22nd International Geography Olympiad

13 August 2026 – Fieldwork Exercise 2

İstanbul, The Golden Horn and the Bosphorus

General Instructions

Students educated in English will have 1 hour 30 minutes to write this test. Students not educated in English will be provided with a 20 extra minutes, 1 hour and 50 minutes. Remember to use your information booklet and observations from this morning.

Marks

The examiners will complete this table, Please leave it blank.

Question	Mark
FWE Task 1	/5
FWE Task 2	/4
FWE Task 3	/6
FWE Task 4	/6
FWE Task 5	/14
FWE Task 6	/15
Total for FWE 2	**/50**

Student Number

2	2				

Task 1 – Topographic Map Skills

Study Map 1.1.

a) **Identify and label <u>two</u>** examples for each of the following features on **Map 1.1**. Write the appropriate letter (A, B, C, or D) on each location. **(4 marks)**

A = Peak (Summit)

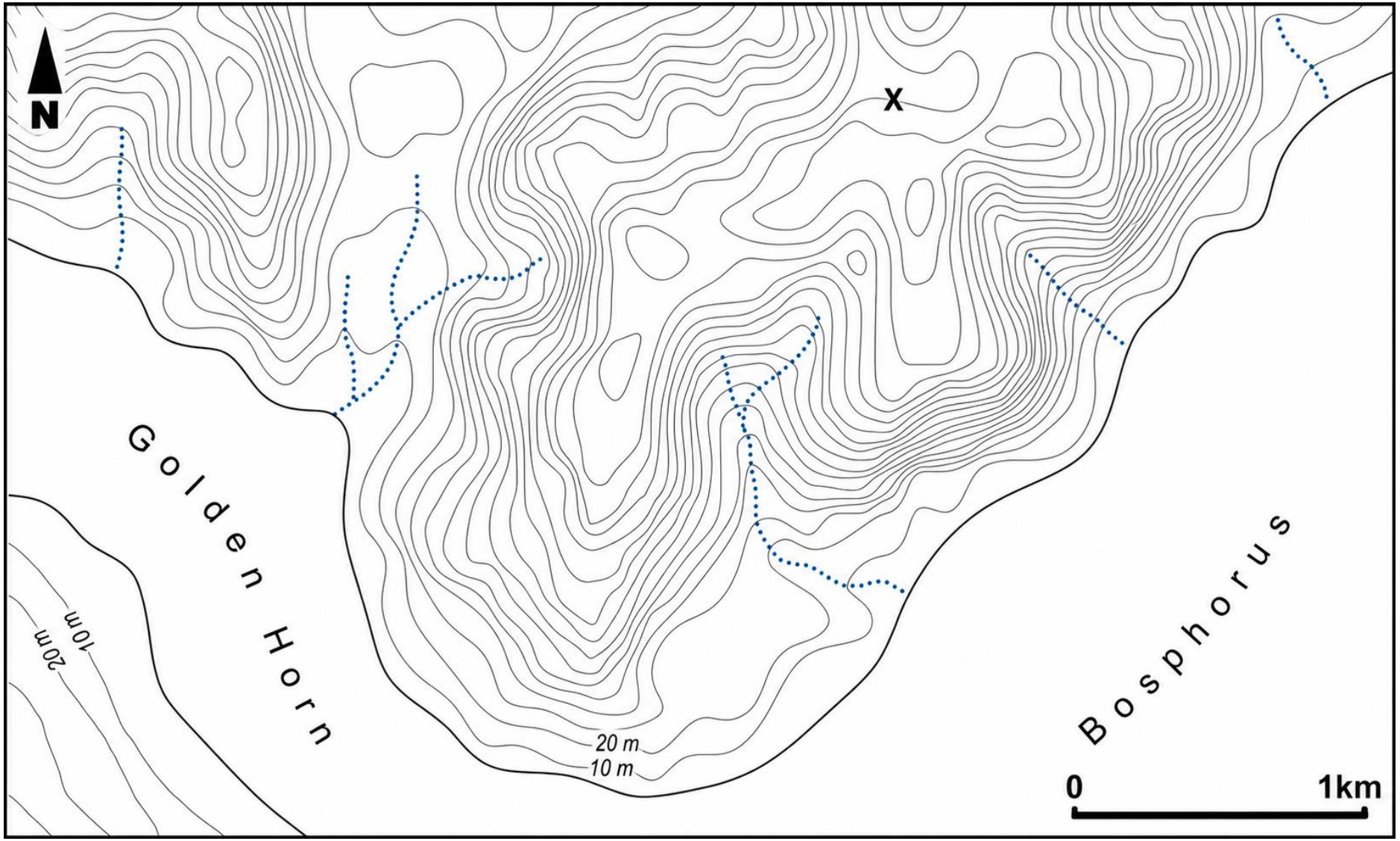
B = Ridge

C = River Valley

D = Col (Saddle)

b) **Point X** marks the historical plateau area on the map. Using the contour lines **calculate** the elevation of Point X above sea level. **(1 mark)**

Point X is _____ meters above sea level.



