

PROJECT MANAGEMENT [MGT 60703]

BACHELOR OF SCIENCE (HONS) IN ARCHITECTURE

Project 2 _____

FINAL PROJECT MANAGEMENT REPORT

Social Culture Hub , Jalan Segget, Johor

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1.0 PROJECT INTRODUCTION

Introduction

Johor Bahru, capital of the Malaysian state of Johor, sits at the southern tip of the Malay Peninsula. With a causeway across the Straits of Johor connecting it to Singapore, it's a gateway for exploration of that island nation. On the Johor Bahru's waterfront is Istana Besar, a royal palace built by Sultan Abu Bakar in 1866 that now houses the Royal Abu Bakar Museum.

The Project Aims to create a City Lobby to this southern capital by building a communal space accessible by all, while that has been going through rapid development not many space has been allocated to public, most projects has been focus on monetizing real estate thus straining public life and urban culture.

1.1 Programme Proposal

The programme aims to to curb the issues faced by the locals on site by introducing programmes fitting to their needs, and wants, allowing flow of social economical activity to intertwine Enriching the sense of ownership by the people of Johor Bahru. The architecture tends to fix this occurrence by revitalizing the concept of market. The market became a mediator that bring back the essence (public character) of place. Market is categorized into three types and each different market carries their own identity leading to personalization of the place and bring back the memory of the site. Moreover, market can fill up the gap, thus it able to bring back the interaction between races.



1.0 PROJECT INTRODUCTION

1.2 Design Brief

Base on the current feel of the place, Johor Bahru City is both busy during the day and night, Most places destine by locals or tourist are Theme Parks, Cinemas, Malls, Places of Worship and maybe a Museum, many sojourn through with little interaction between different individuals or communities, creating separation between socio economic or racial lines.

The project calls for building a city lobby which will engage and re engage the city's local population and visiting tourist alike, this project aims to create a quality public space where architecture can create opportunity to strengthen connectivity between individuals and communities

1.3 Programme Objectives

To promote Johor Bahru's intangible cultural heritage while adhering to all aspects of the project scope involved in creating the City Lobby

1.4 Project Objective

- Promote city life and Johorean identity
- Create an icon for Johor Bahru city center
- Democratizing space for the masses
- Rejuvenate Johor's grimy image

1.5 Project Goals

Short Term Goal

To ensure that project is being delivered in good quality according to client needs within the proposed time frame and to stay within budget without overwhelming of extra costs

Long Term Goals

To sustain the existing culture among the people of Johor BAhru, creating a landmark unique to its own name , thus boosting the income of local business and B40 bazaar vendors

