



National Certificate IV **PLUMBING**

LOG BOOK



GREEN
CLIMATE
FUND

MNSDA



Ministry of Environment
Climate Change & Technology

STUDENT'S DETAILS

Passport Size
3.5cm x 4.5 cm

Student Name

Std ID No.

Mobile

Address

Email

Date

Course

Centre

Batch

Signature

Authorized Signature

Stamp

PEDGE OF THE PARTICIPANTS

As a participant I recognize my roles and responsibilities as follows and I promise that:

1. I am undertaking this Course / Program to learn with confidence and enthusiasm and will strive to keep my level best to apply what I learn in my workplace.
2. I will learn my theory/concept lessons with much care, confidence and enthusiasm.
3. I will not disturb my participants within the classroom and workplaces.
4. I will understand and uphold, in letter and spirit, my behaviors, my attitudes and my perceptions of life and experiences with an open and sincere heart and mind seeking to learn to be a leader tomorrow.
5. I will refrain from bad-mouthing unfairness and disgracing my Employer, my Supervisors, my Trainers and other participants.
6. I will protect and preserve the rights of my family, my Employer, my Trainers, my Society and dignity of others and I will oppose discrimination, exploitation and unfairness.
7. I will report the performance, outcome and problems accurately, honestly with figures, reasons and logics that I face in applying the knowledge and skills I learn from the Course/Program.
8. I will share my knowledge, skills in developing myself and others and help my Employer, my Trainers to develop and improve success of my Employer and my Trainers.
9. I will attend all classes and activities that require attendance

In exercising my Pledge of Participation to the above-mentioned specific points, I recognize that my attitude, behavior and communication must set an example of confidence and enthusiasm and positive attitude. I will remain accountable to my own self, my Employer, my Trainer and my Society for my attitudes, actions and communications with confidence and enthusiasm to uphold these specific 9 points of my Pledge of Participation

.....
(Student Signature)

INFORMATION ABOUT THE QUALIFICATION

1. Endorsement Application for Qualification 01		
2. NATIONAL CERTIFICATE IV IN PLUMBING		
3. Qualification code:		Total Number of Credits: 127
4. Purpose of the qualification The Certificate IV in Plumbing provides comprehensive training for all plumbing covers the practical and theoretical aspects of the industry. You will gain skills in areas such as welding, water supply, drainage, sanitary, gas fitting, roofing and mechanical services.		
5. Regulations for the qualification		
6. Schedule of Units		
Unit No	Unit Title	Code
Common Competencies		
01	Write technical reports	
02	Apply and maintain Occupational Health and Safety	
03	Carry out data entry and retrieval procedures	
04	Apply Mathematics for Water Operations	
Core Competencies		
05	Prepare basic technical drawing	
06	Plan to undertake a routine task	
07	Apply science for Water Operations	
08	Perform Industrial Welding Skill	
09	Install waste water pipe line	
10	Install trench support	
11	Install control valve assemblies, actuating devices and local alarms	
12	Install and commission water heating systems	
13	Test and maintain fire hydrant and hose reel installations	
14	Apply industrial electrical skills	
15	Install industrial water pipe systems	
16	Perform Install, commission and repair water pumps	
17	Perform plumbing work to support storm water drainage system	
7. Accreditation requirements		
8. Recommended sequencing of units		

ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-1: Write technical reports

#	Activities	Mark “√” if completed	Date completed
1	Plan the research and write the proposal		
1.1	Purpose or objective of the research is identified, and confirmed with stakeholders		
1.2	Scope and nature of the information requirements are identified.		
1.3	All possible sources of the required information are researched and identified.		
1.4	A systematic research or information collection plan is designed to optimize the process.		
1.5	Resources are obtained and scheduled to service the research requirements		
2	Conduct Research		
2.1	Research is undertaken effectively in accordance with the plan		
2.2	Experiments and tests to support the research effort are conducted in a manner which ensures the demonstrable integrity of the outcomes or findings.		
2.3	Research findings are logged, documented and stored to maintain traceability.		
2.4	Preliminary analysis is conducted to identify requirements for variations or additions to the research plan		
3	Analyze the information		
3.1	Information is sorted, documented and prepared for the analytical process.		
3.2	Information and data is manipulated to enable reasonable comparisons and judgements.		
3.3	Clarification by way of expert advice and opinion is sought		
4	Prepare and present the report		
4.1	Report clearly defines the objectives, process, findings and further actions.		
4.2	Report addresses and satisfies the stated objective and timeframe		
4.3	Report and associated presentation materials are of a standard and quality for the intended audience		
4.4	Reader comprehension of the report is aided by use of executive summaries and attachments.		
4.5	Information management requirements, including documenting and repository actions are satisfied in accordance with enterprise procedures.		

I declare that theory and practical of the above unit and its elements have been taught

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Signature:.....

ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-2: Apply and maintain Occupational Health and Safety

#	Activities	Mark "√" if completed	Date completed
1	Perform all work safely		
1.1	Use established work practices and personal protective equipment (PPE) to ensure personal safety and that of other laboratory personnel		
1.2	Clean, care for and store equipment, materials and reagents as required		
1.3	Minimise the generation of wastes and environmental impacts		
1.4	Ensure safe disposal of laboratory/hazardous wastes		
2	Ensure others in the work group are able to implement safe work practices		
2.1	Ensure hazard controls and PPE appropriate to the work requirements are available and functional		
2.2	Provide and communicate current information about workplace health and safety policies, procedures and programs to others		
2.3	Ensure hazards and control measures relating to work responsibilities are known by those in the work area		
2.4	Provide support to those in the work area to implement procedures to support safety		
2.5	Identify and address training needs within level of responsibility		
3	Monitor observance of safe work practices in the work area		
3.1	Ensure workplace procedures are clearly defined, documented and followed		
3.2	Identify any deviation from identified procedures and report and address within level of responsibility		
3.3	Ensure personal behaviour is consistent with workplace policies and procedures		
3.4	Encourage and follow up others to identify and report hazards in the work area		
3.5	Monitor conditions and follow up to ensure housekeeping standards in the work area are maintained		
4	Participate in risk management processes		
4.1	Report and address any identified hazards and inadequacies in existing risk controls within level of responsibility and according to workplace procedures		
4.2	Participate in risk assessments to identify and analyse risks		
4.3	Support the implementation of procedures to control risk (based on the hierarchy of control)		
4.4	Ensure records of incidents in the work area and other required documentation are accurately completed and maintained		
5	Support the implementation of emergency procedure within the work group		
5.1	Ensure that workplace procedures for dealing with incidents and emergencies are available and known by work group		
5.2	Implement processes to ensure that others in the work area are able to respond appropriately to incidents and emergencies		
5.3	Participate, as required, in investigations of hazardous incidents to identify their cause		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-3: Carry out data entry and retrieval procedures

