basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P1

NOVEMBER 2025

MARKS: 150

TIME: 3 hours

This question paper consists of 18 pages.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections.

   SECTION A
   QUESTION 1: CLIMATE AND WEATHER (60)
   QUESTION 2: GEOMORPHOLOGY (60)

   SECTION B
   QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES (30)

2. Answer ALL THREE questions.

3. ALL diagrams are included in the question paper.

4. Leave a line between the subsections of questions answered.

5. Start EACH question at the top of a NEW page.

6. Number the answers correctly according to the numbering system used in this question paper.

7. Do NOT write in the margins of the ANSWER BOOK.

8. Draw fully labelled diagrams when instructed to do so.

9. Answer in FULL SENTENCES, except when you have to state, name, identify or list.

10. Units of measurement MUST be indicated in your final answer, e.g. 1020 hPa, 14 °C and 45 m.

11. You may use a non-programmable calculator.

12. You may use a magnifying glass.

13. Write neatly and legibly.

SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

14. A 1 : 50 000 topographical map 3318DD STELLENBOSCH and a 1 : 10 000 orthophoto map 3318 DD 18 STELLENBOSCH are provided.

15. The area demarcated in RED/BLACK on the topographical map represents the area covered by the orthophoto map.

16. Show ALL calculations. Marks will be allocated for steps in calculations.

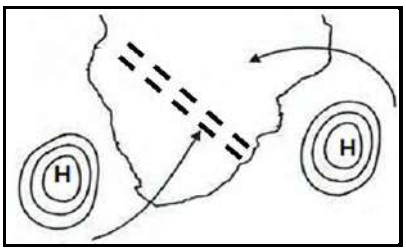
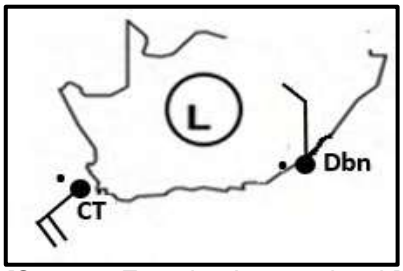
17. You must hand in the topographical and orthophoto map to the invigilator at the end of this examination session.

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SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

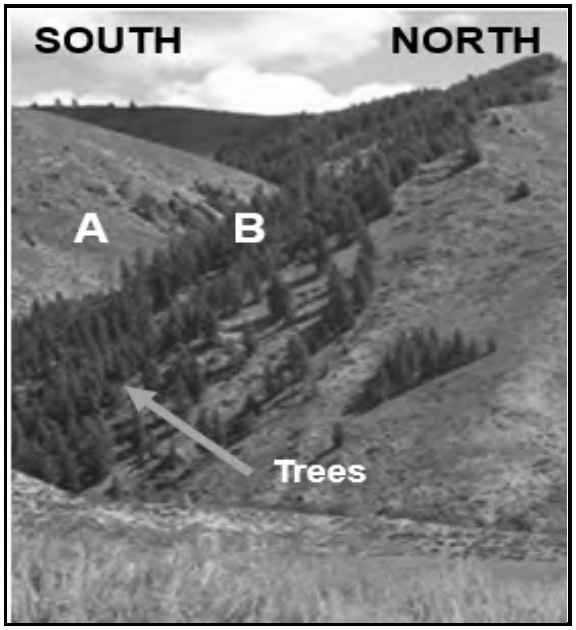
1.1 The questions are based on synoptic weather map interpretation. Complete the statements in COLUMN A with the options in COLUMN B. Write only **Y** or **Z** next to the question numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, e.g. 1.1.9 Y.

COLUMN A		COLUMN B	
1.1.1	The name of the air pressure cell that dominates the interior of South Africa in winter	**Y** **Z**	heat low Kalahari high
1.1.2	Air movement associated with high-pressure cells	**Y** **Z**	convergence divergence
1.1.3	The general direction of movement of a coastal low-pressure system is …	**Y** **Z**	easterly westerly
1.1.4	The … is known as a blocking high when it is in the path of the mid-latitude cyclone.	**Y** **Z**	South Indian high Kalahari high
1.1.5	The elongation of isobars extending outwards from a high-pressure cell is referred to as …	**Y** **Z**	diverging ridging
1.1.6	A … is found between two air masses of different moisture contents.	**Y** **Z**	moisture front inter-tropical convergence zone
1.1.7	The conditions represented in the sketch below will lead to …  [Source: Examiner's own sketch]	**Y** **Z**	line thunderstorms berg winds
1.1.8	Rainfall with 20 knots of wind is likely at …  [Source: Examiner's own sketch]	**Y** **Z**	Durban (Dbn) Cape Town (CT)

(8 x 1) (8)

1.2 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (1.2.1 to 1.2.7) in the ANSWER BOOK, e.g. 1.2.8 D.

Refer to the photograph on slope aspect below to answer QUESTIONS 1.2.1 to 1.2.3.



[Source: https://upload.wikimedia.org/wikipedia/commons/d/d8/Effects_of_aspect.JPG]

1.2.1 Slope aspect refers to …

A upslope movement of air in a valley.
B climate on a smaller scale.
C a zone of warmer air in the valley.
D slope direction in relation to the sun.

1.2.2 The photograph represents a valley in the … Hemisphere.

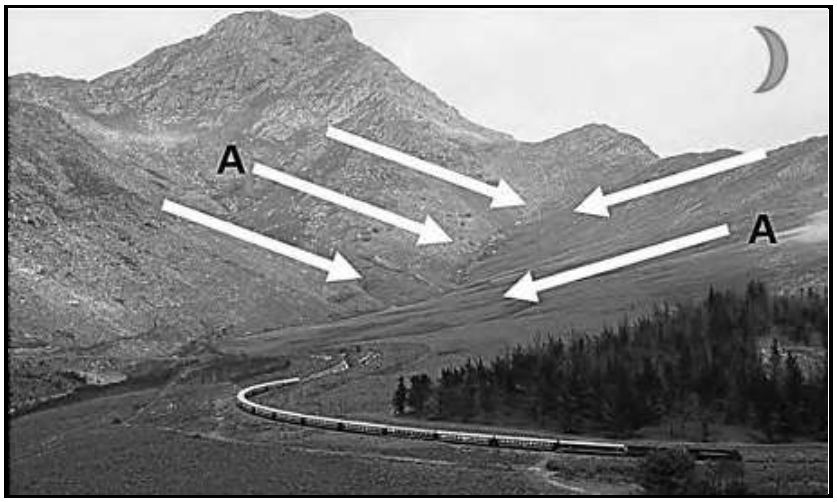
A Northern
B Eastern
C Southern
D Western

1.2.3 Slope **B** represents a … and … slope.

(i) cooler
(ii) warmer
(iii) moist
(iv) drier

A (i) and (ii)
B (ii) and (iii)
C (i) and (iii)
D (ii) and (iv)

Refer to the photograph on valley winds below to answer QUESTIONS 1.2.4 to 1.2.7.



