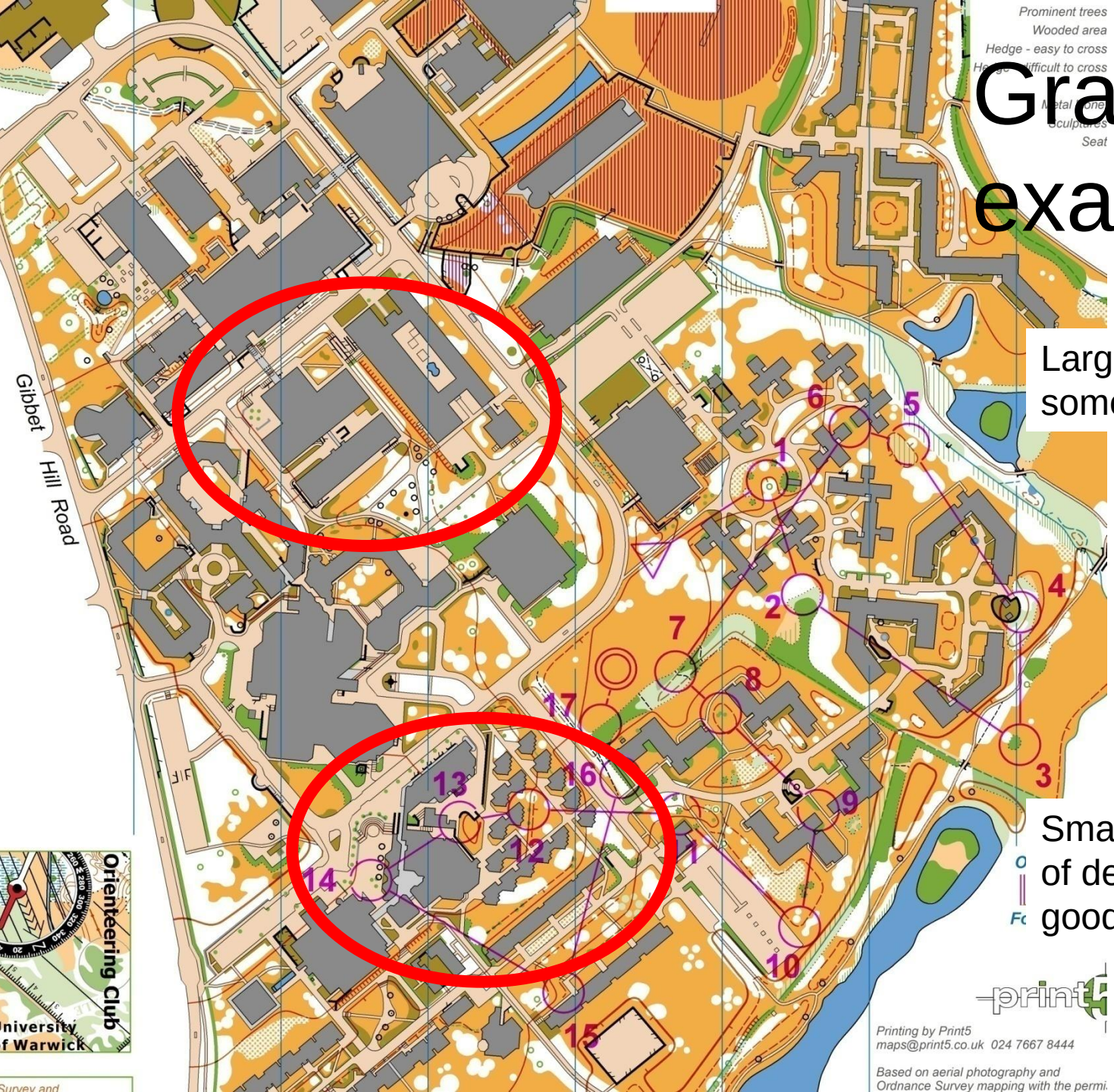
Classic campus terrain

Judging Terrain

- Concept of “granularity”
  - or fineness of detail
- Example of large granularity:
  - Only simple route choices possible