1.6 Project Client

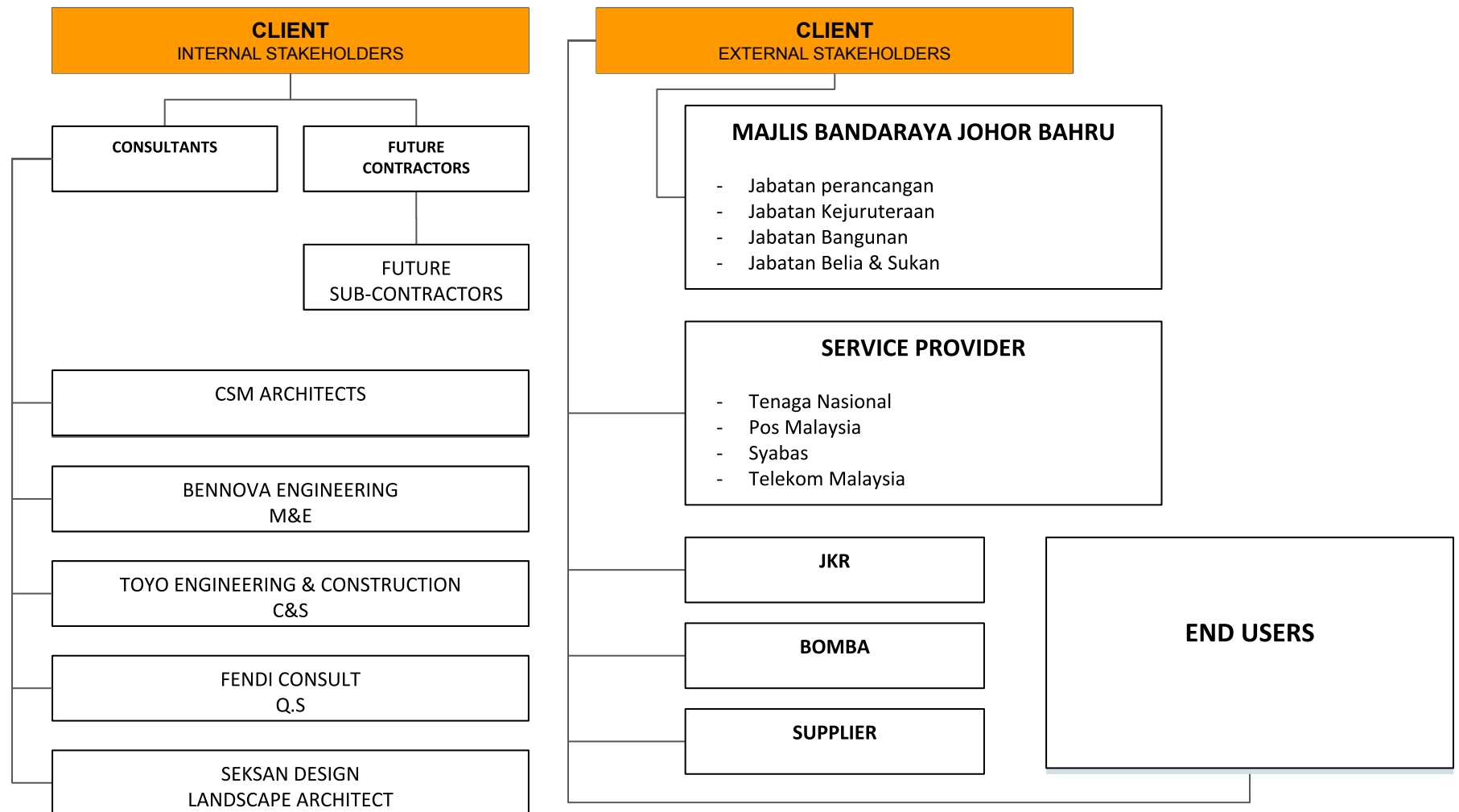


This project is a joint venture between Yayasan Warisan Johor (Y.W.J) & Majlis Bandaraya Johor Bahru (MBJB) . The site is currently own by the city hall of Johor (MBJB) while the building will be an asset of the Yayasan Warisan Johor. Funding of the project will be split 50/50 between the public sector and affiliated (GLC) Government Link Companies

1.0 PROJECT INTRODUCTION

1.7 Stakeholder

Stakeholders are those with any interest in your project's outcome. They are typically the members of a project team, project managers, executives, project sponsors, customers, and users. Stakeholders are people who are invested in the project and who will be affected by your project at any point along the way, and their input can directly impact the outcome. It's a good idea to practice good stakeholder management and constantly communicate with them in order to collaborate on the project. After all, they have a stake in how it all turns out.



2.0 Site Analysis

2.1 Introduction



The given site is strategically located in the city centre of Johor Bahru. It is fronted by four vehicular streets making it an island site with high exposure to vehicles and pedestrians. The site was originally a sunken car park with a slope after a development project was abandoned.

The site is surrounded by famous historical landmarks and old shops creating an atmosphere rich in history and culture. It is also located near different district functions like commercial, education, institutional and more creating the need to cater various groups of people.

The city lobby is proposed at this given site due to its strategic location and atmosphere. It is located at the heart of Johor Bahru, allowing different groups of people to be able to visit it with no limitations. This project aims to act as a city lobby and serves the community of Johor Bahru.

Site Surrounding



2.0 Site Analysis

2.2 Site Analysis (S.W.O.T)

(S.W.O.T) Analysis is used to analyse the (internal environments) strength, weakness, opportunity and Threats present, Conditions important to understand to better the design

S	W
<ul style="list-style-type: none">- Surrounding by 4 roads creating high vehicular accessibility- High visual exposure to pedestrian due to island site nature- Located in city centre hence high intensity of human activity from tourists- Close proximity to multiple shopping malls	<ul style="list-style-type: none">- Dirty streets- Illegal food vendors- Illegal activities (prostitution)- Lack of housing area near site causing the lack permanent local characters on site- Squatters on streets and pedestrian crossing bridges- Badly preserved old buildings
O	T
<ul style="list-style-type: none">- Close proximity to multiple transportation hubs- Close proximity to singapore Investment hub for property- Presence of tourists creating opportunity to generate income through tourists sales- Presence of rich historical background of site creating opportunity to connect historic background to current development	<ul style="list-style-type: none">- Property oversupply- Rampant development- Lost of johor bahru historical sites- Large amount of homeless people lurking around during the night- Flash Floods due to heavy rain volume

2.0 Site Analysis

2.2 Site Analysis (P.E.S.T.L.E)

P. E. S. T. E. L. analysis is a framework of analysis used to analyze the (external environments), opportunities and threats that can be found and used to strengthen the project intention and objectives.

