

ENVIROCERT INTERNATIONAL INC.

JOB TASK ANALYSIS REPORT

Prepared by:

ENVIROCERT INTERNATIONAL INC.

3054 Fite Circle, Suite 108
Sacramento, California 95827

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3054 Fite Circle, Suite 108 Sacramento, CA 95827
www.envirocert.org P: (279) 888-6911



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2022 QSM SME STEERING COMMITTEE

Robert Anderson - *P.E. Juris Doctorate, CPMSM, CPESC, CPSWQ, CPISM, CESSWI, QSM, NGICP*

Charles Wilson Jr. - *PLA, CPESC, CPSWQ, CESSWI, CPMSM, QSM, NGICP*

Mark Goldsmith - *CPESC, CESSWI, QSM*

Mike Kucharski - *CESSWI, CPESC, QSM, NGICP*

Melissa McKinney - *QSM*

James Moore - *CPSWQ*

Matthew Frasier - *QSM*

Missaghi Shahram -

Justin Nichols – *CESSWI, QSM*

Dalton Parry - *Marketing and Graphics Associate*

2019 QSM STERRING COMMITTEE and CONSULTANTS

Robert Anderson - *P.E. Juris Doctorate, CPMSM, CPESC, CPSWQ, CPISM, CESSWI, QSM, NGICP*

Charles Wilson Jr. - *PLA, CPESC, CPSWQ, CESSWI, CPMSM, QSM*

Mark Goldsmith - *CPESC, CESSWI, QSM*

Dalton Parry – *Marketing and Graphics Associate*

Geosyntec Consultants

Andrea Braga – *CPESC, QSM*

Erica Tillinghast Koh – *CPESC, QSM*

RJR Engineering and Consulting, Inc.

INTRODUCTION

ECI is an International Non-Profit 501 (c) 6 that administers six (6) Professional Certification Programs and one (1) Certificate of Training in the United States and over twenty (20) countries. ECI has certified over 50,000 professionals over the past forty (40) years. This is the only stormwater and environmental organization that has a demonstrated accreditation compliant program that grants individuals with a Professional Certification.

The QSM Certification of Training program is an entry level certification that is designed to assist individuals who are new or have limited experience in the field of erosion and sediment control, stormwater, environmental protection, or related fields. This will include, but is not limited to, construction personnel in all fields, contractors, persons associated with land development, all levels of governmental staff who manage or participate in stormwater programs, and entry level positions.

DEFINITION

QUALIFIED STORMWATER MANAGER

(QSM)

A Qualified Stormwater Manager (QSM) embraces the science of surface erosion and sediment control. This Certification of Training is an introduction into the stormwater management and quality program that addresses fundamental principles. The certification provides reviews of the construction, municipal, and multi-sector/industrial aspects of stormwater.

A BREIF HISTORY OF QSM

The QSM Program was initially proposed in 2018 by members of the ECI certification committees as an entry level certification for those just entering the work force or those switching to the stormwater or erosion and sediment control field.

Preparation of the certification began in 2018 with the hiring of a consultant and the formation of a QSM Steering Committee made up of Subject Matter Experts (SMEs). The certification program was launched in 2019 with the first certifications were awarded in August of 2019.

A series of QSM program updates occurred between 2018 through 2020, to the current program management and structure.

QSM REQUIREMENTS

QSM™

Qualified Stormwater Manager™

Application

- Required Entry-Level Application Through CMS
- Demonstration of Good Moral Character

Training

- Required 8 Hour Program On-Demand or In-Person
- Open Book Online Exam

LICENSURE VS CERTIFICATION

ECI Certified Professionals/Individuals shall only perform services within their demonstrated expertise and within the legally designated authority to practice.

Licensure

Licensure is the process by which a federal, state/province, local governmental agency or municipality grants an individual permission to practice in a particular occupation or profession that is subject to regulation under the government's authority and to refer to oneself as "Licensed" or authorized to practice. Jurisdictions adopt "practice acts" which create and empower a board to regulate the profession in the interest of public protection. Within the practice acts are mandates for practitioners to become licensed, usually based upon requirements such as education, examination, experience, and moral character. These requirements, which vary among jurisdictions, establish one's minimum competence to practice the regulated profession safely and effectively. The practice act also establishes the powers of the board, the scope of practice, and the legal requirement to uphold certain professional and ethical standards.

Obtaining a license in order to practice a profession is mandatory, and laws may provide for criminal or administrative penalties for unlicensed practice. Periodic licensure renewal is also mandatory and usually premised upon substantiating required continuing education or professional development.

