

RIICWM401E

SUPERVISE CIVIL WORKS

THEORY EXAM

Participant name	
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FOR THE PARTICIPANT

Instructions

- You will complete written questions as outlined on the following pages. You must attempt all questions and provide enough detail in your responses to demonstrate your knowledge.
- It is anticipated that you should complete this assessment within two (2) hours, but additional time may be allowed upon negotiation with the Assessor.
- You must complete all questions consistently by the Assessor or other personnel but may refer to reference material as needed. All questions must be answered correctly for a 'Satisfactory' assessment outcome to be awarded.
- An oral examination may be allowed under certain circumstances, whereby your answers will be documented by another party.
- If any written questions are incomplete, or not answered satisfactorily will need to be completed again after further training support.
- If you answer a question incorrectly but modify your response, put your initials next to the written change (or the Assessor must initial a verbal change).

Resources required

Pen

FOR THE ASSESSOR

Instructions

- Where oral examination has occurred, ensure that this is acknowledged in writing (e.g. FT001 and Assessor Comments)
- All questions must be satisfactorily demonstrated by the Participant for a Satisfactory determination (indicated by an Assessor tick to the right of the question).
- Assessors are to complete marking in pen of a different colour to the Participant.
- If the Participant verbally modifies their response, write in the modified response verbatim and put your initials next to the written change.

ASSESSOR COMMENTS

As necessary, outline:

- Details on reattempts, alternative arrangements or reasonable adjustments made.
- Where a Participant is deemed 'Not Satisfactory', provide recommendations for future training.

Q1. Which on-going risk management procedures and documentation do you access when supervising civil work and how do these link to legislative requirements?

Answer

Should reflect but is not limited to: risk assessment and management policy and procedures such as Hazard report forms, JSA's and JSEAs, take 5 which inform and assist workers to determine, analyse and control potential hazards and risks in and around the work area before work begins. The requirements for these documents and relevant training adhere to legal requirements under the WHS Act and the WHS Regulation and are further documented in 'How to manage work health and safety risks Code of Practice 2021' . The risk management process includes 1. Identify hazards—find out what could cause harm. 2. Assess risks, if necessary—understand the nature of the harm that could be caused by the hazard, how serious the harm could be and the likelihood of it happening. This step may not be necessary if you are dealing with a known risk with known controls. 3. Control risks – implement the most effective control measure that is reasonably practicable in the circumstances and ensure it remains effective over time. 4. Review hazards and control measures to ensure they are working as planned



Q2. What important emergency response information must be shared with workers prior to work beginning?

Answer

Should reflect but is not limited to discussion including: types of emergencies such as fire, explosion, medical emergency, rescues, incidents with hazardous chemicals, bomb threats, armed confrontations and natural disasters. worker responsibility, responsible persons, first person on scene responsibilities, communication protocol; key elements and location of emergency plans. Training of evacuations, location of emergency equipment, first aid and how to safely shut down machinery.



Q3. What are (1) the objectives of the Environmental Management Plan and (2) why you should read this as part of planning the job.

Answer

1. Should reflect but is not limited to: EMP provides a framework that onsite management can use to satisfy the requirements of the Environmental Protection Act and those of relevant local council or authority. EMP describes key environmental responsibilities for the site including erosion and sediment control; air, dust, noise, waste and vibration controls and waterway protection.
- 2.



Q4. What is (1) the 'scope' of work, (2) why is this important when developing a job plan and (3) where can you sources relevant information.

Answer

1. Should reflect but is not limited to: Scope of Work outlines the work to be done, location, boundaries, how it will be completed, by whom, and the expected outcomes. Plans and specifications are read to determine the tasks, and project site visits can offer an up-close look at tangible realities that could have been overlooked otherwise. Scope of work should clearly define who is responsible for completing tasks, the project schedule, and established baseline of rights and obligations. It will include milestones and deliverables, technical details, schedule and timeline, local council/authority requirements. The scope of work provides the project level information needed to break down and develop the job plan for the actual work activity. Sources of information include team members, company files, HR files, supplier lists; plant and equipment lists; sub-contractor list; activity schedule;
- 2.
- 3.



Q5. In the general principles of surveying, what is the importance of 'working from the whole to the part' (1) when surveying and (2) how this is achieved?