- Example of small granularity:
  - Frequent direction changes now possible

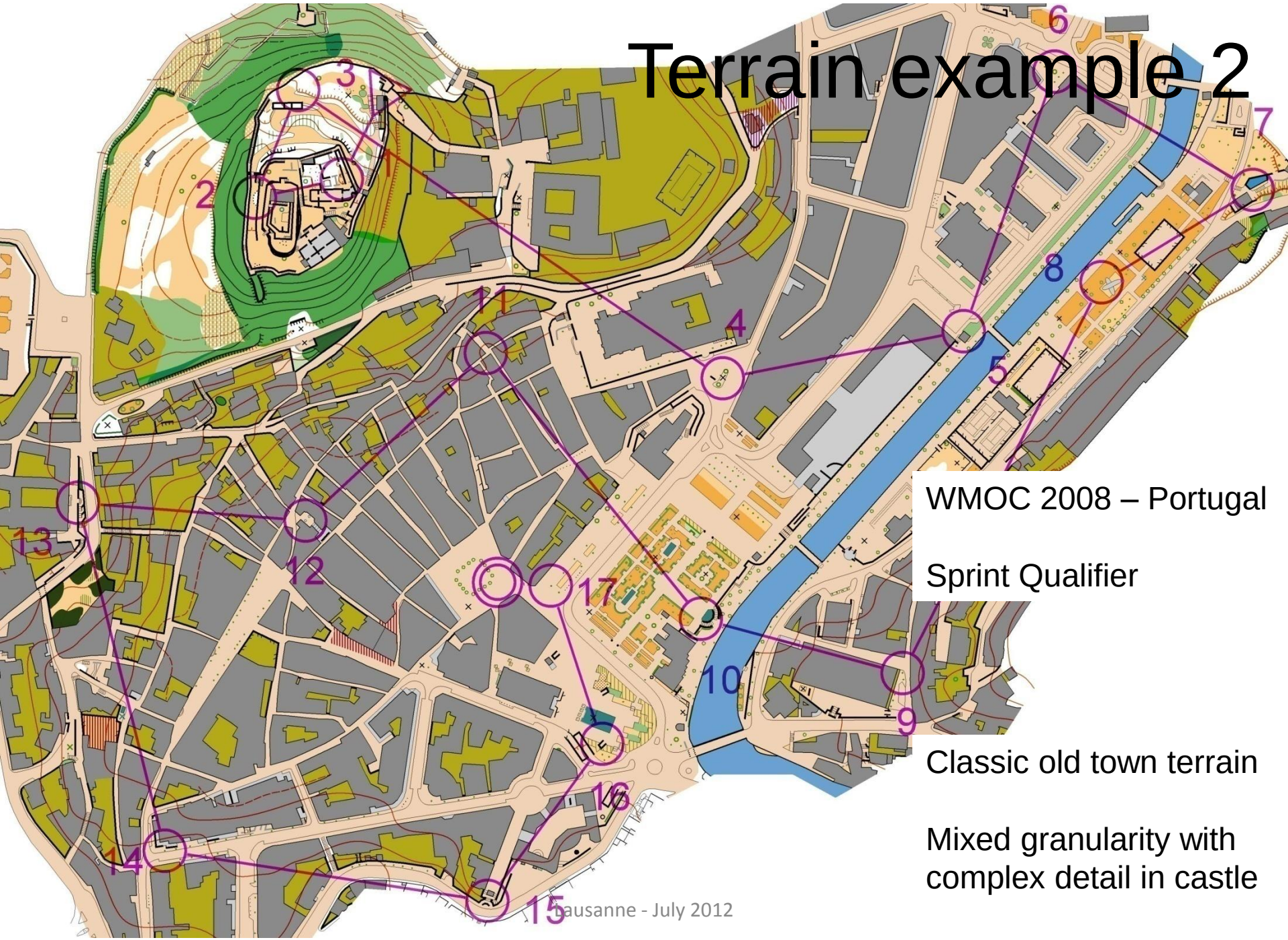


Granularity examples

Large granularity – still some interest however

Small granularity – lots of detail provides many good route choices

Terrain example 2

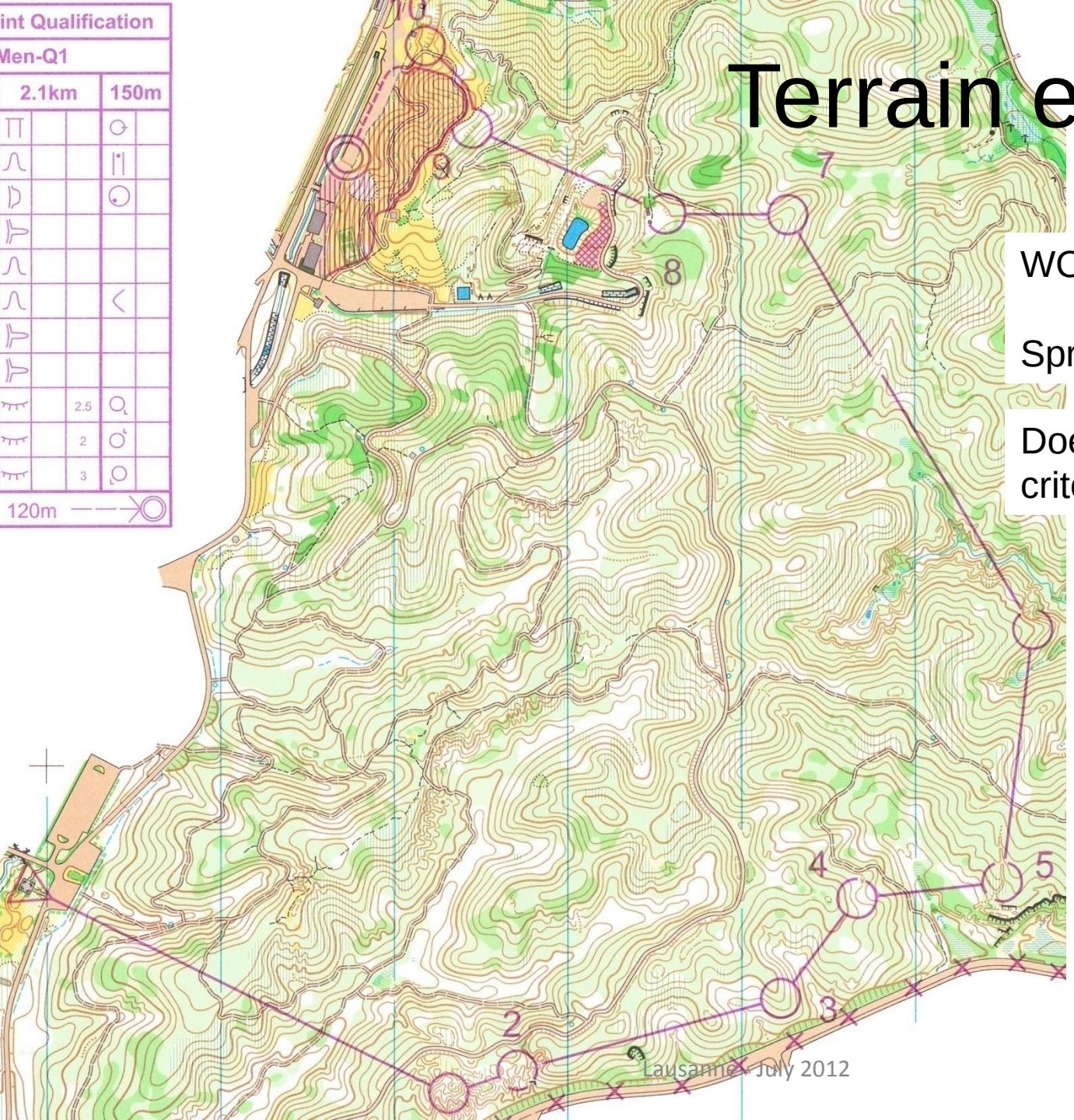


WMOC 2008 – Portugal

Sprint Qualifier

Classic old town terrain

Mixed granularity with complex detail in castle



Terrain example 3

WOC 2005 – Japan

Sprint Qualification race

Does not meet terrain criteria at all!

What makes a good course?
2 – Route Choice

- "Controls are technically easy but **route choice is difficult requiring high concentration**"
- Route choice is the key to good Sprint courses
  - Ideally, every leg should have challenging route choice
- How to assess this …

Course approval

- 65 for WMOC 2008
- 73 for WMOC 2012

- No usual controller feedback

- Need tool to aid this task ...

Sprint Course Assessment

- 4 point scale for each leg

Points	Urban	Non Urban
0		
1		
2		
3		

Sprint Course Assessment
- 4 point scale for each leg

Points	Urban	Non Urban
0	Little or no route choice	
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Sprint Course Assessment
- 4 point scale for each leg

Points	Urban	Non Urban
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1	Two similar routes, easy to identify	
2		
3		

Sprint Course Assessment
- 4 point scale for each leg

Points	Urban	Non Urban
0	Little or no route choice	
1	Two similar routes, easy to identify	
2	Several possible routes, or one longer route which is complex to execute – thinking needed	
3		

Sprint Course Assessment
- 4 point scale for each leg

Points	Urban	Non Urban
0	Little or no route choice	
1	Two similar routes, easy to identify	
2	Several possible routes, or one longer route which is complex to execute – thinking needed	
3	Complex route choice/detailed navigation needed – many decision points	

Sprint Course Assessment
- 4 point scale for each leg

Points	Urban	Non Urban
0	Little or no route choice	Simple leg with minimal navigation needed
1	Two similar routes, easy to identify	Easy route choice leg with little technical detail
2	Several possible routes, or one longer route which is complex to execute – thinking needed	Route choices not immediately obvious and/or some technical challenge
3	Complex route choice/detailed navigation needed – many decision points	Complex route choice/detailed navigation needed

Quality 0 example

12 - 13

“Little or no route choice”