Certification

Certification is the process by which private organizations recognize individuals for meeting certain criteria established by the private organization in which individuals are recognized for advanced knowledge and skills. It is a form of self-regulation which is voluntary in that it is not required of individuals prior to practice and is without governmental oversight. Practitioners seek certification usually as a form of self-promotion and in an attempt to distinguish one practitioner from another. There is no requirement to be certified and no governmental penalties for failure to achieve or loss of certification recognition. Like licensure, certification is usually granted for a limited period of time and must be renewed based upon criteria set by the private entity.

Certification does not provide a legal mechanism to practice an otherwise governmentally regulated profession but does provide certificate/certification holders to accurately promote the fact that they are certified by the private entity.

STATEMENT OF METHODOLOGY

This report describes the process for and results of a comprehensive Job Task Analysis (JTA) for the QSM certification.

Geosyntec was hired to work with Subject Matter Experts (SMEs) to develop of the QSM certification as an entry level Certification of Training. They were provided the Certified Professional in Erosion and Sediment Control (CPESC) and the Certified Erosion, Sediment, and Stormwater Inspector (CESSWI) General Principles Review Manuals. After review of the manuals and consultations with the SMEs, the QSM Training Review Manual was developed. Once the manual was developed, the SMEs reviewed, commented, and made adjustments to the QSM Training Review Manual.

Preparation for this JTA has been compiled using the approved Training Review Manual document.

QUALIFIED STORMWATER MANAGER (QSM) KNOWLEDGE, SKILLS, AND ABILITIES

A QSM should be able to understand, describe, and implement (as appropriate) the following concepts:

Section 1: Rules and Regulations

**All United States candidates are tested on United States Rules and Regulations. Affiliates and other countries may provide a separate exam section to test applicants on their country's national rules, regulations, and ordinances.*

- 1.1 History of stormwater rules and regulations
 - 1.1.a Ancient
 - 1.1.b United States starting in 1899

Section 2: Soils, Topography, Geomorphology, and Climate

- 2.1 Soil Formation Factors
- 2.2 Soil Formation Processes
- 2.3 Soil Properties Impacting Erosion Potential
 - 2.3.a Soil Classification
 - 2.3.b Soil Erodibility
 - 2.3.c Rainfall Runoff Erosivity Factor "R"
- 2.4 Topography
- 2.5 Geomorphology
- 2.6 Climate
 - 2.6.a Precipitation
 - 2.6.b Wind
 - 2.6.c Season

Section 3: Principles of Erosion Control

- 3.1 Causes and Results of Soil Particle Detachment
 - 3.1.a Sheet Erosion
 - 3.1.b Rill Erosion
 - 3.1.c Gully Erosion
- 3.2 Measures for Minimizing Soil Particle Detachment
 - 3.2.a Minimizing Areas and Durations of Soil Exposure
 - 3.2.a.1 Phased Construction / Minimize Disturbed Soils
 - 3.2.a.2 Temporary and Permanent Vegetative Controls / Practices
 - 3.2.b Reducing Slope Gradient and Length
 - 3.2.c Drainage and Runoff Control

Section 4: Principles of Sediment Control

- 4.1 Suspension of Soil Particles
- 4.2 Sediment Transport
- 4.3 Sediment Deposition
- 4.4 Maximizing Filtering and/or Sedimentation Residency
- 4.5 Minimizing Agitation

Section 5: Construction Stormwater Pollution Control Measures

- 5.1 Site Planning and Management Practices
- 5.2 Tracking Controls
- 5.3 Site Perimeter Controls
- 5.4 Erosion Controls
 - 5.4.a Bare Soil or Disturbed Areas

- 5.4.b Stabilized Areas
- 5.4.c Temporary Stabilization
- 5.5 Sediment Controls
- 5.6 Runoff and Drainage Controls
- 5.7 Good Housekeeping and Material Management Controls

Section 6: Components of a Stormwater Pollution Prevention Plan (SWPPP)