Answer

- 1.** Should discuss: the importance of working from whole to part is "to localise the errors and to control the accumulation of errors". The first principle of engineering surveying, the whole survey area is first enclosed by main stations and main survey lines.
The main survey lines are measured very accurately with precise survey
- 2.** instruments. The area is then divided into a number of divisions by forming well-conditioned triangles. The purpose of this method of working is to control accumulation of errors. During measurement, if there is any error, then it will not affect the whole work, but if the reverse process is followed then the minor error in measurement will be magnified.



Q6. Why can consulting the team enhance team practices? Include one (1) example.

Answer

Should reflect but is not limited to discussion reflecting: legislated requirements; knowledge, skills and background of team members can improve and clarify to others better ways to manage specific processes or procedures. E.g. when an experienced team member discusses and describes a compliant and efficient method of achieving a task, the team as a whole can benefit in both production and confidence. Team members can see how all parts of the process work which may encourage innovative ideas to help streamline the process. Further, having team members multi-skill means there is no down-time if one team member is absent. This also provides consistency across productivity/ actions from the team.



Q7. How do you communicate site safety requirements to ensure workers wear PPE suited to the site?

Answer

Should reflect but is not limited to: Site safety requirements are shared during company induction, site induction; specific PPE requirements for the site are shared on site entry fencing; additional work area fencing as required. Supervisors monitor teams for adherence to site safety requirements and that all required PPE is worn. This may be reinforced during tool box meetings or during daily pre-start meetings.



Q8. Why is it important to coordinate tasks with other work supervisors and schedule team activities?

Answer

Should include information related to but not limited to: Requires planning and communication of strategic team roles and responsibilities. Strategies must be agreed upon by team leaders/supervisors. Overlapping projects and tasks can create conflicting demands; .Appraisal of all tasks to know exactly which of them must be completed before the next can begin. Ascertaining distinct tasks allocated to each team to allocate to job plan and schedule. Avoiding conflicting priorities; Confirm coordination against strategic plans; Ensuring task resources are available at appropriate times, monitoring project milestones and work progress. Confirming and adjusting as necessary work flow.



Q9. What inclusions must be considered when preparing a job plan?**Answer**

Should reflect mention of each of: resource requirements (human; plant and machinery requirements; construction materials requirements); sub-contractor support requirements; environmental protection including waste disposal requirements; task coordination and activity scheduling; scheduling materials delivery; safety, risk assessment and management, quality management including testing scheduling requirements, traffic management, signage and exclusion zone requirements; performance and task monitoring; communication processes and procedures; reporting requirements.

**Q10. What processes must you follow to acquire and confirm the acquisition of required resources at your workplace?****Answer**

Should reflect discussion related to all or any of: consult with applicable personnel; compile a list of resources required using approved suppliers OR gaining approval to use non-approved suppliers; verifying the availability, quality and delivery of the resources, apply the organisations purchase order procedure, keep a record of the purchase order, forward a copy of the purchase order to accounts payable, inspect the goods on arrival and verify that they are correct and suitable for purpose, organise the correct storage and handling of the items, advise accounts payable of the receipt of the goods and authorise payment.



Q11. What is discussed during the daily pre-start meeting?

Answer

Should reflect but is not limited to: Safety concerns/ reports from yesterday's work; Changes to the site today; Work areas including activity in each work area- safety alerts, significant hazards, material procurement/delivery, plans specifications, drawings; Work permits or isolations for today; SWMS for work tasks, discussed, understanding confirmed and signed by all;

☐

Q12. What is the 'rule of thumb' basis for matching a machine to a job?

Answer

Should reflect: A table showing the zoning used based on knowledge of the operational distances best suited to each type of machine. Zone 1 indicates machines of high power where speed is low, because the operational distance is generally less than 150m. In the remaining zones, the machines sacrifice power but speed becomes more important. The machines listed in Zone 4 are designed for transporting materials at higher speeds.

☐

Q13. Supervisors must have knowledge of factors affecting plant performance. What are four (4) factors that can affect plant performance and output and why must supervisors monitor these?

Answer

1. Should reflect four (4) of: inexperienced operators, plant not suitable for the task, no pre or post operational checks, lack of plant maintenance, poor workmanship, material type, weather, site conditions, poor scheduling, lack of sufficient safety guidelines. Plant handling must be monitored to avoid costly delays caused by any of these performance issues.
- 2.
- 3.
- 4.

☐

Q14. What methods do you use to ensure team members adhere to safety requirements such as PPE during the work tasks?

Answer

Should reflect: Discuss safety requirements during pre-start meeting including providing opportunity for questioning and suggestions. Ask questions of workers to confirm understanding. Provide workers with appropriate SWMS for task which details PPE requirements, ensure this is understood and the SWMS is signed. Check and ensure site signage is in place to demonstrate requirements. demonstrate requirements using role modelling.