#	Activities	Mark "√" " if completed	Date completed
1	Initiate computer system		
1.1	The hardware components of the computer and their functions are correctly identified.		
1.2	Equipment is powered up correctly.		
1.3	Access codes are correctly applied.		
1.4	Appropriate software is selected or loaded from the menu		
2	Enter Data		
2.1	Types of data for entry correctly identified and collected.		
2.2	Input devices selected and used are appropriate for the intended operations.		
2.3	Manipulative procedures of Input device conform to established practices.		
2.4	Computer files are correctly located or new files are created, named and saved.		
2.5	Data is accurately entered in the appropriate files using specified procedure and format.		
2.6	Back-up made in accordance with operative procedures		
3	Retrieve Data		
3.1	The identity and source of information is established.		
3.2	Authority to access data is obtained where required.		
3.3	Files and data are correctly located and accessed.		
3.4	Integrity and confidentiality of data are maintained.		
3.5	The relevant reports or information retrieved using approved procedure.		
3.6	Formats of retrieved report or information conform to that required.		
3.7	Copy of the data is printed where required		
4	Amend Data		
4.1	Source of data/information for amendment is established.		
4.2	Data to be amended is correctly located within the file.		
4.3	The correct data/information is entered, changed or deleted using appropriate input device and approved procedures.		
4.4	The Integrity of data is maintained		
5	Monitor the operation of equipment		
5.1	The system is monitored for correct operation of tasks.		
5.2	Routine system messages are promptly and correctly dealt with.		
5.3	Error conditions within level of authority are dealt with promptly and uncorrected errors are promptly reported.		
5.4	Output devices and materials are monitored for quality		
6	Access and transmit information via the internet		
6.1	Access to the Internet is gained in accordance with the provider's operating procedures.		
6.2	Evidence of the ability to negotiate web sites to locate and access specified information and other services is efficiently demonstrated.		
6.3	E-mail is sent and retrieved competently		
7	Close down computer system		
7.1	The correct shut down sequence is followed.		
7.2	Problem with shutting down computer is reported promptly.		
7.3	All safety and protective procedures are observed		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-4: Apply mathematics for water operations

#	Activities	Mark “√” if completed	Date completed
1	Perform simple mathematic Calculations		
1.1	Perform simple calculations on: fractions and decimals, calculations to a number of significant figures, decimal places		
1.2	Identify and use the multiples and sub-multiples of units		
1.3	Perform calculations on: perimeter and area of plane figures (i.e. square and rectangle, triangle, circle), volume and surface area (i.e. cube, rectangular prism, cylinder), mass of containers and their contents (i.e. cube, rectangular prism, cylinder)		
1.4	Perform mathematical calculations involving formulas, angles, triangles and geometric construction		
1.5	Identify and use formulas for SI quantities: length, area, volume, mass, density		
2	Apply knowledge of mathematics in water operations		
2.1	Identify and use units of Measurement		
2.2	Perform calculations on: Conversion Factors, Weight, Concentration, and Flow		
2.3	Perform mathematical calculations involving Typical Water/Wastewater Conversion Examples		
2.4	Perform Temperature Conversions and Population Equivalent (PE) or Unit Loading Factor		
2.5	Perform calculations on: Specific Gravity and Density, Flow and Detention Time		
2.6	Perform chemical Addition Conversions		
3	Undertake water / waste water calculations		
3.1	Perform Faucet Flow Estimation		
3.2	Calculate Service Line Flushing Time		
3.3	Perform Composite Sampling Calculation (Proportioning Factor) and Biochemical Oxygen Demand (BOD) Calculations		
3.4	Perform mathematical calculations on Moles and Molarity, Normality, Settleability (Activated Biosolids Solids), Settleable Solids, Biosolids Total Solids, Fixed Solids, and Volatile Solids		
3.5	Calculate Biosolids Volume Index (BVI) and Biosolids Density Index (BDI)		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-5: Prepare basic technical drawing

#	Activities	Mark "√" " if completed	Date completed
1	Identify drawing requirements		
1.1	Requirements and purpose of drawing are determined from customer and/or work specification and associated documents.		
1.2	All data necessary to produce the drawing is identified and collected.		
1.3	Drawing requirements are confirmed with relevant personnel and timeframes for completion are established		
2	Develop knowledge and proper techniques in preparing drawing and sketches		
2.1	Drafting equipment is selected appropriate to the drawing method chosen.		
2.2	Drafting principles are applied to produce a drawing that is consistent with standard operating procedures within the enterprise.		
2.3	All work is undertaken safely and to prescribed procedure.		
2.4	Completed drawing is approved in accordance with standard operating procedures		
3	Perform drawing and sketches to workplace requirements		
3.1	Drawings and or parts lists records are completed in accordance with standard operating procedures.		
3.2	Approved drawings and or parts lists are copied and issued to relevant personnel in accordance with standard operating procedures.		
3.3	Approved drawings and or parts lists are stored and catalogued in accordance with standard operating procedures		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-6: Plan to undertake a routine task