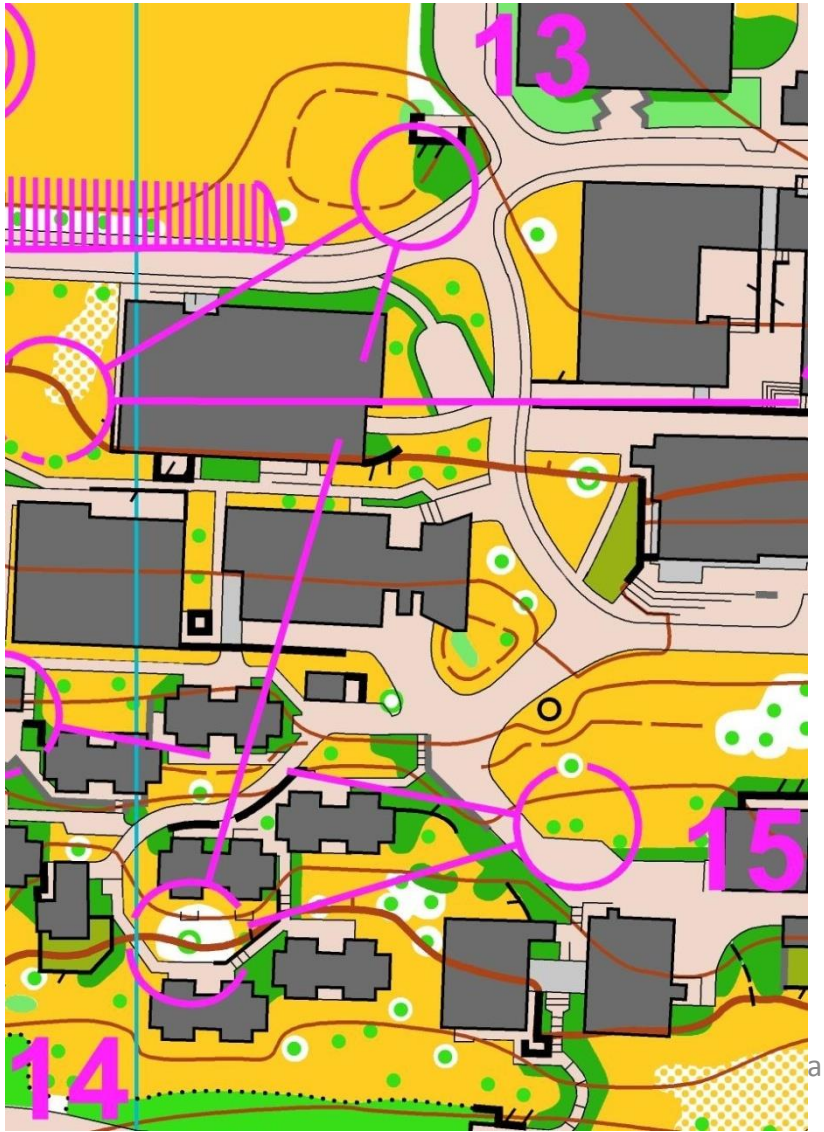
Quality 1 example

9 - 10

“Two similar routes, easy to identify”

This leg is at the top end of the “1” scale

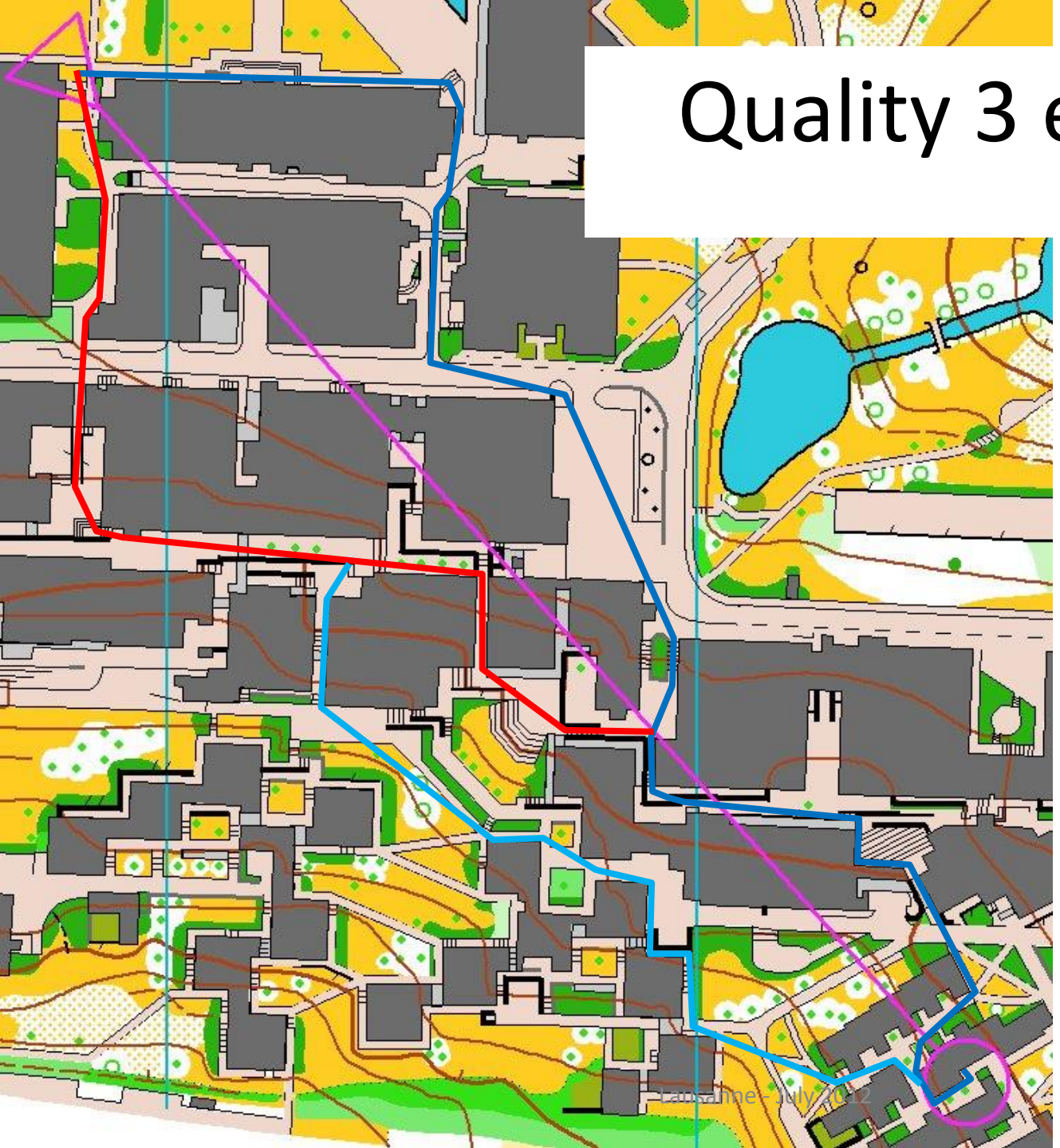
Quality 2 examples



13 – 14 and 14 - 15

“Several possible routes, or one longer route which is complex to execute – thinking needed”