Q15. What is the supervisor's role during site set out?

Answer

Should reflect: Identify survey pegs or physical markers and work individually or with the surveyor to locate the boundaries of the construction. Set out offsets and confirm compliance with plans, specifications and regulations. Read applicable engineering and informational surveys. to obtain data concerning topography, drainage and man-made features of the area. co-ordination with other trades, and direction of work sequence so subcontractors can complete their work in accordance with contract documents



Q16. What are two (2) things you would tell the workers when explaining what the pegs mean during road set out? (30 words)

Answer

Should reflect but is not limited to two (2) of: That survey pegs usually show the level and the centre-line of the road in flat terrain and only the level on hillsides.

That reference pegs show the chainage of the road and are placed outside the road formation.

That the ground height at level pegs shows the future level of the road unless cut or fill instructions are written on the peg. When such instructions are written on the peg, start measuring from the top of the peg. Place your pegs at regular intervals (maximum 20 metres) and remember that more pegs will facilitate not only your supervision work but also the work of the labourers as they can clearly see what will have to be done.



Q17. What methods do you apply when monitoring civil works to ensure the required outcomes or met on a daily basis?

Answer

Should reflect but is not limited to description of: physical observation of operational competencies and that these meet task requirements; checking that work completed and work underway meet the requirements of job plan Checking work against work schedule; Information is collected by communicating with team members, calculating total quantities used, hours worked by members and plant as well as a brief description of the works performed on that day. This information should be recorded in the daily works diary or daily job sheet and submitted to the relevant supervisor. This information can then be used to calculate costs and compared to the current Bar or Gantt chart to gauge the actual progress to the forecasted progress.



Q18. Name and explain the purpose for three (3) of the different test results the supervisor must be able to read and understand at different hold or witness points of a project?

Answer

1. Should reflect discussion of purpose for but is not limited to three (3).of: ☐

• soil tests (moisture, plasticity, permeability etc)

• concrete slump tests

2. • concrete compression tests

• compaction tests

• test for suitability of conforming materials

3. • water quality tests

• sub-grade and sub-base tests

• rock mass tests.

Q19. What is the purpose of road surface drainage and what are four (4) elements used to achieve this effectively?

Answer

Purpose Should reflect discussion of purpose for road surface drainage and related elements but is not limited to four (4).of: ☐

kerb and channel

edge and median drainage

Element

1. table drains and blocks

diversion drains and blocks

2. batter drains

catch drains and banks

3. drainage pits

pipe networks.

4.

Q20. What are the effects of inappropriate road drainage infrastructure?

Answer

Should reflect but is not limited to discussion of Inappropriate road drainage infrastructure, can change the characteristics of a waterway by altering: flooding patterns, including flow distribution, flood heights, peak water levels, water velocities, especially through bridges and culverts. can change the duration of inundation, erosion and sedimentation patterns, fauna transfer and terrestrial and aquatic fauna habitats. These changes may affect service and cause issues that require additional unplanned investment to address things such as flood mitigation works, erosion and sedimentation problems, reductions in adjoining land valuations, salinity issues and /or increases in pollutant levels.



Q21. What are the three (3) main parts of roadway design and the importance of these features?

Answer

1. Should reflect description of alignment, profile, and cross-section. example:
The emphasis of the geometric design is to address the requirement of the driver and the vehicle such as safety, comfort, efficiency, etc. The features normally considered are the cross section elements, sight distance
 2. consideration, horizontal curvature, gradients, and intersection. The design of these features is to a great extend influenced by driver behaviour and psychology, vehicle characteristics, traffic characteristics such as speed and volume. The objective of geometric design is to provide optimum
 3. efficiency in traffic operation and maximum safety at reasonable cost
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-
-



Q22. How can you support sub-contractors to achieve their responsibilities?**Answer**

Should reflect but is not limited to: Supervisors have the goal of completing the work or the project as efficiently as possible, so it is in the company's interest to provide the subcontractors with all reasonable assistance. To do this, the supervisor should use good communication skills and show leadership in encouraging subcontractors to become part of the team. Assistance may include – inclusion to all meetings, training and information sessions related to the project. Supervisor should keep the sub-contractor appraised of progress and any variations and maintain open communication.

