PRACTICAL TASK 1 – OCCASION 1
BSBPMG426
APPLY PROJECT RISK MANAGEMENT TECHNIQUES

1. Assist with risk analysis and planning
1.1A. Identify the project deliverables, objectives and resources. Also refer to the Geotechnical investigation report and the Engineering expertise document provided (refer to the attached) The project objectives are that it comprises of raising and building works on an existing dwelling in West End and will include the creation of a single level basement approximating the existing building footprint. Earthworks details with bulk excavations in the order of 3.5m are expected for the excavation of the single level basement. Project Deliverables: The project's scope encompasses extensive raising and building works on an existing dwelling located in West End, Queensland. The primary project deliverables include: 1. Architectural Plans: Comprehensive architectural plans and drawings that incorporate the necessary alterations and additions to the existing dwelling while preserving its structural integrity. 2. Structural Engineering Design: Detailed structural engineering designs, calculations, and specifications to support the raising and building works, ensuring the safety and stability of the structure. 3. Foundation and Basement Plans: Specialized plans and designs for the foundation and the creation of a single-level basement. This includes considerations for bulk excavations, retaining walls, and proper drainage systems. 4. Construction Documents: A complete set of construction documents, including material specifications, construction details, and schedules, tailored to the project's unique requirements. 5. Environmental Compliance: Documentation and plans addressing environmental compliance and sustainability aspects, in line with Queensland's regulations, particularly given the earthworks involved. Objectives: The project's key objectives are as follows: 1. Preservation of Existing Structure: To ensure that all raising and building works are executed with precision to preserve the integrity of the existing dwelling. 2. Single Level Basement Creation: To successfully create a single-level basement that approximates the existing building footprint, meeting all structural, safety, and regulatory standards. 3. Earthworks Management: To effectively manage earthworks, including bulk excavations up to 3.5 meters deep, to accommodate the single-level basement while mitigating any associated risks. 4. Compliance and Permits: To secure all necessary permits and approvals for the project, ensuring full compliance with Queensland's building codes and regulations. 5. Sustainability and Environmental Impact: To incorporate sustainable construction practices, materials, and technologies that align with Queensland's environmental goals, particularly considering the earthworks involved.

Resources Required:

The successful execution of this project will necessitate the following resources:

1. Architects: Experienced architects with expertise in residential renovations and the complexities of raising and building works on existing structures.
2. Structural Engineers: Highly skilled structural engineers capable of designing and overseeing the structural aspects of raising, basement creation, and building works.
3. Construction Team: A qualified and experienced construction team specializing in renovations, basement construction, and earthworks.
4. Construction Materials: High-quality construction materials, including those suitable for basement construction and any required retaining walls.
5. Permit and Approval Specialists: A dedicated team responsible for obtaining all necessary permits and approvals from local authorities.
6. Environmental Consultants: Environmental experts to assess and address any ecological concerns arising from the earthworks and ensure sustainability compliance.
7. Earthwork Contractors: Experienced earthwork contractors capable of managing bulk excavations and the creation of the single-level basement.

1.1B. Determine potential and actual risks of project. (Refer to Project Risk Prioritisation Worksheet/Template as attached) information collated from Engineering expert reports

1.1C. Prioritise potential and actual risks of project, and advise project manager (Refer to Project Risk Prioritisation Worksheet/Template as attached).

1.1D. Work with relevant personnel to determine risk-analysis methods, techniques and tools to be applied.

Worked with Engineering experts to determine as below:

Field Investigation

Subsurface conditions at the site were investigated by drilling and sampling two boreholes to depths between 2.50m and 3.20m within the proposed building area, using a 4WD mounted Jacro 105 drilling rig. Both boreholes terminated at 'TC' bit refusal depth. In addition, dynamic cone penetrometer (DCP) tests were carried out adjacent to the boreholes.

The field work was carried out on the 20th December
The soil classification descriptions, field and laboratory testing were carried out in general accordance with the following Australian Standards:-
- AS 1726-2017 - Geotechnical Site Investigations
- AS 1289 - Methods of Testing Soils for Engineering Purposes

A description of the investigation method, borehole records and a site plan showing the location of the boreholes are included in the Appendices.