#	Activities	Mark "√" " if completed	Date completed
1	Identify task requirements		
1.1	Instructions and procedures are obtained, understood and where necessary clarified.		
1.2	Relevant specifications for task outcomes are obtained, understood and where necessary clarified.		
1.3	Task outcomes are identified.		
1.4	Task requirements such as completion time and quality measures are identified		
2	Plan steps required to complete task		
2.1	Based on instructions and specifications provided, the individual steps or activities required to undertake the task are understood and where necessary clarified.		
2.2	Sequence of activities is identified.		
2.3	Plan is checked to ensure it complies with specifications and task requirements		
3	Review plan		
3.1	Effectiveness of plan is reviewed against specifications and task requirements.		
3.2	If necessary, plan is revised to better meet specifications and task requirements		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-7: Apply science for water operations

#	Activities	Mark "√" " if completed	Date completed
1	Apply principals and theories of physics in real world		
1.1	Perform scalars and vector arithmetic		
1.2	Understand kinetics and perform simple calculations		
1.3	Understand circulation motion, and governing laws		
1.4	Understand and apply the laws of Forces in real world examples		
1.5	Understand the Conservation of Energy principals and apply in real world		
1.6	Understand the momentum and impulse		
1.7	Understand kinematics		
1.8	Understand wave principals		
2	Apply principals and theories of chemistry in real world examples		
2.1	Understanding matter <ul style="list-style-type: none"> • States of matter, and properties related to it • Pure substances and mixtures 		
2.2	Understanding atoms, molecules, elements and compounds, and basic understanding of chemical reactions		
2.3	Understanding solvents, solutions, saturation facts, and concentration limits		
2.4	Observing properties of acids and bases, and understanding strong and weak acids		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-8: Perform Industrial Welding skills

#	Activities	Mark "√" " if completed	Date completed
1	Prepare and Undertake basic welding		
1.1	Determine welding requirements for polymer pipes and installation methods from relevant job plans and specifications.		
1.2	Demonstrate welding safety		
1.3	Interpret functions and applications of various welding equipment		
1.4	Develop basic arc welding knowledge and skills		
1.5	Select and check the serviceability of the appropriate tools, equipment and personal protective equipment (PPE)		
2	Identify welding requirements		
2.1	Create a materials list and collect materials.		
2.2	Check welding equipment for correct operation according to manufacturer instructions		
3	Weld and inspect pipe joints		
3.1	Prepare joints using tools and techniques according to manufacturer specifications and relevant standards.		
3.2	Conduct test welds and verify according to job specifications.		
3.3	Carry out fusion welds according to relevant job plans and specifications and codes		
3.4	Visually inspect fusion welds for compliance with relevant job plans and specifications and codes		
4	Clean up		
4.1	Clear the work area, and dispose of, reuse or recycle materials in accordance with state and territory legislation and workplace policies and procedures.		
4.2	Clean tools and equipment, check for serviceability and report any damage, and store and secure		

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Signature:.....

ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-9: Install waste water pipe line