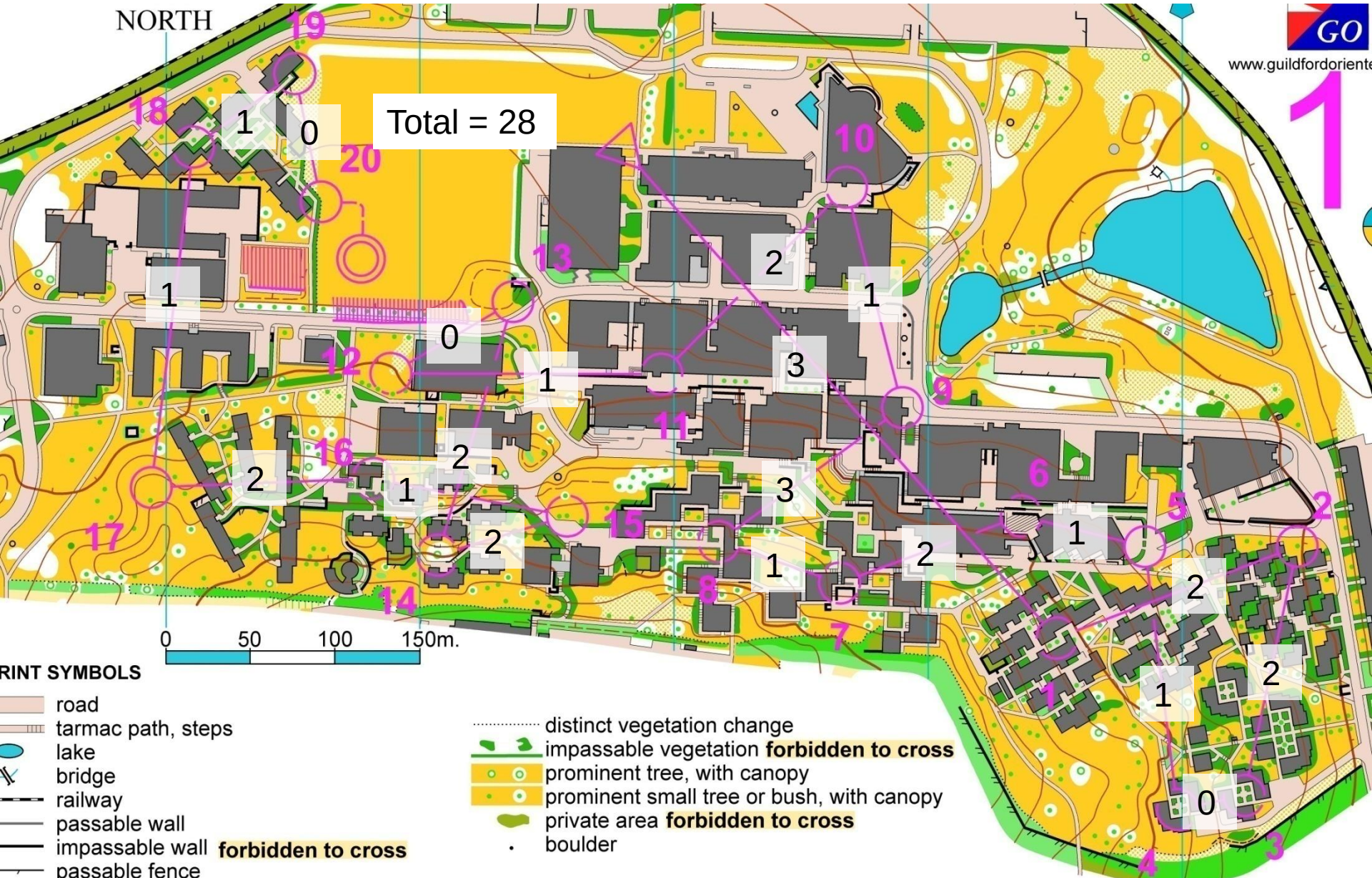
Quality 3 example



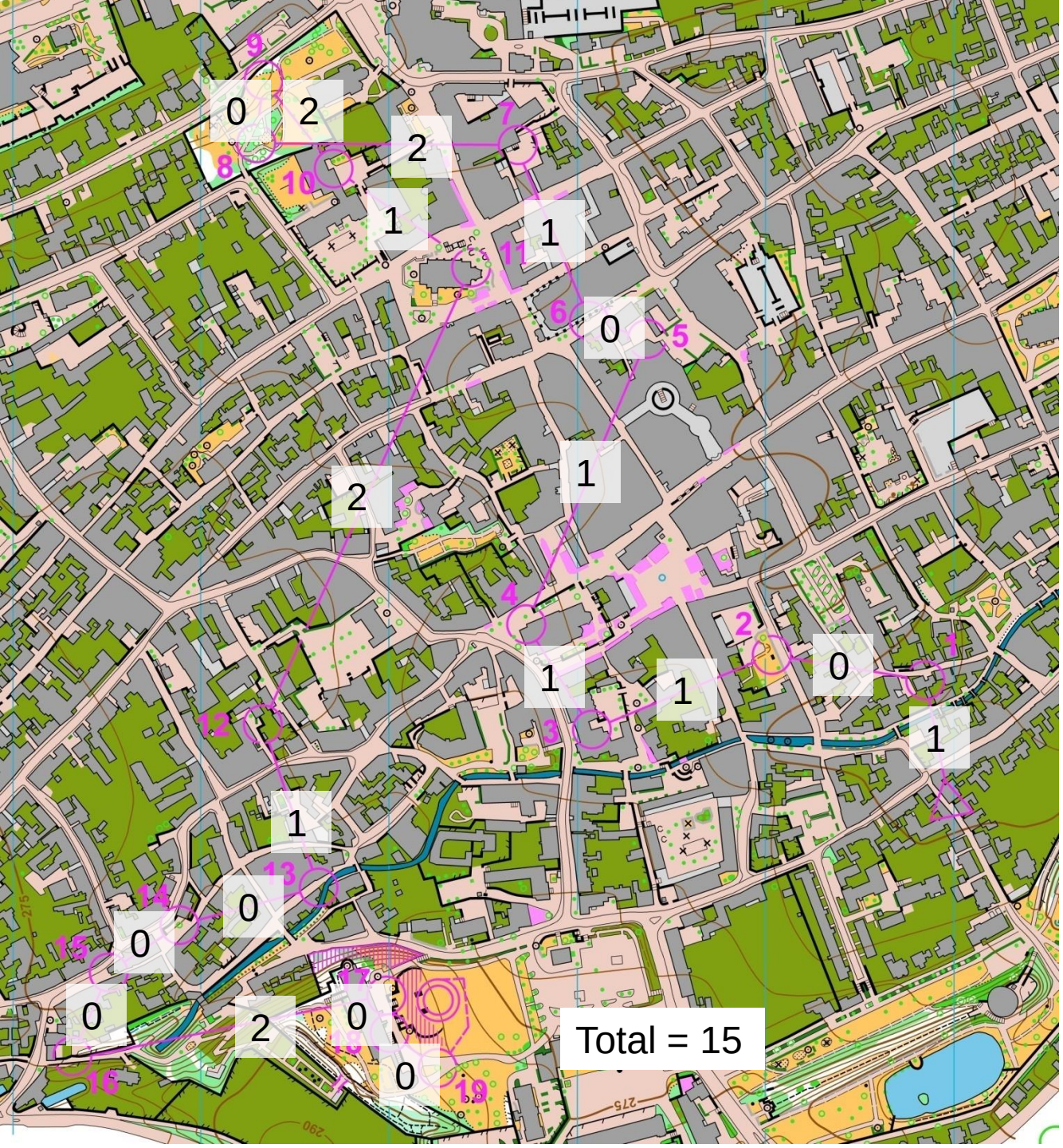
Start - 1

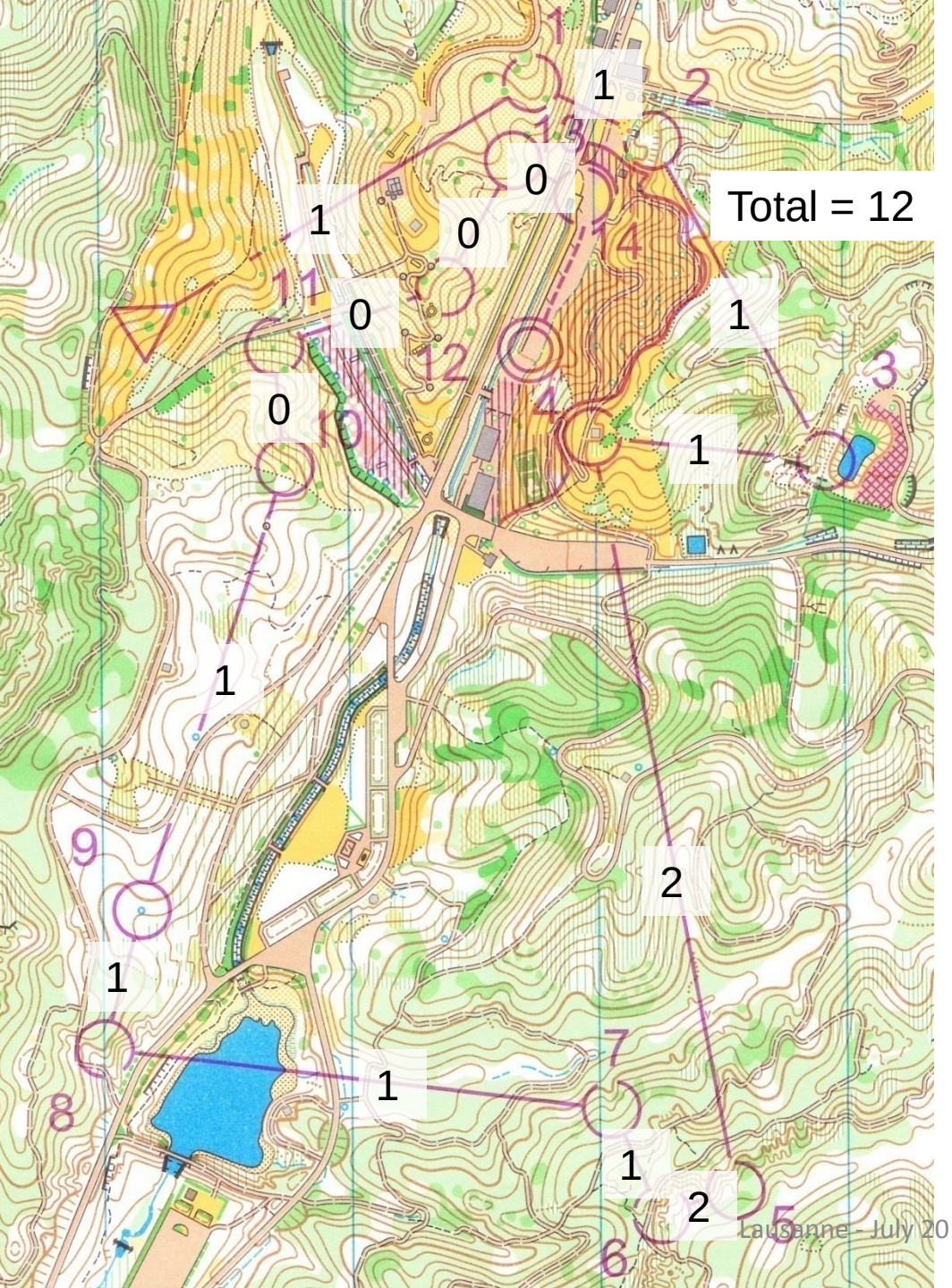
“Complex route choice/detailed navigation needed – many decision points”

Rate this course – JK Sprint 2008



Rate this course – WMOC Final 2012





WOC 2005 – Japan
Men's Sprint Final race

Low score because

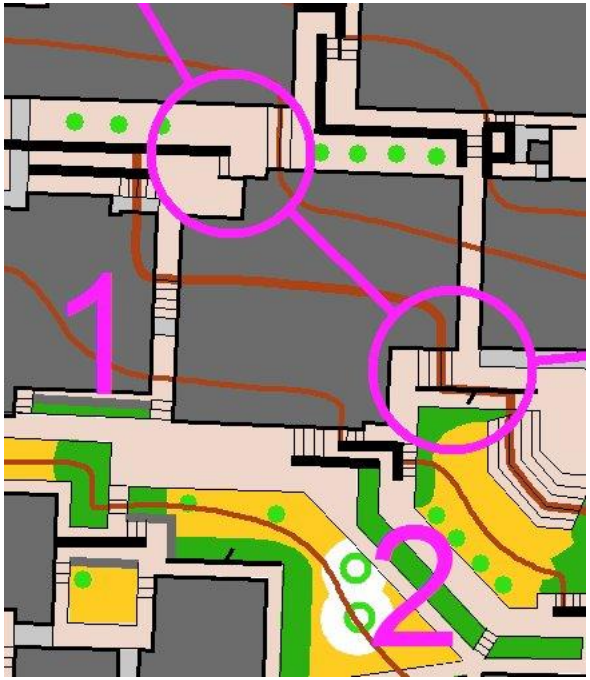
- Too few direction changes
- Too few control sites
- Long sections where little or no thinking is needed
  i.e. no "high concentration"