P	E	S	T	E	L
POLITICAL	ENVIRONMENTAL	SOCIOLOGICAL	TECHNOLOGICAL	ECONOMICAL	LEGAL
The site falls under the jurisdiction of MJB Majlis Bandaraya Johor Bahru, due to its proximity to Singapore and with the introduction of a new Government in putrajaya some tensions are introduce as new policies are being pursued	The site is located smackd in the middle of the city center with easy access to the main transportation hubs of Johor baru, rapid redevelopment projects in the city is quickly transforming the urban fabric	Being an overly redeveloped city, johor bahru is a city struggling with its identity trying to keep its heritage while pushing forward into the future to become a world class city rivaling that of its shiny neighbour Singapore	This project aims to take advantage of current construction technologies most accessible and viable for the project both in cost and scope this project covers	The site is located within a highly commercialized area with most businesses focusing on services such as F&B, retail or hospitality with Singaporeans set as the target consumers, as they are able take advantage of their stronger currency	The site of the project falls under the jurisdiction of MJB in line with the laws of the Federation of Malaysia followed by the practice of the Uniform Building by Laws

3.0 PROJECT VIABILITY

3.1 Technical Feasibility

Post & Beam concrete structure will be used in this proposed building as it's the most economically viable option due to local geographical and economical context. The material is well suited for the climatic conditions of Malaysia as it does not rot or rust in such moist and wet conditions.

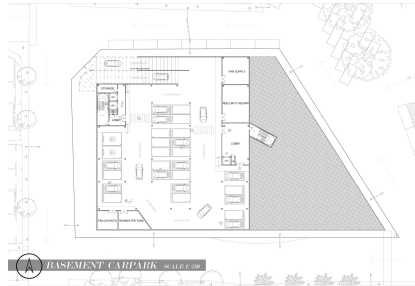
3.2 Legal Feasibility

The proposed building fully complies with the legal requirements as stated within the Uniform Building By-Law 1984 (UBBL) and guidelines from Majlis Bandaraya Johor Bahru (MBJB). The proposed building is situated with the same row of shophouses. Hence, the setback of the building is according to the five-foot walkway setback. According to the MPM's guideline, the five-foot walkway setback is only applicable for the first two floors. From the third floor onwards, a 20ft setback needs to be applied. The 20ft setback is also applied at the north-east and south-west of the building from ground level. Besides, fire escapes with a dead-end limit of not more than 30m are provided, as well as adequate lighting and ventilation. Floor area ratio is adopted. There are 20 parking, 2 disabled parking and 2 services parking provided at the basement of the building. The building also complies with the MS1525 and MS 1184 (disabled) guideline.

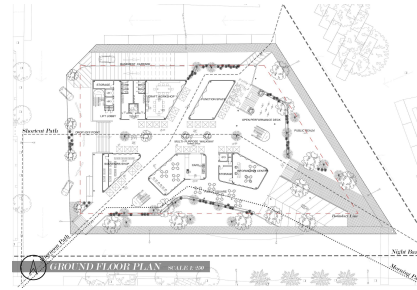
3.3 Social Feasibility

The proposed programme that of a building that is able to become a representation of the City of Johor Bahru as it's set to be the City's Lobby welcoming visitors far and wide, most of its function and programme are set to be people centric creating a public realm to invite people to engage with urban life thus creating a new and enhance Johorean cultural identity and sense of ownership of their city.

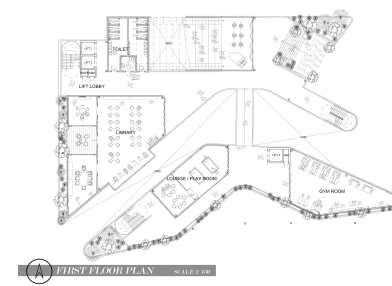
3.4 Economic Feasibility



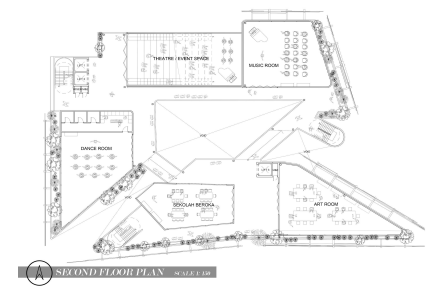
BASEMENT	AREA (m ²)
Car Bay	800
Lift Lobby	38
Fire Staircase	48
Plant Room	12
Store Room	18
Fan Spill Room	10
Loading Bay	20
TOTAL FLOOR AREA	946



