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TANAH ABANG, PERAK: THE LAYOUT AND PLANNING OF A 16TH CENTURY FORTIFIED MALAY ROYAL TOWN

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Abstract

The layout and planning of royal towns as capitals of Malay sultanates are based on principles of forming a palace complex complete with defence systems, infrastructures for economic activities, transportation systems, religious centres and surrounded by settlements. Sultan Muzaffar Shah I (1528-1549) built such a complex with a defence system in Tanah Abang as the first capital and administrative centre of his newly founded Perak sultanate. Regretfully today no trace of it have been found. However, based on the remains of the fort surrounding the area, the layout and planning of the palace complex in Tanah Abang, Kota Lama, Perak can be ascertained. Based on the period of 15th-19th centuries' layouts of other Malay royal towns as references, this study employs geomorphological study and topographic mapping to study the layout and milieu of Tanah Abang. Upon further probe the area was found to meet the essential characteristics of the layout of a Malay palace complex which often consisted of a complete and intricate network of centres for administration, defence, socio-economic activities and population concentration. The study also found that the remnants of the compacted earthen ramparts need an in-depth analysis regarding their structural condition, still well-preserved after almost 500 years.

Keywords: Tanah Abang, Royal Town, Malay Fortress

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INTRODUCTION

The presence of well-preserved historic period fortifications in Peninsula Malaysia have been well documented. The most prominent among them include the forts of A Famosa, Kota Lukut and Kota Kuala Kedah. However, all of them have been continuously rebuilt and renovated well into the 19th Century and are no longer in their original forms (Illyani *et.al* 2020). The fortification at Tanah Abang is probably the earliest well-preserved Malay traditional defensive structure in its original form. The site was least likely to have been rebuilt or renovated after the demise of Sultan Muzaffar Shah I given that his successor, Sultan Mansur Shah I, had abandoned the old capital and relocated the royal seat to Kota Lama Kanan (Suprayitno, 2009). Tanah Abang is aptly categorised as *Istana Berkota* or Fortress-Palace by Kamarul & Noor Aisyah (2019), defined by a palace complex enclosed by fortifications. Aside from the sultan's palace, the royal town could have also housed an enclave for the nobles and mosque, apart from the traditional river harbour which was vital for transportation (Arbi 1985).

The Tanah Abang fortifications which consisted of substantial earthworks was first reported and mapped by the Survey Department (1919), and briefly described by Mohd Hamid Isa (1990) and Suprayitno (2009). The site is located on a 4.0848-hectare land belonging to the state government and is currently held under an agricultural title, located in a palm oil plantation (Lot no. 1721) on the eastern bank of the Perak River in Kampung Teluk Bakong, Perak Tengah District (Lat. 4° 7' 1.43" Long. 100° 59' 37.65"). On the 22nd September 1990, Mohd Hamid Isa from the Department of Museums and Antiquities had carried out a survey around the royal tomb of Sultan Muzaffar Shah I and reported the findings of rectangular defensive fort at the site. The walls were made of an earth bund 2 metres high and 4 metres thick, alongside the remains of an ancient water tank (Mohd Hamid, 1990). Suprayitno (2009) who revisited the site also mentioned the presence of the ramparts, as well as some blue and white Ming period Chinese ceramics. Upon further investigation on the other royal tombs found in the area some 16th Century Ming ceramics were found.

Studies on the position and orientation of the defensive wall as well as its layout can provide a better understanding regarding the layout and planning of a 16th Century Malay royal town on its defensive system for security, distribution of settlements, power structure and its economic status.