- Terrain not suitable for Sprint!

So, what makes a good Sprint course?

- Good terrain – small “granularity”
- Planning encourages high concentration
  - Maximise route choices in each leg
  - Minimise the ease of seeing best route choice
  - Don’t have too few control points
  - Maximise direction changes
  - Avoid long legs unless they have very high quality
- Next, some practical tips …

Maximising route choice quality 1

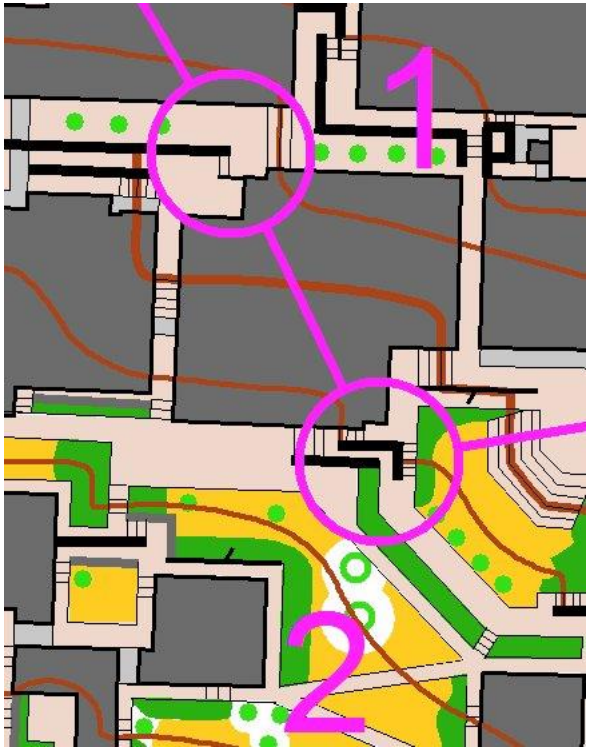
- Avoid legs with no realistic route choice:



- Clockwise route = 63 m
- Anticlockwise route = 91 m
- Difference is obvious to runners who will take the clockwise route, especially as they are likely to be arriving at 1 from the west and will carry on the same direction

Maximising route choice quality 2

- Instead, move 2 - now inside wall corner:-



- Clockwise route = 91 m
- Anticlockwise route = 77 m
- Difference not so obvious to runners, especially as best route involves 145˚ direction change at 1
- "The most obvious way out from a control should not necessarily be the most favourable one" - IOF

Long legs

- are boring if there's not much navigation

- This leg gets a score of 2 – OK for a short leg
- Very poor for a long leg – far too much time with little or no thinking

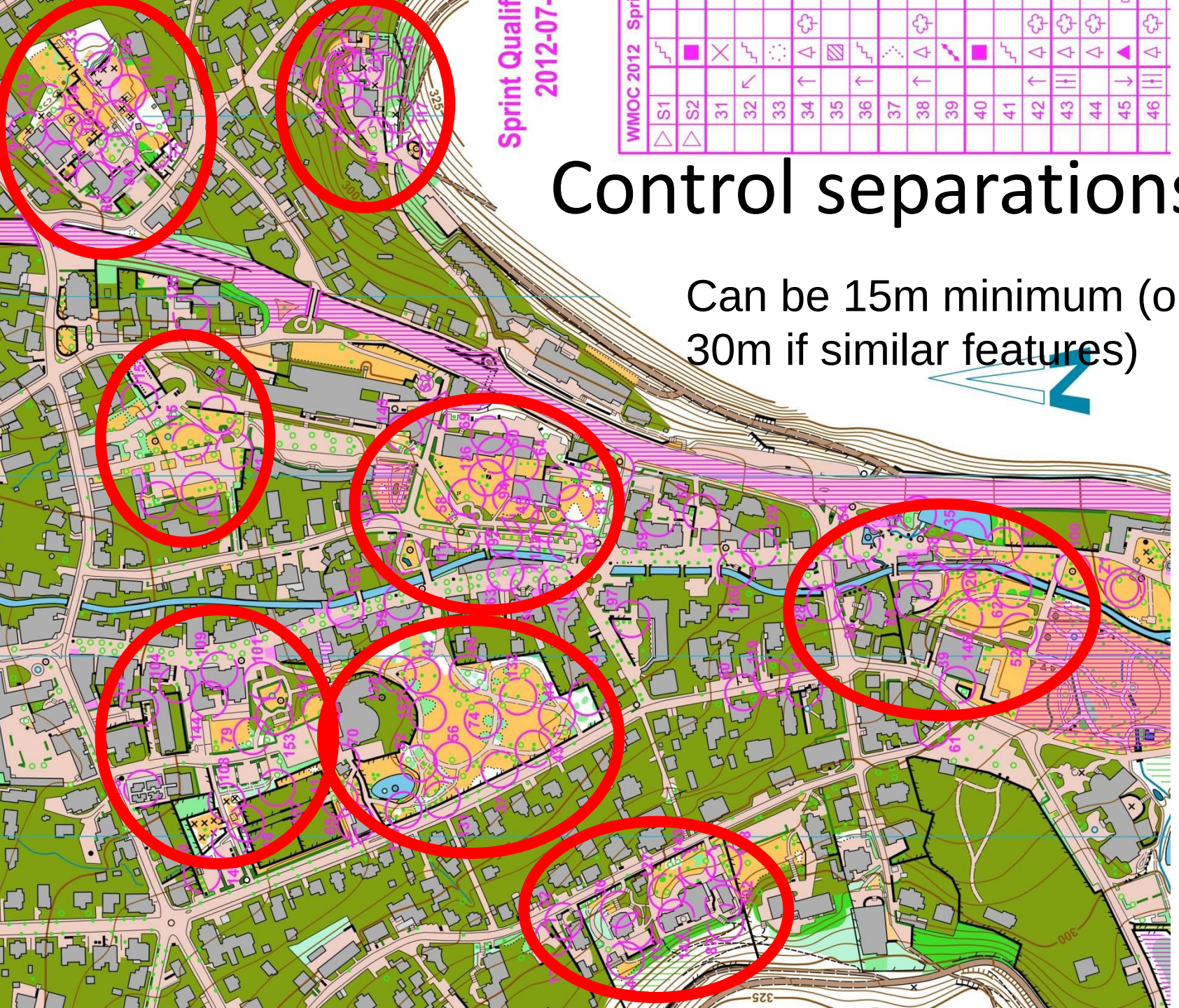
Maximise changes of direction

Crossovers give:

- Big changes of direction
- Greater use of small areas/best parts of terrain

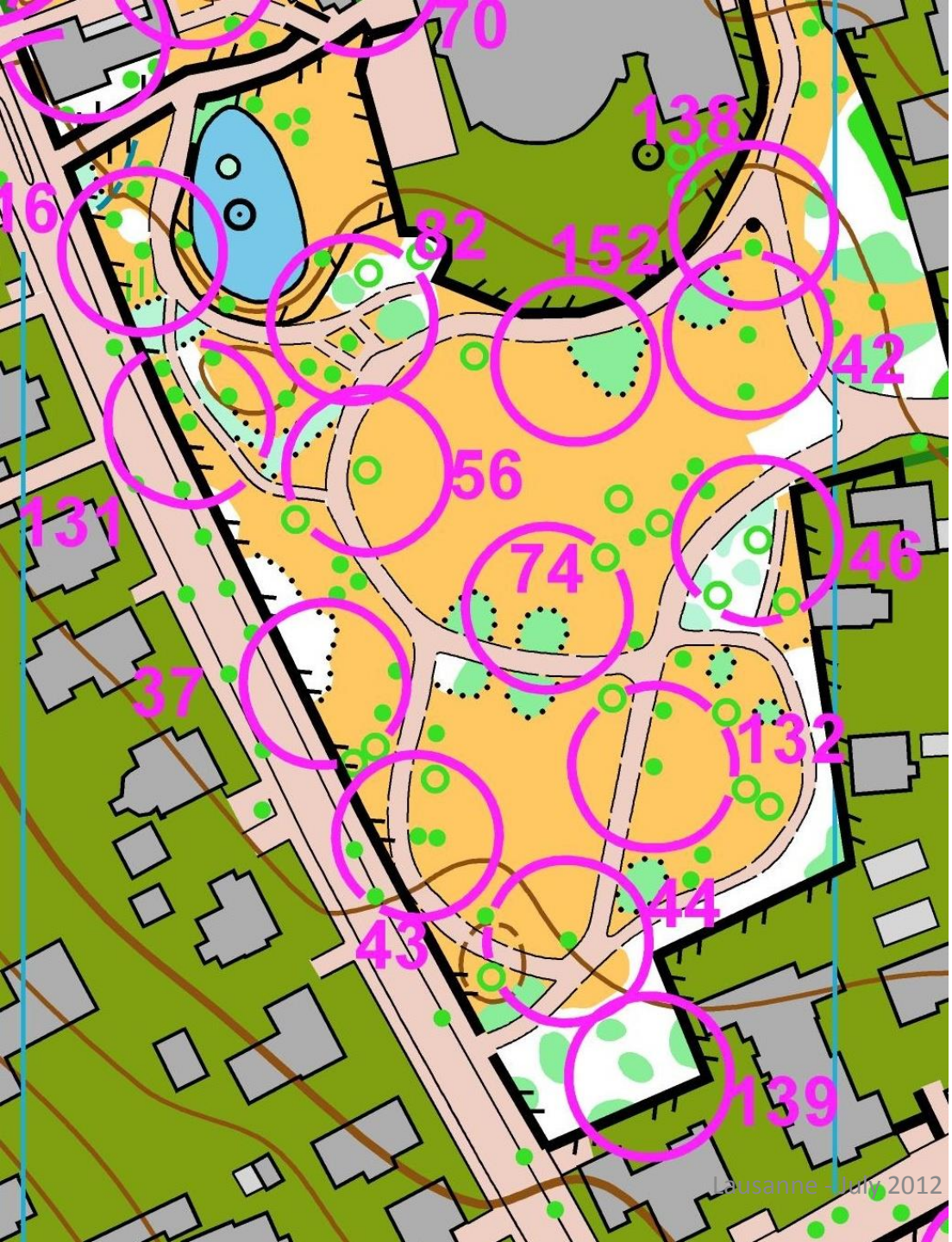
But:

- Increased chance of competitor collision (especially for WMOC)!



Control separations

Can be 15m minimum (or 30m if similar features)

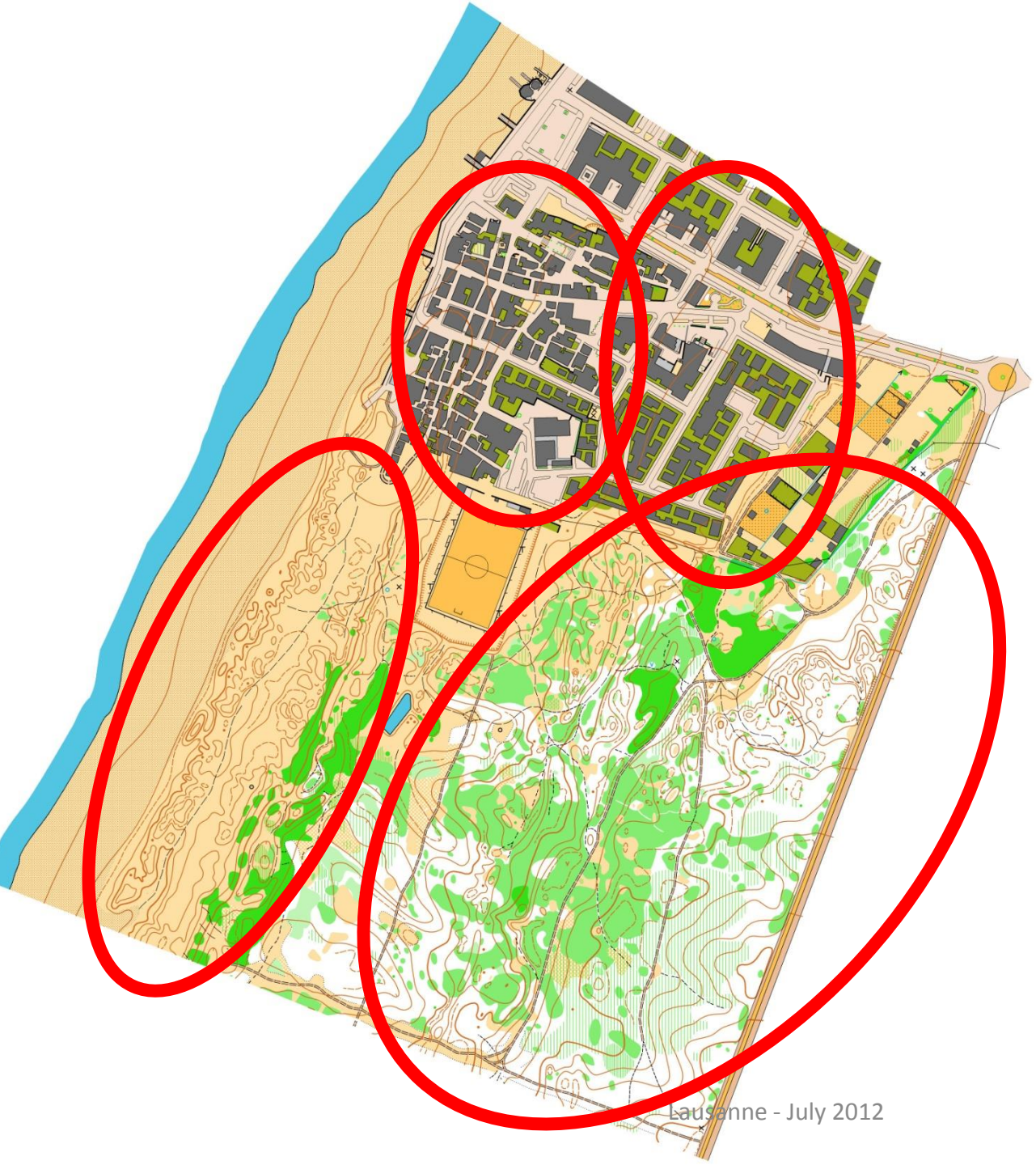


Close controls

- ISSOM mapping allows very precise navigation
- Greater density of controls in Sprint (esp for WMOC!)
- Encourage skill of deciding *which* flag is correct ...

SUMMARY – Good courses give maximum mental challenge!

- e.g. JK08 M21E – 20 controls in 2.7 km
  - Average leg length = 130 m
  - Approx 5 to 7 decision points per leg, or a decision point every 20 to 30 m! (6 to 9 s at elite pace!)
- Example from the WMOC 2008 Final next …



Terrain suitability

Should the IOF EA approve this for a major IOF Sprint race?