GROUND FLOOR PLAN	AREA (m ²)
Outdoor Amphitheater	42
Cafe,Kitchen	100
Souvenir Shop	60
Multi Purpose Walkway	334
Information Center	50
Crafting Room	150
Function Space	72
Toilet	48
Lift Lobby	38
Fire Staircase	48
M&E Room	12
TOTAL FLOOR AREA	952



FIRST FLOOR PLAN	AREA (m ²)
Library	104
Gymnasium	96
Performing Theater	106
Lounge	54
Walkway	128
Lift Lobby	38
Toilet	48
Fire Staircase	48
M&E Room	12
TOTAL FLOOR AREA	634



SECOND FLOOR PLAN	AREA (m ²)
Music Room	65
Dance Room	124
Art Room	65
Kid Learning Area	50
Walkway	212
Toilet	48
Lift Lobby	38
Fire Staircase	48
M&E Room	12
TOTAL FLOOR AREA	662

Total Gross Construction Cost = RM 7,258,506 + RM3,054,780 = RM 10,313,286

Floors

Total Area = 2248 m²
 Floor without basement at 2248 m2 x 10.76391
 =24195.02sq ft
 Gross construction cost =
 24195.02 sq ft x (MYR) 300/sq ft = RM 7,258,506

Basement

Total Area = 946 m²
 Basement at 946 m2 x 10.76391
 = 10182.6 sq ft
 Gross construction cost =
 10182.6 sq ft x (MYR) 300/sq ft = RM3,054,780

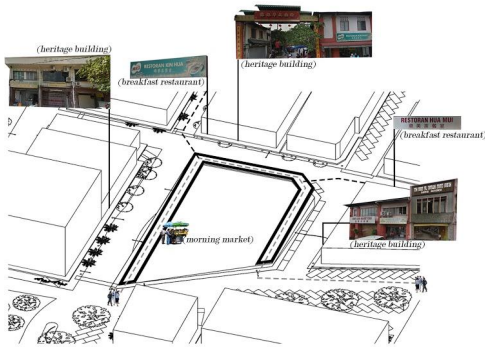
Total development cost

=Total Gross Cost + Regulatory and service providers fee (3%) + Provisions of construction cost (3%)+ Consultant team fees (10%) + Contingency of budget (10%)
 =RM 13,239,051.8

3.0 PROJECT VIABILITY

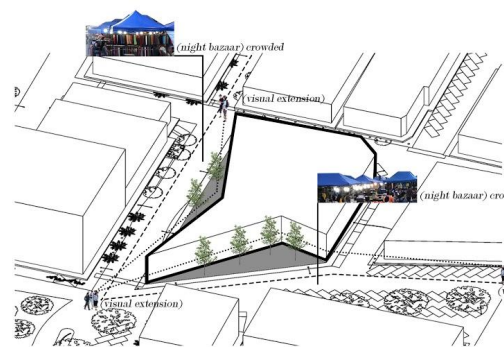
3.5 Project suitability

3.5.1 Contextual Response



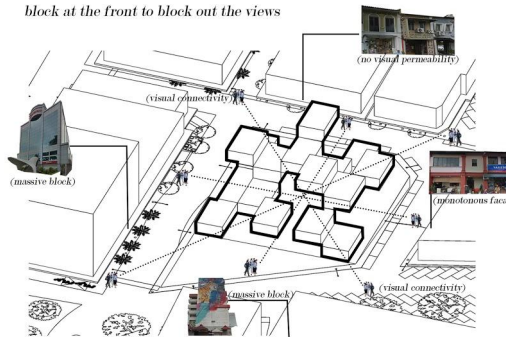
Connection

- Slight raise up the planes intertwining and generating a walkway which links the path with the morning market.