Map 1.1. Topographical map showing task area and its surroundings

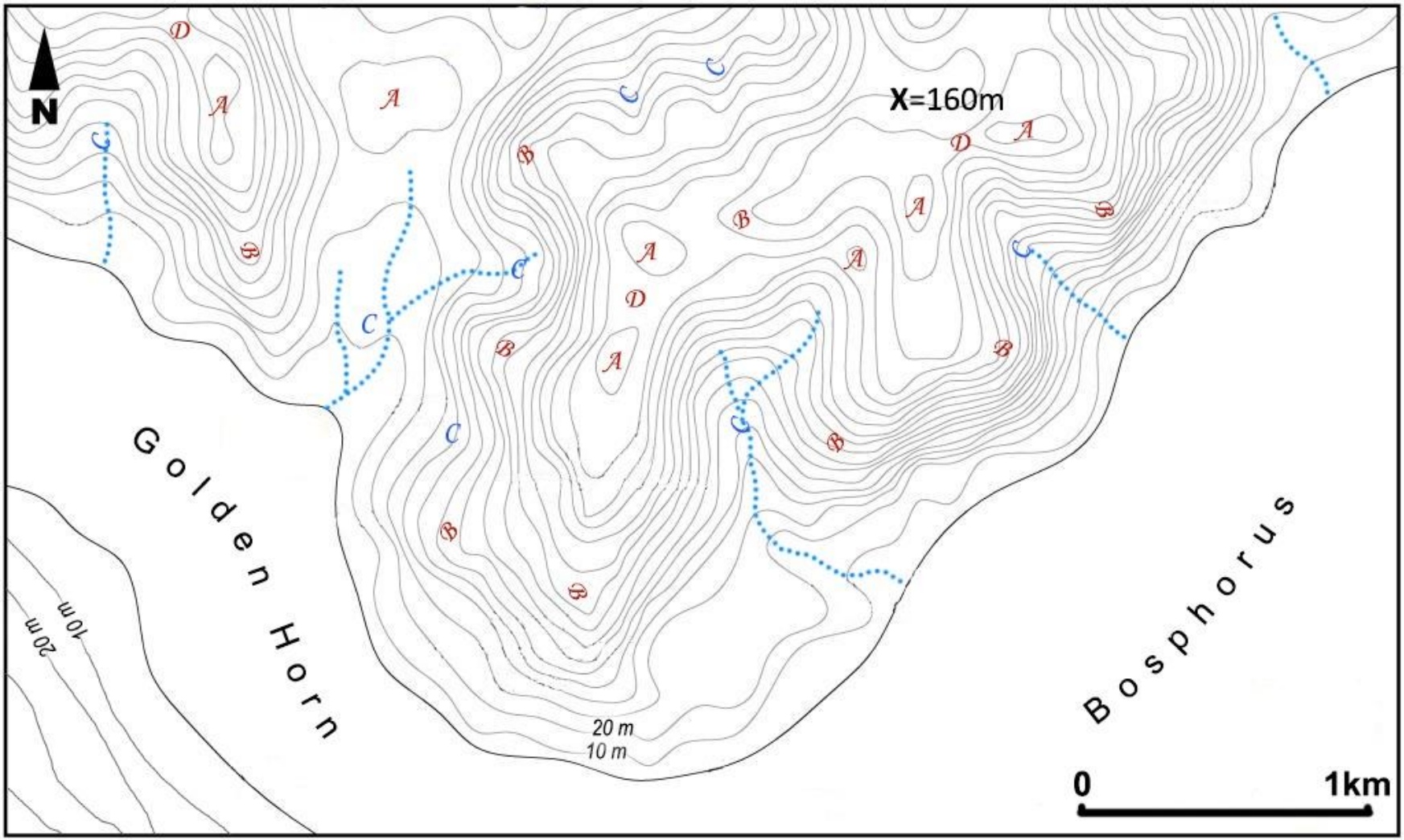
Task 1 – Topographic Map Skills

MARKING SCHEME

a) **1 mark for 2 correct examples for each feature A / B / C / D.**
0 marks if only 1 example is labeled.
Total 4 marks.

b) **1 mark:** Point X is **160** meters above sea level.
No tolerance is accepted.

TOTAL: 5 MARKS FOR THE TASK


N
X=160m
Golden Horn
Bosphorus
20 m
10 m
20m
10m
0
1km

Task 2 – Historical Land Use Change

Compare the historical map and photograph of the task area (**Figures 2.1a and 2.1b**) with the present-day map and photograph (**Figures 2.2a and 2.2b**) provided below.

a) **Outline two specific examples** to illustrate how urban land use has changed over time within the task area. **(2 marks)**

Example 1:

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Example 2:

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b) Identify two present-day challenges that may have emerged as a direct result of these historical land-use changes. **(2 marks)**

Challenge 1:

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Challenge 2:

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Figure 2.1a. Topographical map from 1918 showing the task area and its surroundings



Figure 2.1b. A late 19th century photo showing the central section of the task area