- 6.1 SWPPP Overview
 - 6.1.a Narrative
 - 6.1.b Site Plans and Maps
 - 6.1.c Specifications and Details
 - 6.1.d Calculations
 - 6.1.e Operation and Maintenance
- 6.2 Contact Information and Responsible Parties
- 6.3 Site Evaluation, Assessment, and Planning
 - 6.3.a Typical Project / Site Information
 - 6.3.b SWPP Implementation Sequence
 - 6.3.c Typical Erosion and Sediment Control Plan Requirements
 - 6.3.c.1 Map Contours
 - 6.3.c.2 Sensitive Areas
 - 6.3.c.3 Discharge Points
 - 6.3.c.4 Critical Areas
 - 6.3.c.5 Site Perimeter
 - 6.3.c.6 Phasing Measures and Construction Schedules
 - 6.3.c.7 Erosion and Sediment Control and Stormwater Control Measures
 - 6.3.c.8 Borrow Materials and Waste Disposal Areas

6.3.c.9 Material Storage

- 6.4 Documentation of Compliance with other Federal Agencies
 - 6.4.a Endangered Species
 - 6.4.b Historic Preservation
- 6.5 Erosion and Sediment Controls
 - 6.5.a Ensuring the SWPPP is Accessible
 - 6.5.b Implementing Management Practices
 - 6.5.c Inspecting and Maintaining Management Practices
 - 6.5.d Maintaining Records of Construction Activities and Management Practice Installation and Maintenance
 - 6.5.e Updating the SWPPP
- 6.6 Pollution Prevention Standards
 - 6.6.a Potential Sources of Pollution
 - 6.6.b Spill Prevention and Response
- 6.7 Post Construction Management Practices
- 6.8 Inspections and Corrective Actions
- 6.9 Training
- 6.10 Certification and Notification
 - 6.10.a Certifying the SWPPP
 - 6.10.b Notice of Intent
- 6.11 Updating the SWPPP

Section 7: Implementing the Stormwater Pollution Prevention Plan

- 7.1 Introducing the Plan – The Preconstruction Meeting
- 7.2 Communicating the Plan
 - 7.2.a Interfacing with the Project Owner
 - 7.2.b Interfacing with the SWPPP Engineer / Designer

- 7.2.c Interfacing with the Subcontractors
- 7.2.d Interfacing with the Regulators
- 7.2.e Interfacing with the Public
- 7.3 Understanding and Verifying Permit Documentation
 - 7.3.a Notice of Intent
 - 7.3.b Permit Authorization
 - 7.3.c Notice of Termination
 - 7.3.d Permit Transfers
 - 7.3.e Other Permits
 - 7.3.f Construction Entrance Postings
- 7.4 Adhering to the SWPPP Implementation Sequence
- 7.5 Installing Control Measures
- 7.6 Monitoring and Maintaining Control Measures
- 7.7 Conducting Self Inspections
 - 7.7.a Compliance
 - 7.7.b Field Inspections
 - 7.7.c Outfall Inspection
- 7.8 Reporting Self Inspections
 - 7.8.a Typical Inspection Reporting
 - 7.8.b Corrective Action Reporting
 - 7.8.c Violation Reporting
 - 7.8.d Other Required Reporting
- 7.9 Keeping the SWPP up to Date
 - 7.9.a Document Changes
 - 7.9.b Progress Map
- 7.10 Preparing for Agency Inspections and Follow-Up

Section 8: Project Closeout and Permit Termination

- 8.1 Final Stabilization
- 8.2 Final Inspection Procedures
- 8.3 Permit Termination

Specific Areas of Practice (SAOP) Descriptions with Tasks (T) and Proposed Test Objectives

SAOP1. Rules and Regulations

T1.1. Knowledge of national, regional, local, and other relevant rules, regulations, and ordinances

Understand and apply

- Understand the progression history of the rules, regulations, and ordinances that have been developed to better understand current rules, regulations, and ordinances and understand the current rules, regulations, and ordinances

SAOP 1 Proposed Test Objectives

- T1.1 U/A – To demonstrate basic knowledge of the progression rules, regulations, and ordinances and demonstrate an understanding of the current rules, regulations, and ordinances

SAOP 2. Soils, Topography, Geomorphology, and Climate

T2.1. Soil Formation Factors and Processes

Understand and apply

- Knowledge of the soil formation factors
- Knowledge of the soil formation processes

T2.2. Soil Properties

Understand and apply

- Knowledge of soil classification methods
- Knowledge of soil erodibility
- Knowledge of the Runoff Erosivity Factor “R”

T2.3. Topography

Understand and apply

- Knowledge of topographic landforms and the ability to calculate slopes

T2.4. Geomorphology

Understand and apply

- Knowledge of geomorphology and how it affects the surface conditions of land

T2.5. Climate

Understand and apply

- Knowledge of precipitation effects on soil
- Knowledge of wind effects on soil
- Knowledge of seasonal effects on soil