Granularity large

Too much forest – green in parts too

Sand dunes

Old town very nice and with small granularity – but only a small area

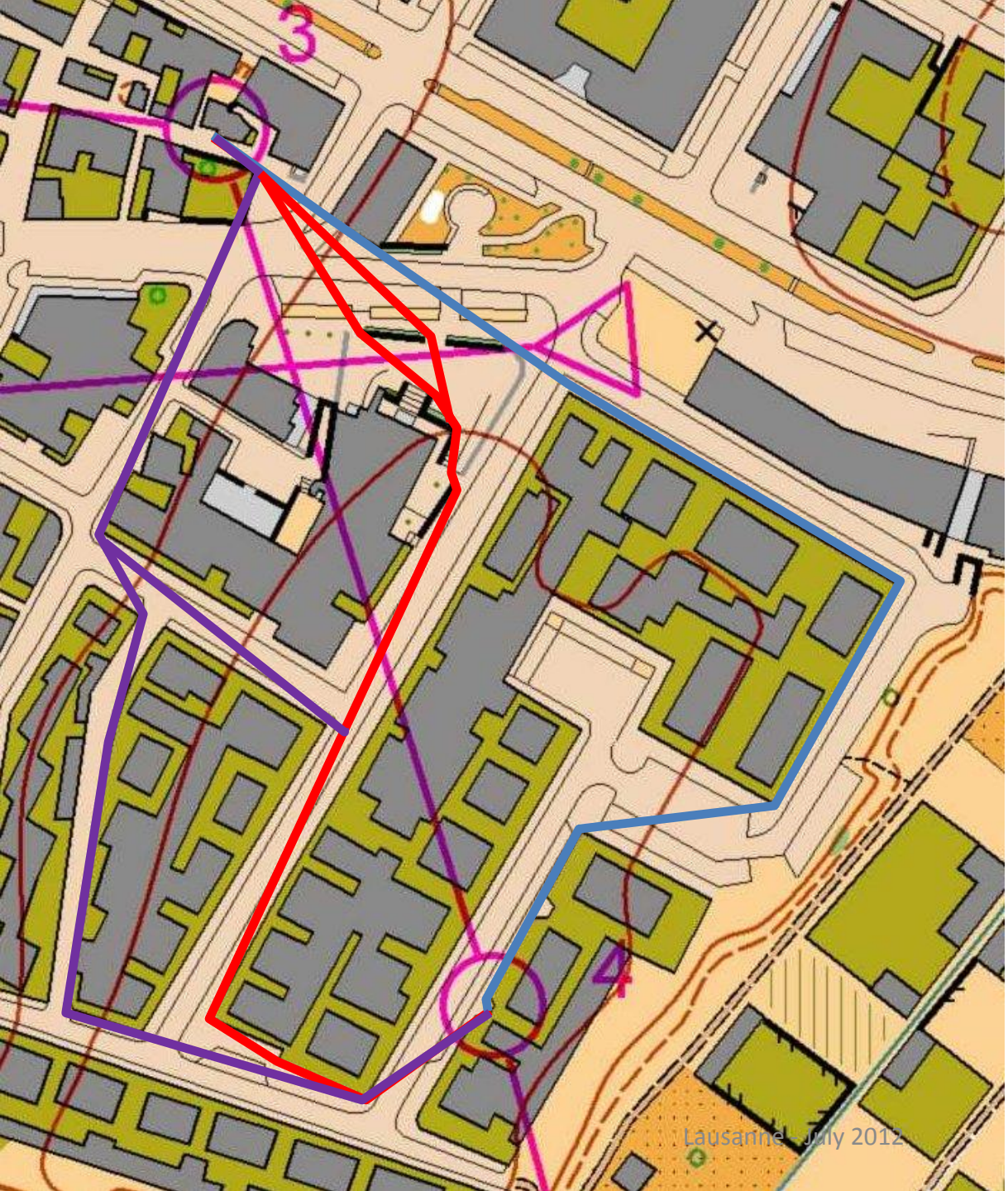
Terrain suitability

Design a course shape for, say, a 2.0 to 2.5km course.

Decide where the Start should be but use the marked Finish

M50A WMOC Sprint Final

- 21 controls in 2.3 km
- 4/5 different terrain types
- 3-4 – good use of “large grain” terrain
- 10 controls in runnable forest/dunes
- Challenging finish in “small grain” old town



M50A leg 3-4

- Unpromising “large grain” terrain - Big blocks with no ways through
- Careful positioning of controls creates a good route choice leg
- Red (3:57)
- Purple (3:31)

Summary

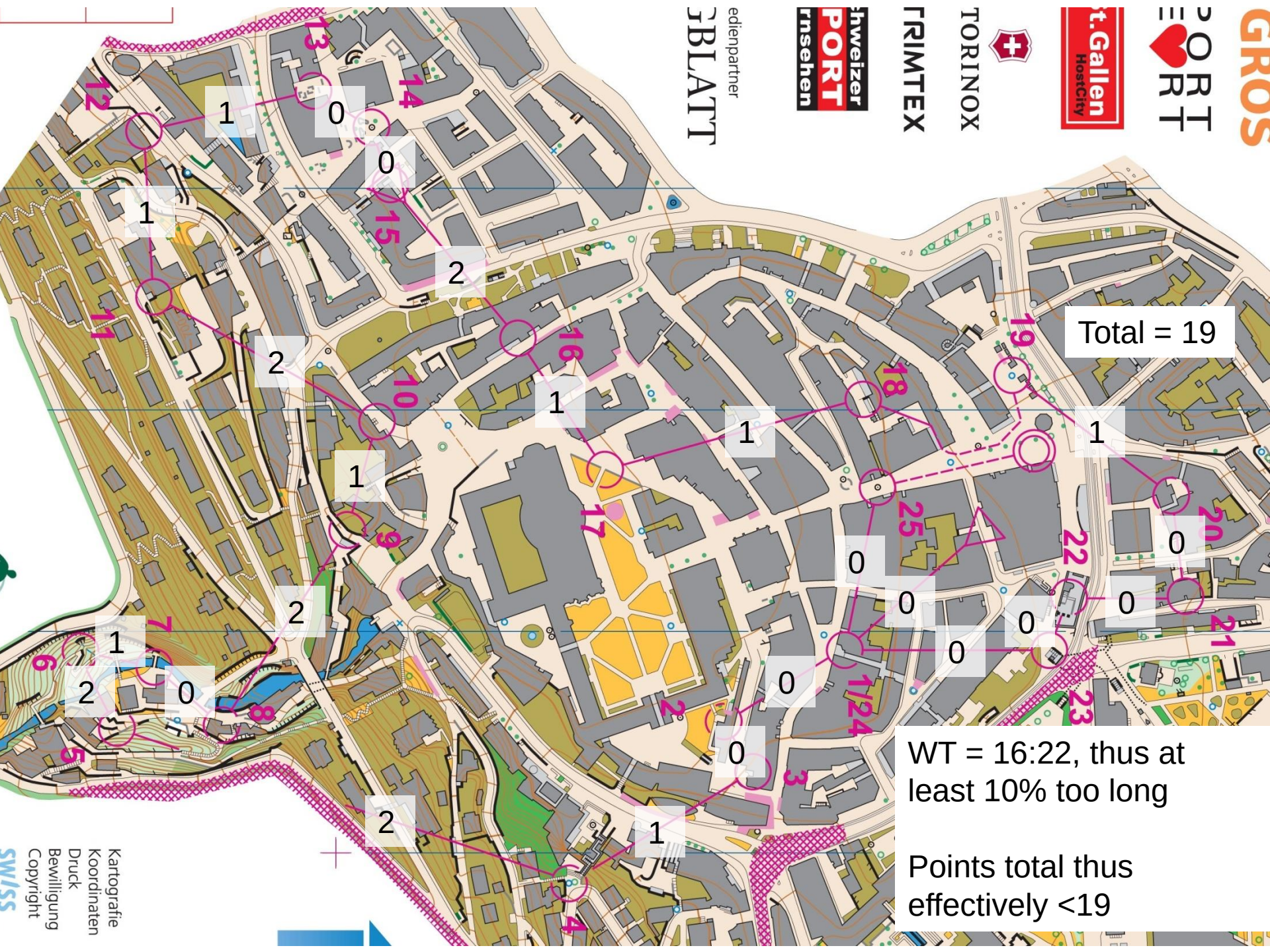
- Sprint is still evolving
  - many planners lack wide experience
  - many also don't understand Sprint philosophy
  - IOF guidance will help
- Terrain selection critical
- Maximise mental challenge
  - use leg quality tool to test the planning

Bonus slide

- Q & A

Or

- Analysis of 2012 Post Finance Sprint on next slide ...


Total = 19
WT = 16:22, thus at least 10% too long
Points total thus effectively <19

WMOC Sprint Final – leg 16 - 17

Red route is 50m shorter but has 5m more climb – balances out!