

Virtual Map (Singapore) Pte Ltd v Singapore Land Authority  
[2008] SGHC 42

**Case Number** : DA 19/2007  
**Decision Date** : 25 March 2008  
**Tribunal/Court** : High Court  
**Coram** : Tan Lee Meng J  
**Counsel Name(s)** : Low Chai Chong, Mark Seah and Alvin Lim (Rodyk & Davidson LLP) for the appellant/defendant; Dedar Singh Gill and Yvonne Tang (Drew & Napier LLC) for the respondent/plaintiff  
**Parties** : Virtual Map (Singapore) Pte Ltd — Singapore Land Authority

*Copyright – Infringement – Fingerprints planted in copyright works – Whether there was copying – Whether copying was substantial – Whether independent creation or mere altering of data – Section 10(1)(b) Copyright Act (Cap 63, 2006 Rev Ed)*

25 March 2008

Tan Lee Meng J:

1 The appellant, Virtual Map (Singapore) Pte Ltd (“VM”), appealed against the decision of District Judge Thian Yee Sze (“DJ Thian”) that it had infringed the copyright of the respondent, Singapore Land Authority (“SLA”), with respect to SLA’s street directory data in vector format and SLA’s address point data of Singapore in vector format (the “copyright works”) and that SLA was entitled to, *inter alia*, an injunction restraining it from infringing the copyright works. DJ Thian also ordered an inquiry as to damages or, at SLA’s option, an account of profits.

### **Background**

2 SLA was established on 1 June 2001 following the merger of four government departments, namely the Singapore Land Registry, the Land Office, the Survey Department and the Land Systems Support Unit. It provides land survey services and land information services and publishes the Singapore Street Directory.

3 VM, which was incorporated in 1999, develops and publishes location-based software and systems. Its services include the provision of online maps, which are the subject matter of the present action.

4 SLA entered into seven licence agreements with VM regarding the use of its street directory data in vector format (“street directory vector data”) and address point data in vector format (“address point vector data”). However, on 10 June 2004, SLA served notice on VM that all licence agreements were terminated. In accordance with the terms of the termination clause in the licence agreements, the agreements terminated on 10 July 2004. There is no assertion that SLA wrongfully terminated the agreements.

5 SLA alleged that after the termination of the licence agreements, VM continued to offer for sale maps that are reproductions of its copyright works. On 20 July 2005, SLA’s solicitors wrote to VM to demand that the latter stop using materials that contained reproductions of SLA’s copyright works and that VM furnish a written undertaking not to repeat the acts of copyright infringement. VM denied having breached SLA’s copyright. Consequently, SLA instituted the present proceedings.

6 At the trial in the District Court, VM asserted that SLA did not own any copyright in the copyright works. However, during the hearing of the appeal, its counsel, Mr Low Chai Chong ("Mr Low"), informed the court that VM was prepared to accept that SLA has copyright in the compilation of the street directory vector data and the address point data but maintained that there was no copying or substantial copying of SLA's data.

### **Did VM breach SLA'S copyright?**

7 For VM to have breached SLA's copyright, it must be shown that there is an objective similarity between the copyright works and the work of VM that allegedly infringed SLA's copyright. It must also be established that this similarity resulted from copying of the copyright works.

#### **(i) The process of map-making**

8 To ascertain whether there has been any infringement of SLA's copyright works, the process of map-making and the storage of the data collected should first be considered.

9 SLA's expert, Mr Carl Edwin Calvert ("Mr Calvert"), a British university lecturer in surveying, mapping and intellectual property rights in geographical information systems ("GIS"), who runs his own consultancy firm, explained that for the purpose of map-making, surveying is not a random artistic impression but an accurate representation of the earth in a two-dimensional framework. One starts with a geodetic datum and framework that is the "skeleton" of an area to be mapped. Further surveying is then required to provide "flesh" for the skeleton. All maps have their genesis in a rigid mathematical framework with regard to the physical shape of the earth and the detail. Since the 1980s, remote sensing, which involves satellite images of the earth, has been utilised for map-making. All the same, the physical details need to be checked on the ground to verify the interpretation and position of the information and to gather information not available from the satellite images. Finally, the details on maps must be classified into transport networks, public buildings, private buildings, parks, lakes, rivers *etc* and all these must be related to the framework used for the map. This requires compliance with a set of rules and involves the interpretation of those rules by the cartographer responsible for placing names or attributes of places in the map. Needless to say, the skill and experience of the cartographer is crucial for proper detailing.