SAOP 2 Proposed Test Objectives

- T2.1 U/A – Demonstrate the knowledge of soil formation factors and processes
- T2.2 U/A – Demonstrate the knowledge of soil classification methods and an understanding of soil erodibility
- T2.3 U/A – Demonstrate the knowledge of topographic landforms and the ability to calculate slopes
- T2.4 U/A – Demonstrate the knowledge of geomorphology and how it affects the surface conditions of land
- T2.5 U/A – Demonstrate the knowledge of how climate affects soil

SAOP 3. Principles of Erosion Control

T3.1. Causes and Results of Soil Particle detachment

Understand and apply

- Knowledge of sheet erosion
- Knowledge of rill erosion
- Knowledge of gully erosion

T3.2. Measures for Minimizing Soil Particle Detachment

Understand and apply

- Knowledge of minimizing areas and durations of soil exposure
- Knowledge of reducing slope gradient and length
- Knowledge of the principles of drainage and runoff control

SAOP 3 Proposed Test Objectives

- T3.1 U/A – Demonstrate the knowledge types of erosion and the causes for each
- T3.2 U/A – Demonstrate the knowledge of methods to minimize soil particle detachment

SAOP 4. Principles of Sediment Control

T4.1. Suspension of Soil Particles

Understand and apply

- Knowledge of how soil particles are suspended

T4.2. Sediment Transport

Understand and apply

- Knowledge of how suspended soil particles are transported

T4.3. Sediment Deposition

Understand and apply

- Knowledge of how and why suspended soil particles are deposited

T4.4. Maximizing Filtering and/or Sedimentation Residency and Minimizing Agitation

Understand and apply

- Knowledge of methods to allow for cleansing of stormwater prior to release

SAOP 4 Proposed Test Objectives

- T4.1 U/A – Demonstrate the knowledge of how soil particles are suspended
- T4.2 U/A – Demonstrate the knowledge of how suspended soil particles are transported
- T4.3 U/A – Demonstrate the knowledge of how suspended soil particles are deposited
- T4.4 U/A – Demonstrate the knowledge of methods to clean stormwater prior to release

SAOP 5. Construction Stormwater Pollution Control Measures (Please note measures may incorporate considerations of volume and velocity, and these determinations will require the professional oversight or site-specific designs of a registered/licensed professional.)

T5.1. Site Planning and Management Practices

Understand and apply

- How site planning and stormwater control measures protect the disturbed areas on a site and reduce or eliminate polluted stormwater runoff

T5.2. Tracking Controls

Understand and apply

- Methods to control tracking of detached soils off site

T5.3. Perimeter Controls

Understand and apply

- How site perimeter controls reduce or eliminate polluted stormwater runoff from leaving the site

T5.4. Erosion Controls

Understand and apply

- Knowledge of different methods of erosion control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques

T5.5. Sediment Controls

Understand and apply

- Knowledge of different methods of sediment control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques

T5.6. Runoff and Drainage Controls

Understand and apply

- Knowledge of different methods of runoff and drainage control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques

T5.7. Good Housekeeping and Material Management Controls

Understand and apply

- Knowledge of different methods of good housekeeping and material management control measures to maintain a clean site, their effectiveness, installation techniques, inspection, and maintenance techniques

SAOP 5 Proposed Test Objectives

- T5.1 U/A – Demonstrate the knowledge of how site planning and stormwater control measures protect the disturbed areas on a site and reduce or eliminate polluted stormwater runoff
- T5.2 U/A – Demonstrate the knowledge of methods to control tracking of detached soils off site
- T5.3 U/A – Demonstrate the knowledge of how site perimeter controls reduce or eliminate polluted stormwater runoff from leaving the site
- T5.4 U/A – Demonstrate the knowledge of different methods of erosion control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques
- T5.5 U/A – Demonstrate the knowledge of different methods of sediment control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques
- T5.6 U/A – Demonstrate the knowledge of different methods of runoff and drainage control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques
- T5.7 U/A – Demonstrate the knowledge of different methods of good housekeeping and material management control measures to maintain a clean site, their effectiveness, installation techniques, inspection, and maintenance techniques

SAOP 6. Components of a Stormwater Pollution Prevention Plan (SWPPP)

T6.1. Understanding of the different portions of the SWPPP

Understand and apply

- Knowledge of the narrative and the role it plays in the complete SWPPP
- Knowledge of the site plans and maps and the role they play in the complete SWPPP
- Knowledge of the specifications and details and the role they play in the complete SWPPP
- Knowledge of the calculations and the role they play in the complete SWPPP
- Knowledge of the operation and maintenance of the SWPPP prior to construction, during the construction, and after construction