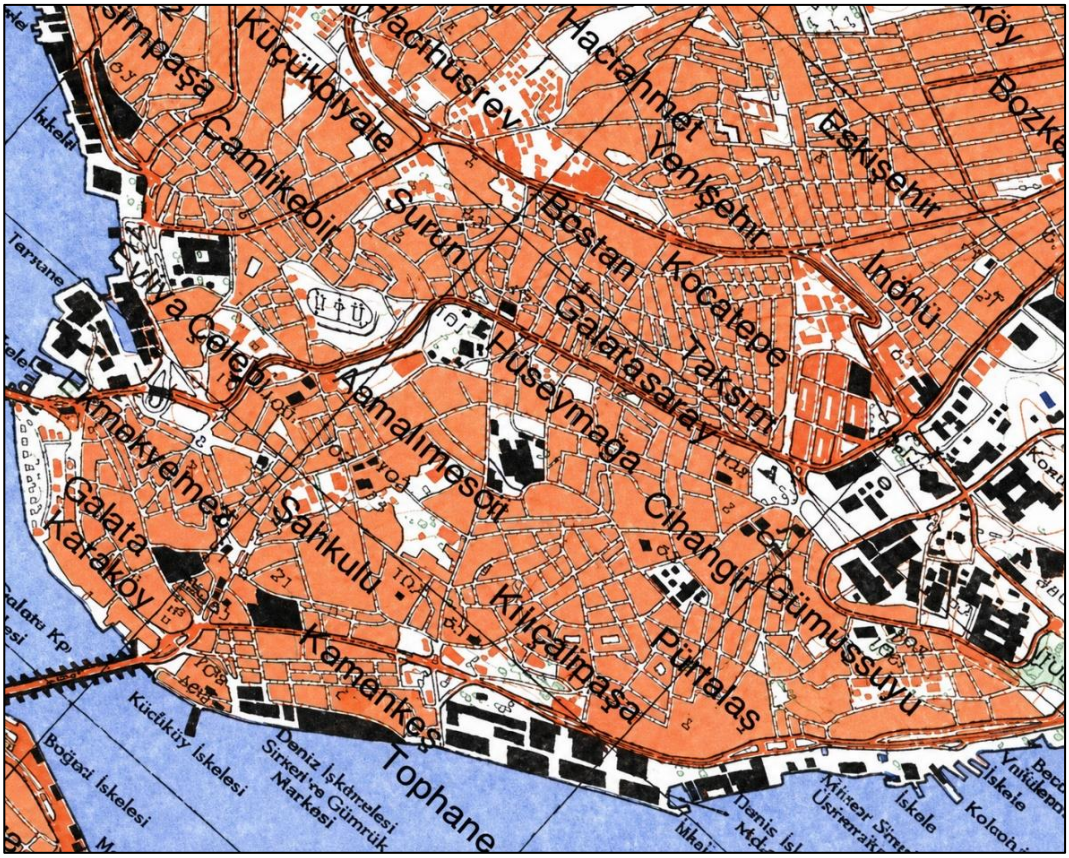


Figure 2.2a. Most recent topographical map showing the task area and its surroundings



Figure 2.2b. Present-day photo showing the central section of the task area

Task 2 – Historical Land Use Change

MARKING SCHEME

a) **2 marks:** The student must clearly explain at least two distinct structural or functional changes in urban land use over time by synthesizing the historical and current materials.

Expected Model Answer: The study area shows a massive **deindustrialization of the waterfront**, transforming old maritime dock lines and custom facilities (Figure2.1a, Figure 2.1b) into modern, high-capital consumer lifestyle plazas and commercial cruise terminals today (Figure2.2a, Figure 2.2b). Additionally, it displays intense **vertical growth and structural densification**, moving from low-rise historical masonry blocks to dense, modern concrete/steel commercial corridors.

1 mark: The student explains only one distinct structural or functional change in urban land use over time by synthesizing the historical and current materials.

0 marks: Give 0 marks if the response is overly generic (e.g., *"buildings look newer"*) or fails to use clear geographical concepts.

b) **2 marks:** The student must accurately link at least two contemporary urban challenges directly to the historical modifications and densification processes noted above.

Expected Model Answer: The functional shift has created severe **socio-spatial exclusion and hyper-gentrification pressures**, where luxury corporate commercial amenities economically price out and displace lower-income local populations. Furthermore, the mismatch between high-capacity modern vehicular demands and the rigid, narrow layout of the historical street network causes **severe traffic congestion and gridlocks** around key nodes like Karaköy Square.

1 mark: The students link only one contemporary urban challenge directly to the historical modifications and densification processes noted above.

0 marks: Give 0 marks if the response fails to connect the problems directly to the historical land-use evolution.

TOTAL: 4 MARKS FOR THE TASK

Task 3 – Economic Geography

Examine the sample field images shown on the following pages. The images in **Figure 3.1** represent the Golden Horn side and those in **Figure 3.2** represent the Bosphorus side.

a) **Explain** the economic and geographic factors that have led to the emergence of clustered, highly specialized industrial areas on the Golden Horn **(Figure 3.1)**. **(2 marks)**

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b) **Explain** the economic and geographic factors that have led to the development of the modern waterfront observed on the Bosphorus side **(Figure 3.2)**. **(2 marks)**

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c) **Compare** and contrast the distinct commercial developments found in **Figure 3.1** and **Figure 3.2**. **(2 marks)**

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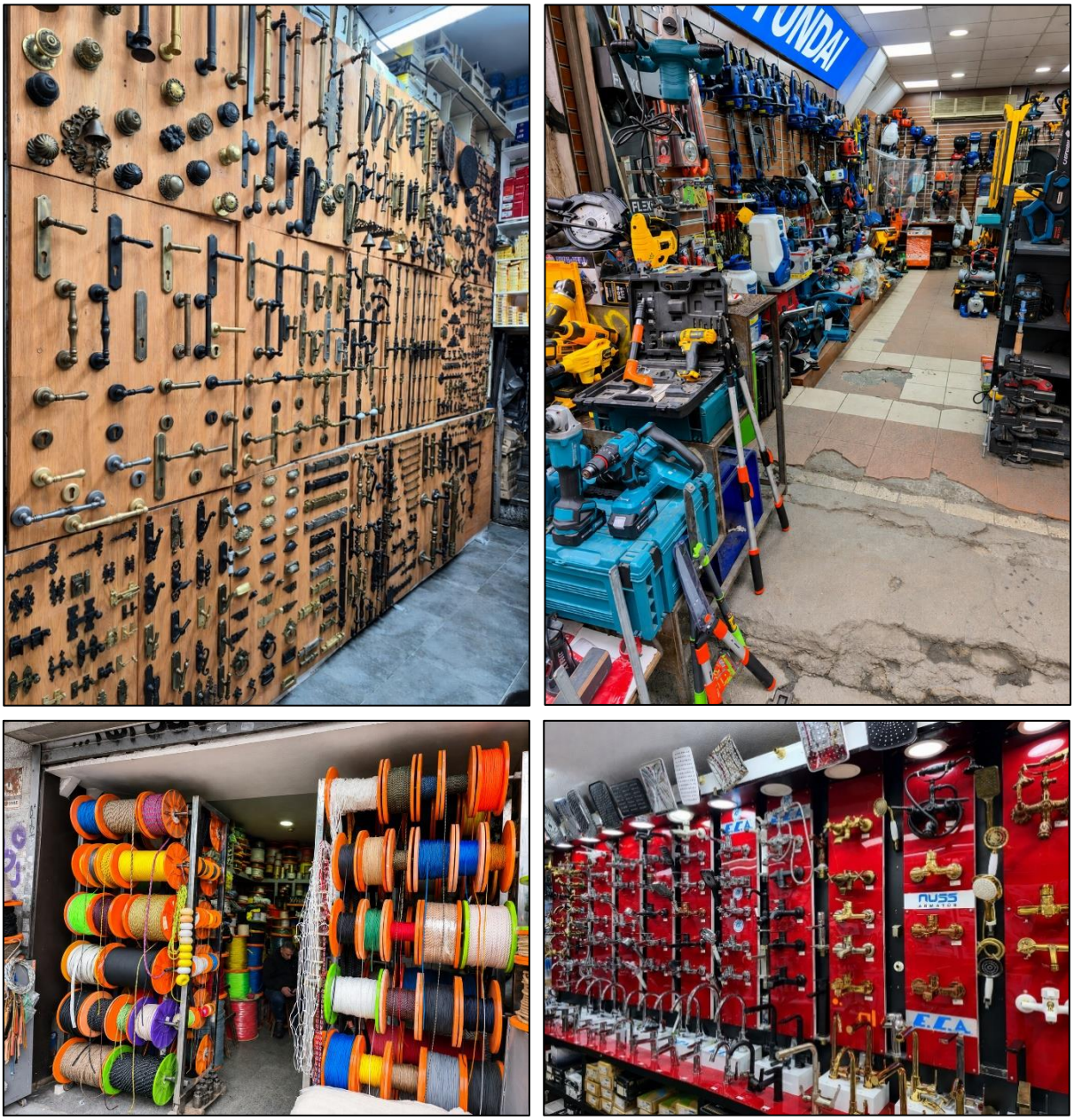