THE SPATIAL SETTINGS OF A MALAY ROYAL TOWN

The layout of a royal Malay town is planned and established based on several general principles. They were mostly determined by the geostrategic position of the river which dictated the socio-economic activities, building orientations and pattern of settlements. By applying the layout principles of a royal town as a guide, it is possible to make an assessment on the arrangement and planning of the fortified royal town of Tanah Abang. Observations of other royal Malay

palaces in different locations can also be used as points of reference. Studies regarding the planning and layout of Royal Malay towns were published by Esmawee (1993), Noor Hanita *et.al* (2009), Firdaus (2010), Harun & Jalil (2012), Nurdiyana *et.al* (2017), Noor Aimran *et.al* (2018), Tengku Anis *et.al* (2018), Kamarul *et.al* (2019), Illyani (Illyani *et.al* 2018, Illyani *et.al* 2020) and Sharyzee (Sharyzee *et.al* 2020, Sharyzee *et.al* 2021).

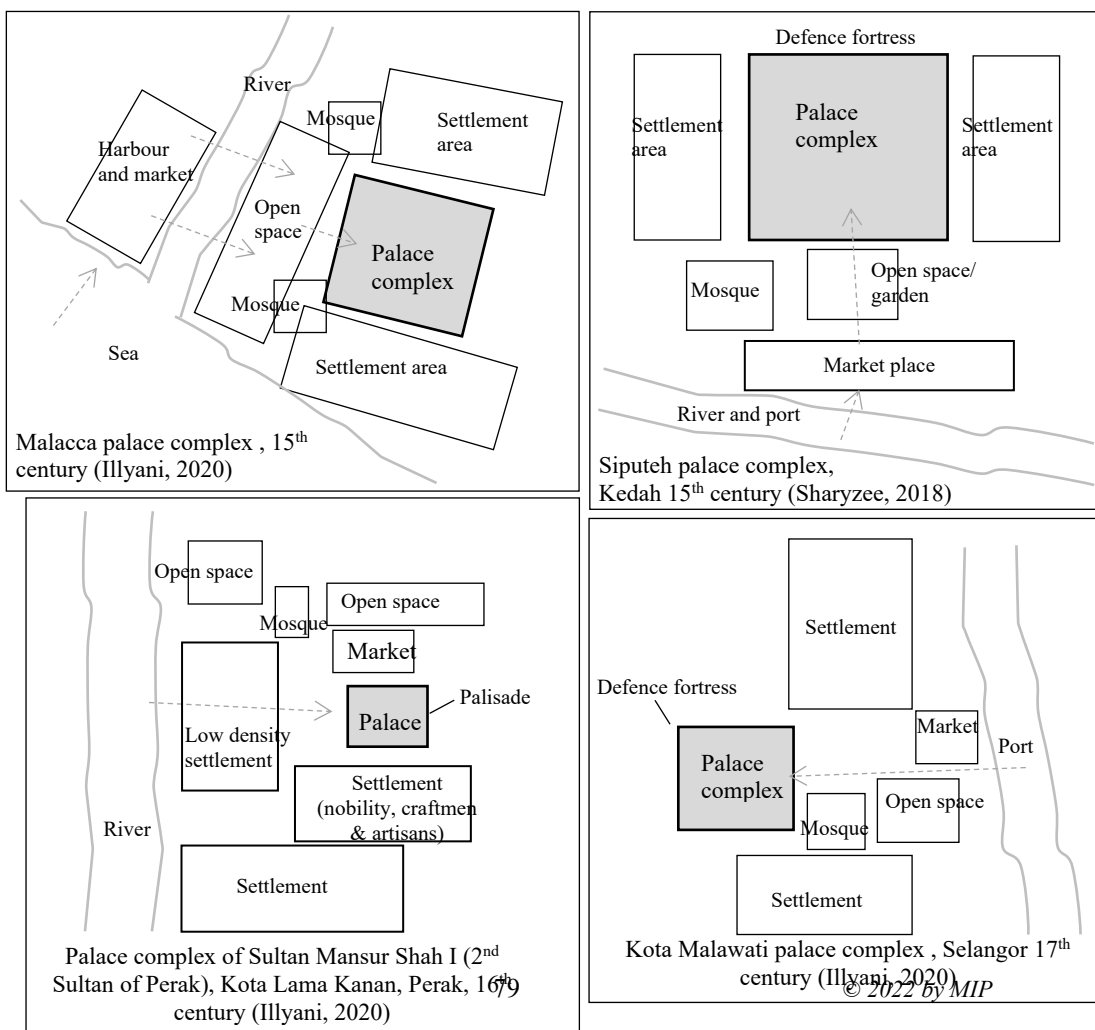
A royal complex does not only constitute a royal residence, but also incorporated spaces and/or structures for other functions such as a common gathering or audience, royal ceremonies, meeting of public representatives etc. (Esmawee 1993). Most Malay palaces were built near rivers which were often the only means of transportation and communication. The royal complex plays a pivotal role in the microcosmos of a traditional Malay town morphology and urban planning, where several buildings for administration, religious congregation, judicial trials, as well as food and weapon storages being part of the complex (Firdaus 2010; Noor Hanita *et.al* 2009; Harun & Jalil 2012). A royal complex served as a pulse around which settlements sprang up, and subsequently transformed into a multifunctional space with the rise of socio-economic activities. The morphology of a royal town is a combination of physical buildings and human activities, consisting of palaces, government and public buildings, a space for religious activities, a market place, and river port, all critical to serve the settlements (Nurdiyana *et.al* 2017; Illyani *et.al* 2018; Sharyzee *et.al* 2018; Shukri *et.al* 2020). When a monarch decreed for the establishment of a new palace complex, fortifications were among the most important structures to be erected (Kamarul *et.al* 2019; Sharyzee *et.al* 2020).