10 Data obtained in the map-making process may be stored either as vector data or raster data. For the purpose of constructing networks, most computer-based Geographic Information Systems ("GIS") use vector data. The difference between the two types of data was explained by DJ Thian in her Grounds of Decision ("GD") at [67] as follows:

Vector data is digital data in the form of points, lines and polygons having a geographic position and shape defined by a set of coordinates. It is data which can be best described as a collection of "rods" of known length and direction. All computer-based ... ("GIS") use vector data so that networks can be constructed. Raster data is the alternative representation of that data in pixels. It is the information used to represent a computer image as a grid of pixels. Rasterised graphics are made up of rows of pixels, such that any change in the size of the picture or the graphic itself results in a change of the pixel size as well. Typical file formats of raster data include *jpeg* and *tiff*.

11 VM's expert witness, Mr Grant Vincent ("Mr Vincent"), a British Chartered Land Surveyor, explained how vector data is converted into raster data in his affidavit of evidence-in-chief ("AEIC") at p 42 as follows:

[T]his is a process of taking large scale intelligent data, generalising it to form the smaller scale mapping and then sending to print. The data in print is 'dumb' ie it has no intelligence to which the user can interrogate to find value-added data.

12 The following elucidation of the convertibility from one form of data to the other by SLA's expert, Mr Calvert at p 7 of Appendix B of his AEIC, is also helpful:

Of course, the matter of going between VECTOR data and RASTER data and vice-versa seems trivial at first glance. Indeed to go from vector to raster is simple; it means that the vector data must be first plotted as a picture then that picture is captured in a manner akin to a photograph. In other words it can be done with little or no human intervention. The reverse is not true. In going from raster to vector each and every line must be traced on a digitising tablet and so the picture is deconstructed into a series of lines, each with a length and direction and usually a list of attributes such as whether the line represents a building or road or edge of vegetation. To vectorise a raster image will take many months of skilled labour as well as a set of rules which each person doing the digitising needs to follow so that the final vector data is consistent within itself.

**(ii) Substantial reproduction is sufficient for copyright infringement**

13 For copyright infringement, all that is required is a *substantial* reproduction by VM of SLA's copyright works. Section 10(1)(b) of the Copyright Act (Cap 63, 2006 Rev Ed) provides that a reference to a "reproduction, adaptation or copy of a work" shall include a reference to a "reproduction, adaptation or copy of a substantial part of the work". The burden of proving substantial copying lies with the plaintiff: see *Creative Technology Ltd v Aztech Systems Pte Ltd* [1997] 1 SLR 621 ("*Creative Technology*").

14 If there was any copying in the present case, it was "altered" copying because VM's maps are not an exact replica of SLA's works. For altered copying, Laddie, Prescott & Vitoria, *The Modern Law of Copyright and Designs*, (Butterworths, 3rd ed, 2000) vol 1 suggests at p 148 that the relevant test for copyright infringement is whether or not the infringer has "incorporated a substantial part of the independent skill, labour etc contributed by the original author in creating the copyright work". In *Designers Guild Ltd v Russell Williams (Textiles) Ltd* [2000] 1 WLR 2416 ("*Designers Guild Ltd*"), Lord Scott described this test at p 2431 as "a useful test, based as it is on the underlying principle of copyright law, namely, that a copier is not at liberty to appropriate the benefit of another's skill and labour".

15 While SLA claimed that VM substantially reproduced its copyright works, VM asserted that its online maps from 9 August 2004 were independently created through the use of GPS data and high-resolution satellite imagery. Its counsel, Mr Low, submitted:

Defendants say that by virtue of their GPS surveys of almost all roads in Singapore, with a car equipped with a GPS machine, it was possible to derive from the downloaded GPS data an outline of all the major and minor roads in Singapore. If you use that outline and put it on top of satellite images of Singapore, you would be able to derive a framework, so to speak, of a map with all the major roads in Singapore.

16 SLA contended that the far too many "fingerprints" of its copyright material in VM's maps show that there was substantial copying of its works rather than independent creation. These "fingerprints" are described by SLA's expert, Mr Calvert, at p 35 of his AEIC as objects "so inconsistent with [VM's] claimed methodology and so consistent with [SLA's] portrayal that it is beyond coincidence

that the object is the same in both portrayals". Both Mr Calvert and VM's expert, Mr Vincent, agreed that "fingerprints" are relevant to determine whether there has been copyright infringement. They also accepted that national mapping organisations insert deliberate errors in their base maps to detect the infringement of their copyright in the maps created by them.

