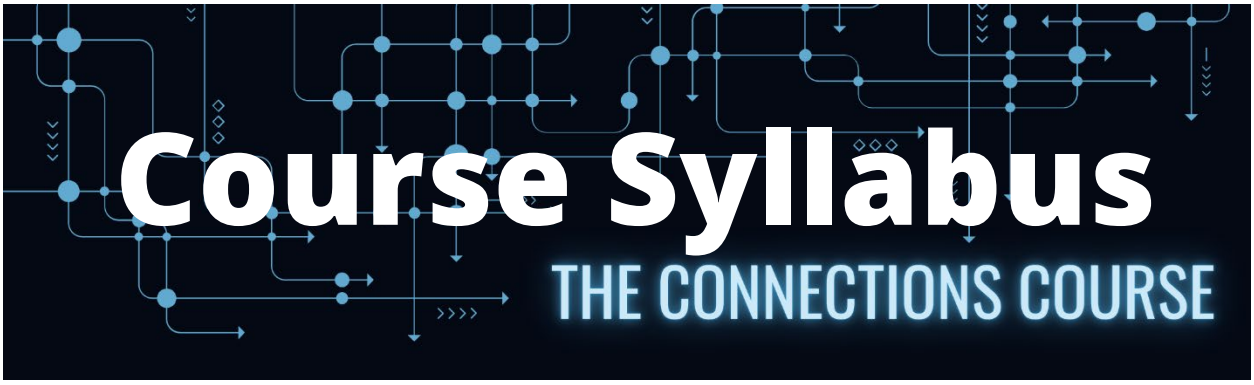

By WGR Southwest, Inc.

A Qualifying QSP/QSD Prerequisite Course

Approach

The Connections Course is not a credential or certificate program; it is a training program to educate individuals with the information they need to become Qualified SWPPP Developers and Practitioners.

Once a participant has satisfactorily completed all of our program requirements, they will be issued a diploma – not a certificate. Many other prerequisite options require the certificate holder to pay an annual fee and submit professional development hours every year to maintain their credential. Since the 2022 CGP now requires QSPs and QSDs to have continuing education, it is redundant and irrelevant for the prerequisite program to also require ongoing education.

Proposed Course Format

The Connections Course utilizes many of the educational techniques that have been developed and offered by WGR in our various storm water training programs, in addition to tools and resources that have been specially developed for this program.

The course has a hybrid format that includes online, self-study, and in-person learning environments. Both QSP and QSD students participate in the same four initial lessons. After completing the four initial lessons, students in the QSP track will graduate from the course. Students in the QSD track will then complete three additional lessons before graduating the course.

The course provides QSP students with approximately 32 hours of contact time (compared to the 16 hours required by the CGPTT). QSD students receive approximately 60 hours of contact time (compared to the required 24 hours).

The course includes and utilizes a new peer-reviewed textbook written by John Teravskis called ***The Raindrop Connection***. As hinted in the name, our textbook helps students connect the dots between construction activities, pollutant sources, effective pollutant control measures, and monitoring programs. The book and course include a 2022 CGP-compliant SWPPP template, which QSD applicants will use during the course to prepare a full-length

SWPPP. The book was published by WGR Southwest, Inc. and Palmetto Publishing, and is currently available from many online retailers.

The online and self-study portions of the course are hosted on an online Learning Management System, featuring a rich array of videos, homework assignments, and learning quizzes. The following is a summary of the seven lessons included in the course:

Lesson 1: Erosion and Sediment Theory and Hydrology (QSP/QSD)

Learning Objectives: Learn the basic principles of erosion and sedimentation theory, understand how the hydrologic cycle affects the hydrology of a construction site, learn how to convert rainfall volume data to runoff values, and calculate soil loss for a variety of surface conditions at a project site.

Learning Activity	Format	Estimated contact time	Learning evaluation method
Read the online course instructions and introduction and watch an introductory video about erosion and sediment theory.	Online independent study	0.25 hours	Online learning quiz 30 minutes
Read Chapters 1, 2, and "*Do Your Homework First* and *Crunch the Numbers*" sections in Chapter 5 of The Raindrop Connection textbook.	Independent reading	1.5 hours	
Watch WGR's Grand Canyon video series on erosion theory.	Video series	1.25 hours	
In-Person Class: *Hydrology 101:* *The hydrologic cycle, runoff coefficients, runoff curve numbers, the rational equation, and the RUSLE*	In-person class (on Zoom) with PowerPoint slides, videos, and example problems worked out	2 hours	Participation with instructor and evaluation by the instructor
Homework Assignment: *Math Practice Problems: calculating average runoff coefficients; runoff using runoff curve numbers, land cover, and soil type; the rational equation; and RUSLE*	Homework assignment handed out at the in-person class	2 hours	Homework assignment reviewed by the instructor with constructive feedback provided
Total Contact Time: 7.5 hours			

Lesson 2: Pollutant Source Assessment (QSP/QSD)

Learning Objectives: Be able to "connect the dots" between construction site activities, materials and pollutant sources being used, the pollutants present, and how storm water runoff may contact or mobilize those pollutants.