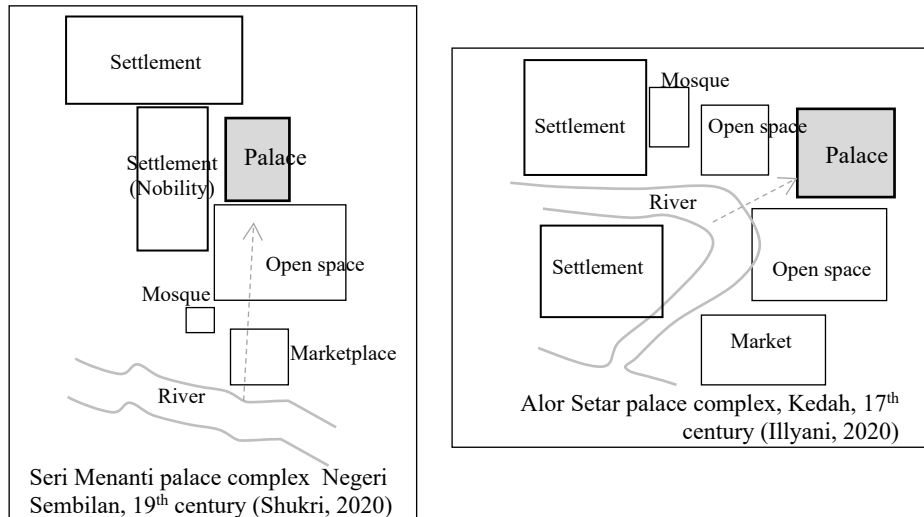
The royal residences, buildings and mosques were usually enclosed within a defensive feature either made of earth bunds, bamboo, bricks, stone, mortar and/or timber. Outside this fortification, there were open spaces, a market place, public mosque, river harbour and traditional *kampongs*, sometimes enclosed within another line of natural and/or artificial perimeter of defence. The multi-layered fortifications were meant to protect the royal town from from internal and external confrontations (Noor Aimran *et.al* 2018). Though located within the first line of fortification, the royal mosque was usually positioned closer to the public space, functioning as a medium of communication between the ruler and his people. The open space was often situated at the palace's foreground to provide the monarch an expansive view of the *kampongs* and the entrance to the town while fulfilling the need for security (Illyani *et.al* 2020). Some of the royal complexes were located centrally in the settlements between the two fortification lines, the first of which bordered the royal sanctuary itself (Tengku Anis, 2018; Shukri, 2020; Nor Aimran *et.al* 2018). Thus, the palace complex was accessed via the entrance to the place or town where the river port

or jetty was. A waterway like a river was the main transportation route apart from having the integrated advantage to a security system (Sharyzee *et.al* 2021).