17 The weight to be given to "fingerprints" was considered by the Court of Appeal in *Creative Technology*, where Lai Kew Chai J, who delivered the judgment of the Court, said at [56] that when considering the evidence as a whole, the cumulative weight of all the similarities as a whole and the "fingerprints" in particular must be addressed. He endorsed the following passage from Hoffman J's judgment in *Billhofer Maschinenfabrik GmbH v TH Dixon & Co* [1990] FSR 105 at p 123:

It is the resemblances in inessentials, the small, redundant, even mistaken elements of the copyright work which carry the greatest weight. This is because they are least likely to have been the result of independent design.

18 SLA's expert, Mr Calvert, placed the offending "fingerprints" in VM's maps into a number of categories. These are considered below.

#### *Phantom or ghost details and errors*

19 The first group of "fingerprints" concerns phantom or ghost details, which are non-existent objects deliberately inserted by SLA in its maps in order to flush out copycats. Many of such "deliberate" errors in SLA's maps are reproduced in VM's online maps.

20 To begin with, SLA labelled a non-existent building as a "temple" and deliberately placed it beside Block 891A, Woodlands Drive 50 in the August 2002 version of its vector map image. Remarkably, this non-existent building also appears on VM's online map, as viewed in February 2005.

21 Another non-existent building, which was numbered as "92" and deliberately planted in SLA's vector map at the junction of Pitt Street and Jalan Besar, is also reproduced in VM's online map, as viewed in February 2005.

22 Yet another non-existent building, numbered as "6", was deliberately placed by SLA in its vector map (version August 2002) along Edgedale Plains. Strange as it may seem, this non-existent building is also reproduced in VM's online map, as viewed in September 2004.

23 Apart from non-existent buildings, a non-existent short road that purportedly extends from Jurong West Street 23 northwards was deliberately inserted by SLA in its August 2002 vector map image. This non-existent road is also found in VM's online map, as viewed in September 2004.

24 Thus far, deliberate errors have been mentioned. It is worth noting that even SLA's genuine mistake in relation to the road direction arrow outside the Subordinate Courts was repeated in VM's online map as at February 2005. If VM's map-makers had been doing a thorough job in their independent map-making exercise, they would have noticed the mistake in the road direction arrow and this would not have been repeated in VM's online map.

#### *Incorrectly named buildings*

25 The second type of "fingerprints" in SLA's copyright works concerns incorrectly-named buildings and building numbers. One example of such an error that was reproduced by VM will suffice. In SLA's vector map (October 2001 version), the building name "The Faraday" was placed above another

building named "The Fleming" whereas the building name "The Fleming" was placed on top of "The Faraday". This mistake also appeared in VM's online map, as viewed in September 2004. This is surprising as SLA had corrected this mistake in its revised version in August 2002.

#### *Similarities in shape*

26 The third type of "fingerprints" relates to similarities in shape. Several examples of identical or extremely similar shapes were highlighted during the trial. For instance, in relation to Fort Gate, SLA's expert, Mr Calvert, who explained that its shape is identical in both SLA's and VM's maps, said that it was not possible for VM to have the same exact portrayal as in SLA's map, and especially so since Fort Gate does not have the shape portrayed in SLA's map. If VM had indeed worked on the basis of satellite images, its depiction of the shape of Fort Gate would have been different from that of SLA.

27 Furthermore, two existing buildings adjacent to Fort Gate are not depicted on SLA's maps. Remarkably, these two buildings, which should have appeared on VM's satellite images, are also missing from VM's online maps.

#### *Unique features in SLA's address point database*

28 The fourth type of "fingerprints" relate to a number of unique features in SLA's address point database.

29 For a start, SLA uses a unique building name convention with respect to HDB buildings. It identifies public residential buildings with the prefix "HDB". An example of this is "HDB Alexandra". More pertinent is that SLA's naming of HDB blocks has some inconsistencies in that "HDB" was sometimes followed by a hyphen (eg HDB-Alexandra) and was sometimes without a hyphen (eg HDB Alexandra). SLA's building name convention and all its inconsistencies in using or omitting the hyphen are mirrored in VM's data. This speaks little of independent creation by VM.

#### *Identical X and Y coordinates for 58 address points*

30 Finally, reference must be made to 58 identical X and Y coordinates for address points in SLA's database that were reproduced in VM's database. These coordinates concern the point that SLA chose for the geographical location of a building or units in the same building sharing the same six-digit Singapore postal code. As SLA's expert, Mr Calvert explained, the "skeleton" of SLA's data is "the absolute and relative position of map date". The X and Y coordinates identify the exact absolute and relative position of a feature on a map and may be regarded as the "information layer" of a map. As SLA's counsel, Mr Dedar Singh ("Mr Singh") emphasized, to copy the address point would be to copy the absolute and relative position of a feature on a map.