Borehole coordinates were recorded using a hand held GPS device, with accuracy consistent with such devices.

Laboratory Testing

A selected sample (BH2 @ 1.50m) retrieved from the field investigation was submitted for shrink swell index testing (AS 1289.7.1.1).
The laboratory test result is summarised below:-

- Unit Weight = 2.02 t/m3
- Shrink/Swell Index = 1.0%

1.1E. Work with relevant personnel when developing risk management strategies, approaches and plans according to organisational policies and procedures (Refer to Risk Management Plan Template as attached).

1.1F. Participate in a range of verbal exchanges using clear language and non-verbal features to provide relevant information.

This was conducted and as below:

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical aspects and recommendations or suggestions for design and construction. Since the test sites in any exploration represent a very small proportion of the total site and since the exploration only identifies actual ground conditions at the test sites, even under the best circumstances actual conditions may vary from those inferred to exist. No responsibility is taken for:-

- Unexpected variations in ground and/or groundwater conditions.
- Changes in policy or interpretation of policy by statutory authorities.
- The actions of other persons.
- Any work where the company is not given the opportunity to supervise the construction using the Companies designs/recommendations.

If differences occur, the Company will be pleased to assist with investigation or advice to resolve any problems occurring.

In the event that conditions encountered on site during construction appear to vary from those expected from the information contained in the report, the Company requests that it immediately be notified. Most problems are more readily resolved when conditions are exposed than at some later stage, well after the event.

Extreme events including but not limited to the results of climate change, e.g. flood levels above previously identified levels, beach scour or erosion beyond normal expectations (as identified by local authorities) extreme rainfall events, war, espionage, sabotage may result in different conditions between time of investigation and time of construction.

1.1G. Use active listening and questioning techniques to elicit views and opinions of others.

Written, one-on-one, electronic meetings, zoom, team meetings, emails, phones were used.

1.1H. Work with relevant personnel to develop and implement risk-reporting mechanisms (Refer to Risk Management Plan Template as attached).

1.1I. Take responsibility of own role in terms of its contribution to broader goals of work environment.

Attention is drawn to the document “Guidelines for the Provision of Geotechnical Information in Construction Contracts (1987)”, published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances, where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

The Company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related.

i. Site visits during construction to confirm reported ground conditions
ii. Site visits to assist the contractor or other site personnel in identifying various soil/rock types such as appropriate footing or pier founding depths, the stability of a filled or excavated slope; or
iii. Full-time engineering presence on site.

In the vast majority of cases it is advantageous to the principal for the geotechnical engineer who wrote the

investigation report to be involved in the construction stage of the project.
The geotechnical engineer cannot take responsibility for variations in encountered conditions, where he is not given the opportunity to review plans for the proposed development with sufficient time to allow review and make changes to the proposed development if required, and where he is not given the opportunity to inspect the site and oversee construction methods with regard to site conditions with sufficient time to observe all relevant site conditions and operations.

1.1J. Cooperate and collaborate well with others to achieve shared goals.

Collaborating with the team on recommendations in our report are for design purposes only and provided on the basis that inspections are carried out to allow finalisation of opinions and recommendations contained in our report, to ensure we achieve and meet our shared goals.

The geotechnical investigation consisting of field and laboratory testing has been carried out to indicate typical conditions by indicating conditions and parameters at the specific locations of boreholes/test pits. Subsurface conditions are indicated at these locations only and the inference of conditions between or away from these locations (interpolation and extrapolation) involves a certain degree of risk. Persons inferring such conditions or carrying out such inferences should do so with a degree of caution and conservatism which is commensurate with the consequences of the risk of error.

Estimates of volumes based on our findings require interpolation and extrapolation between test locations and as such may be significantly different from actual volumes.

2 Review risks and execute risk-control activities

1.2A. Monitor actual and potential risks according to agreed project and risk management plans. (Refer to Risk Management Plan Template as attached).

1.2B. Identify opportunities and changing environment for project activities.