Figure 3.1. Some commercial businesses on The Golden Horn side of the task area

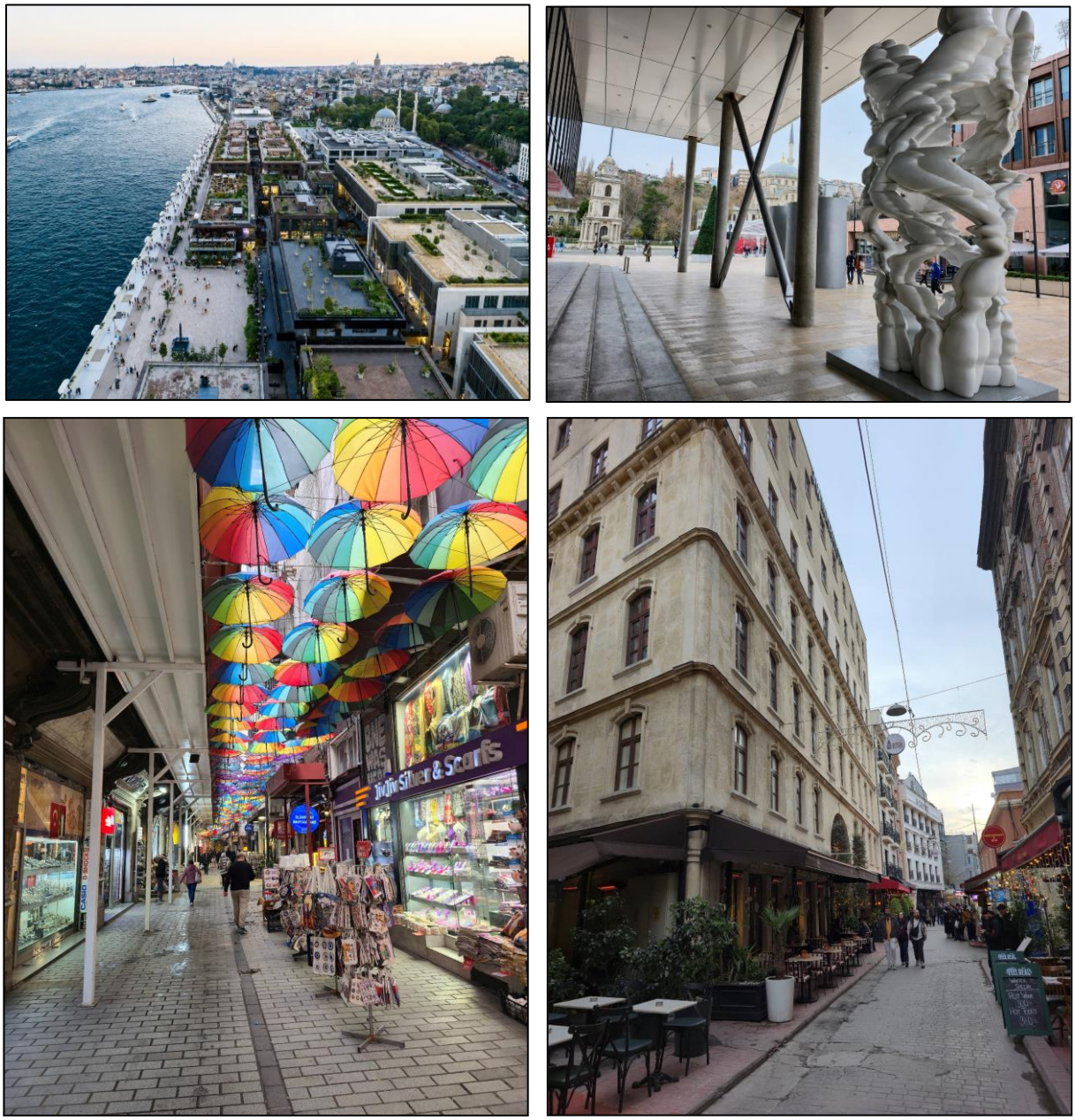


Figure 3.2. Photos from The Bosphorus side of the task area

Task 3 – Economic Geography

MARKING SCHEME

a) **2 marks:** The student identifies and explains two valid economic and/or geographic factors contributing to the concentration of specialized commercial activities.

Acceptable examples include:

- Agglomeration economies
- Spatial clustering of similar businesses
- Proximity to suppliers and customers
- Historical development of trade functions
- Accessibility to transportation networks
- Established wholesale and retail networks
- Knowledge and service sharing among businesses
- Long-term commercial specialization of the district

1 mark: One valid factor explained.