31 VM submitted that the fact that only 58 address points were copied meant that only a negligible number of address points were the same in both its data and that of SLA. However, SLA's expert, Mr Calvert, who stressed that there should not be this number of identical address points, explained that in regard to these identical address points, the question should not be what the dog said as it is a "miracle" that the dog spoke at all. He added as follows:

To have one identical may be coincidence, to have two is suspicious, to have 58 is incontrovertible evidence that the co-ordinates come from the same source. Furthermore, as building outlines in SLA and VM are of different shapes, the chances of both generating the exact same centre points for each building is so infinitesimally low as to be negligible.

**(iii) VM must explain that similarities did not result from copying**

32 In the light of the many damning “fingerprints” mentioned above, the following words of Lord Millet in *Designers Guild Ltd* at p 2425, which describe the first part of his two-step test, are relevant:

If the plaintiff demonstrates sufficient similarity, not in the works as a whole but in the features which he alleges have been copied, *and establishes that the defendant had prior access to the copyright work*, the burden passes to the defendant to satisfy the judge that, despite the similarities, they did not result from copying.

[emphasis added]

33 VM had prior access to SLA’s copyright data by virtue of the licence agreements. As such, it was up to VM to prove that the “fingerprints” in question did not result from its copying of SLA’s data. It was all too clear that its witnesses failed in this task miserably.

34 VM’s task of proving that the new maps are the result of its own independent creation was made more difficult because the two persons most intimately involved with its map-making exercise, namely Mr Khairul Anuar bin Mohd Yunos (“Mr Anuar”) and Mr Rizal Firdaus (“Mr Rizal”), had no qualifications in land survey or any experience in cartography.

35 Mr Rizal, a “designer cum web programmer”, described himself as the leader of VM’s mapping team. His lack of competence as a map-maker was exposed when he was asked during cross-examination to comment on one of VM’s maps, which was obviously off the mark because the roads intended to lead to a car-park stopped well before the car-park. The relevant part of the proceedings is as follows:

Q: See the VM website map. Can you tell us what is wrong with that map there?

A: There is no error down here.

Q: There is nothing wrong with the map on VM website?

A: This one I obtained from the satellite.

Q: *The problem ... is that the roads don’t take you to the car park. Can you explain?*

A: *I don’t know.*

Q: *You have put yourself as an expert in making maps. And you don’t know how to read [this map]. Your answer is you don’t know?*

A: ... This is taken from the satellite. *Maybe it is human error.* The person had forgotten to take down the road.... *No explanation.*

[emphasis added]

36 It was hardly surprising that SLA’s counsel, Mr Singh, asserted that a clear inference can be drawn in relation to VM’s claim of independent map creation when its map-maker is unable to even identify an irregularity in a map showing roads that do not, as they should, lead to the car-park in

question.

37 Apart from their lack of credentials, the evidence of Mr Anuar and Mr Rizal did not advance VM's claim that its online maps had been independently created. Mr Anuar put VM in a spot when he admitted in his AEIC just how important a part SLA's data played in his map-making exercise. He stated as follows at [8]:

I was provided with a Kangoo vehicle fitted with VM Intellitrac Global Positioning System (GPS) equipment, as well as the Defendants' in-house GPS tracking software ("VM Space") installed in an IBM laptop for the purpose of the road surveys. *The vector data licensed from the Singapore Land Authority ... would already be installed in VM Space for each map area assigned to me.*

[emphasis added]

38 Realising how damaging his AEIC was to VM's case, Mr Anuar sought to delete the above-mentioned italicised sentence from his AEIC during the trial. Although he now claimed that he did not know what maps were utilised in VM Space, his answers during cross-examination merely confirmed what he had expressed in his AEIC at [8]. During the appeal, VM sought to downgrade Mr Anuar's testimony by calling him a "driver". This was a desperate move to dilute the value of his evidence as it was clear from Mr Anuar's contract of employment that he had been hired as a surveyor and not a driver.

39 Both Mr Anuar and Mr Rizal spoke of "verifying", "altering", "updating" or "changing" SLA's data when referring to their own map-making exercise in their AEICs and during cross-examination. The following part of the proceedings during the cross-examination of Mr Anuar illustrates the position:

Q: What you were doing was when you were conducting your GPS surveys, you were using the GPS surveys to *verify the data that was in VM Space.*

A: It is correct.