The geotechnical review ensures geotechnical risks to our Client and their project are minimised at the design and tender stage of the project. Further, with Soil Surveys Engineering being commissioned to carry out geotechnical construction inspections, an opportunity at the time of construction to confirm any assumptions made in the preparation of the report and allow the effect of any normally occurring variation in ground conditions to be assessed with respect to construction becomes available.

1.2C. Advise project manager of changing circumstances. (Refer to Schedule Change request template to Project Manager as attached)

Refer to the attached template for information shared with the project manager via the documented report and template information via email.

1.2D. Contribute to amending project and risk management plans and confirming plans reflect the changing environment. (Refer to Risk Response Plan template as attached)

1.2E. Contribute to reporting opportunities for risk control. (Refer to Project Change request template as attached)

1.2F. Sequence and schedule required tasks and activities in an appropriate order.

The sequencing for the following tasks and activities below, is tabulated further below for ease of scheduling:

Earthworks will comprise predominately excavations of up to 3.5m for basement construction. Some minor filling is expected within the northern section of the site. Earthwork procedures should be carried out in a responsible manner in accordance with AS 3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments" and include the following:-
Clearing, stripping and grubbing should be carried out in areas subject to earthworks (as trafficability conditions allow). Also all soils containing organic matter should be stripped from the construction area; this material is not considered suitable for use as structural fill.
• Depressions formed by the removal of vegetation, underground elements etc. should

have all disturbed weakened soil cleaned out and be backfilled with compacted select material.
• The subgrade should be proof rolled (where appropriate) under the supervision of a suitably qualified person in accordance with methods and equipment as per Clause 5.5 of AS 3798-2007. In areas of cut, proof rolling may be deferred until after the cut operation. Areas demonstrating excessive movement should be treated (dried and recompacted) or removed and replaced with compacted fill. Treatment should be to a standard sufficient so that the subgrade passes proof rolling and that compaction can be achieved in the first layer of fill.
• The insitu soils, where free of organic and deleterious material, may be used for structural fill provided the moisture content of the soils on placement approximates the optimum moisture content required for compaction. This will require conditioning to bring the soils to optimum. However, it should be noted that the on site soils could be expected to present difficulties in handling, placement and compaction if the appropriate moisture content could not be achieved, particularly if the soils were overly moist.

Fill placed in the area of the buildings should be compacted in layers (approximately 250mm loose thickness) to a density not less than 95% of maximum dry density in accordance with AS 1289 (Standard Compaction).
• Field density testing should be carried out to check the standard of compaction achieved and the placement moisture content. The frequency and extent of testing should be as per guidelines in AS 3798-2007, Section 8.0.
• Backfilling for service trenches, etc. (if required) should use good quality material. The backfill should be placed in uniform layers over the full width of the excavations with the layers not exceeding 200mm thickness, loosely placed using wheeled plant and 100mm loose thickness using hand held vibrating plates. The backfill material should be compacted to the specifications outlined above for insitu or imported cohesive material.

Imported select fill (if required) should be cohesive in nature and conform to the following specifications:
Liquid Limit 35%, maximum
Plasticity Index 10%, maximum
Aggregate Size 75mm, maximum
Passing 19mm Sieve 80%, minimum
Passing 0.075mm Sieve 20%, minimum
Shrink/Swell Index Maximum of 0.5%
Soaked CBR 15%, minimum
• Further, imported inert select fill material, when placed and compacted to specification requirements, is to be of low permeability, i.e. when a sample is remoulded to a target density and moisture content consistent with specification requirements, and tested in accordance with AS 1289 6.7.2, KH2 (Based on KH Head (1988) Manual of Laboratory Testing, 10.7, Permeability By Falling Head Test), the sample permeability is equal to or less than 5 x 10-7 m/s. Please note that permeability testing does take significant time to be carried out. Enquiries with specialist soil testing laboratories is recommended to establish their timing with regard to turnaround times for this testing.