Learning Activity	Format	Estimated contact time	Learning evaluation method
Watch an introductory video about pollutant sources at construction sites.	Online independent study	0.25 hours	Online learning quiz 30 minutes
Read Chapter 3 of The Raindrop Connection textbook.	Independent reading	2 hours	
Homework Assignment: *Go to a hardware store and identify and photograph six chemical-containing products that might be used on a construction site. Look up the safety data sheet for each product online. Provide a written summary of the six products including their physical characteristics, pollutants present in them, and their potential impact to water quality.*	Homework assignment	4 hours	Homework assignment reviewed by the instructor with constructive feedback provided
Total Contact Time: 6.75 hours			

Lesson 3: Best Management Practices (QSP/QSD)

Learning Objectives: Building on the previous lesson to further "connect the dots" between construction site activities, materials, and pollutant sources in order to select appropriate Best Management Practices. Understand proper techniques for BMP installation, inspection, and maintenance.

Learning Activity	Format	Estimated contact time	Learning evaluation method
Watch an introductory video about best management practices (BMPs).	Online independent study	0.25 hours	Online learning quiz 30 minutes
Read Chapter 4 of The Raindrop Connection textbook.	Independent reading	4 hours	

In-Person Class: *Utilizing WGR's Construction Sandbox (or similar) arrangement, review BMP installation techniques, maintenance protocols, and inspection criteria for erosion, sediment, treatment, and good housekeeping BMPs.*	In-person class (physically present in Lodi or virtually present on Zoom)	4 hours	Participation with instructor and evaluation by the instructor
Total Contact Time: 8.75 hours			

Lesson 4: Performing Inspections and Monitoring at Construction Sites (QSP/QSD)

Learning Objectives: Learn the proper elements of an effective inspection and monitoring program. Learn how to approach a site inspection, what to look for, and how to document observations and items needing corrective action. QSP students must demonstrate they can perform an adequate and compliant inspection.

Learning Activity	Format	Estimated contact time	Learning evaluation method
Watch an introductory video about performing inspections.	Online independent study	0.25 hours	Online learning quiz 30 minutes
Read Chapter 6 of The Raindrop Connection textbook.	Independent reading	2 hours	
Watch a WGR-produced online video about calibrating and using pH and turbidity meters.	Online independent study	0.5 hours	
Field-trip: *Visit a local active construction project (selected by the instructor) and, while remaining on public property, perform a pre-storm inspection.*	In-person class (physically present in Lodi or virtually present on Zoom)	3 hours	Participation with instructor and evaluation by the instructor
Homework Assignment: *Each student is to identify another construction site, visit it, and, while standing on public property in a safe location, perform their own pre-storm inspection. The inspection will need to be populated onto the online inspection app provided by WGR and will need to include photos and corrective action items as applicable.*	Homework assignment	2 hours	Homework assignment reviewed by the instructor with constructive feedback provided
Total Contact Time: 8.25 hours			

Lesson 5: SWPPP Math (QSD)

Learning Objectives: Understand basic concepts of hydrology and how to use these concepts to appropriately size and place BMPs.

Learning Activity	Format	Estimated contact time	Learning evaluation method
Watch an introductory video about SWPPP math.	Online independent study	0.25 hours	Online learning quiz 30 minutes
Read the rest of Chapter 5 of The Raindrop Connection textbook.	Independent reading	2 hours	
In-Person Class: *Hydrology 201:* *MUSLE, RUSLE, time of concentration, fluid flow rates and runoff volume calculations, and the wind erosion equation*	In-person class	4.25 hours	Participation with instructor and evaluation by the instructor
Homework Assignment: *Math Practice Problems: BMP sizing using sediment yield with MUSLE and soil loss with RUSLE; time of concentration; peak flow rates and runoff volume*	Homework assignment handed out at the in-person class.	2 hours	Homework assignment reviewed by the instructor with constructive feedback provided
Total Contact Time: 9 hours			

Lesson 6: Post-Construction and Final Stabilization (QSD)

Learning Objectives: Understand requirements for final site stabilization and Water Board or municipal requirements for post-construction storm water treatment. Develop a working knowledge of the RUSLE2 software and learn how to use it to demonstrate final site stabilization.