[Source: https://d19lgisewk9l6l.cloudfront.net/assetbank/Oudtshoorn_.jpg]

1.2.4 The arrows at **A** indicate a/an … wind.

A anabatic
B katabatic
C upslope
D onshore

1.2.5 The main conditions for the formation of the wind at **A** are … and …

(i) terrestrial radiation
(ii) solar radiation
(iii) low temperatures
(iv) high temperatures

A (i) and (iii)
B (i) and (iv)
C (ii) and (iii)
D (ii) and (iv)

1.2.6 … forms when the dew point temperature of air is below freezing point on the valley floor.

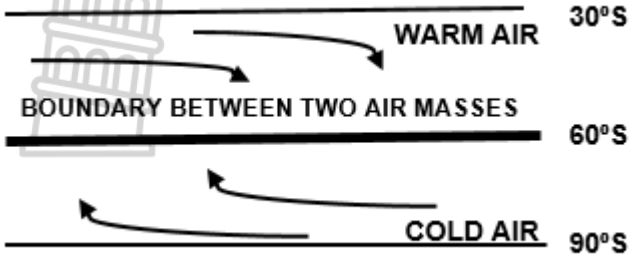
A Mist
B Fog
C Frost
D Smog

1.2.7 The negative physical (natural) impact of the answer to QUESTION 1.2.6 is that it …

A reduces visibility.
B increases pollution.
C increases rainfall.
D destroys vegetation. (7 x 1) (7)

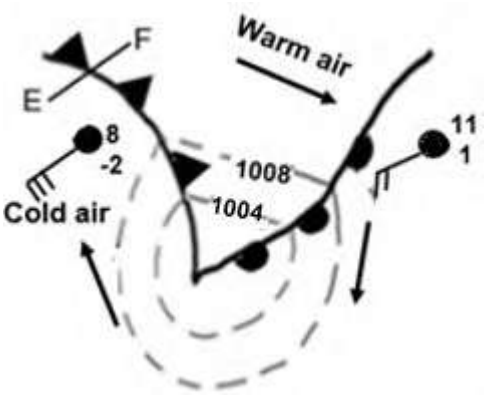
1.3 Refer to the sketches below on the mid-latitude cyclone.

A



[Source: Examiner's own sketch]

B



[Source: Examiner's own sketch]

C



D



[Source: https://www.google.com/search?+impact of mid-latitude cyclones]

1.3.1 What is the name of the boundary between two air masses, as shown in sketch **A**? (1 x 1) (1)

1.3.2 Give ONE reason why the boundary between the two air masses in sketch **A** would form a wave. (1 x 1) (1)

1.3.3 Name the stage of development of the mid-latitude cyclone associated with weather conditions in photographs **C** and **D**. (1 x 1) (1)

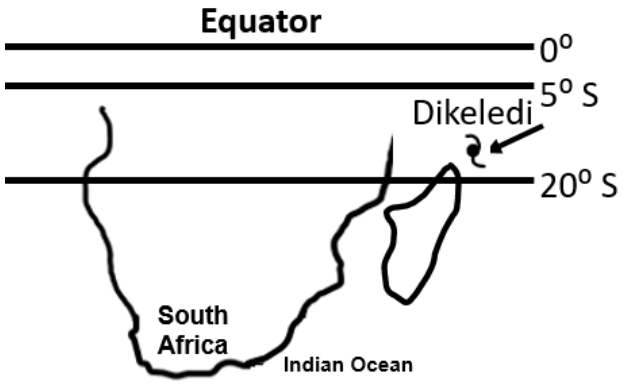
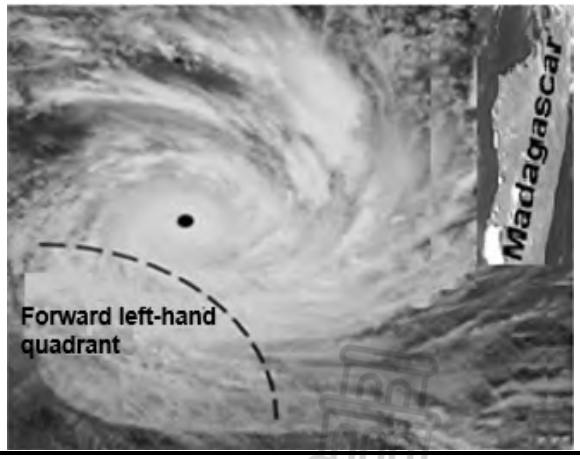
1.3.4 Explain how the weather conditions illustrated in photographs **C** and **D** developed during the stage named in QUESTION 1.3.3. (2 x 2) (4)

1.3.5 In the ANSWER BOOK, draw a fully labelled cross-section of a cold front (**E**–**F**) in sketch **B**. Clearly indicate the following:

(a) Correct cross-section
(b) General direction of movement of the mid-latitude cyclone
(c) Cloud type
(d) Sector (4 x 1) (4)

1.3.6 Refer to sketch **B**. Explain how the difference in temperature of the air masses behind the cold front and ahead of the warm front will result in the formation of a cold front occlusion. (2 x 2) (4)

1.4 Refer to the infographic below on Tropical Cyclone Dikeledi.

A: FACT FILE	B: LOCATION MAP
Tropical Cyclone Dikeledi was first observed off the north-east coast of Madagascar. **Conditions recorded on 8 January 2025:** Pressure in the centre: 996 hPa Maximum wind speed: 75 km/h **Conditions recorded on 13 January 2025:** Pressure in the centre: 976 hPa Maximum wind speed: 150 km/h	 [Source: Examiner's own sketch]
C: SATELLITE IMAGE	**D: SATELLITE IMAGE**
Time span: 2025/01/08 03:30 to 2025/01/08 14:00 UTC	Time span: 2025/01/13 14:00 to 2025/01/13 15:30 UTC 

[Adapted from https://afriwx.co.za/synoptic-charts/]

1.4.1 According to the fact file, in which stage of development was Tropical Cyclone Dikeledi on 8 January 2025? (1 x 1) (1)

1.4.2 Give TWO reasons in the fact file to support your answer to QUESTION 1.4.1. (2 x 1) (2)

Refer to location map **B**.