Week	Date	Task
Week 1	8/9/2023	Clearing, stripping, and grubbing

Week 1	9/9/2023	Clearing, stripping, and grubbing	
Week 1	12/9/2023	Backfill depressions and subgrade prep	
Week 1	13/9/2023	Subgrade proof rolling (if appropriate)	
Week 1	14/9/2023	Subgrade treatment as needed	
Week 1	15/9/2023	Subgrade treatment as needed	
Week 2	18/9/2023	Subgrade treatment as needed	
Week 2	19/9/2023	Subgrade proof rolling (if deferred)	
Week 2	20/9/2023	Subgrade treatment as needed	
Week 2	21/9/2023	Subgrade treatment as needed	
Week 2	22/9/2023	Structural fill placement (moisture control)	

Week 3	25/9/2023	Structural fill placement (moisture control)	
Week 3	26/9/2023	Field density testing	
Week 3	27/9/2023	Field density testing	
Week 3	28/9/2023	Field density testing	
Week 3	29/9/2023	Backfill for service trenches (uniform layers)	
Week 4	2/10/2023	Backfill for service trenches (uniform layers)	
Week 4	3/10/2023	Backfill compaction	
Week 4	4/10/2023	Backfill compaction	
Week 4	5/10/2023	Imported select fill placement	
Week 5	9/10/2023	Imported select fill placement	

Week 5	10/10/2023	Imported select fill testing (permeability)	
Week 5	11/10/2023	Imported select fill testing (permeability)	
Week 5	12/10/2023	Project review and planning for next steps	
Week 5	13/10/2023	Project review and planning for next steps	

1.2G. Manages communication with stakeholders according to agreed plan. (Refer to Communications Plan Template as attached)

3 Develop contingency plan
1.3A. Work with relevant personnel to apply corrective action on risks according to risk management plan and delegated authority. (Refer to Risk Management Plan Template as attached). Working with the Project Manager and Project Management team along with stakeholders
1.3B. Apply corrective action on risks according to risk management plan and delegated authority. (Refer to Risk Management Plan Template as attached).
1.3C. Participate in a range of verbal exchanges using clear language and non-verbal features to provide relevant information. (Refer to Communications Plan Template as attached)
1.3D. Use active listening and questioning techniques to elicit views and opinions of others. This was undertaken in team meetings and on phone, via project management softwares. Active listening and effective questioning techniques are essential for fostering open communication and eliciting the views and opinions of various stakeholders involved. Active listening entails giving one's full attention to the speaker, understanding their perspective, and demonstrating empathy and respect for their input. Project team members should actively engage with clients, subcontractors, employees, and other stakeholders to understand their concerns, preferences, and ideas related to the project's progress, safety measures, and any potential issues. Furthermore, skillful questioning techniques, such as open-ended questions that encourage detailed responses, can be used to dig deeper into stakeholders' viewpoints. By actively listening and asking relevant questions, project leaders can create an environment where all stakeholders feel heard and valued, facilitating collaborative problem-solving and decision-making processes that enhance project outcomes and stakeholder satisfaction.
1.3E. Work with relevant personnel to review contingency plans on an ongoing basis. Contingency plans are essential for addressing unforeseen challenges, risks, or changes that may arise during the course of a project. Regular reviews with key team members, subcontractors, and stakeholders allow for the assessment of the effectiveness and relevance of existing contingency plans. By continuously evaluating and updating these plans, project managers can ensure that they remain aligned with the project's evolving needs and potential risks. This ongoing collaboration fosters a dynamic and adaptable approach to project management, enabling the team to respond swiftly and effectively to any unexpected events, thereby minimizing disruptions and optimizing the project's chances of success.
1.3F. Confirm tasks allocated to individuals and teams are agreed with supervisor before implementation. Agreeing on tasks allocated to individuals and teams with a supervisor before implementation is a fundamental practice that ensures clarity, accountability, and alignment within a project. This process typically involves a collaborative discussion where team members and their supervisor come together to establish a shared understanding of the project's goals, objectives, and priorities. By involving the supervisor in this agreement, it allows for a review of each task's relevance, feasibility, and alignment with the project's overall strategy. Furthermore, it ensures that the allocation of tasks considers team members' skills, resources, and workload, preventing overburdening or potential bottlenecks. This proactive communication and agreement process not only helps in setting realistic expectations but also fosters a sense of ownership, commitment, and accountability among team members, ultimately contributing to the project's successful execution.
1.3G. Apply and monitor risk-contingency measures. (Refer to Risk Management Plan Template as attached) and also includes the below: 1. Risk Identification: o Begin by identifying potential risks specific to excavation and residential construction. These could include geological issues, weather-related problems, unforeseen site conditions, or regulatory changes. 2. Risk Assessment: o Assess the likelihood and potential impact of each identified risk. Use a risk matrix to prioritize risks based on their severity. 3. Contingency Planning:

- Develop a contingency plan for each high-priority risk. This plan should outline specific actions to be taken if the risk materializes. Contingency plans might include alternative excavation methods, additional resources, or schedule adjustments.

4. Risk Mitigation:
   - Implement risk mitigation strategies to reduce the likelihood or impact of identified risks. For example, you might conduct thorough site surveys, soil testing, and geotechnical studies to minimize geological risks.
5. Monitoring:
   - Establish a monitoring system to keep track of potential risks throughout the project's lifecycle. This might include regular site inspections, weather forecasts, and continuous communication with subcontractors and stakeholders.
6. Contingency Budgeting:
   - Allocate a portion of the project budget as contingency funds to cover unforeseen costs resulting from risks. The amount will depend on the project's complexity and the identified risks.
7. Schedule Contingency:
   - Build schedule contingency into the project timeline. Allow for additional time in case of delays caused by excavation issues. This will help prevent schedule overruns.
8. Communication:
   - Maintain open and transparent communication with all project stakeholders, including the client, contractors, and regulatory authorities. Ensure everyone is aware of potential risks and contingency plans.
9. Regular Reviews:
   - Hold regular project review meetings to assess the effectiveness of risk-contingency measures. Adjust the plans as needed based on the latest information and evolving project conditions.
10. Documentation:
    - Keep detailed records of all risk assessments, contingency plans, and any actions taken to mitigate or address risks. This documentation will be crucial if claims or disputes arise.
11. Insurance:
    - Consider appropriate insurance coverage, such as construction liability insurance, to protect against unforeseen events that may not be fully mitigated by contingency measures.
12. Regulatory Compliance:
    - Ensure that all excavation and construction activities comply with local regulations and permits. Stay updated on any changes in regulations that may affect the project.
13. Emergency Response Plan:
    - Develop an emergency response plan that outlines the steps to be taken in the event of a major incident or accident during excavation or construction.
14. Environmental Protection:
    - Implement measures to protect the environment during excavation, such as erosion control and proper disposal of hazardous materials.
15. Quality Control:
    - Maintain stringent quality control measures to ensure that work is done correctly the first time, reducing the risk of costly rework.
16. Regular Reporting:
    - Provide regular progress reports to the client and stakeholders, including updates on risk status, contingency usage, and any changes to the project plan.

4 Contribute to assessing risk management outcomes

1.4A. Contribute to ongoing review of project outcomes (Refer to Risk Response Plan Template as attached).

1.4B. Determine and document effectiveness of risk management activities (Refer to Risk Response Plan Template as attached).

1.4C. Seek feedback and identify risk management issues.

1. Feedback Gathering:
   - Feedback and input sought from the following key stakeholders:

- Project Manager: The project manager is responsible for overseeing all aspects of the project and would provide feedback on the overall risk management strategy's effectiveness.
- Client: The client's input is essential as they have specific expectations and objectives for the project. They can provide feedback on project goals and whether they are being met.
- Contractors and Subcontractors: Those directly involved in the construction and excavation work can provide valuable insights into on-site risks and the effectiveness of risk mitigation measures.
- Safety Officer: The safety officer can report on safety compliance and any incidents or near misses related to excavation and construction.
- Regulatory Authorities: Feedback from regulatory authorities can help ensure that the project is meeting all legal requirements and permits.
- Environmental Agencies: If the project has environmental impacts, agencies overseeing environmental compliance can provide feedback on environmental protection measures.
- Quality Control Teams: Quality control teams can offer insights into whether the work meets quality standards and whether rework has been necessary due to risks.
- Financial Controller: The financial controller can provide feedback on budget adherence and whether contingency funds have been utilized effectively.
- Geotechnical Engineers: Geotechnical engineers can provide feedback on soil conditions and whether their recommendations for risk mitigation have been followed.