0 marks: No valid economic or geographic explanation provided.

b) **2 marks:** The student identifies and explains two valid economic and/or geographic factors supporting the development of the modern waterfront.

Acceptable examples include:

- Waterfront regeneration projects
- Tourism development
- Cruise tourism
- High land values
- Private and public investment
- Improved accessibility
- Redevelopment of former port or industrial areas
- Growth of leisure and recreational functions
- Attraction of international visitors

1 mark: One valid factor explained.

0 marks: No valid economic or geographic explanation provided.

c) **2 marks:** The student provides a clear comparison of both:

- Spatial layout differences, and

- Consumer target groups.

Acceptable examples include:

Figure 3.1.:

- Functional commercial layout
- Dense clustering of specialized businesses
- Business-to-business (B2B) activities
- Local traders, craftsmen, wholesalers

Figure 3.2.:

- Planned waterfront layout
- Open public spaces
- Leisure-oriented development
- Tourists and higher-income consumers

1 mark: Only one aspect (either spatial layout or consumer groups) is compared adequately.

0 marks: No meaningful comparison provided.

TOTAL: 6 MARKS FOR THE TASK

Task 4 – Gentrification

Gentrification has occurred differently along the Golden Horn shore and the Bosphorus shores. Using the chart provided:

- **Compare** how the gentrification of these two shorelines has developed differently.
- **Identify** specific evidence to support your position.
- **Explain** how these differences might create social inequalities and displacement

(6 marks)

	Golden Horn Shore	**Bosphorus Shore**
Differences in gentrification between the shorelines		
Evidence to support your position		
Implications for social inequalities and displacement		

Task 4 – Gentrification

MARKING SCHEME

Comparing: 1 mark for each correct comparison, and total 2 marks.

Identify: 1 mark for each correct identification, and total 2 marks.

Explain: 1 mark for each correct explanation, and total 2 marks.

Correct explanations:

	Golden Horn Shore	Bosphorus Shore
Differences in gentrification between the shorelines	- The old city structure prevented the formation of a large and organized settlement area. - The Bosphorus's tourist and economic appeal have been greater than that of the Golden Horn. - Difficulties have been encountered in renovating old buildings. - The established social and economic order has made renewal and updating difficult.	Opposites of all
Evidence to support your position	- More green and brown areas. - More open and instruction free areas. - More fusty buildings and workplaces. - Narrower streets. - Less high and large buildings. - Less elegance businesses. - Less touristic facilities.	Opposites of all
Implications for social inequalities and displacement	- A business and shopping district view for lower-income people has emerged. - Occupations suited to the needs of the local population are widespread. - There are many unusable workplaces and residences. - Brown areas cover a large area. - The density of people and facilities along the coastline is low.	Opposites of all

TOTAL: 6 MARKS FOR THE TASK

Task 5 – Earthquake Preparedness

A major earthquake may cause building damage, disruption of transportation networks, and difficulties in emergency response. Using your knowledge of earthquakes, your field observations, and relevant information from the Resource Booklet, complete the following tasks.

a) Given the history of earthquakes in Türkiye, government officials are quite aware of the threat. Statistically, earthquakes with a magnitude of 7 ≥ occur in Türkiye approximately every 6 years. For quakes ≥ 6, the interval is around 19 months. The major challenge for government officials is **how** to prepare for a major earthquake, **before** one occurs.

   What **mitigation actions or strategies** should the national and city governments implement **prior to** the next major earthquake to limit the loss of life and destruction of property?

   Recommend three mitigation measures to be implemented. **Justify** your recommendations. **(6 marks)**

Mitigation Measure 1:

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Justification:

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Mitigation Measure 2:

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Justification:

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Mitigation Measure 3:

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Justification:

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b) A major earthquake, registering 7.8 on the Modified Richter Scale, has just rocked the city of Istanbul, followed by several aftershocks ranging between 2.1 and 5.2.

Based on your knowledge of earthquakes and of the city of Istanbul, you have been tasked with **creating an Emergency Evacuation Plan for the Golden Horn area and the Bosphorus shore** in the immediate aftermath of the earthquake.

Annotate Map 5.1, showing:

- Safe escape routes
- Designated gathering areas
- Waterfront risks

Provide a short written **justification** for your choice in the space below. **(8 marks)**