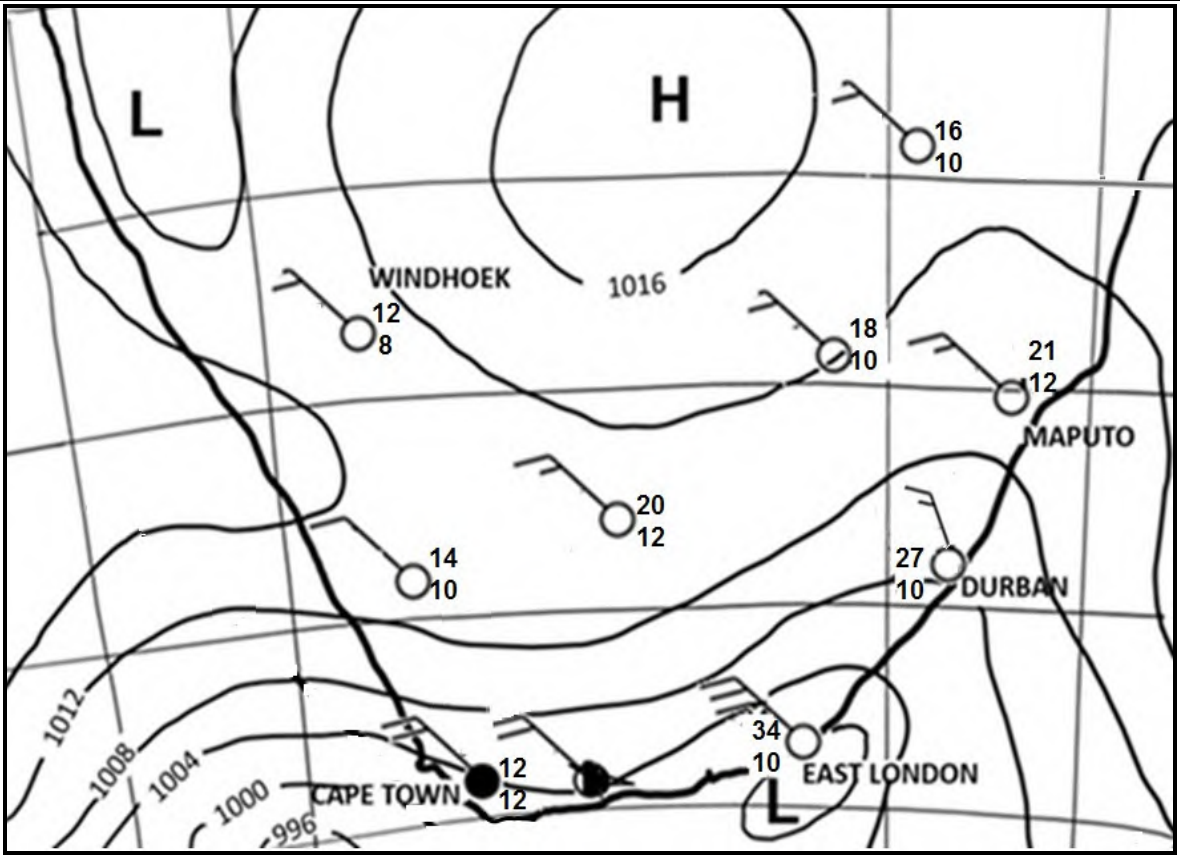
1.4.3 Explain why Tropical Cyclone Dikeledi developed between 5° and 20° south of the equator. (2 x 2) (4)

Refer to the satellite images **C** and **D**.

1.4.4 Describe the weather conditions associated with the forward left-hand quadrant (dangerous semicircle) in satellite image **D**. (2 x 2) (4)

1.4.5 Explain why Tropical Cyclone Dikeledi intensified from 8 January to 13 January 2025. (2 x 2) (4)

1.5 Refer to the synoptic weather map below showing South African berg winds.



Extremely hot and uncomfortable conditions are expected across the Eastern Cape. Temperatures are expected to rise above 30 °C.

[Adapted from https://SAWS#WatherOutlook#Southafricanweather]

1.5.1 Name ONE South African city indicated on the synoptic weather map that is experiencing berg wind conditions. (1 x 1) (1)

1.5.2 Give evidence from the synoptic weather map to support your answer to QUESTION 1.5.1. (1 x 2) (2)

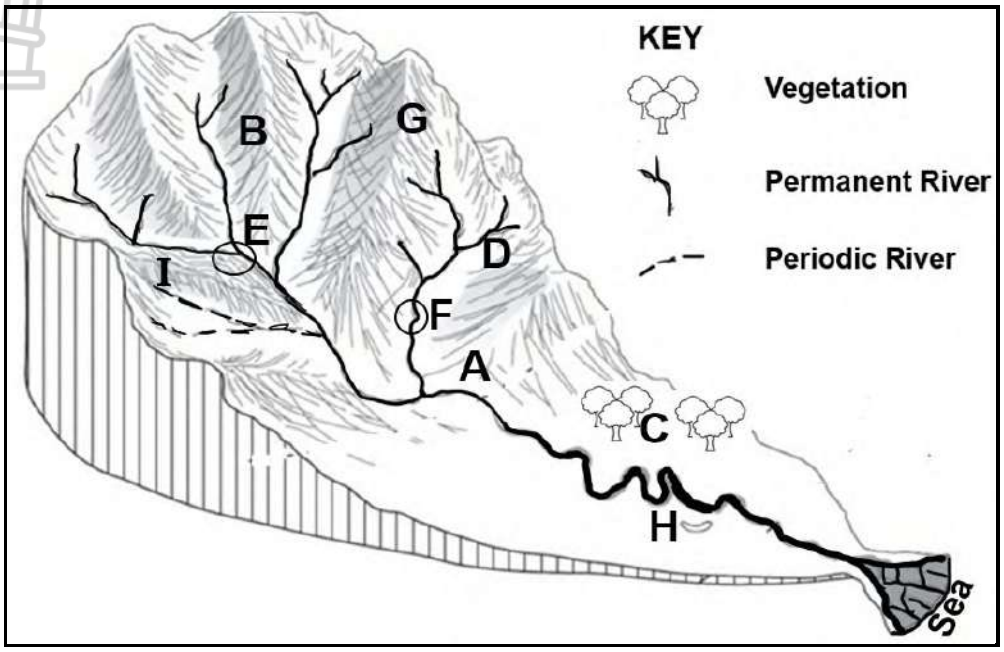
1.5.3 Explain the processes that lead to berg winds being warm and dry. (2 x 2) (4)

1.5.4 The warm and dry conditions can influence veld fires. In a paragraph of approximately EIGHT lines, suggest sustainable strategies that can be put in place to reduce the negative impact of veld fires. (4 x 2) (8)

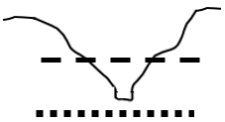
[60]

QUESTION 2: GEOMORPHOLOGY

2.1 Refer to the sketch below based on drainage basins. Complete the statements in COLUMN A with the options in COLUMN B. Write only **Y** or **Z** next to the question numbers (2.1.1 to 2.1.8) in the ANSWER BOOK, e.g. 2.1.9 Y.