[emphasis added]

40 Mr Rizal explained that for the online maps on VM's website prior to 9 August 2004, he converted SLA's vector data into a format compatible with VM's software, after which he made them more interactive and fully coloured. However, he claimed that the online maps uploaded on 9 August 2004 were not derived from SLA's vector data. For these later maps, he claimed to have used the GPS data from his surveyors and traced the roads in a blue line in what was the centre of the roads. He then refined and adjusted the blue lines to best reflect where the roads were and he did this with reference to SLA's vector data. Thereafter, he converted the information into a raster image and superimposed it onto VM's vector data.

41 As the new information was superimposed on VM's vector data, one is still left with a question as to the source of VM's vector data. For this, the following extract from the cross-examination of Mr Rizal speaks volumes:

Q: When you first created what you say is your vector in 2000 ... you used SLA's vector to create your own vector?

A: Yes ....

Q: You accept that your 2000 vector is derived from SLA's vector?

A: Yes.

42 It must be noted that when referring to compilations, *Copinger and Skone James on Copyright*, vol 1 (Kevin Garnett *et al* eds) (Sweet & Maxwell, 15<sup>th</sup> Ed, 2005) ("*Copinger and Skone James on Copyright*") stated at p 398 that even "to copy the claimant's work but then ... go to the source to check that the information is correct will be an infringement". It was not surprising that SLA's counsel, Mr Singh, submitted that VM's map-making involved nothing other than verification or alteration of SLA's data in VM Space.

43 Apart from the above evidence which showed that there was no independent creation by VM, the fact remains that VM was unable to give a satisfactory explanation as to why there were so many "fingerprints" of SLA's works in its own online maps. When cross-examined on the need to explain "fingerprints", VM's expert, Mr Vincent, said as follows:

Q: Would you agree if I say that if there are errors and fingerprints, they call for an explanation?

A: Yes, I will absolutely agree with that.

44 The main map-maker, Mr Rizal, testified that he had come to court without having read Mr Calvert's AEIC, which detailed so many fingerprints, and that he had not discussed Mr Calvert's report with VM's expert, Mr Vincent. In view of this, he was in no position to deal intelligibly with questions regarding the fingerprints. A sample of his answers should be considered.

45 When questioned about the non-existent short road that purportedly extends from Jurong West Street 23, Mr Rizal's testimony as to why this deliberate error in SLA's vector data found its way into VM's online map made no sense whatsoever. The relevant part of the cross-examination is as follows:

Q: [I]f you say that you have these people driving in vehicles, tracking by GPS, [p 365 Vol 1] ... you have people collecting data for you, you have satellite images, how did these errors come about?

A: During the creation of this new road, *there is no log data for this road because this is a restricted area...*

Q: *This is not a restricted area, ... the road just doesn't exist.*

A: My surveyor cannot go into this place.

Ct: *But witness, there is no such place. Any explanation?*

A: *No.*

[emphasis added]

46 As for the non-existent building numbered "92", which was placed by SLA at the junction of Pitt Street and Jalan Besar, Mr Rizal also could not explain why, with all the satellite images, this non-existent building also appeared in VM's online map as late as February 2005. The relevant part of the proceedings is as follows:



Q: Can you see a circle with building numbered "92". ... [Y]ou have the same building [in VM's map], which doesn't exist on the ground. Any explanation?

A: No explanation. Maybe this is an error made by my team.

47 As for the non-existent building numbered "6" along Edgedale Plains that had been deliberately placed by SLA in its map, Mr Rizal did not effectively counter the allegation of copying. When questioned, his answer was as follows:

Q: The small building numbered "6" does not exist, but the same building finds its way in Defendant's screenshot in Sep 04. Any explanation?

A: No explanation. Human error.

48 When cross-examined on why an incorrectly named building in SLA's data was reproduced in VM's online maps, Mr Rizal also had no answer. The relevant part of the cross-examination is as follows:

Q: ... Mistake is the same?

A: Human error.

Q: Are you hazarding guesses? What sort of answers are you giving now? Are you guessing?

A: No, I am not guessing. It is true.... Human error. There are many involved in doing the updating. And there could be old files with the same things. Small old files in existence. Human error.

49 In the light of Mr Rizal's unhelpful testimony, it was not surprising that DJ Thian said in her GD at [119] that his "unconvincing answers spoke volumes of the sustainability, or lack thereof, of VM's claims that it did not copy SLA's vector data and that its online maps were a product of independent creation."

50 As for why SLA's naming conventions for HDB blocks were reproduced in VM's online maps, VM also could not offer a convincing explanation that the similarity has nothing to do with copying. When cross-examined on this "fingerprint", VM's shareholder, Mr Adrian Khoo Eng Cheng ("Mr Adrian Khoo"), who is also a director of Robert J Steiner Pte Ltd, a computer software company that collaborated with VM in the creation of the latter's maps, said as follows:

Q: The question is that when SLA calls it HDB-Alexandra, you will call it the same. But when SLA calls it HDB Alexandra without the hyphen, you will follow.