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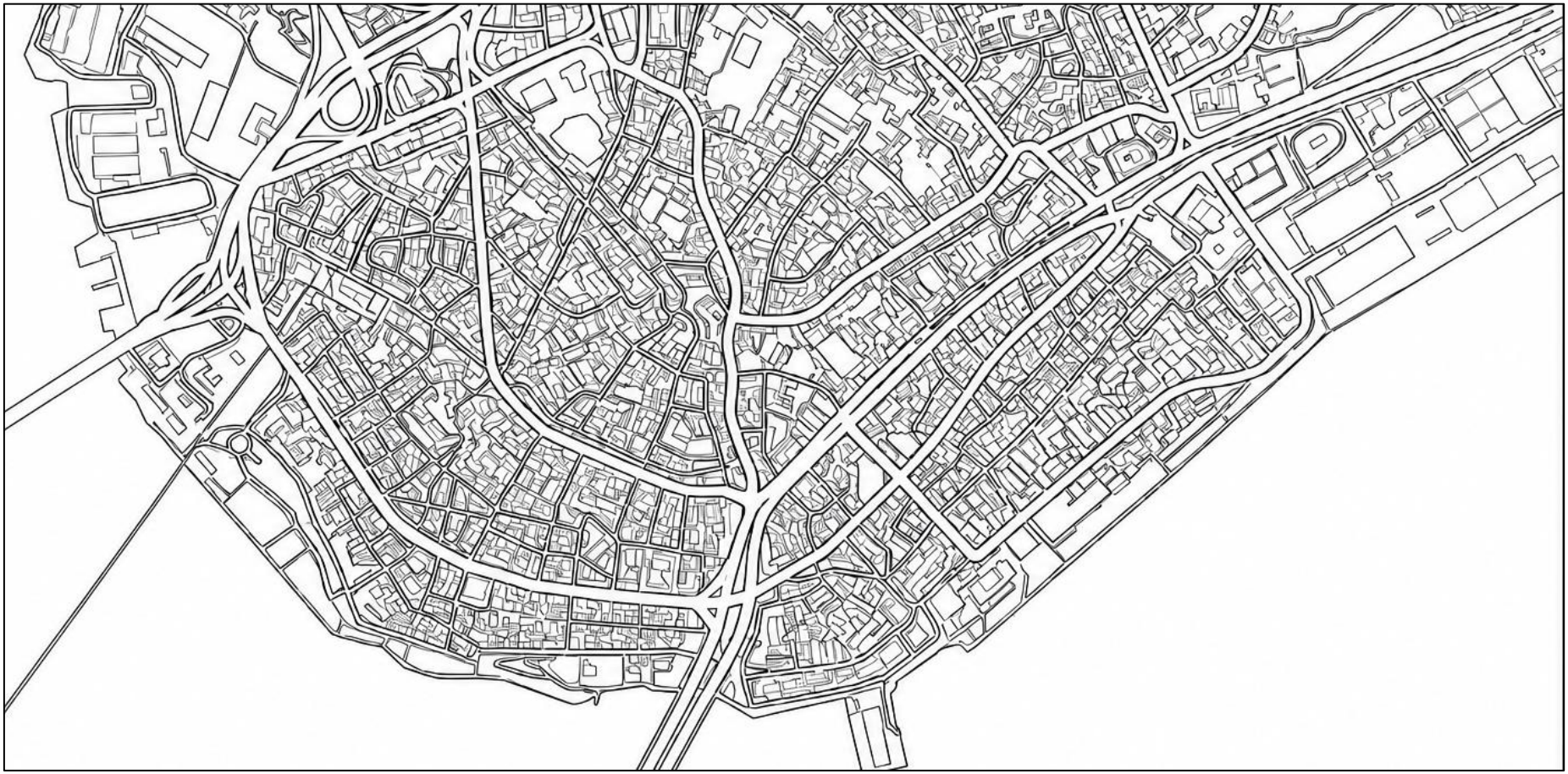
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Map 5.1. The Golden Horn and the Bosphorus

Task 5 – Earthquake Preparedness

MARKING SCHEME

a) Mitigation measures: 1 mark for each correct mitigation measures, and total **3 marks**.

Acceptable mitigation measures:

- Renovation of damaged or risky buildings
- Earthquake reinforcement of existing buildings
- Earthquake codes/standards for any new builds or renovations
- Reinforce bridges over Golden Horn
- Creation of emergency escape routes
- Creation of emergency assembly areas
- Organization of road service and medical intervention lines
- Development of measures for gas leaks and fires
- Establishment of tsunami warning infrastructure
- Education of population

Justifications: 1 mark for each correct justification, and total **3 marks**.

Acceptable justifications:

- There are many old and structurally unsound buildings in the area.
- Escape routes are limited within the dense urban fabric.
- Safe gathering areas are limited due to building density.
- Roads are narrow and inadequate in the settlement area with a long history.
- Fire prevention measures should be increased as fire intervention will be difficult due to the dense settlement pattern.
- There is a high probability that an earthquake occurring on the seabed will generate a tsunami.
- Bridges are types of infrastructure likely to sustain damage – especially older ones

b) **Annotated map - Escape routes: 3 marks**.

1 mark for written justification. All main arteries leading from the coast towards the plateau surface can be considered as the correct escape route. They are indicated by arrows on the map. Additionally, after ensuring that there is no tsunami threat, the use of piers and marine vessels for evacuation may be considered. It is shown with an exclamation mark on the map.

2 marks: clear routes (major routes) and clear directions annotated on the map; 1 mark: missing some elements

Gathering areas: **3 marks**.

1 mark for written justification. In the densely built-up area, all open spaces located as far from the shore as possible can be used as gathering areas. These are indicated by dots on the map.