Based on Diagram 1, examples of well-documented Malay royal towns included Malacca (15th Century), Kota Seputeh (15th Century), Kota Lama Kanan (16th Century), Kota Melawati (17th Century.), Kota Setar (18th Century) and Seri Menanti (19th Century). The layouts of all these royal towns were planned and arranged according to the position of the river and nature of the local terrain. The palaces were usually separated from the river banks by an open space or market place, while be surrounded or flanked by settlements and royal mosques. Similar factors could have influenced the layout, planning and arrangement of Tanah Abang. The latter two criteria of these riverine royal towns provide important points of references to suggest the possible planning and layout for the site of Tanah Abang.

Diagram 1: Layout of Malay palace complexes between 15th to 19th Centuries.





RESEARCH METHOD

In order to understand the arrangement of the studied royal town and the factors considered by the ancient builders in planning the arrangement and layout, the palaeo-environment of the area and dimensions of the fortress needed to be mapped. To achieve this, the study involved three main steps; 1. Library research 2. Geomorphological studies 3. Topographic mapping. This research began with a review on previous literatures regarding the 16th Century Malay fort and history of Perak. The historical records, maps and topographical map provided important insights into the form and function of a Malay fortress in the 16th Century, as well as the cultural and political setup under which the royal town of Tanah Abang was established. It assisted in describing the physical and social environments of the royal town and its geostrategic position. Among the materials analysed in this study included some 16th/17th Century Portuguese and Malay records.

The location where a royal town should be built was planned and decided based on the geostrategic position of the locality, as well as the presence of favourable natural features for a well-defended and well-supplied settlement. Thus, it is necessary to understand the ancient landforms of the area as well as the course of the Perak river in the 16th Century. To do this, a geomorphological study was carried out by means of a field survey and analysis of the local contour map.

The contour map covering an area of 2,450 km² was generated using the digital elevation model of *Shuttle Radar Topography Mission* (SRTM), downloaded from the website of *United States Geological Survey* (USGS). The

SRTM data was extracted by using the *ArcMap* software to generate a map of 5 contour metres. The contour map produced by this software allowed observation to be made on geological and geomorphological features such as ancient river courses, river flood plains and areas with higher elevations such as hills. Detailed geomorphological survey in the study area was carried out to physically observe the images in the contour map, and to determine the presence of other surface features such as small variations in elevations.

In order to map the layout, orientation and dimension of the 16th Century fort of Tanah Abang, a topographic mapping needed to be carried out. This involved an overall and comprehensive documentation on the topography of the research area, especially variations of surface elevations due to the presence of the fortress and the royal gravesites. The topography of the area was mapped by using drone imagery, where the Mavic Pro 2 DJI model drone was flown at the height of 36.58 metres, covering an area of 28.2 acres, with a resolution of 0.5 inches per pixel. The drone had recorded and uploaded 414 photographs in 90 minutes around the area by using the application of *DroneDeploy*, which processed these data to produce an orthomosaic map and digital terrain model (DTM). Observation on the orthomosaic map and DTM allowed the fort remains to be detected. By comparing the elevation of the earthwalls and surrounding area's contour, the height and thickness of the fort could also be estimated.

The information generated from the drone images subsequently helped in plotting and digitally reconstructing the fort. By comparing the orthomosaic map and DTM with other riverine royal towns, as well as considering the geomorphological features of the area, the layout, planning and possible arrangement of the Tanah Abang royal town could then be analysed.