**Q23. How do supervisors determine human resources and sub-contractors needed for the job plan?****Answer**

Should reflect but is not limited to: Human Resources are determined by the size of the job and what tasks have to be done. As the job progresses, it is up to the Supervisor as to how many workers are needed. This is ascertained by mapping the work requirements and schedule against the workers attending. Towards the later part of the project, commence to decrease number of workers while remaining on schedule. If supervisor does not have enough resources, they will organise to sub-contract.

In cases where specific expertise is required and current work team does not demonstrate this expertise, tasks will be allocated to experienced sub-contractor.



Q24. How do you, as the supervisor, (1) determine and (2) share the communication systems to be used during site tasks with others? Include in your response (3) the communication systems generally used.

Answer

1. Should reflect but is not limited to: site requirements must be met and communication systems applied according to site requirements. Workers are informed of communication systems in place during site induction and
2. this is reinforced during pre-start and toolbox meetings. Communication systems to be used include UHF , approved hand signalling and verbal communication.

3.



Q25. What methods do you apply when monitoring worker performance for safety and compliance?

Answer

Should reflect but is not limited to: I, (Supervisor) observe the workers during work tasks to monitor their work performance and safety. I check that their actions are not causing new risks or hazards (e.g. tool placement), I check that workers adhere to all Exclusions Zone requirements. During pre—start meeting I remind workers that all workers have input into safety and that each worker is responsible for their own safety and is aware of reporting hazards. I record observations and all calculations in the diary. . If there is an issue, I (Supervisor) stop the job (Depending on the severity) and make an assessment and rectifies the issues and makes the job safe. Then calls “Toolbox” to address this issue to make sure this compliance remains intact.
Report to Management.



Q26. How is quality assessed and confirmed?**Answer**

Should reflect but is not limited to: Testing at predetermined stages which may include all or any of; soil tests (moisture, plasticity, permeability etc), concrete slump tests, concrete compression tests, compaction tests, test for suitability of conforming materials, water quality tests, sub-grade and sub-base tests, rock mass tests .An Accredited Contractor would be engaged to apply certain tests. e.g. Pipes with cameras and vacuum test all sewage pipelines and manholes.



The bill of quantities and Council standards (Authorities) state what needs to be tested and certified. Quality is further confirmed by reading delivery dockets and material labels to confirm what has arrived at the site is what was ordered and specified on plans, drawings or manufacturer specifications.

Q27. What are four (4) events that might occur on a normal working day that may significantly affect progress of civil works tasks and force the use of contingency plans.**Answer**

1. Should reflect but is not limited to discussion relating to four (4) of: inclement weather; natural disaster; plant and vehicle breakdown; Site incident or accident; Test results; Absenteeism; Industrial dispute; material shortage



2. _____

3. _____

4. _____

Q28. What are four (4) contingency plans that may be in place to support a civil construction operational plan?

Answer

1. Should reflect but is not limited to four (4) of: Contracting out or outsourcing
human resources and other functions or tasks;
Availability of cheaper raw materials and consumables; recycling and re
2. use;
rental, hire purchase or alternative means of procurement of required
materials, equipment and stock;
3. _____
risk identification, assessment and management processes;

4. strategies for reducing costs, wastage, stock or consumables;

☐

Q29. What is the relationship between various areas of civil work and how are these relationships relevant when developing job plans and work schedules?

Answer

Should reflect but is not limited to discussion regarding: Understanding the
relationship between civil work areas leads to appropriate sequencing of
tasks and materials delivery and procurement. Limitations are applicable in
situations where you cannot allocate your resources until after another
team/crew have completed their tasks. Also requires communication when
providing or collecting estimates of material, labour or plant used across
various areas of the project.

☐

Q30. Elaborate on four (4) different types of estimates used when developing job plans.

Answer

1. Should reflect but is not limited to discussion regarding four (4) of:
- Estimating Materials - from the estimate of a work it is possible to determine what materials and in what quantities will be required for the work so that
2. the arrangements to procure them can be made. Estimating Labour -the number and kind of workers of different categories who will have to be employed to complete the work in the specified time can be found out from
3. the estimate. Estimating Plant - an estimate will help in determining amount and kind of equipment needed to complete the work. Estimating Time - the estimate of a work and the past experience enable one to estimate quite
4. closely the length of time required to complete an item of work or the work as a whole. Estimating cost to determine whether the project or part is on budget or whether changes must be applied.
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Q31. What is the relationship between waste management and environmental protection?