T6.2. Contact Information and Responsible Parties

Understand and apply

- Knowledge of those people whose information needs to be provided in the SWPPP plan and what their role is

T6.3. Site Evaluation, Assessment, and Planning

Understand and apply

- Knowledge of the typical project and site information that is required to be included in the SWPPP
- Knowledge of the sequence of implementation and construction
- Knowledge of the typical erosion and sediment control plan requirements
 - Map contours
 - Sensitive Areas
 - Discharge Points
 - Critical Areas
 - Site perimeter
 - Phasing measures and construction schedules
 - Erosion and sediment control measures

- Borrow materials and waste disposal areas
- Material storage

T6.4. Documentation of Compliance with other Federal Agencies

Understand and apply

- Knowledge of the Endangered Species requirements in relation to the site
- Knowledge of the Historic Preservation requirements in relation to the site

T6.5. Erosion and Sediment Controls

Understand and apply

- Knowledge of how to ensure the SWPPP is accessible
- Knowledge on how the management practices on the SWPPP are to be implemented
- Knowledge of the inspection and maintenance requirements of the management practices on the SWPPP
- Knowledge of the record keeping required for the site, including but not limited to construction activities, management practice installation, management practice maintenance, and management practice removal
- Knowledge of the responsibility of updating the SWPPP and who is responsible

T6.6. Pollution Prevention Standards

Understand and apply

- Knowledge of how identify potential sources of pollution
- Knowledge of the spill prevention and response plans

T6.7. Post Construction Practices

Understand and apply

- Knowledge of how the post construction management practices on the SWPPP are to be implemented, inspected, and maintained

T6.8. Inspections and Corrective Actions

Understand and apply

- Knowledge of how to read and understand inspection reports prepared by an authorized person
- Knowledge of how to read and understand corrective action reports

T6.9. Training

Understand and apply

- Knowledge of the required training for proper implementation of the SWPPP plan

T6.10. Certification and Notification

Understand and apply

- Knowledge and understanding of why a SWPPP needs to be certified and by whom
- Knowledge and understanding on why a Notice of Intent is required for each SWPPP plan prior to implementation

T6.11. Updating the SWPPP During Construction

Understand and apply

- Knowledge of the responsibility of updating the SWPPP and who is responsible

SAOP 6 Proposed Test Objectives

- T6.1 U/A – Demonstrate the knowledge of each part of a typical SWPPP and what it is used for
- T6.2 U/A – Demonstrate the knowledge of those people whose information needs to be provided in the SWPPP plan and what their role is
- T6.3 U/A – Demonstrate the knowledge of site assessment elements and how the site assessment affects site planning
- T6.4 U/A – Demonstrate the knowledge and reason on why a site needs to comply with other Federal requirements
- T6.5 U/A – Demonstrate the knowledge of erosion and sediment control practices that may be used on the site

- T6.6 U/A – Demonstrate the knowledge of how to identify potential pollutants and a knowledge of spill prevention and response plans
- T6.7 U/A – Demonstrate the knowledge how the post construction management practices on the SWPPP are to be implemented, inspected, and maintained
- T6.8 U/A – Demonstrate the knowledge how to read and understand inspection reports prepared by an authorized person and the knowledge of how to read and understand corrective action reports
- T6.9 U/A – Demonstrate the knowledge a of the required training for proper implementation of the SWPPP plan
- T6.10 U/A – Demonstrate the knowledge and understanding of why a SWPPP needs to be certified and by whom and the knowledge and understanding on why a Notice of Intent is required for each SWPPP plan prior to implementation
- T6.11 U/A – Demonstrate the knowledge of the responsibility of updating the SWPPP and who is responsible

SAOP 7. Implementing the Stormwater Pollution Prevention Plan

T7.1. Preconstruction Meeting

Understand and apply

- Knowledge of why a preconstruction meeting is necessary, who should attend, and what should be covered during the meeting

T7.2. Communicating the Plan to Other Parties

Understand and apply

- Knowledge and ability to interface with the Project Owner
- Knowledge and ability to interface with the SWPPP Engineer / Designer
- Knowledge and ability to interface with the Subcontractors
- Knowledge and ability to interface with the Regulators
- Knowledge and ability to interface with the Public