FINDINGS AND DISCUSSION

The topography of Tanah Abang complex was level and in lowlands, mostly being flood-prone with a gradient direction of soil topography running from north to south (Figure 1). The undulating and hilly area flanked the eastern and north-eastern part, the highest point being 198 metres at Bukit Tunggul. The course of the Perak river changed five times particularly in the lower and middle reaches where most of the ancient capitals of Perak were located. In the past, the river would have meandered significantly, evidenced by the remains of the old dried-up banks still visible today. Present-day Tanah Abang site is located 652 metres from the eastern bank of the river and at the edge of a dried-up oxbow lake (Figure 2). This lake was previously one of the meanders that incurred a neck amputation resulting from erosion at the outer curve. The river then mostly flowed through these newly formed channels while slow and low waters at the meander cut off from the main waters gave rise to deposition at both ends of the bend in the form of clay blockages (Tjia, 1987).

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The orthomosaic map and DTM generated from the topographical survey had given substantial information regarding the fortress made of earth bunds, outlined in red in Figures 3 & 4. The earth bunds were made of sandy clay, with traces of organic matter on their surfaces. There are five gaps at the north, east and west walls, possibly demolished in recent times by local inhabitants. A large opening at the west wall facing the ancient bank of the Perak river was possibly meant for people and goods to the river harbour (Figure 3, 4 & 5). The height of the earth-bunds are between 1.2-2.0 metres at the south and east walls, and 0.6-1.2 metres at the north and west walls. The thickness of the walls is estimated at 3-4 metres. Within the fortifications, five ancient royal tombs were found, four of which were the original Batu Acheh which can be stylistically assigned to the 15th-17th Century (Suprayitno, 2009: Table 3.13)

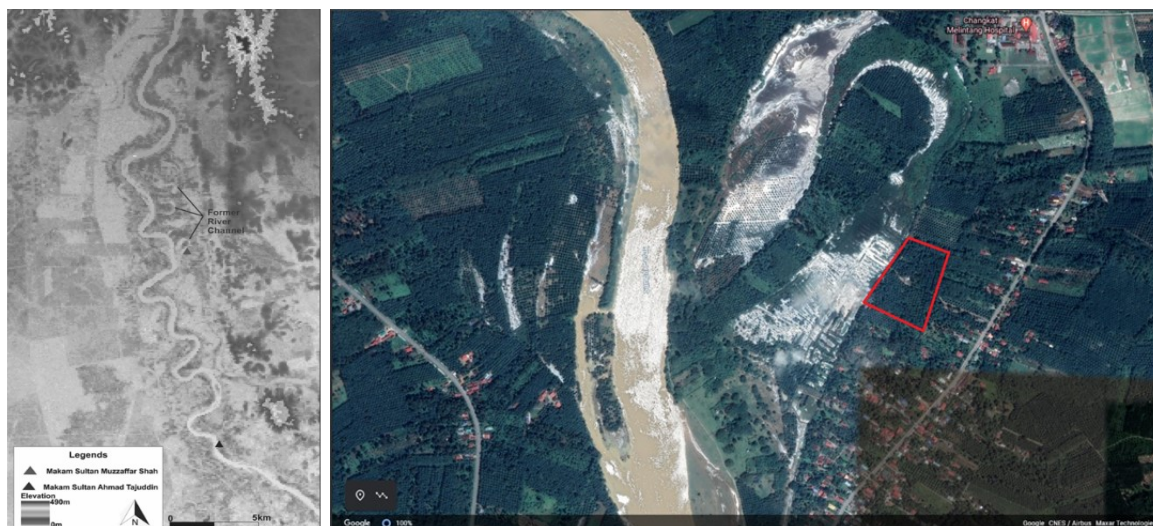


Figure 1 (left): Geomorphological map of the middle course of Perak River
Figure 2 (right): Location of Tanah Abang royal town at the middle course of Perak River
 Source: Google Earth