2. Identification of Risk Management Issues:
    - Stakeholders would collectively review project documentation, reports, and feedback to identify risk management issues. These may include:
        - Inadequate risk assessment or risk identification.
        - Delays or disruptions not adequately addressed by contingency plans.
        - Unforeseen risks that were not considered in the initial plan.
        - Contingency budgets or schedules not aligned with actual project needs.
        - Communication breakdowns among project stakeholders.
        - Compliance or regulatory issues not effectively managed.
        - Environmental protection measures not meeting standards.
        - Quality control problems leading to rework.

Once risk management issues are identified, an action plan should be developed to address them. This may involve revising risk assessments, updating contingency plans, improving communication, or making changes to project processes.

1.4D. Documents outcomes to identify opportunities for future improvement (Refer to Lessons Learned Documentation Template as attached).

1.4E. Report risk management issues and responses to relevant stakeholders activities (Refer to Risk Response Plan Template as attached).

1.4F. Make changes to project management techniques based on feedback received.

The changes I would make are as follows:

1. Introduction

- Introduce the residential construction project, with a focus on the excavation phase as this is the feedback gained.
- Emphasize the significance of feedback and continuous improvement in excavation project management.

2. Purpose of the Document

- Clearly state the purpose of the document, which is to specify the changes made to excavation project management techniques based on received feedback.

3. Feedback Sources

- List the sources from which feedback on the excavation phase was collected. This could include excavation teams, geotechnical experts, safety officers, and project stakeholders.

4. Summary of Feedback

- Provide a concise summary of the feedback received regarding the excavation phase.
- Categorize feedback into areas such as excavation methods, safety protocols, equipment usage, and scheduling.

5. Analysis of Feedback

- Analyze the feedback to identify common themes, recurring issues, and areas where improvement is needed within the excavation phase.

6. Changes Made to Excavation Project Management Techniques

- For each identified area of improvement within the excavation phase, specify the changes made to project management techniques. Use a structured format for clarity:
    - Area of Improvement 1: Excavation Methods
        - Feedback Received: Describe the specific feedback related to excavation methods.
        - Changes Made: Clearly detail the changes implemented in response to this feedback, such as adopting alternative excavation methods or improving soil testing.
        - Expected Impact: Outline the anticipated positive impact of the changes on the excavation phase.
    - Area of Improvement 2: Safety Protocols
        - (Repeat the above format for each area of improvement within the excavation phase.)

7. Implementation Details

- Provide information on how the changes within the excavation phase were implemented.
- Mention who was responsible for implementing the changes, the timeline for implementation, and any resources or training required.

8. Monitoring and Evaluation

- Describe the mechanisms put in place to monitor the effectiveness of the changes within the excavation phase.
- Outline specific KPIs related to excavation, such as incident rates, excavation progress, or adherence to safety protocols.

9. Results and Outcomes for Excavation

- Present the results and outcomes of the implemented changes within the excavation phase.

- Highlight any positive impacts, such as increased excavation efficiency, enhanced safety records, or reduced project delays specific to excavation.

10. Lessons Learned for Excavation

- Reflect on the lessons learned during the process of making changes within the excavation phase.
- Identify best practices and areas for further improvement in future excavation projects.

11. Future Plans for Excavation

- Mention any ongoing or future plans to refine excavation project management techniques based on feedback.
- Consider how lessons learned in excavation can be applied to other phases of construction.

12. Conclusion

- Summarize the key takeaways related to the excavation phase from the report.
- Reiterate the commitment to continuous improvement in excavation project management.

13. Appendices

- Include any supporting documentation specific to the excavation phase, such as excavation plans, safety reports, or equipment utilization data.

14. References

- Cite any external sources or references used in the document, particularly those related to excavation and construction project management.