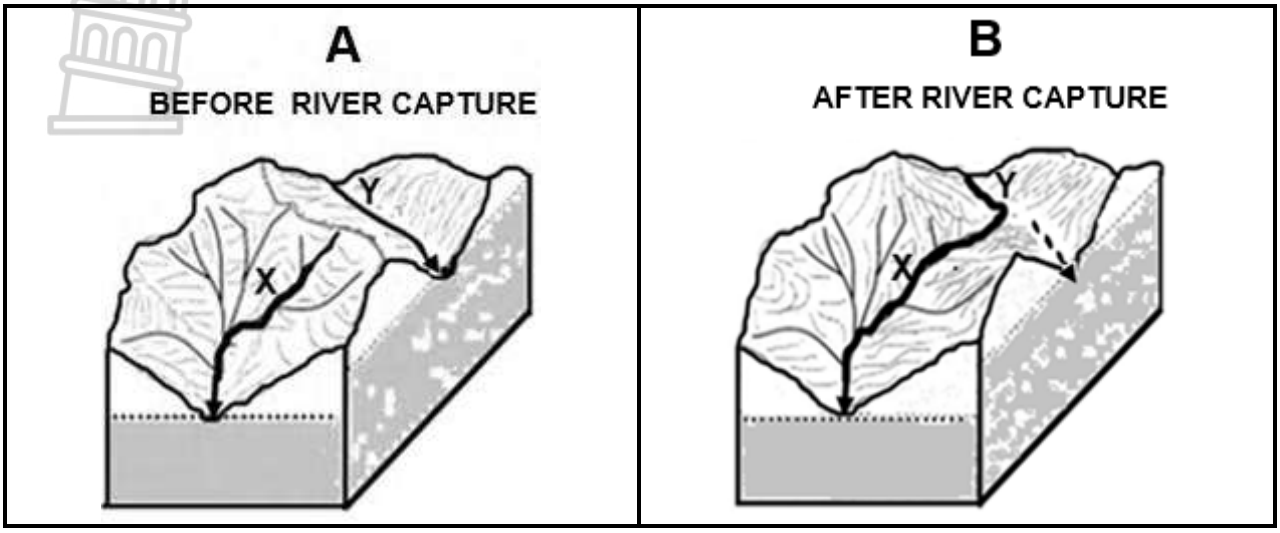


[Source: Examiner's own sketch]

COLUMN A		COLUMN B
2.1.1	The main river **A** and its tributaries are referred to as a …	**Y** catchment area **Z** river system
2.1.2	The ... in area **B** separates one stream from another.	**Y** watershed **Z** interfluve
2.1.3	The area at **C** will have a ... infiltration rate.	**Y** low **Z** high
2.1.4	The river at **D** is a ... river.	**Y** permanant **Z** periodic
2.1.5	The confluence on the sketch is located at …	**Y** E **Z** F
2.1.6	... will increase in area **G** due to the steep slope.	**Y** Infiltration **Z** Run-off
2.1.7	The stage of the river at **H** is the … course.	**Y** lower **Z** middle
2.1.8	The water table at **I** will resemble … KEY — — — — Rainy Season Water Table ▪▪▪▪▪▪▪ Dry Season Water Table	**Y**  **Z** 

(8 x 1) (8)

2.2 Refer to the sketches below on river capture. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (2.2.1 to 2.2.7) in the ANSWER BOOK, e.g. 2.2.8 D.



[Adapted from https://www.google.com/url?sa=expeditieaarde.blogspot.com%river capture-]

2.2.1 A river that has its water diverted into another river is referred to as a …

A captured stream.
B stream piracy.
C captor stream.
D headward stream.

2.2.2 Rivers flowing over areas with a … are more likely to be the captor stream.

A gentle gradient and soft rock
B steep gradient and low rainfall
C steep gradient and soft rock
D heavy rainfall and resistant rock

2.2.3 Evidence that river capture has taken place in sketch **B**:

A River **Y** has more water flowing in it.
B River **Y** has captured the headwaters of river **X**.
C River **X** has captured the headwaters of river **Y**.
D River **X** has a smaller drainage basin.

2.2.4 The cause of river capture, as shown in sketch **B**, is …

A headward erosion by river **Y**.
B lateral erosion by river **X**.
C headward erosion by river **X**.
D vertical erosion by river **Y**.

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2.2.5 The part of the river that has less water after river capture is known as the … stream.

A captor
B non-perennial
C perennial
D misfit

2.2.6 River **X** has more erosive power after river capture because of …

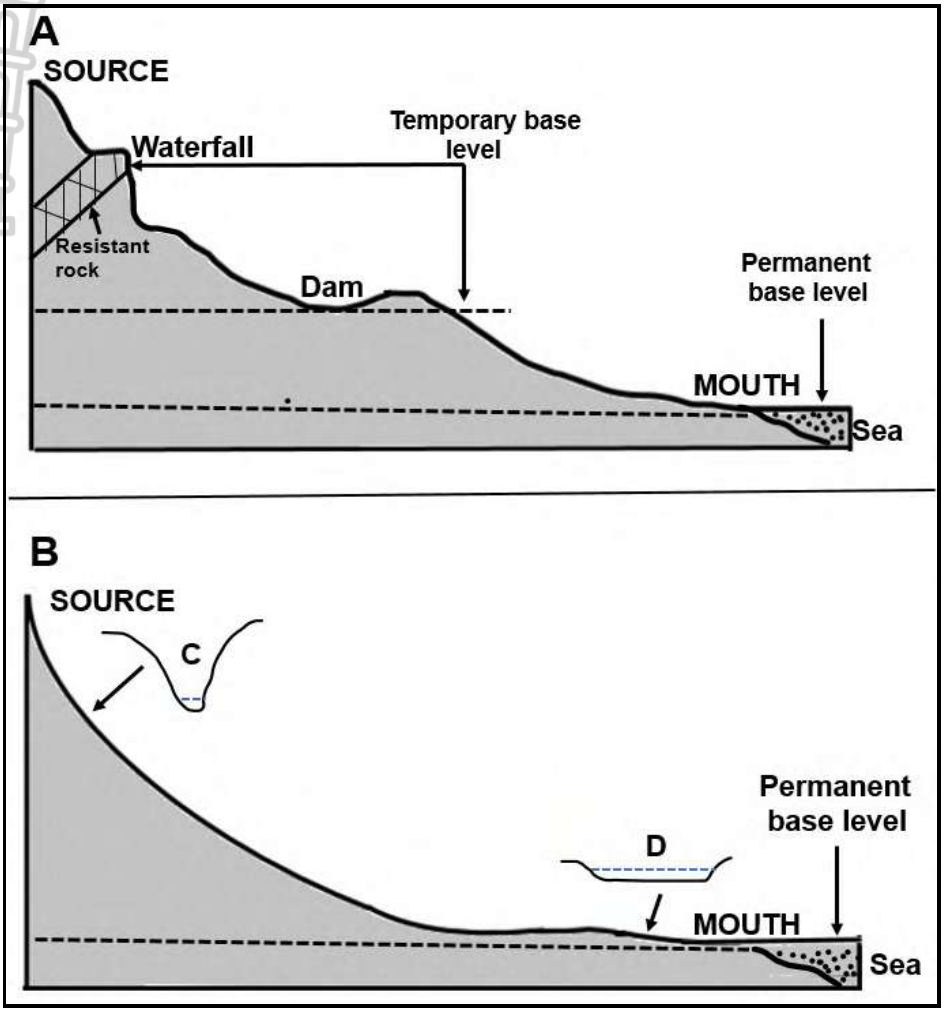
A a greater volume of water and turbulent stream flow.
B a greater volume of water and laminar flow.
C headward erosion and turbulent stream flow.
D rejuvenation and laminar flow.