T7.3. Understanding and Verifying Permit Documentation

Understand and apply

- Knowledge and understanding of the Notice of Intent
- Knowledge and understanding of the Permit Authorization
- Knowledge and understanding of the Notice of Termination
- Knowledge and understanding of Permit Transfers
- Knowledge and understanding of Other Permits that affect the SWPPP
- Knowledge and understanding of Construction Entrance Postings

T7.4. Adhering to the SWPPP Implementation Sequence

Understand and apply

- Knowledge and understanding of the sequence of implementation and the sequence of construction for the SWPPP

T7.5. Installing Control Measures

Understand and apply

- Knowledge and understanding of the installation methods for all control measures as designed on the SWPPP

T7.6. Conducting Self-Inspections

Understand and apply

- Knowledge, understanding, and ability to conduct self-inspections to verify the site remains in compliance
- Knowledge, understanding, and ability to document self-inspections to verify the site remains in compliance
- Knowledge, understanding, and ability to conduct self-inspections to verify the outfalls / discharge points remain in compliance

T7.7. Reporting Self-Inspections

Understand and apply

- Knowledge and understanding of how to record a self-inspection
- Knowledge and understanding of how to read Corrective Action reports and make necessary corrective actions to bring the site back into compliance

- Knowledge and understanding of how to read Violation reports and make necessary corrective actions to bring the site back into compliance
- Knowledge and understanding of other reports that may be required per the SWPPP

T7.8. Keeping the SWPPP up to Date

Understand and apply

- Knowledge and understanding of who is allowed to make the required updates to the SWPPP plan
- Knowledge and understanding of what is required to be changed on the SWPPP plan to bring the document current
- Knowledge and understanding of why progress maps need to be maintained

T7.9. Preparing for Agency Inspections and Follow-Up

Understand and apply

- Knowledge and understanding of the regulatory inspection process

SAOP 7 Proposed Test Objectives

- T7.1 U/A – Demonstrate the knowledge of why a preconstruction meeting is necessary, who should attend, and what should be covered during the meeting
- T7.2 U/A – Demonstrate the knowledge and ability to interface with the Project Owner, SWPPP Engineer / Designer, Subcontractors, Regulators, and the Public
- T7.3 U/A – Demonstrate the knowledge and ability to understand and verify permit documents
- T7.4 U/A – Demonstrate the knowledge of the sequence of implementation and the sequence of construction for the SWPPP
- T7.5 U/A – Demonstrate the knowledge of the installation methods for all control measures as designed on the SWPPP
- T7.6 U/A – Demonstrate the knowledge and ability to understand how to conduct self-inspections provide documentation, and conduct self-inspections to verify the outfalls / discharge points remain in compliance

- T7.7 U/A – Demonstrate the knowledge of how to record a self-inspection, how to read Corrective Action reports and Violation reports and make necessary corrective actions to bring the site back into compliance, and show an understanding of other reports that may be required per the SWPPP
- T7.8 U/A – Demonstrate the knowledge of who is allowed to make the required updates to the SWPPP plan, of what is required to be changed on the SWPPP plan to bring the document current, and of why progress maps need to be maintained
- T7.9 U/A – Demonstrate the knowledge of the regulatory inspection process

SAOP 8. Project Closeout and Permit Termination

T8.1. Final Stabilization

Understand and apply

- Knowledge of the determination requirements for final stabilization

T8.2. Final Inspection Procedures

Understand and apply

- Knowledge of the requirements and methodologies required for final inspections

T8.3. Permit Termination

Understand and apply

- Knowledge of the permit termination procedures

SAOP 8 Proposed Test Objectives

- T8.1 U/A – Demonstrate the knowledge of minimum requirements for final stabilization
- T8.2 U/A – Demonstrate the knowledge of the requirements and methodologies required for final inspections
- T8.3.U/A – Demonstrate the knowledge of the permit termination procedure

SPECIFIC AREAS OF PRACTICE

TABLE OF ROLES

Primary ongoing Erosion and Sediment Control related functions for each job role for the Qualified Stormwater Manager (QSM)