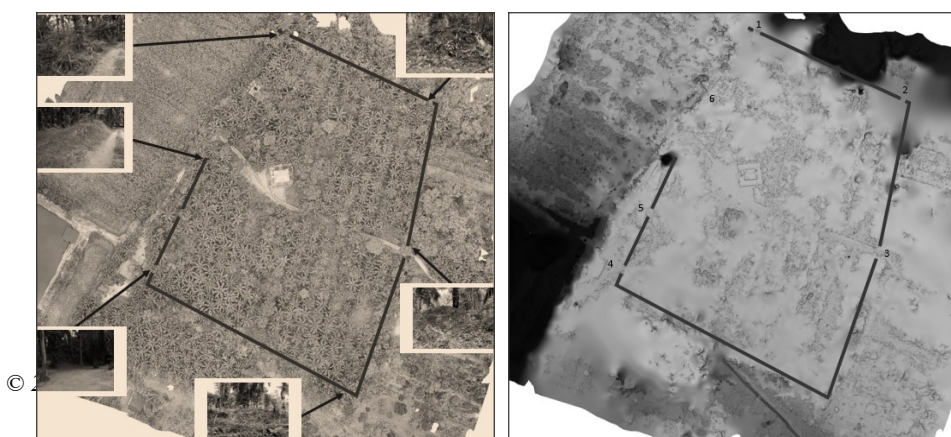


Figure 3 (left): Orthomosaic Map of Tanah Abang
Figure 4 (right): Digital Terrain Model of Tanah Abang

As the first capital of a newly established kingdom, it was natural for Sultan Muzaffar I to construct a royal palace, mosque, market place as well as fortifications, making that area a bona fide royal and administrative complex. Based on the orientation of the area, the defensive fortifications of this complex are indicated by lines starting from points A, B, C, D and E (Figure 5). The estimated size of this complex is 700 meters wide and 900 metres long. The position of the fortress facing the river justifies the location of the jetty or river port, possibly located adjacent to the city between points A and C. The area near point B is the most accurate assumption considering the oxbow-shaped river route that facilitates control and monitoring of hostile threats from the north. The market position is between points A and B. It is the only area with flat land (15 meters wide) between the fort and the river. Point B to C is the main entrance to the palace complex based on the presence of a 300-metre-wide gap where no traces of defensive walls were found. The mosque was possibly located near the royal tombs and north wall. The function of the mosque, which connects the people and their ruler, requires a location which is easily accessible for people living outside the defensive wall.

The position of the open space is located possibly parallel to the river bank, overlooked by the royal palace(s). A good view of this open space from the palace fulfils security and defensive requirement since all activities involving people and goods usually occurred in the vicinity of the waterway. Public and/or royal events were believed to congregate at this open space as well and its proximity to the river made it easily accessible. This layout of the Tanah Abang royal town suggested that the arrangement of building and spaces were planned by the 16th Century community in the area considering the geostrategic location, geomorphological setup as well as function of the area as a well-defended royal capital.