2.2.7 The physical (natural) impact of river capture on the captor stream is that the … and …

(i) drainage basin decreases
(ii) river rejuvenation takes place
(iii) deposition increases
(iv) water flows faster

A (i) and (iv)
B (i) and (iii)
C (ii) and (iv)
D (ii) and (iii) (7 x 1) (7)

2.3 Refer to the sketches below showing two longitudinal river profiles.



[Source: Examiner's own sketch]

2.3.1 What is a *longitudinal profile*? (1 x 2) (2)

2.3.2 Which ONE of the sketches above shows a graded longitudinal profile? (1 x 1) (1)

2.3.3 Give evidence in the sketch to support your answer to QUESTION 2.3.2. (2 x 1) (2)

2.3.4 Classify EACH of the temporary base levels in sketch **A** as either natural or human-made. (2 x 1) (2)

2.3.5 Why is the sea indicated as the permanent base level? (1 x 2) (2)

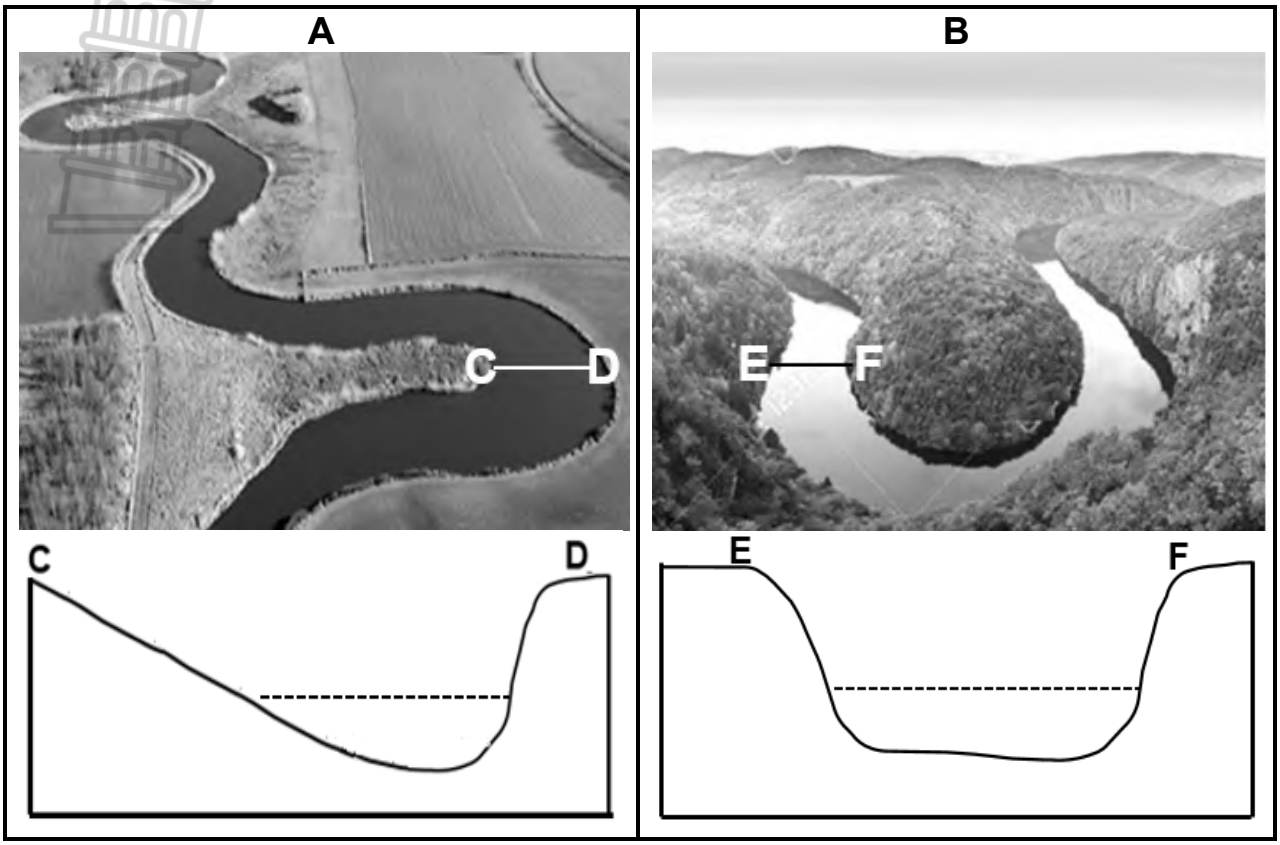
Refer to cross-profiles **C** and **D**.

2.3.6 Differentiate between the shapes of the cross-profiles at **C** and **D**. (1 x 2) (2)

2.3.7 Explain the main processes that give rise to the difference in the shape of cross-profiles **C** and **D**. (2 x 2) (4)

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2.4 Refer to photographs **A** and **B** below showing meanders.



[Source: https://www.google.com/search?+meanders&tbm]

2.4.1 Meanders are more likely to form in the (upper/lower) stage/course of a river. (1 x 1) (1)

2.4.2 Account for the gentle gradient of the inner bank at **C** in photograph **A**. (1 x 2) (2)

Refer to photograph **B** and cross-section **E–F**.

2.4.3 How does the process of river rejuvenation lead to the formation of incised meanders? (2 x 2) (4)

2.4.4 Refer to photograph **A**. In a paragraph of approximately EIGHT lines, explain how an oxbow lake is formed. (4 x 2) (8)