Answer

Should reflect but is not limited to The key provisions of the Waste Reduction and Recycling Act 2011 (Qld) include: a requirement for Queensland Government agencies and local governments to prepare waste management plans, introduction of product stewardship arrangements for any waste products that are identified as a growing problem for landfill in the future and strengthened littering and illegal dumping offences, including public reporting of vehicle-related littering offences. Certain types of waste can contaminate the environment. Bad waste management practices can cause land and air pollution. Proper waste management reduces pollution and helps save energy. and segregated waste is often cheaper to dispose.



RIICWM401E

SUPERVISE CIVIL WORKS

PRACTICAL ASSESSMENT

Participant name	
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FOR THE PARTICIPANT

Instructions

- The tasks outlined on the following pages will require performance of normal workplace activities, as a result of a structured activity set by an Observer in the workplace or a simulated activity set by your Assessor/Observer.
- The timeframe for these tasks will be established by your Assessor/Observer in consideration of location conditions and industry requirements.
- You must complete all tasks assisted by the Assessor or other personnel, unless the steps note this assistance.
- You must attempt all task (and itemised steps) for a 'Satisfactory' assessment outcome to be achieved.
 - For an observation conducted that is incomplete, or without satisfactory performance, the observation will need to be completed again after further training support.

FOR THE ASSESSOR/OBSERVER

Instructions

- The following observation record should be used to judge and record your observations of the Participant as they complete the task(s) set. You must record your observations of the Participant's performance.
 - For each occasion, indicate the task performed and whether it was a simulation or workplace-based task.
 - Any simulated assessment must ensure the Participant still performs under workplace conditions which reflect industry standards.
 - In the comments, provide clear detail regarding the task that the Participant was required to do (e.g. PPE used, materials handled, attachments connected, plant types).
- All steps must be satisfactorily demonstrated by the Participant for a 'Satisfactory' determination (indicated by an Assessor tick to the right of each itemised step, or an Observer tick to the right of each itemised step, and confirmation by an Assessor in the Assessor Comments).
 - Where you have determined that one or more task steps have not been satisfactorily demonstrated, provide the Participant with additional support and outline details of such assistance in the Assessor/Observer Comments. Allow the Participant two (2) further opportunities to demonstrate the task again to allow an opportunity for a 'Satisfactory' assessment outcome to be achieved.
 - If after three (3) attempts the Assessor determines that the Participant cannot demonstrate the required steps, a 'Not Satisfactory' outcome is to be determined.

TASK OUTCOME					
Task	Date	Task Type (Tick)	Location	Task outcome (Tick)	
				Satisfactory	Not Satisfactory
Task 1		☐ Workplace ☐ Simulation		☐	☐
Task 2 (Occasion 1)		☐ Workplace ☐ Simulation		☐	☐
Task 2 (Occasion 2)		☐ Workplace ☐ Simulation		☐	☐

ASSESSOR COMMENTS: GENERAL

As necessary, outline:

- Details on reattempts, alternative arrangements or reasonable adjustments made.
- Where a Participant is deemed 'Not Satisfactory', provide recommendations for future training.

ASSESSOR COMMENTS: PRACTICAL TASK 2: OCCASION 1	
☐ Individual student (as named on cover page) ☐ Multiple students [☐ All from Attendance Report, ☐ Specific students involved – identify students]	
Task	Details
2.1B.	Specify task to be completed: For example: Earthworks for road
2.1C.	Identify tool used to analyse risks and determine controls: For example: JSEA, SWMS
2.1D.	PPE worn/applied (tick or specify): ☐ Hi-viz ☐ Helmet ☐ Gloves ☐ Safety boots ☐ Eye protection ☐ Ear protection ☐ Other (please specify):
2.3G.	Specify adjustments made: e.g. delay due to plant availability, allocated additional resources for next day
2.4D.	Outline recommendations made: e.g. improvement to coordination of plant for tasks

ASSESSOR COMMENTS: PRACTICAL TASK 2: OCCASION 2	
☐ Individual student (as named on cover page) ☐ Multiple students [☐ All from Attendance Report, ☐ Specific students involved – identify students]	
Task	Details
2.1B.	Specify task to be completed: For example: Earthworks for road
2.1C.	Identify tool used to analyse risks and determine controls: For example: JSEA, SWMS
2.1D.	PPE worn/applied (tick or specify): ☐ Hi-viz ☐ Helmet ☐ Gloves ☐ Safety boots ☐ Eye protection ☐ Ear protection ☐ Other (please specify):
2.3G.	Specify adjustments made: e.g. delay due to plant availability, allocated additional resources for next day
2.4D.	Outline recommendations made: e.g. improvement to coordination of plant for tasks