A: I think my database entry staff overlooked this....

Ct: *What is the explanation for the inconsistencies appearing in both SLA and VM's database?*

A: *I have no explanation.*

[emphasis added]

51 VM also could not explain why 58 address points were identical. When cross-examined, Mr Adrian Khoo said as follows:

Q: Can you tell us why these 58 are identical?

A: We use a software called the database admin module to update and create our XY address points. Apparently, there was some misunderstanding on walk-up apartments. So, we sort of left that out.

Q: *So will I be right to say that you say you left it out, you just followed what was in the SLA address point.*

A: Yes.

[emphasis added]

52 The conclusion to be drawn with respect to VM's position on the copying of SLA's address point database was summarised by Mr Calvert in the concluding part of his AEIC as follows:

All the examples, bar one, ... indicate that VM has based its address point database on SLA's address point database. The modifications of some of the AP's coordinates in the examples suggest, in my opinion, a deliberate attempt to create the illusion of difference....

In my opinion, it is highly unlikely that VM has generated APs with exactly the same co-ordinates without the use of any or all of mapped building boundaries or a common list of co-ordinates. From my own experience what VM are doing is deliberate obfuscation, for if VM had produced APs independently then the chances of having identical co-ordinates would be practically nil....

The example of Annex C indicates that where VM have not copied, and that is a minority of cases, they are incapable of providing accurate data of the same standard as SLA, and more importantly, of the same standard to which they claim independent creation.

53 As for why the words "Jalan" and "Jln" in SLA's maps are followed by VM, despite having claimed to have collated information from SingPost, Mr Adrian Khoo was at a loss when cross-examined on similarities between SLA's data and VM's maps. The relevant part of the proceedings is as follows:

Q: [As for the use of "Jalan" and "Jln"], can you explain why you have these identical usages of [the terms as in the SLA database]?

A: No, I can't explain.

Q: So, Mr Khoo, will I be correct to say that this information you have earlier testified comes from SingPost actually comes from SLA?

A: No ....

Q: .... If you followed SingPost, you will not have the issues identified in the illustrations I gave you.... If this information only appears in SLA's address point, how does it find its way into the [VM's] address point?

A: *For this particular information, the data was carried over from SLA's address point for HDB naming convention.*

[emphasis added]

54 SLA's expert, Mr Calvert explained that while it was theoretically possible to create maps

through VM's professed method of using GPS and satellite imagery, the evidence reveals that VM did not follow its own professed method. He summed up the position regarding VM's claim of independent map-making as follows when he was cross-examined:

In their evidence, they say that they have a copy of SLA's vector data within their software, and also hard copy of maps which were licensed from SLA, so therefore what they have done *is to verify the SLA roads and not create a map independently*. This does not detract from their statement that they have driven every road with GPS. What they have said is that they have compared, it is in Rizal's evidence, compared the GPS track with SLA roads and overlaid the raster data with SLA vector data and shifted it such that SLA licensed data fitted onto their roads.... In Rizal's evidence as well, he says that where the GPS track coincided with the SLA roads, he did not bother to make any changes. Therefore, it is for that reason I say that in theory, it is possible to control a satellite image using GPS but that in [VM's] own evidence, they say that whilst they have done it, they have not done it unaided but have used either SLA data directly or their licensed version of the map.

[emphasis added]

*Was the copying substantial?*

55 As VM had failed to explain why there were innumerable "fingerprints" of SLA's works in its maps or to establish that its maps were the result of its own independent creation, the next question is whether VM's copying was substantial.

56 In the second part of his two-step test for copyright infringement in *Designers Guild Ltd*, Lord Millet said at p 2426 as follows:

Once the judge has found that the [defendants incorporated] features taken from the copyright work, the question is whether what has been taken constitutes all or a substantial part of the copyright work. This is a matter of impression for *whether the part taken is substantial must be determined by its quality rather than its quantity. It depends on its importance to the copyright work*. It does not depend upon its importance to the defendants' work.... The pirated part is considered on its own ... and its importance to the copyright work assessed. There is no need to look at the infringing work for this purpose.

[emphasis added]

57 Lord Millet's two-step approach was endorsed by *Copinger and Skone James on Copyright*, who stated at p 419 as follows:

[T]o escape infringement a defendant himself must carry out the survey, gather the information and do whatever else is necessary to compile the work, and not simply appropriate the claimant's labour.