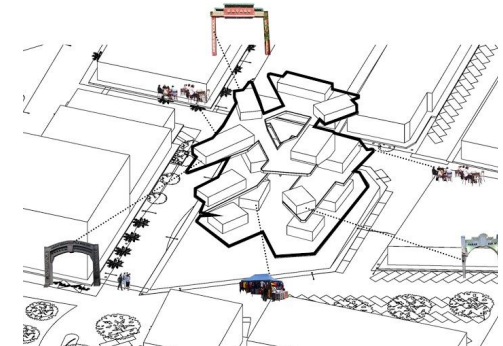
Public Realm

By introduce public realm increase more breathable space when walking through the bazaar



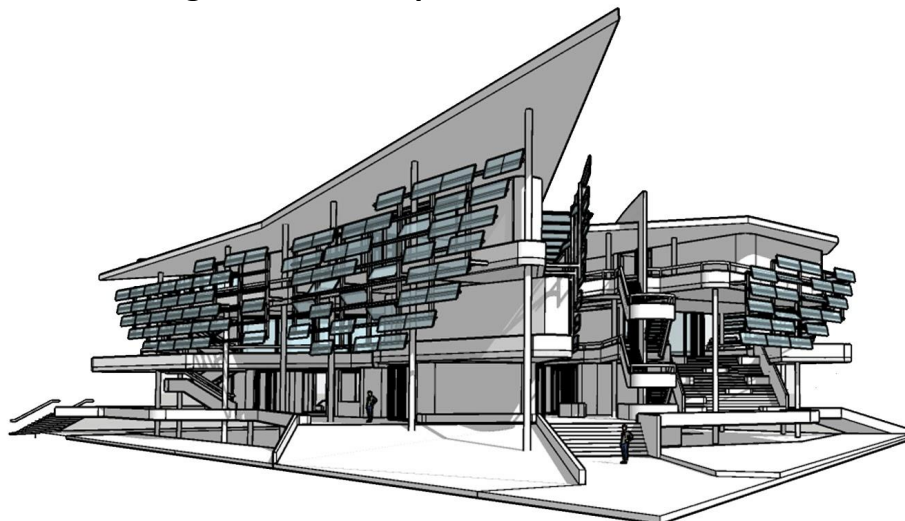
Interplay Solid and Void

Break the monotonous facade on site ,and increase visual permeability



Tilted Angle

Create direction towards the site framing element or movement on site



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4.0 PROJECT PROCUREMENT

4.1 Contract Procurement

Traditional Procurement Method The project will adapt the traditional approach of procurement whereby consultants are appointed for design and cost control, and contractors that are responsible for carrying out the works. The traditional method would appoint the contractor by competitive tendering, whereby the increasing the contractor's accountability, as well as competitive equity as all tendering contractor bid on the same basis

Lump Sum Contract

Contractor agrees to carry out a stipulated job of work in exchange for fixed sum of money. Job specification must be sufficiently completed in detail necessary for bidder to prepare cost estimates and completion schedules to submit a firm price for the work. Contractor may be relieved of his contractual responsibility because of impossibility of performance such as changed conditions.

Advantages of this contract encourages improved communication and cooperation between the client, contractor planner or designer The agreements are regarded as the most efficient way to lower the cost of construction, and they are particularly valuable when everything involved in a project is clearly planned out

Selective Tender

Selective Tender The tender process would be carried out by selective tender as the respective design requires a good workmanship, and price certainty as the building is much complicated with various construction element to be built upon the site. However, the consultants would be required to communicate well with the contractor regarding the project as they are not appointed during the design stage.

4.0 PROJECT PROCUREMENT

4.2 Resource Planning

Summarize the level of resources needed by specifying the exact quantities of labor, equipment and material needed to complete the project

TASK / DELIVERABLE	KEY PERSONNEL	QUANTITY	SKILLS REQUIRED
1. SCHEMATIC DESIGN			
Site Visit & Survey	Client , Consultant	-	Ability to use the utilise the tools and equipment required
Site Documentation & Analysis	Client , Consultant	-	
Conceptual Sketches	Architect	1	-
M&E and Landscapes Planning	M&E Engineer, Landscapes Architect	1,1	Autodesk CFD, AutoCAD , AroGIS, Revit
Cost Estimation	Quantity Surveyor	1	Microsoft Excel
2. DESIGN DEVELOPMENT			
Detailed Design Drawings	Architect , Draftsman	1,2	AutoCAD , Revit
Detailed Project Budget	Quantity Surveyor	1	Microsoft Excel
Local Authority Submission	Architect	1	AutoCAD , Revit
3. CONTRACT DOCUMENTATION			
Preparation of Bill of Quantities	Quantity Surveyor	1	Microsoft Excel, WinQS
Tender Period (Open Tender)	Architect, Project Manager	1,1	-
Tender Evaluation	Client , Consultant Team , Contractor	-	-
Award of Contract	Architect , Contractor	1,3	Microsoft Word