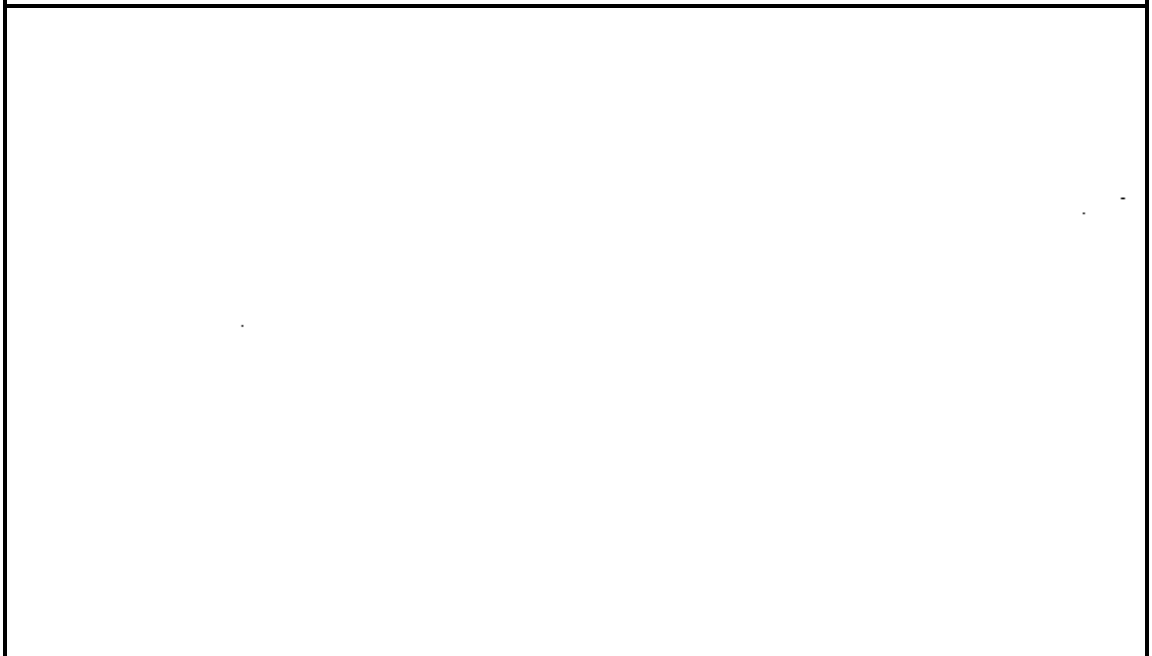
NSC confidential

2.5 Refer to the extract and photograph below on catchment and river management.

IMPACT OF SETTLEMENTS ON RIVER MANAGEMENT

Dense settlements that locate along rivers have a negative impact on rivers. The main reason is that these settlements generally receive poor service provision. These poor communities also do not have the means to pay for the provision of services, such as waste removal.

When large amounts of waste pile up in the settlement, the community is more likely to dispose of the waste in the river. This leads to further pollution, eventually leading to serious health risks for the community.



[Adapted from https://witsvuvuzela.com/2022/11/28/-residents-live-on-the-edge-of-a-health-hazard/]

2.5.1 According to the extract, why are dense settlements along rivers associated with pollution? (1 x 1) (1)

2.5.2 Give TWO reasons from the photograph to support your answer to QUESTION 2.5.1. (2 x 1) (2)

2.5.3 Explain how the rise in the water level of the river will negatively affect the houses (in the photograph) due to their location. (1 x 2) (2)

2.5.4 Explain the negative impact of poor river management on the health of rivers. (2 x 2) (4)

2.5.5 Suggest strategies that the municipality can put in place to ensure the sustainability of the river in the photograph. (3 x 2) (6)

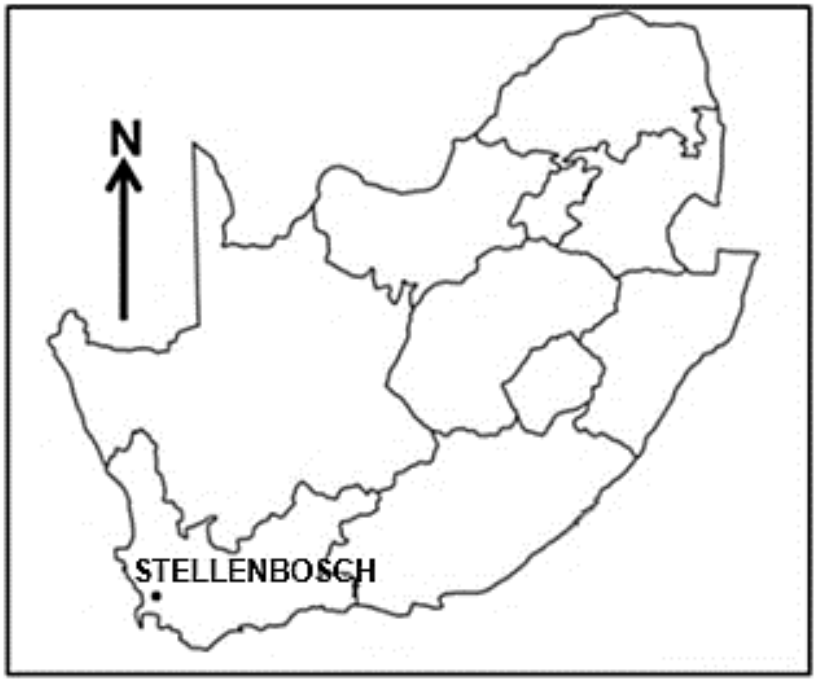
[60]

TOTAL SECTION A: 120

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

GENERAL INFORMATION ON STELLENBOSCH



Coordinates: 33°45'S; 18°45'E

Stellenbosch is located in a hilly, sheltered valley within the Cape Winelands, with an average elevation of 136 metres above sea level, surrounded by hills and mountains, like Papegaaiberg, Stellenboschberg, and the Jonkershoek, Drakenstein and Simonsberg mountain ranges. It is situated approximately 50 kilometres east of Cape Town.

Stellenbosch has a Mediterranean climate with warm, dry summers and cool, rainy winters.

The Eerste River originates in the Jonkershoek Mountains, 60 kilometres east of Cape Town, and flows through the Jonkershoek Valley before reaching Stellenbosch.

[Adapted from https://en.wikipedia.org/wiki/Stellenbosch]

The following English terms and their Afrikaans translations are shown on the topographical map:

ENGLISH	AFRIKAANS
River	Rivier
Nature reserve	Natuurreservaart
Mountain	Berg

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 Calculate the difference in height between trigonometrical station **F** in block **C3** and trigonometrical station **G** in block **D3**. (2 x 1) (2)

3.1.2 The natural feature found at 33°58'29"S; 18°54'15"E is a …

A trigonometrical station.
B perennial river.
C saddle.
D spot height. (1 x 1) (1)

3.1.3 Calculate the average gradient from **6** in block **E5** to **7** in block **D5** on the orthophoto map.

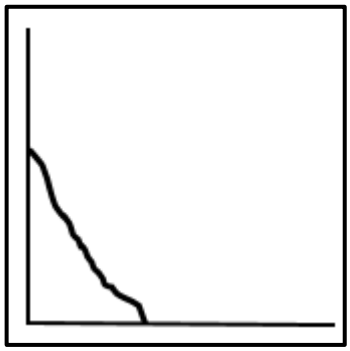
Use the following information:

Vertical interval (VI) = 60 m

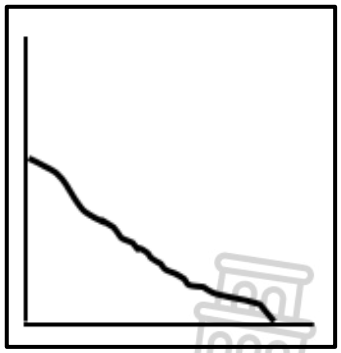
Formula: $\frac{\textbf{Vertical Interval (VI)}}{\textbf{Horizontal Equivalent (HE)}}$ (4 x 1) (4)

3.1.4 Match the average gradient (answer to QUESTION 3.1.3) with sketch **A** or **B** below.

A



B



(1 x 1) (1)

3.1.5 Is **L** in block **C2** visible from **H** in block **C4** on the topographical map? (1 x 1) (1)

3.1.6 Give a reason for your answer to QUESTION 3.1.5. (1 x 1) (1)

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3.2 MAP INTERPRETATION

3.2.1 Stellenbosch has a … climate.

A tropical
B arid
C Mediterranean
D subtropical (1 x 1) (1)

3.2.2 Stellenbosch experiences seasonal rainfall. Give evidence from block **A5** on the topographical map to support this statement. (1 x 1) (1)

Refer to area **8** on the orthophoto map.

3.2.3 Explain why area **8** will experience lower temperatures than the surrounding built-up area. (1 x 2) (2)

Refer to the row of trees labelled **J** in block **E3** on the topographical map.

3.2.4 State the general wind direction experienced in the area around **J** during the night. (1 x 1) (1)

3.2.5 Give evidence from the map to support your answer to QUESTION 3.2.4. (1 x 2) (2)

Refer to the topographical map.

3.2.6 Stellenboschberg is a watershed. Give evidence from the map to support this statement. (1 x 2) (2)

Refer to the photograph of a river located in Stellenbosch.



[Source: shutterstock.com]

3.2.7 Will the river depicted on the photograph be located at **K** in block **D1** or **L** in block **C2**? (1 x 1) (1)

3.2.8 Give a reason for your answer to QUESTION 3.2.7. (1 x 2) (2)

3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

3.3.1 The number 310, labelled **M** on the main road in block **A3** on the topographical map, is referred to as … data.

A spatial
B vector
C attribute
D numerical (1 x 1) (1)

3.3.2 Identify a natural line feature in block **A4** on the topographical map. (1 x 1) (1)

Refer to area **9** in block **A3** on the orthophoto map.

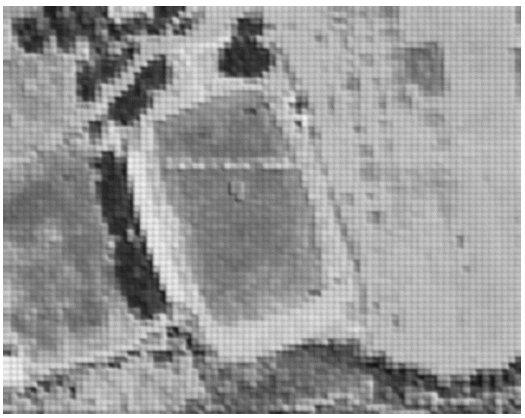
3.3.3 Using data manipulation, explain how you would manipulate the scale at area **9** to make the image clearer. (1 x 2) (2)

3.3.4 … refers to the clarity of an image.

A Data integration
B Buffering
C Data sharing
D Resolution (1 x 1) (1)

Refer to the images of the Danie Craven Stadium below, extracted from block **D1/D2** on the orthophoto map.

A



B



[Source: https://earth.google.com/web/search/Danie+Craven+Stadium,+Coetzenburg+Street/@-A]

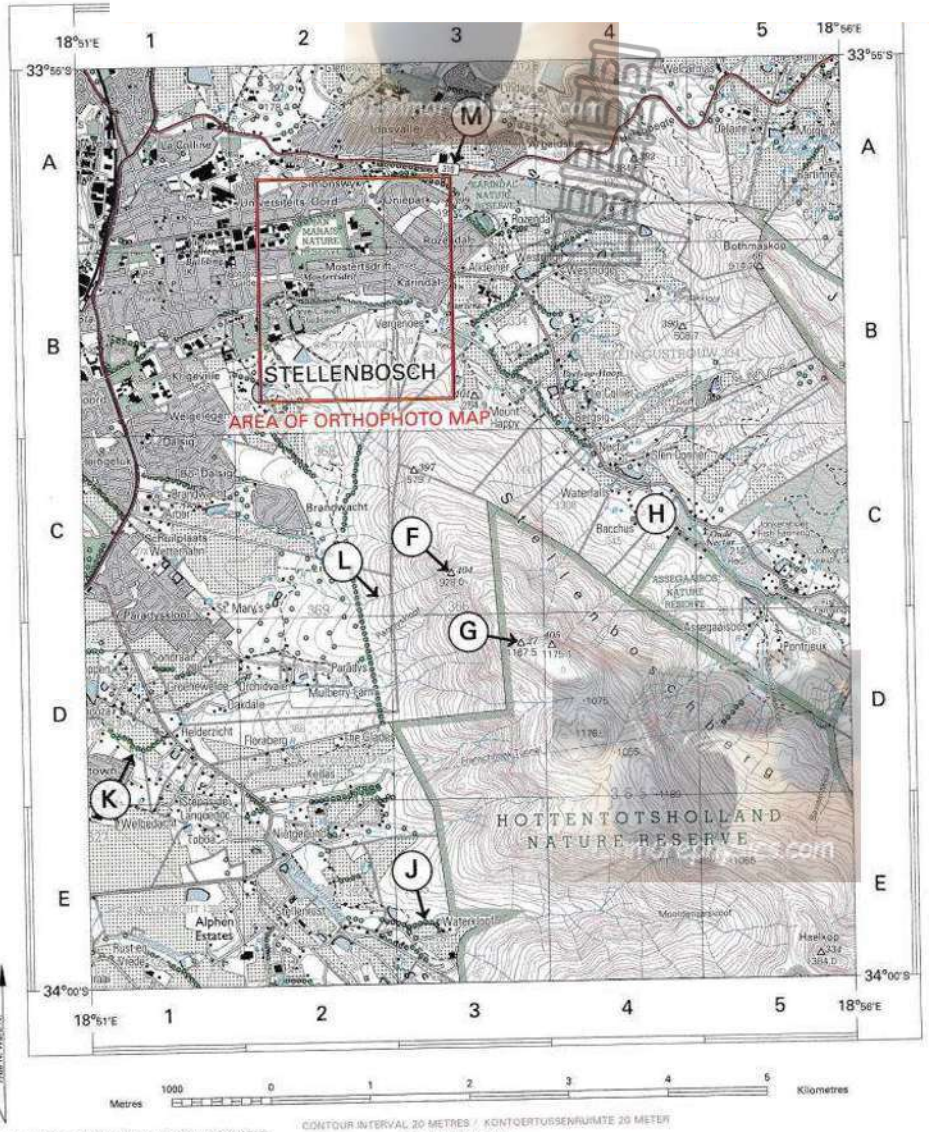
3.3.5 Which photograph, **A** or **B,** has fewer pixels? (1 x 1) (1)