58 VM's counsel submitted that even if there was copying, it was not substantial copying. Occasionally, he referred to the fact that copying, if any, was not substantial when compared to the overall work of VM. However, as Lord Millet stressed in *Designers Guild Ltd* at p 2425, "while the copied features must be a substantial part of the copyright work, they need not form a substantial part of the defendant's work" and even if the overall appearance of the defendant's work may be very different from the copyright work, it does not follow that the defendant's work does not infringe the plaintiff's copyright. In any case, it is pertinent to note that *Copinger and Skone James on Copyright*

states as follows at pp 386-387:

The court may of course go on to make a finding, based on this small number of points in common, that copying on a larger scale has taken place, but unless it does so, the court will not be justified in a holding that there has been copying of a substantial part.

59 SLA's expert, Mr Calvert, testified that what had been copied by VM was "substantial in both quality and quantity" and that it was "self evident that the scale, orientation and positioning of detail in VM's website is consistent throughout the island, something unattainable without a geodetic basis, and something to which [VM does] not lay claim". In fact, he went so far as to conclude that the method used by VM to produce their website mapping has been such as to disguise their copying. He added that while many of the details on the current VM web mapping (16 July 2006) may have come from satellite images, in his opinion, the task of mapping from satellite could not have been done without the skeleton of SLA's data.

60 In agreeing with Mr Calvert, DJ Thian explained in her GD at [91] as follows:

The cumulative weight of all the similarities and "fingerprints" found, viewed together, pointed without a doubt to the inference that, *prima facie*, there was not only copying, but widespread or wholesale copying by VM. The copying was nothing other than substantial. VM argued that as the "fingerprints" did not pertain to essential features, there was hence no evidence of substantial reproduction. The expert witness for VM, Vincent, was of the view that any minor "ghosting" similarities could not be regarded as significant or substantial. The truth was quite the contrary. To echo the poignant remarks by Hoffmann J (as he then was), it was the resemblances in inessentials, the small, redundant, even mistaken elements of the copyright work, as seen in the "fingerprints" which I highlighted above, which carried the greatest weight and which, in my view, *represented just the tip of the iceberg*. This was because such seemingly insignificant errors and similarities were, unless proven otherwise, least likely to have been the result of independent design.

[emphasis added]

61 DJ Thian accepted that VM had improved and beautified SLA's data. However, the fact remains that that VM's actual map-making process was heavily dependent on SLA's vector data, which provided what she termed the "backbone" or "skeleton" of VM's allegedly new maps. She concluded at [122] as follows:

In the final analysis, the evidence presented before the court made it abundantly clear that VM had failed to prove any independent creation on its part of all its online maps. VM was also unable to give any cogent explanation with regard to the "fingerprints" of copying. VM clearly modelled its online maps on SLA's vector data. SLA had successfully made out its case of substantial reproduction and following from that, infringement of copyright by VM of its street directory vector and address point vector data.

62 I agree with her reasoning and conclusion.

63 As for VM's argument that any finding of infringement should be restricted to its Level 6 maps, this is without any merit. VM's maps had six levels of magnification, with level 1 being on the smallest scale, and level 6, which had the most details, being on the largest scale. SLA's expert, Mr Calvert testified as follows:

[T]he method of independent creation [claimed by VM] does not differentiate between scales. Therefore, if the same method of survey and data collection exists for Level 6, then unless I have evidence to the contrary, it must extend to the other levels also.

64 It should also be noted that in his AEIC at [19], Mr Rizal stated that the map-making process for levels 1, 2 and 3 maps is similar to the making of levels 4, 5 and 6 maps. The only difference is that the base file (freehand file) is different. As DJ Thian pointed out, VM's evidence revealed that the same method of survey and data collection was used for all six levels. VM's infringement thus extends to all six levels of its maps.

65 This finding of infringement affects *all* of VM's maps used or created after the termination of the licence agreements. Admittedly, there are three different periods when VM uploaded maps onto their system. The first was from 11 July 2004 to 8 August 2004, the second was from 9 August 2004 to 12 May 2005 and the third was from 13 May 2005 onwards. It is unnecessary for these time periods to be considered in detail for the simple reason that there were ample admissions by VM that in regard to the first time frame, the maps were based on SLA's licensed data and there was no satisfactory evidence of independent map-making in relation to *all* the other maps that were the subject of scrutiny by the court.