2 marks: open spaces not near waterfront and not too far; 1 mark: some errors

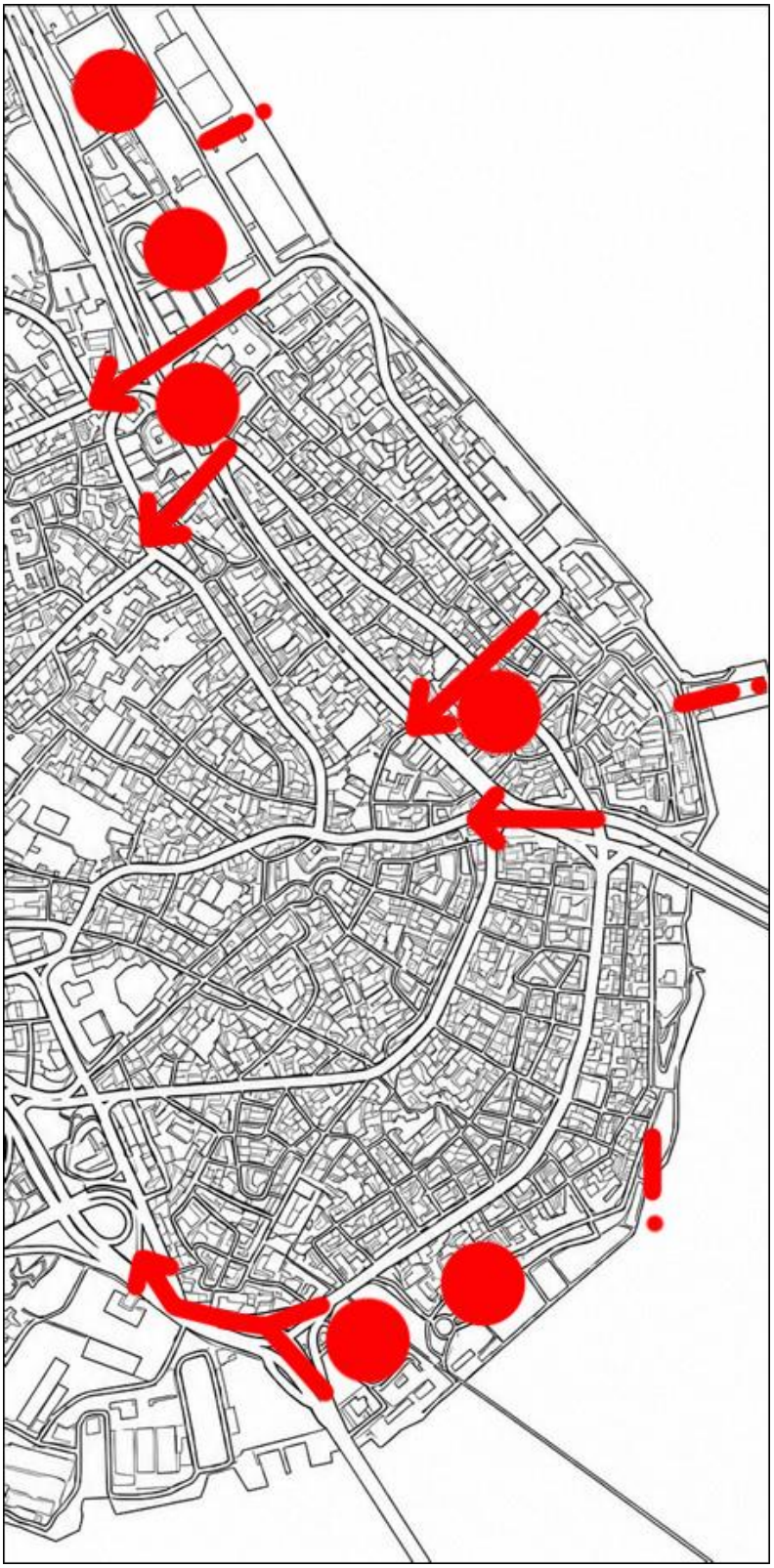
Waterfront risks: 2 marks.

1 mark for written justification. The most significant risk along the coastline is the tsunami threat. Therefore, caution should be exercised against this threat in areas close to the coast and at low elevations. Furthermore, since subsidence and settlement can occur in reclaimed land

and structural elements extending into the sea, these areas are also among the risky zones during an earthquake. Bridges and port structures are also highly susceptible to damage from earthquakes or tsunamis. Similarly, marine vessels are at risk of damage in the event of a tsunami. It is shown with an exclamation point on the map.

1 mark: correct risk identifiction.

TOTAL: 14 MARKS FOR THE TASK



Task 6 – Urban Redevelopment

On the shores of the Bosphorus, you observed many examples of urban redevelopment driven by the rapid growth of tourism to Türkiye.

The area marked on **Map 6.1** represents a brownfield designated for redevelopment.

a) **Create a plan** that would convert this area into a multi-use recreational space that would serve the needs of both tourists and local residents. Use the template provided **(Map 6.2)** to create a detailed map of your proposed redevelopment. Be sure to include all relevant information on the map and observe all mapping conventions. **(10 marks)**

b) **Write a short report** that explains the features of your space and justifies the decisions that you made. **(5 marks)**

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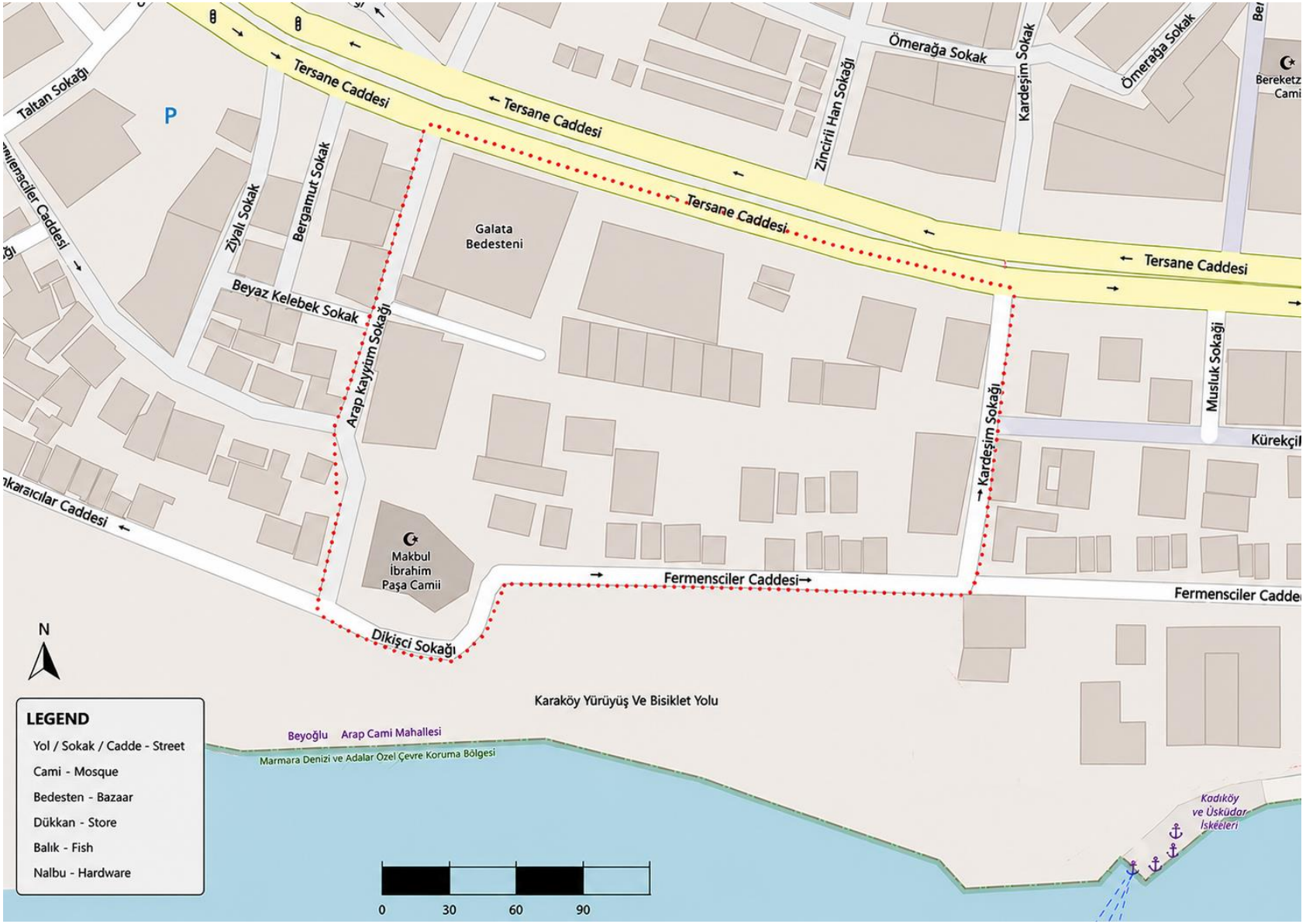
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Map 6.1. Overview of Task 6 Area