RISK	LIKELIHOOD	SEVERITY	EFFECT	MITIGATION STRATEGY	CONTINGENCY PLAN
CONTRACT DOCUMENTATION					
Delay of drawing approval from authorities and stakeholders	Medium	High	Commencement of construction phase experience delays.	Projects team to submit the drawings earlier in preparation for delayed approval.	Project manager to check and proceed with any other approved processes or simultaneous task according to the Gantt Chart.
Low response from contractors and tenderers	Low	High	Limited options and proposals that does not conform to the budget.	To extend the tendering period and post request on multiple media platforms for more tender options.	Proceed with the most possible tender option while revising budget allocation.
CONSTRUCTION MANAGEMENT & IMPLEMENTATION					
Lack of site mobility due to site location next to main road	Medium	Medium	Cause obstruction to the surrounding business operation	Encourage night construction for major construction works.	Ensure sufficient time frame is given for informing surrounding business.
Difficulties in the construction of facade	Low	Medium	Cost increment.Project workflow is hindered.	Ensure sufficient detail drawings & clarification are provided for the contractor before construction.	Conduct technical meeting with contractor and engineer to discuss solution of problem
Poor weather conditions during the construction phase	Medium	Low	Delay in overall completion and subsequent operations	TO ensure meteorological data is collected and analysed regularly when planning construction phases	To reschedule construction works according to weather condition to keep the process going
Unanticipated project manager workload	Medium	Medium	Result in overworked project manager and careless management	To ensure scope of work of project manager does not exceed services provided as stated in contract	Allocation of suitable task to other consultants at critical time.
FINAL COMPLETION					
Delay of issuance of CCC	Medium	High	Building unable to handover on the stated date in the contract	To complete construction phase earlier for early issue of CCC	To proceed with any other approved processes or simultaneous task according to the Gantt Chart
High maintenance of building	Low	Medium	Affects client;s satisfactory level and trust	Encourage passive and active design strategy at initial design proposal stage	Carry out value engineering and work with consultant to seek for solution in reducing cost
Damp issue to basement floor	Medium	Medium	Cause discomfort and annoyance to the users Molds and mildew can grow beneath	Choose the corrects waterproofing methods according to the site characteristics and design	Increase membrane waterproofing coating to the interior space. Use suitable

5.0 RISK ANALYSIS & MITIGATION STRATEGY

5.1 Risk Identification

RISK	LIKELIHOOD	SEVERITY	EFFECT	MITIGATION STRATEGY	CONTINGENCY PLAN
SCHEMATIC DESIGN					
Client & Contractor express dissatisfaction over design proposal	Medium	High	Project is delayed due to multiple revisions and reduced quality of work	Negotiate with the relevant parties to meet client Requirement and set specific timeline to finalise design	Project manager ensuring client is aware of deadline & schedules as well as amend the design as discussed.
Misinterpretation of the objective and requirement	High	High	Design does not achieve objectives and client requirement	Conduct regular meetings with the team to ensure they are clear with the objective set	Project manager must be communicative with all parties to ensure all parties comply with the design objectives
Building Plan not approved by authorities	Medium	High	Construction phase experience delays due to amendments to drawings based on authority guideline	Designers to be clear and advice the client on the authority guidelines in the initial and design stage	Project team to create a new set of amended drawings
Items not listed in the architect's scope of work is requested by the client.	Low	Medium	Misunderstanding and bad working experience between consultant and the client	Designers to clarify the scope of works of the architect at the initial stage of the project	Project manager must ensure clear communication and understanding between consultants at initial stage
DESIGN DEVELOPMENT					
Client request for good quality material but with very tight budget.	Low	Medium	The final outcome of the spaces is affected	Project manager and consultants to give appropriate advice on the material pricing to the client	Project manager and consultant to use cheaper materials but with the same aesthetic value
Last minute changes in the design to reduce cost	Medium	High	Change of design language and construction methods	Project team suggest the reduction of cost in other aspects such as reusable materials	To reuse/ source the materials from the existing site to reduce cost
Consultant are unable to meet the deadlines	Low	Medium	Project work flow is affected and delays are caused to the project	Find out the root cause of the disruption or replace the incomplete consultants	Ensure the consultants hired are up to their mark based on their experience and capabilities
Materials proposed during design process is unsuitable to be used	Low	Medium	Results in structural weakness and wastage of resource	Project manager and consultants to give appropriate advice on the suitability of material to the client	Preliminary estimated cost is done to not exceed the project budget