3.3.6 Give a reason for your answer to QUESTION 3.3.5. (1 x 2) (2)

TOTAL SECTION B: 30
GRAND TOTAL: 150

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EXTRAC

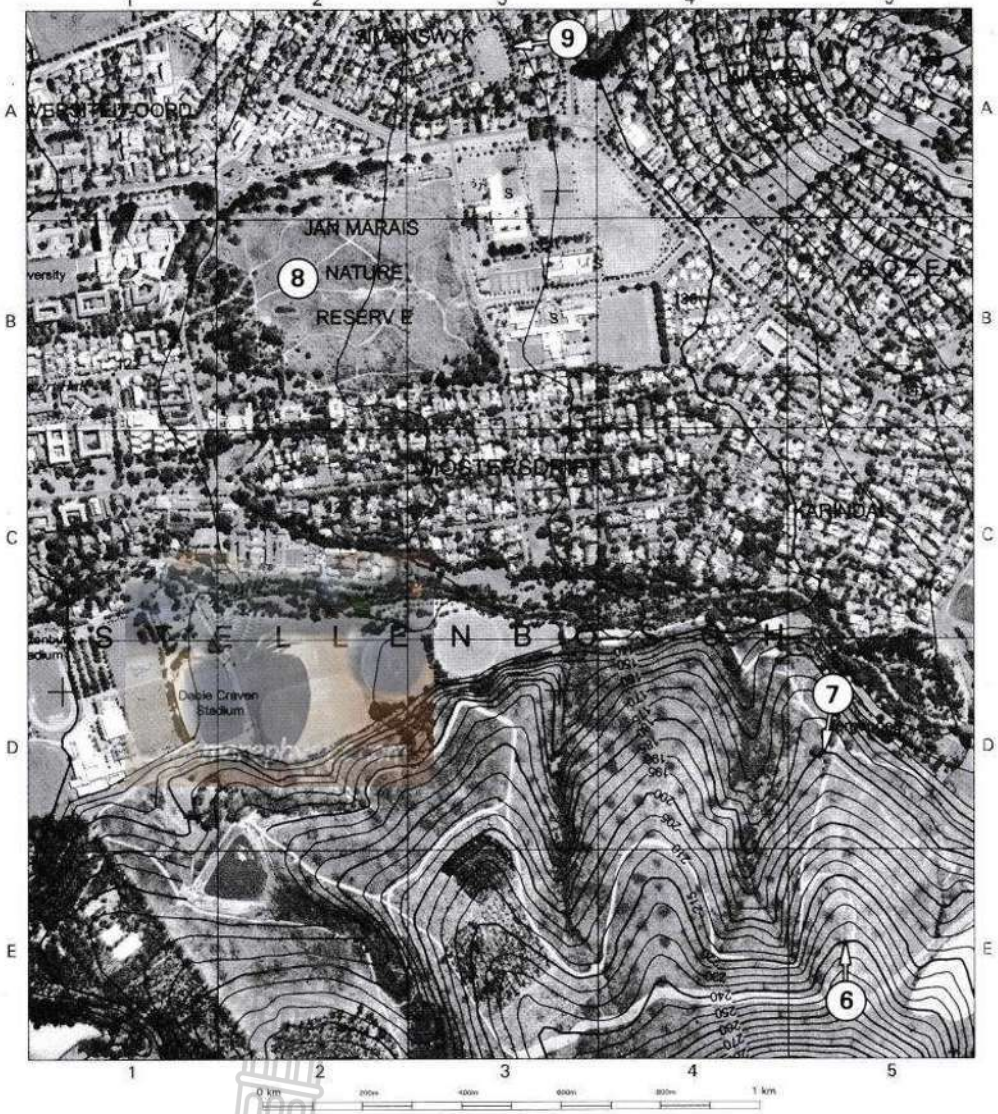


Mean magnetic declination 25°03' West of True North (March 2015).
Mean annual change 7' Westwards (March 2015 - Feb. 2016).

REFERENCE

- National Freeway; National Route
- Arterial Route
- Main Road
- Secondary Road; Bench Mark
- Other Road; Bridge
- Track and Hiking Trail
- Railway; Station or Siding
- Other Railway; Tunnel
- Embankment; Cutting
- Power Line
- Built-up Area (High, Low Density)
- Buildings; Ruin
- Post Office; Police Station; Store
- Place of Worship; School; Hotel
- International Boundary and Beacon
- Provincial Boundary
- Protected Area
- Perennial River
- Perennial Water
- Non-perennial River
- Non-Perennial Water
- Dry Water Course
- Dry Pan
- Marsh and Vlei
- Pipeline (above ground)
- Water Tower; Reservoir; Water Point
- Coastal Rocks
- Prominent Rock Outcrop
- Fence; Wall
- Windpump; Monument
- Communication Towers
- Mine Dump; Excavation
- Trigonometrical Station; Marine Beacon
- Lighthouse and Marine Light
- Cemetery; Grave
- Erosion; Sand
- Woodland
- Cultivated Land
- Orchard or Vineyard
- Recreation Ground
- Row of Trees
- Original Farms

EXTRACT FROM 3318 DD 18 STELLENBOSCH ortho - rectified image 1:10 000



VERKLARING

- Nasionale Deurpad; Nasionale Roete
- Hoofverkeersroete
- Hoofpad
- Sekondêre Pad; Hoogtemerk
- Ander Pad; Brug
- Dowwe Pad en Voetslaanpad
- Spoorweg; Stasie of Sylyn
- Ander Spoorweg; Tonnel
- Opvulling; Deurgrawing
- Kraglyn
- Beboude Gebied (Hoë, Lae Digtheid)
- Geboue; Murasie
- Poskantoor; Polisiestasie; Winkel
- Plek van Aanbidding; Skool; Hotel
- Internasionale Grens en Baken
- Provinsiale Grens
- Bewarings Gebied
- Standhoudende Rivier
- Standhoudende Water
- Nie-standhoudende Riviere
- Nie-standhoudende Water
- Droë Loop
- Droë Pan
- Moeras en Vlei
- Pyplyn (bo die grond)
- Watertoring; Reservoir; Waterpunt
- Kuslynrotse
- Prominente Klipbank
- Draadheining; Muur
- Windpomp; Monument
- Kommunikasietoring
- Mynhoop; Uitgrawing
- Peilbaken; Seevaartbaken
- Vuurtoring en Seevaartlig
- Begraafplaas; Graf
- Erosie; Sand
- Beboste Gebied
- Bewerkte Land
- Boord of Wingerd
- Ontspanningsterrein
- Rye Bome
- Oorspronklike Plase