Construction	Reviewer / Regulator	Supplier / Materials
SAOP 1 – T1.1	SAOP 1 – T1.1	SAOP 1 – T1.1
SAOP 2 – T2.1	SAOP 2 – T2.1	SAOP 2 – T2.1
SAOP 2 – T2.2	SAOP 2 – T2.2	SAOP 2 – T2.2
SAOP 2 – T2.3	SAOP 2 – T2.3	SAOP 2 – T2.3
SAOP 2 – T2.5	SAOP 2 – T2.5	SAOP 2 – T2.5
SAOP 3 – T3.1	SAOP 3 – T3.1	SAOP 3 – T3.1
SAOP 3 – T3.2	SAOP 3 – T3.2	SAOP 3 – T3.2
SAOP 4 – T4.1	SAOP 4 – T4.1	SAOP 4 – T4.1
SAOP 4 – T4.2	SAOP 4 – T4.2	SAOP 4 – T4.2
SAOP 4 – T4.3	SAOP 4 – T4.3	SAOP 4 – T4.3
SAOP 4 – T4.4	SAOP 4 – T4.4	SAOP 4 – T4.4
SAOP 5 – T5.1	SAOP 5 – T5.1	SAOP 5 – T5.1
SAOP 5 – T5.2	SAOP 5 – T5.2	SAOP 5 – T5.2
SAOP 5 – T5.3	SAOP 5 – T5.3	SAOP 5 – T5.3
SAOP 5 – T5.4	SAOP 5 – T5.4	SAOP 5 – T5.4
SAOP 5 – T5.5	SAOP 5 – T5.5	SAOP 5 – T5.5
SAOP 5 – T5.6	SAOP 5 – T5.6	SAOP 5 – T5.6
SAOP 5 – T5.7	SAOP 5 – T5.7	SAOP 5 – T5.7
SAOP 6 – T6.1	SAOP 6 – T6.1	SAOP 6 – T6.1
SAOP 6 – T6.2	SAOP 6 – T6.2	SAOP 6 – T6.2
SAOP 6 – T6.3	SAOP 6 – T6.3	SAOP 6 – T6.3
SAOP 6 – T6.4	SAOP 6 – T6.4	SAOP 6 – T6.4
SAOP 6 – T6.5	SAOP 6 – T6.5	SAOP 6 – T6.5
SAOP 6 – T6.6	SAOP 6 – T6.6	SAOP 6 – T6.6
SAOP 6 – T6.7	SAOP 6 – T6.7	SAOP 6 – T6.7
SAOP 6 – T6.8	SAOP 6 – T6.8	SAOP 6 – T6.8
SAOP 6 – T6.9	SAOP 6 – T6.9	SAOP 6 – T6.9
SAOP 6 – T6.10	SAOP 6 – T6.10	SAOP 6 – T6.10
SAOP 6 – T6.11	SAOP 6 – T6.11	SAOP 6 – T6.11

Construction	Reviewer / Regulator	Supplier / Materials
SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3 SAOP 7 – T7.4 SAOP 7 – T7.5 SAOP 7 – T7.6 SAOP 7 – T7.7 SAOP 7 – T7.8 SAOP 7 – T7.9	SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3 SAOP 7 – T7.4 SAOP 7 – T7.5 SAOP 7 – T7.6 SAOP 7 – T7.7 SAOP 7 – T7.8 SAOP 7 – T7.9	SAOP 7 – T7.1 SAOP 7 – T7.2 SAOP 7 – T7.3 SAOP 7 – T7.4 SAOP 7 – T7.5 SAOP 7 – T7.6 SAOP 7 – T7.7 SAOP 7 – T7.8 SAOP 7 – T7.9
SAOP 8 – T8.1 SAOP 8 – T8.2 SAOP 8 – T8.3	SAOP 8 – T8.1 SAOP 8 – T8.2 SAOP 8 – T8.3	SAOP 8 – T8.1

EXAM BLUEPRINT

QSM Examination Blueprint

The QSM Certification of Training specializes is an introduction into the stormwater management and quality program that addresses fundamental principles. The certification provides reviews of the construction, municipal, and multi-sector/industrial aspects of stormwater. Specialized areas include

Presented below are the weightages for various sections:

United States Rules and Regulations	9-12%
Demonstrate an understanding of the progression history of the rules, regulations, and ordinances that have been developed and to demonstrate an understanding of the current rules and regulations	
Soils, Topography, Geomorphology, and Climate	19-23%
Demonstrate the knowledge of soil formation factors and the soil formation process	
Demonstrate the knowledge of soils classification methods and an understanding of soil erodibility	
Demonstrate the knowledge of topographic landforms and the ability to calculate slope	
Demonstrate the knowledge of geomorphology and how it effects the surface conditions of land	
Demonstrate the knowledge of how climate effects soil	
Principles of Erosion Control	9-12%
Demonstrate the knowledge types of erosion and the causes for each	
Demonstrate the knowledge of methods to minimize soil particle detachment	
Principles of Sediment Control	10-13%
Demonstrate the knowledge of how soil particles are suspended	
Demonstrate the knowledge of how suspended soil particles are transported	
Demonstrate the knowledge of how suspended soil particles are deposited	
Demonstrate the knowledge of methods to clean stormwater prior to release	