Task 6 – Urban Redevelopment

MARKING SCHEME

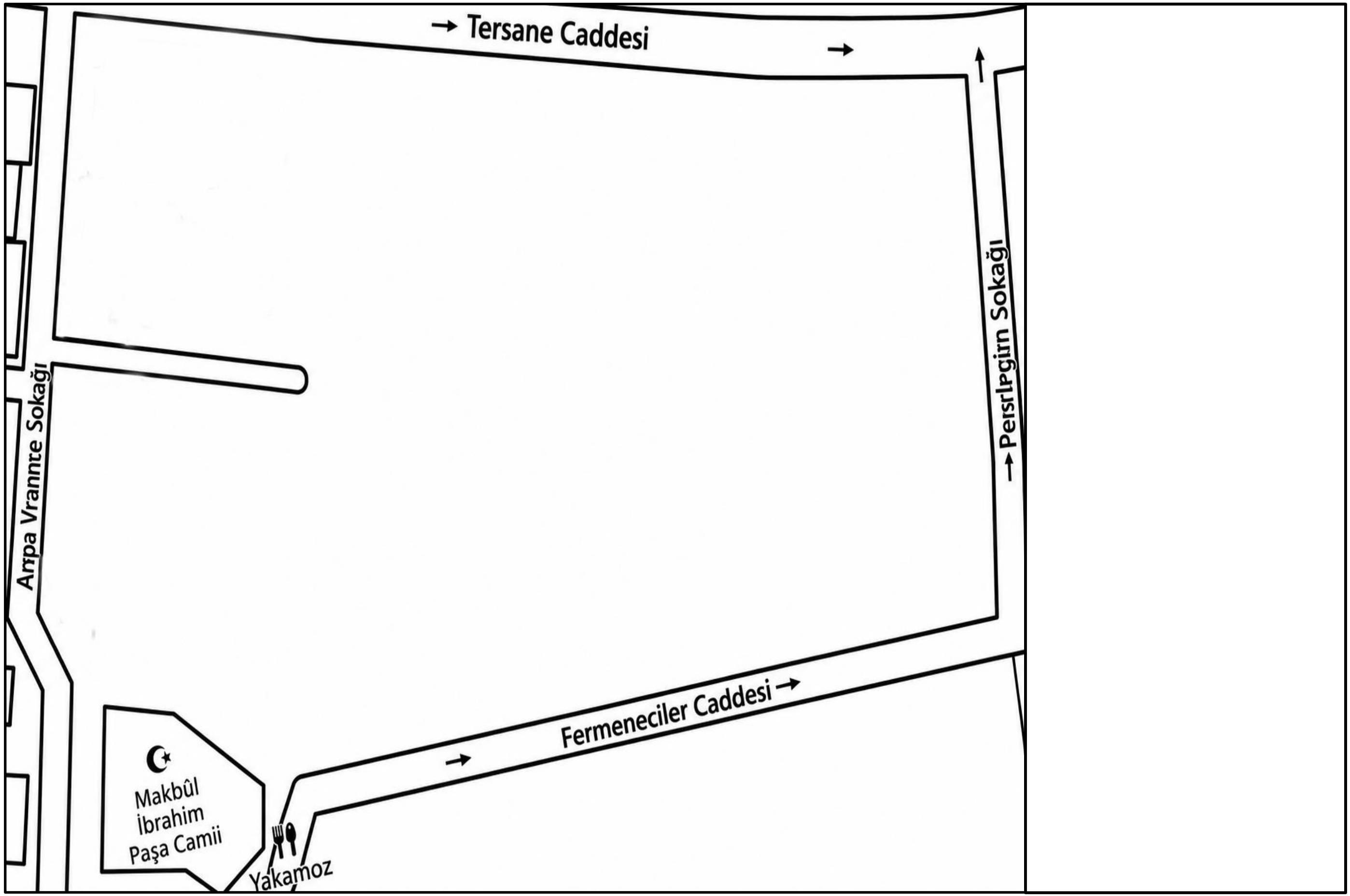
10 marks for creating a plan

- 1 mark for map title
- 1 mark for use of appropriate key
- 1 mark for the correct scale (and north arrow)
- 1 mark for the filling of the whole area (no white space)
- 1 mark for the aesthetic of the map
- 5 marks for the features and their names – improved buildings, improved footpaths/roads etc.

5 marks for a short report that explains the features of your space and justifies the decisions that you made

- 1 mark for the justification of each feature – must be realistic and reasonably cost-effective

TOTAL: 15 MARKS FOR THE TASK



Map 6.2. Redevelopment map