TASK / DELIVERABLE	KEY PERSONNEL	QUANTITY	SKILLS REQUIRED
4. CONTRACT IMPLEMENTATION & DOCUMENTATION			
Site Cleaning & Leveling	Architect, Project Manager, Contractor, Workers	1,1,1	Competency and understanding of Installation/ Construction of item /service. Ability to use the utilise the tools and equipment required. Ability to comprehend the information of construction /shop drawings provided.
Setting Out			
Land Excavation	Architect, Project Manager, Contractor, Workers,C & E Engineer	1,1,1,3,30	
Pile & Footing Construction			
Columns & Beams			
RC Slabs			
External and Internal Partitions	Project Manager, Contractor, Workers	1,1,3,30	
Roof Construction	Architect , Project Manager , C & E Engineer ,Contractor, Workers , Speciality Consultant	1.1.1.3.2.30	
Door & Window Installation	Contractor, Workers	1,1,3,30	
M & E Services Installation	Architect , Project Manager , M & E Engineer ,Contractor, Workers , Speciality Consultant		
5. PROJECT COMPLETION			
Testing, commissioning & inspection	Client, Architect , Project Manager ,C & E and M & E Engineer , Quantity Surveyor ,Contractor, Landscape Architect , Speciality Consultant	2,1,1,1,1,1,1,2,3	Ability to use the utilise the tools and equipment required.
Issuance of CCC	Client, Architect	2, 1	Microsoft Word
Preparation of Final Account	Architect, Quantity Surveyor	1, 1	Microsoft Excel

6.0 MAINTENANCE STRATEGY

6.1 Building Maintenance

Maintenance strategy is used to define the sequence of planned maintenance work to upkeep the project for future use. The cost of maintenance for this project is medium as the project does not accommodate technologies with high maintenance cost such as kinetic façade. Hence, no experts need to be hired to carry out the maintenance work. However, a regular upkeep progress needs to be carried out to ensure a comfortable environment for the building users.

MAINTENANCE WORK	FREQUENCY	MAINTENANCE STRATEGY
Fire safety equipment	Yearly	To conduct fire drills in the building and to check the fire safety equipment are in good conditions and can be used
Pipework	Quarterly	Ensure there are no leakage of water to prevent health risk from fungal growth.
Landscaping	Weekly	Ensure all softscapes and hardscapes are in good condition to remain the aesthetics and functionality of space
Mechanical and electrical works	Monthly	To check the mechanical lighting and ventilation equipment are working to provide a comfortable environment in building
Windows	Weekly	Remove dirt and dust that caused visual disruption and to maximize daylight into the building
Floor	Daily	Ensure clean floors due to high usage
Furniture & Equipment	Quarterly	Ensure to replace faulty equipment

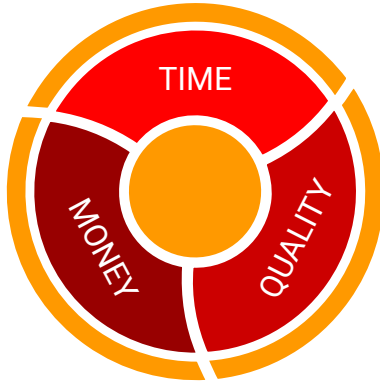
6.0 MAINTENANCE STRATEGY

6.2 Programme Maintenance

MAINTENANCE WORK	FREQUENCY	MAINTENANCE STRATEGY
Food market	Daily	Maintenance Strategy Remove food waste and litter that may occur during market timing. Cleaning of dirt ensures no rats or cockroaches breed on site
Craft market	Weekly	Cleaning to ensure the cleanliness of the market. Remove of litter that may occur during market time
Food studio	Weekly	To ensure the ventilation of the room is always good as it is essential for the safe preparation and storage of food, the health, morale and comfort of the users
Craft workshop	Weekly	To ensure the equipment provided are all in good condition and can be used
Performing studio	Weekly	Ensure the floors are clean and no hazardous items on floor
Staff office	Weekly	Ensure the lighting and ventilation of the space is working to provide a more comfortable living space for the staff
Interactive learning hub	Monthly	Ensure the sliding panel can be used. To replace or fix any that are in state of cannot be used
Courtyard/ Garden	Daily	Ensure no unwanted pests are causing hazards in the outdoor courtyard, raking dry leaves or picking up trash

7.0 Project Deliverables

7.1 Success Criteria



Project success criteria are the standards which project are measured from beginning to end, deciding whether or not the project has been successful in the eyes of the stakeholders. Not only success in three manner, time, cost and quality. Each are individual and integrated to one another where to measure a successful project each elements should be met to its requirement. Either the project is done by the given time, the project complete within the given budget and the project is completed with its intended function while in its excellent quality.