Construction Stormwater Pollution Control Measures	14–18%
Demonstrate the knowledge of how site planning and stormwater control measures protect the disturbed areas on a site and reduce or eliminate polluted stormwater runoff	
Demonstrate the knowledge of methods to control tracking of detached soils off site	
Demonstrate the knowledge of how site perimeter controls reduce or eliminate polluted stormwater runoff from leaving the site	
Demonstrate the knowledge of different methods of erosion control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques	
Demonstrate the knowledge of different methods of sediment control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques	
Demonstrate the knowledge of different methods of runoff and drainage control measures for bare soils, stabilized areas, and temporarily stabilized areas, their effectiveness, installation techniques, inspection, and maintenance techniques	
Demonstrate the knowledge of different methods of good housekeeping and material management control measures to maintain a clean site, their effectiveness, installation techniques, inspection, and maintenance techniques	

Components of a Stormwater Pollution Prevention Plan (SWPPP)	15–19%
Demonstrate the knowledge of each part of a typical SWPPP and what it is used for	
Demonstrate the knowledge of those people whose information needs to be provided in the SWPPP plan and what their role is	
Demonstrate the knowledge of site assessment elements and how the site assessment affects site planning	
Demonstrate the knowledge and reason on why a site needs to comply with other Federal requirements	
Demonstrate the knowledge of erosion and sediment control practices that may be used on the site	
Demonstrate the knowledge of how to identify potential pollutants and a knowledge of spill prevention and response plans	
Demonstrate the knowledge how the post construction management practices on the SWPPP are to be implemented, inspected, and maintained	
Demonstrate the knowledge how to read and understand inspection reports prepared by an authorized person and the knowledge of how to read and understand corrective action reports	

Demonstrate the knowledge a of the required training for proper implementation of the SWPPP plan
Demonstrate the knowledge and understanding of why a SWPPP needs to be certified and by whom and the knowledge and understanding on why a Notice of Intent is required for each SWPPP plan prior to implementation
Demonstrate the knowledge of the responsibility of updating the SWPPP and who is responsible

Implementing the Stormwater Pollution Prevention Plan	15–19%
Demonstrate the knowledge of why a preconstruction meeting is necessary, who should attend, and what should be covered during the meeting	
Demonstrate the knowledge and ability to interface with the Project Owner, SWPPP Engineer / Designer, Subcontractors, Regulators, and the Public	
Demonstrate the knowledge and ability to understand and verify permit documents	
Demonstrate the knowledge of the sequence of implementation and the sequence of construction for the SWPPP	
Demonstrate the knowledge of the installation methods for all control measures as designed on the SWPPP	
Demonstrate the knowledge and ability to understand how to conduct self-inspections provide documentation, and conduct self-inspections to verify the outfalls / discharge points remain in compliance	
Demonstrate the knowledge of how to record a self-inspection, how to read Corrective Action reports and Violation reports and make necessary corrective actions to bring the site back into compliance, and show an understanding of other reports that may be required per the SWPPP	
Demonstrate the knowledge of who is allowed to make the required updates to the SWPPP plan, of what is required to be changed on the SWPPP plan to bring the document current, and of why progress maps need to be maintained	
Demonstrate the knowledge of the regulatory inspection process	

Project Closeout and Permit Termination	6–8%
Demonstrate the knowledge of minimum requirements for final stabilization	
Demonstrate the knowledge of the requirements and methodologies required for final inspections	
Demonstrate the knowledge of the permit termination procedure	

APPENDIX A

Body of Knowledge

PLACE HOLDER

APPENDIX B

SMEs

Robert Anderson - *P.E. Juris Doctorate, CPMSM, CPESC, CPSWQ, CPISM, CESSWI, QSM, NGICP*

Charles Wilson Jr. - *PLA, CPESC, CPSWQ, CESSWI, CPMSM, QSM*

Mark Goldsmith - *CPESC, CESSWI, QSM*

Mike Kucharski - *CESSWI, CPESC-IT, QSM, NGICP*

Melissa McKinney - *QSM*

James Moore - *CPSWQ*

Matthew Frasier - *QSM*

Missaghi Shahram -

Justin Nichols – *CESSWI, QSM*

Dalton Parry - *Marketing and Graphics Associate*