#	Activities	Mark "√" " if completed	Date completed
1	Prepare for drainage system installation activities		
1.1	The construction site for the drainage system and construction method is identified according to the site and drainage system plans and enterprise work procedures.		
1.2	Materials, tools, equipment and machinery are selected according to drainage system design requirements and enterprise work procedures.		
1.3	Pre-operational and safety checks are carried out on tools, equipment and machinery according to manufacturer's specifications and enterprise work procedures		
1.4	OHS hazards are identified, risks assessed, controls implemented and reported to the supervisor.		
1.5	Suitable safety and personal protective equipment (PPE) are selected, used and maintained.		
2	Co-ordinate installation work		
2.1	Enterprise work team, contractors and design consultants are identified and work tasks are coordinated in a sequential, timely and effective manner in consultation with the supervisor.		
2.2	Installation of the drainage system is undertaken according to OHS requirements and with due consideration of the environmental implications and relevant legislation and regulations.		
2.3	A clean and safe work area is maintained throughout and on completion of work		
3	Prepare the site for installation of drainage system		
3.1	Symbols and terminology are interpreted to ensure the concept of the drainage system plan is clearly understood according to industry practice.		
3.2	Layout of services is identified, depths checked against the site or drainage system plan and discrepancies are reported to the supervisor and the relevant authority		
3.3	Survey, measurement and marking out of the site and confirmation of soil characteristics relevant to the planned drainage system are completed according to plan specifications and enterprise work procedures		
4	Undertake installation of drainage system		
4.1	Excavations are completed without damage to services, facilities, features and established plants according to plan specifications and enterprise work procedures.		
4.2	The drainage system is installed according to the drainage system plan and enterprise work procedures.		
4.3	The drainage system is tested for configuration, flow rates and capacity consistent with the drainage system plan and according to enterprise work procedures		
4.4	The supervisor is consulted and remedial action is taken when the drainage system operation does not meet the plan specifications		
5	Complete installation of drainage system		
5.1	Earthworks are finished off to the plan specifications and enterprise work procedures.		
5.2	The site is restored and waste material is removed from the site and disposed of in an environmentally aware and safe manner according to enterprise work procedures.		
5.3	Tools, equipment and machinery are cleaned, maintained and stored according to enterprise work procedures.		
5.4	Work outcomes are recorded or reported to the supervisor according to enterprise work procedures		

I declare that theory and practical of the above unit and its elements have been taught

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Signature:.....

ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-10: Install trench support

#	Activities	Mark "√" " if completed	Date completed
1	Plan and prepare for installing trench support		
1.1	Access, interpret and apply trench support documentation, and ensure the work activity is compliant		
1.2	Obtain, read, interpret, clarify and confirm work requirements		
1.3	Identify and address potential risks, hazards and environmental issues, and implement control measures		
1.4	Select and wear personal protective equipment appropriate for work activities		
1.5	Identify, obtain and implement traffic signage requirements		
1.6	Select, and check for faults, equipment and/or attachments for work activities		
1.7	Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency		
2	Install trench shoring		
2.1	Communicate with plant operator and ensure the excavation of trenches complies with site plan, line and depth		
2.2	Determine and prepare shoring method		
2.3	Set out positioning of shoring		
2.4	Position/erect shoring within the trench		
2.5	Secure shoring in position and ensure structural conformity with regulations		
2.6	Clean out excavation		
2.7	Locate ladders for safe access and egress		
3	Remove trench shoring		
3.1	Release jacking mechanisms and remove ladders		
3.2	Check shoring and prepare it for lifting from the trench		
3.3	Remove shoring from trench and store it		
4	Conduct housekeeping activities		
4.1	Clear work area and dispose of or recycle materials		
4.2	Clean and maintain condition of equipment, ensure suitability for use, and address/report issues		
4.3	Manage/report hazards, and maintain a safe working environment		
4.4	Process written records		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-11: Install control valve assemblies, actuating devices and local alarms