TIME	QUALITY	MONEY
The client has demanded that the project would be completed within 20 months starting from last 2nd September 2019 to 2nd Aug 2021. Upon maintaining and completing the project, it is important that all task carried out should be done in a good quality which would be check upon every now and then. To assist the time duration of the project, a Gantt Chart will be used to plan the 20 months span of the project while allowing each of the project member to be aware of their specific task and the time frame of each task in order for the project to run through its proposed time duration. Not only the Gantt chart will be useful in the early planning stage, the risk analysis can be identified, thus, any upcoming problem can be detected in the early stage and act as a guideline to get a more proper flow of the project.	The main focus of the success criteria would be the quality of the project, from the starting of planning towards the completion of building the centre. Quality should be maintained equally for each task as this will help on providing a very well outcome without any problem occurring. The maintenance strategy would greatly help as they determine what part of the building or the surrounding site should be maintained to keep the centre in its optimal quality, Maintenance strategy won't only help in producing a quality product but the balance of all three elements of time, cost and quality should be kept in check to produce not only a quality product but a product that meets all the successful criteria.	The total cost of the project consists of planning phase, pre-construction phase, construction phase and any cost which will be used upon completion of the project. The total cost will be given by the clients and any of its investors. The main goal is to try and achieve the target within the given budget anything that over exceed it will result in a project which are not in the realm of success. Building materials and finishes could provide a passive design in the future making that cost a much more worth than it was, As well for any extra cost involving any luxurious or any special materials or machinery that could enhance the centre could be put in consideration if there is any balance cost or if the client and investors start making profit.

7.0 Project Deliverables

7.2 Work Breakdown Structure

MARKET , JOHOR BAHRU SOCIAL HUB

PRE- CONSTRUCTION STAGE		CONSTRUCTION STAGE	POST- CONSTRUCTION STAGE
<ul style="list-style-type: none">1.Preliminary Stage<ul style="list-style-type: none">1.1.1 Client Briefing1.1.2 Design Requirement1.1.3 Site Investigation1.1.4 Soil Investigation1.1.5 Feasibility Studies1.2 Schematic Design<ul style="list-style-type: none">1.2.1 Conceptual Sketches1.2.3 Spaces Planning1.2.4 Material Proposal1.2.5 Cost Estimation1.2.6 Visualization1.3 Design Development<ul style="list-style-type: none">1.3.1 Detailed Design Drawings1.3.2 Detailed Landscape Design1.3.3 Authority Submission1.3.4 Revised Cost Estimate1.4 Contract Documentation<ul style="list-style-type: none">1.4.1 Tender Documentation1.4.2 Tender Review & Award1.4.3 Project Planning & Schedule1.4.3 Stakeholder Notification	<ul style="list-style-type: none">2. Preliminary<ul style="list-style-type: none">2.1.1 Set Hoarding & Signboard2.1.2 Site Clearing & Leveling2.1.3 Temporary Power Service2.1.4 Set Up Site Office2.1.5 Setting Out2.1.6 Underground Mapping2. Substructure<ul style="list-style-type: none">2.2.1 Land Excavation2.2.2 Execution of Retaining Wall2.2.3 Piling and Footing Construction2.2.4 Basement Construction3.Superstructure<ul style="list-style-type: none">3.3.1 Column and Beams (GF-3F)3.3.2 Rc Slabs (GF-3F)3.3.3 Water Drainage and Plumbing System3.3.4 Sanitary Drainage System3.3.5 External Wall3.3.6 Lift3.3.7 Fire Staircase3.3.8 Internal Wall Partitions	<ul style="list-style-type: none">4. Roofing<ul style="list-style-type: none">4.4.1 Roof Construction4.4.2 Gutter and Drainage System5. Fenestration<ul style="list-style-type: none">5.5.1 Door Panels5.5.2 Window Panels5.5.3 Facade Installation5.5.4 Architectural Interior and Finishes5.5.5 Floor , Ceiling and Wall Finishes5.5.6 Furniture Installation6.1 Installation of M&E Services<ul style="list-style-type: none">6.6.1 Building Services Installation6.6.2 Light Fittings6.6.3 Fire Protection Systems7.1 External Landscaping Work<ul style="list-style-type: none">7.7.1 Surface Water Drainage7.7.2 External Water and Sewerage Reticulation7.7.3 Turfing and Finishes7.7.4 Softscape and Hardscape	<ul style="list-style-type: none">3.1 Handling Over<ul style="list-style-type: none">3.1.1 Final Clearance & Testing3.1.2 Inspection3.1.3 issuance Certificate of Completion & Compliance (CCC)3.1.4 Preparation of Final Accounts of Contract

7.3 GANTT CHART

7.3 Gantt Chart