#### **Whether the Licence Agreements permitted VM to continue to use SLA's data**

66 VM claimed that the licence agreements allowed it to continue to use SLA's copyright works already utilised in the creation of its virtual maps after the termination of the said agreements. In fact, during the trial, VM went so far as to take the astounding position that with the termination of the licence agreements, it no longer had to pay SLA royalties for marketing derivative products containing SLA data. If this is correct, as soon as VM first acquired the licence to load SLA's data onto its maps, it could, by the simple act of terminating the licence agreement, have the perpetual right to continue to use SLA's data that has already been loaded onto its maps without having to pay any royalties. However, there is nothing in the licence agreements that support VM's assertions. The tenor of all the licence agreements was that SLA's copyright in its works would be given adequate protection.

67 All these agreements gave VM a right to use SLA's data so long as the said agreements remained in force. VM knew that this was the position because the leader of its map-making team, Mr Rizal, stated in his AEIC at [43] that after SLA terminated the licence agreements, he was told by VM's shareholder, Mr Adrian Khoo, that he "could no longer use [SLA's] raw data".

68 VM pointed out that there is no express term in the licence agreements requiring them to destroy or delete SLA's work in their maps after the termination of the licence agreements. This, without more, does not give VM a licence to continue to use SLA's copyright data after the termination of the licence agreements. One should not confuse VM's contractual obligations with SLA's copyright.

69 VM next asserted that it was an implied term of the said agreements that it would be allowed to keep any map created under the agreements and "to continue to maintain, market, distribute sell or offer to sell otherwise deal with the same". As the licence agreements were rather exhaustive on the rights and obligations of the contracting parties, an implied right to continue to use the licensed data after the termination of the licence agreements cannot sit comfortably with the express terms of the agreement. In *Forefront Medical Technology (Pte) Ltd v Modern-Pak Pte Ltd* [2006] 1 SLR 927, Andrew Phang J, noted at [29] that "in order not to undermine the concept of freedom of contract itself, terms should be implied only rarely". There is certainly no room in the present case for the implication of an implied term of the nature claimed by VM, whether on the basis of the "business

efficacy test" propounded in *The Moorcock* (1889) 14 PD 64 or the "officious bystander" test propounded by MacKinnon LJ in *Shirlaw v Southern Foundries (1926) Limited* [1939] 2 KB 206.

70 VM relied on a number of English cases to support its assertion that it is entitled to continue to use SLA's data after the termination of the licence agreements but these cases are clearly distinguishable. For instance, *Regina Glass Fibre Limited v Werner Schuller* [1972] FSR 141 concerns the use of confidential information or know-how and not copyright infringement and is not considered in any of the major works on copyright law. There can be no doubt that the present case is not one where a term of the nature canvassed by VM should be implied.

## **Estoppel**

71 I now turn to VM's assertion that SLA was estopped from asserting that its copyright had been infringed. The apparent basis for this assertion was that SLA had not taken action to protect its copyright for some time after the termination of the licence agreements when it knew that VM was continuing to sell its online maps to the public.

72 In regard to estoppel in copyright cases, it is worth noting that in *Genelabs Diagnostics Pte Ltd v Institut Pasteur & Anor* [2001] 1 SLR 121 ("*Genelabs*"), the Court of Appeal endorsed at [76] the following statement of the law as set out in *Halsbury's Laws of England* (4<sup>th</sup> Ed Reissue) at [924]:

The term acquiescence is ... properly used where a person having a right and seeing another person about to commit, or in the course of committing an act infringing that right, stands by in such a manner as really to induce the person committing the act and who might otherwise have abstained from it, to believe that he consents to its being committed; a person so standing-by cannot afterwards be heard to complain of the act.

73 There is no evidence that SLA had induced VM to breach its copyright. It is worth noting that in *Genelabs*, the Court of Appeal held that the respondents, who knew of the appellants' infringing activities in 1996 had "proceeded with reasonable despatch" when they commenced an action against the appellants in 1998. In the present case, after seeking legal advice, SLA instructed its solicitors around 15 months after the termination of the licence agreements to demand that VM cease its infringing activities. SLA filed the present action when it became apparent that its dispute with VM could not be resolved except by the institution of legal proceedings. In any case, it should not be overlooked that in separate proceedings in *Virtual Map (Singapore) Pte Ltd v Suncool International Pte Ltd* [2005] 2 SLR 157, SLA's senior manager, Mr Chim Voon How, had filed an affidavit on 1 September 2005 to the effect that as far as SLA was concerned, VM's rights in the street directory maps are subject to SLA's copyright in these maps.

74 VM's assertion that SLA is estopped from taking legal action against it for infringement of copyright is thus without any foundation.

## **Conclusion**

75 For reasons stated, VM's appeal is dismissed with costs.