#	Activities	Mark “√” if completed	Date completed
1	Prepare for work		
1.1	Plans and specifications are obtained from relevant authority.		
1.2	Quality assurance requirements are identified and adhered to in accordance with workplace requirements		
1.3	Tasks are planned and sequenced in conjunction with others involved in or affected by the work		
1.4	Tools and equipment for installing control valve assemblies, actuating devices and local alarms, including personal protective equipment, are selected and checked for serviceability		
1.5	Work area is prepared to support efficient installation of control valve assemblies, actuating devices and local alarms.		
2	Identify installation requirements		
2.1	System requirements are identified		
2.2	Quantities of materials required are calculated from plans and specifications		
2.3	Materials and equipment are identified, ordered and collected in accordance with workplace procedures		
2.4	Materials and equipment are checked for compliance with standards, docket and order form, and for acceptable condition		
3	Install and test system components		
3.1	Components are set out in accordance with plans, specifications and job instructions.		
3.2	Pipe supports and fixings are installed to plans and manufacturer specifications		
3.3	Assemblies, devices, alarms, piping and materials are installed in accordance with standards, plans and specifications		
3.4	Jointing systems are installed in compliance with standards		
3.5	Installed system is subjected to pressure testing in accordance with standards, plans and specifications.		
3.6	Test data is recorded in format required by job specifications and quality assurance procedures		
4	Clean up		
4.1	Work area is cleared, with materials disposed of or recycled in accordance with state or territory statutory and regulatory authority legislation.		
4.2	Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and workplace procedures		
4.3	Information is accessed and documentation completed in accordance with regulatory authorities and workplace requirements		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-12: Install and commission water heating systems

#	Activities	Mark “√ “ if completed	Date completed
1	Prepare for work		
1.1	Drawings, plans and specifications are obtained.		
1.2	Quality assurance requirements are identified and adhered to according to workplace requirements.		
1.3	Tasks are planned and sequenced in conjunction with others involved in or affected by the work and statutory and regulatory authorities’ requirements.		
1.4	Tools and equipment for installing water heaters, including personal protective equipment, are selected and checked for serviceability.		
1.5	Work area is prepared to support efficient installation of water heaters.		
2	Identify installation requirements		
2.1	Installation position is assessed for compliance with authorities' requirements, manufacturer recommendations.		
2.2	Quantity and type of materials required are calculated from job specifications and site inspection.		
2.3	Materials and equipment are identified, ordered and collected according to workplace procedures.		
2.4	Materials and equipment are checked for compliance		
2.5	Sustainability principles and concepts are observed when preparing for and undertaking work process		
3	Install, commission and maintain system		
3.1	Water heating system is installed according to relevant standards, job specifications and manufacturer recommendations.		
3.2	Pipe joints are fitted correctly and according to relevant standards.		
3.3	Installation is tested according to relevant standards, manufacturer specifications and authorities' requirements.		
3.4	Water heating system is commissioned according to relevant standards and manufacturer specifications.		
3.5	Water heating system is maintained according to manufacturer instructions		
4	Clean up		
4.1	Work area is cleared and materials disposed of, reused or recycled.		
4.2	Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and workplace procedures.		
4.3	Documentation is completed according to workplace requirements		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-13: Test and maintain fire hydrant and hose reel installations

#	Activities	Mark “√” if completed	Date completed
1	Prepare for work		
1.1	Plans, specifications, maintenance manuals, previous maintenance reports and equipment data are obtained.		
1.2	Work health and safety (WHS) and environmental requirements associated with testing and maintaining fire hydrant and hose reel installations are adhered to throughout the work.		
1.3	Quality assurance requirements are identified and adhered to according to workplace requirements.		
1.4	Tasks are planned and sequenced in conjunction with others involved in or affected by the work.		
1.5	Tools, equipment and materials for testing and maintaining fire hydrant and hose reel installations, including personal protective equipment, are selected and checked for serviceability.		
1.6	Work area is prepared to support efficient testing and maintenance of fire hydrant and hose reel installations		
2	Perform routine maintenance		
2.1	Maintenance tasks detailed in maintenance schedule are performed to specification.		
2.2	Mechanical equipment and system components are checked with appropriate instruments according to standards and job specifications.		
2.3	Faulty items or components are identified and appropriate service procedure is selected		
3	Repair and replace faulty components and test job		
3.1	Equipment is safely isolated according to regulations and health and safety requirements.		
3.2	Faulty items or components are removed using appropriate tools, equipment and procedures.		
3.3	Replaceable items are selected from manufacturers' catalogue.		
3.4	Replacement or service items are fitted according to manufacturer recommendations and site specifications.		
3.5	Adjustments are made to equipment or components to ensure specifications are met.		
3.6	Operational check of system is carried out to ensure compliance with job specifications.		
3.7	Maintenance report is documented in format required by maintenance specification.		
3.8	Sustainability principles and concepts are observed when preparing for and undertaking work process		
4	Clean up		
4.1	Work area is cleared and materials disposed of, reused or recycled according to legislation, regulations, codes of practice and job specification.		
4.2	Tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and workplace procedures.		
4.3	Information is accessed and documentation completed according to regulatory authorities and workplace requirements		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-14: Apply Industrial electrical skills