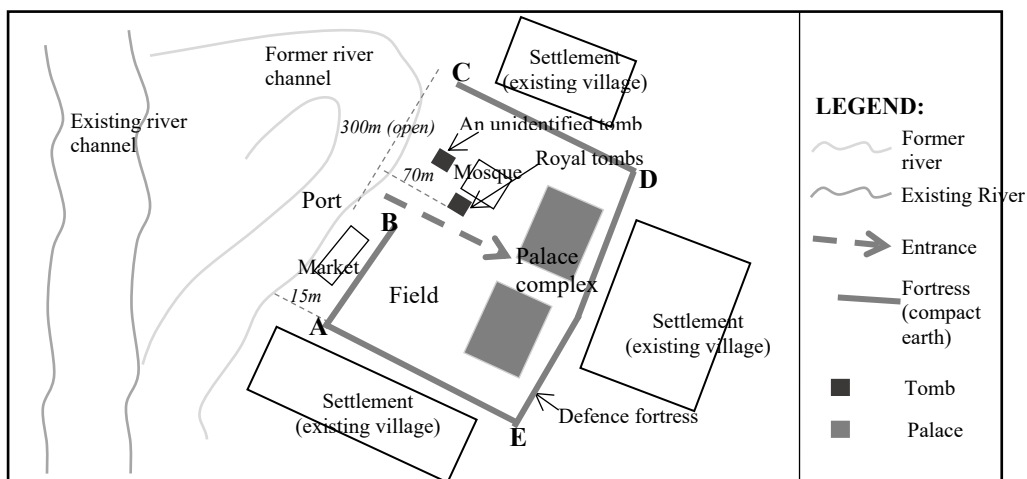
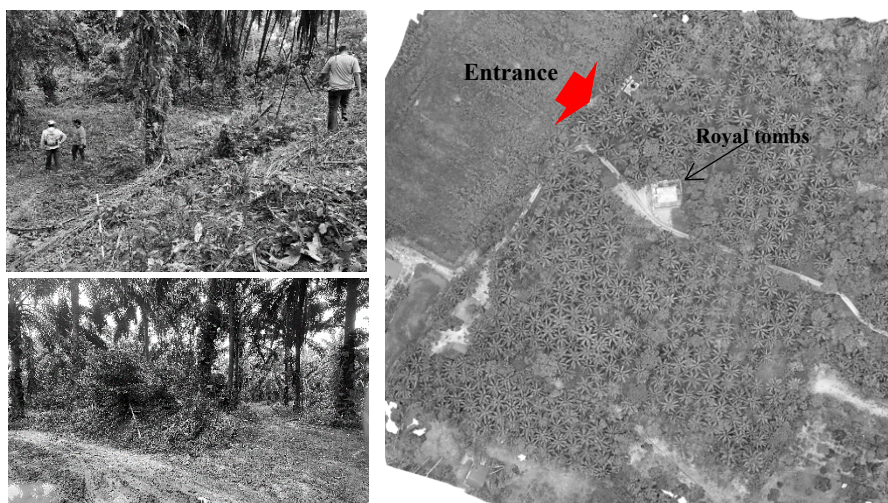


Figure 5: Possible configuration of Tanah Abang Royal Complex

CONCLUSION

Historical evidence clearly stated the role of Tanah Abang as the palace complex and administrative centre of Sultan Muzaffar Shah I, which is supported by material evidences such as the remains of fortifications, tombs and city entrances. Such evidences contribute to the understanding of the morphology of this royal town. Although the earth bunds which had served as defensive features are still preserved, most traces of the palaces and other structures built within the defensive walls are long gone, probably due to the perishable nature of the building materials. However, the layout of the royal capital can still be conjecturally constructed based on the position of the defensive walls as well as consideration of the local terrain. In spite of its current isolation, Tanah Abang once had an advantageous position at a river's meander where well-defended stockades and military outposts would have been set up. At the same time, the location in the middle course of the Perak River gave the ruler control over the movement of people and goods from the upriver and downriver subordinate settlements. Thus, the site possessed the ideal geomorphologic setup and geo-strategic position for a political centre and trading post to be safely established.



To refer Figure 5; **Figure 6 (left above)**: fortress at position E. **Figure 7 (right)**: drone view Tanah Abang palace complex. **Figure 8 (left below)**: Entrance at position C

In general, the buildings' positions in a palace complex consisted of royal residences, administrative buildings and mosques, while outside the town laid the markets, ports and villages. The presence of royal tombs within the fortification in Tanah Abang suggest the existence of a royal mosque. Apart from religious activities, the mosque was also an educational centre. It makes placing

the mosque in front of the palace and near the entrance an acceptable assumption. Markets and ports are among the main socio-economic activities at the site of Tanah Abang, based on the presence of settlements around the palace complex with wide entrances in front of and near the river. The findings at the Tanah Abang site and comparisons with previous studies in other Malay royal towns show apparent similarities in the layout of the Malay palace complex. This study thus supports the morphological theory that the layout and planning of a Malay royal town in terms of type and number of buildings and defence system requirements is strongly co-related to the riverine transport network.

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