#	Activities	Mark "√" " if completed	Date completed
1	Plan the installation		
1.1	Special work, hazard and safety requirements are determined and incorporated in plan.		
1.2	Work plan/strategy is devised and confirmed in accordance with legislative and regulatory requirements and standard operating procedures		
2	Prepare for electrical installation		
2.1	All work is undertaken safely and to workplace procedures, State/Territory regulations and legislative requirements.		
2.2	Materials are checked for correct specifications.		
3	Install the wiring/enclosures and/or support systems		
3.1	All cables/conductors/conduit/enclosures and support systems are installed to specifications using correct appropriate techniques, tools and equipment.		
3.2	Cabling is marked or labelled for identification and to specification		
4	Commission and test the installed wiring system		
4.1	All completed wiring/systems and enclosures are tested for compliance with specifications, regulations, and legislative requirements, utilising appropriate test procedures and equipment.		
4.2	Where appropriate, the installation may be energised and tested for compliance with specifications.		
4.3	Faults are rectified to specification.		
4.4	Documentation is completed correctly to required specifications		

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ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-15: Install industrial water pipe systems

#	Activities	Mark “√” if completed	Date completed
1	Plan and prepare		
1.1	Work instructions and relevant information, including plans, specifications, quality requirements and operational details.		
1.2	Signage requirements are identified and obtained from project traffic management plan and traffic conditions and are implemented.		
1.3	Plant, tools and equipment selected to carry out tasks are consistent with requirements of the job		
2	Set out and excavate		
2.1	Work area and materials are prepared to support efficient installation of the pipe work.		
2.2	Dewatering requirements are determined and applied.		
2.3	Location, alignment direction, level and grade of mains pipe system are determined from job drawings and specifications.		
2.4	Works are set out to specification.		
2.5	Plant operator is advised of excavation requirements and levels are monitored.		
2.6	Mains pipe system support mechanism is installed according to plans, specifications and standards in compliance with statutory and regulatory authorities’ requirements		
3	Install mains pipeline		
3.1	Pipes are lowered joined according to manufacturer specifications using pipe joining methods.		
3.2	Pipes are placed and fittings, valves and flow control devices are fitted according to drawings, specifications and installation procedures.		
3.3	Alignment level and grade are checked continuously for conformance with design.		
3.4	Mains pipe system support structure is checked.		
3.5	Backfill procedure is monitored to ensure work is completed to specification, where specified.		
3.6	Sustainability principles and concepts are observed and applied		
4	Test mains pipe systems		
4.1	Testing is performed to relevant authorities’ requirements as determined by specifications.		
4.2	Mains pipe system test procedures are performed, establishing pressurization, functionality and serviceability.		
4.3	Test results are recorded and reported		
5	Clean up		
5.1	Work area is cleared and materials disposed.		
5.2	Plant, tools and equipment are cleaned, checked, maintained and stored according to manufacturer recommendations and standard work practices		

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Signature:.....

ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-16: Perform install, commission and repair water pumps

#	Activities	Mark "√" " if completed	Date completed
1	Prepare to undertake test		
1.1	Confirm nature and scope of work requirements		
1.2	Identify and source procedures, information and tooling required		
1.3	Analyse method options, select those most appropriate to the circumstances and make preparations		
1.4	Source technical and/or calibration requirements for testing and prepare support equipment		
1.5	Identify chemical cleaning agents, their safe handling and disposal methods with respect to environmental requirements		
2	Conduct test and analyze results		
2.1	Observe workplace health and safety (WHS) requirements, including individual state/territory regulatory requirements and personal protection needs, throughout the work		
2.2	Carry out tests in accordance with workplace procedures and manufacturer/component supplier specifications		
2.3	Compare test results with specifications to indicate compliance or non-compliance		
2.4	Document results with evidence and supporting information and make recommendations		
2.5	Process report or forward to persons for action in accordance with workplace procedures		
3	Prepare for repair operations		
3.1	Confirm work to be carried out		
3.2	Plan repair operation, including post-repair testing		
3.3	Access and interpret service procedures, workshop manuals and manufacturer information		
3.4	Identify and prepare tools, equipment and materials required for servicing job		
3.5	Set up work area		
4	Repair pumping system		
4.1	Identify and observe applicable WHS requirements, including state/territory regulatory requirements and personal protection needs		
4.2	Select tooling and equipment to meet job requirements and check to ensure they are in good working order		
4.3	Repair pump system following manufacturer/component supplier recommended procedures and specifications		
4.4	Complete repair operations without causing damage to any vehicle/machine or component		
4.5	Make necessary adjustments in accordance with manufacturer/component supplier specifications		
5	Complete work and prepare relevant documents		
5.1	Complete repair schedule documentation and update customer and warranty information as required		
5.2	Inspect repaired unit to ensure protective guards, cowlings and safety features are in place		
5.3	Clean unit to workplace expectations		
5.4	Clean work area, dispose of waste, and store tools and equipment in accordance with workplace procedures		
5.5	Provide customer report on repair and explain use and care of equipment and warranty requirements		

I declare that theory and practical of the above unit and its elements have been taught

Date:.....

Signature:.....

ACKNOWLEDGEMENT OF TRAINING DELIVERY

Unit-17: Perform plumbing work to support storm water drainage system

#	Activities	Mark "√" if completed	Date completed
1	Evaluate design parameters		
1.1	Scope of work is established for rainwater harvesting systems		
1.2	Design requirements are determined from client brief.		
1.3	Rainfall patterns analyzed and system is reviewed		
1.4	Cost-benefit analysis is conducted comparing a range of pipe materials and system designs.		
1.5	Manufacturer requirements and trade and technical manuals are interpreted.		
1.6	Additional research, including a desktop study, is conducted to outline design parameters.		
1.7	Performance requirements are reviewed		
2	Plan and detail system components		
2.1	Layout of pipework systems and type and location of fittings, valves and controls are planned.		
2.2	Pipe size calculations are completed for a range of applications.		
2.3	Separation of services and backflow prevention devices are designed and detailed.		
2.4	Pump and ancillary requirements are sized and detailed.		
2.5	Installation requirements are specified.		
2.6	Allowance for expansion and contraction is provided		
3	Install storm water system		
3.1	Lower pipes and place in position		
3.2	Join pipes correctly		
3.3	Continuously check alignment level and grade continuously for conformance		
3.4	Position side support and/or overlay beside the pipes.		
3.5	Fit inspection openings		
3.6	Monitor backfill procedure and ensure work is completed to requirements		
4	Prepare documentation		
4.1	Testing and commissioning schedule is prepared.		
4.2	Operation and maintenance manual or instructions sheets are prepared and submitted		

I declare that theory and practical of the above unit and its elements have been taught

Date:.....

Signature:.....

DETAILS OF WORK UNDERTAKEN AT WORK SITE/TRAINING LAB

Relevant
Competency
Unit (s):

Date:

Work / Function / Task / Activity Performed

Employer / Supervisor's/Trainer Signature/Stamp

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Competency
Unit (s):

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PLUMBING