Learning Activity	Format	Estimated contact time	Learning evaluation method
Watch an introductory video about post-construction storm water control measures.	Online independent study	0.25 hours	Online learning quiz 30 minutes
Read Chapter 7 of The Raindrop Connection textbook.	Independent reading	1 hour	

Watch the 2017 Storm Water Awareness Week keynote "Storm Water Awareness Week on the Road - Construction, Post Construction, and LID" https://vimeo.com/238101658	Supplemental Learning Opportunity	0.5 hour	Optional supplemental learning content
In-Person Class: *RUSLE2 user workshop in which we demonstrate how to download, populate, and use the software for calculating soil loss and sediment yield to demonstrate site stabilization, vegetative buffers, and TMDL compliance*	In-person or Zoom class	2.5 hours	Participation with instructor and evaluation by the instructor
Homework Assignment: *Download, setup, and utilize RUSLE2 to calculate the pre and post-construction values for 1 year for an example project. Submit to the instructor a print out of the pre and post-construction soil loss values calculated by RUSLE2.*	Homework assignment	2.75 hours	Homework assignment reviewed by the instructor with constructive feedback provided
Total Contact Time: 7.5 hours			

Lesson 7: SWPPP Writing (QSD)

Learning Objectives: Learn how to utilize the information from the previous lessons to develop an effective, compliant, and site-specific SWPPP. QSD students must demonstrate their ability to prepare a full-length SWPPP.

Learning Activity	Format	Estimated contact time	Learning evaluation method
Watch an introductory video about preparing SWPPP plans.	Online independent study	0.25 hours	Online learning quiz 0.25 hours
Read Chapter 8 of The Raindrop Connection textbook.	Independent reading	0.5 hours	
Watch the 2024 Storm Water Awareness Week workshop "Connecting the Dots in Effective Construction SWPPPs" https://youtu.be/rt3B_55yeqM	Supplemental Learning Opportunity	1 hour	Optional supplemental learning content

In-Person Class: *How to write an effective, compliant, and site-specific construction SWPPP*	In-person or Zoom class	4 hours	Participation with instructor and evaluation by the instructor
Homework Assignment: *Familiarize yourself with the WGR-provided SWPPP template, the example project specifications and drawings, and prepare and submit to the instructor a SWPPP and SWPPP maps.*	Homework assignment	8 hours	Homework assignment reviewed by the instructor with constructive feedback provided
Total Contact Time: 14 hours			

Student Identification and Enrollment Tracking:

Student registration, enrollment, and tracking is hosted on WGR's FORGE platform, which utilizes a full-featured secure user account system and Learning Management System: https://secure.wgr-sw.com/training/.

The platform enables students to track their progress through lessons, access online content, take learning quizzes, schedule in-person learning times, and upload homework assignments. Diplomas will be manually issued by the program administrator upon verification of course completion as indicated by each student's documented participation, attendance, and submission of homework assignments.

WGR has provided CASQA and the Water Board a secure online link to the registration database displaying real-time student enrollment information and graduation verification (diploma status).

Student Responsibilities:

WGR does not require enrolled students to have any prior storm water industry or construction experience. Students are expected to be capable of and commit to the following:

1. **Proficiency in the English Language** – Until the course is translated into other languages, students must understand, read, and write proficient English. Because graduation is not awarded based on a final exam, English-as-Second-Language individuals may find this course more achievable than other programs.

2. **Online Participation** – Students must have access to a computer (personal computer, laptop, or tablet), internet, and an internet browser. Homework assignments can be completed using either Microsoft Word or Google Docs. Students will use the online FORGE platform to receive lesson instructions, learning materials, take learning quizzes, submit homework assignments, and track their progress.

3. **In-person Participation** – In-person classes will be held initially at WGR's Lodi California office (other locations will be available in the future). Students will be required to attend classes and field trips physically present or virtually present on Zoom as described in this syllabus. Classes and field trips will be scheduled regularly at various days and times from Monday through Friday and between the hours of 8:00 AM and 4:00 PM. Students can view a calendar of classes and field trips on the FORGE platform. Although in-person participation is required for classes and field trips, the course is largely self-directed and each participating student can proceed at their own pace. If a student is not able to attend the next available class, they can sign up for a future class. There is no limit to how often a student may attend a class. Students participating by being physically present must have their own transportation to and from classes and for field trip locations. Field trips will generally be within 10 miles of the physical classroom location. Because in-person learning activities at the simulated construction site (Lodi's Construction Sandbox) and on field trips will include some physical activities, participating students should be physically capable of performing inspections and wear clothing appropriate for construction sites (i.e., closed-toe shoes, long pants, sun protection, and/or raingear). The course instructor will provide safety vests, hearing protection, safety glasses, and work gloves as needed. Students participating virtually must have sufficient connectivity and computer resources to join the class by Zoom.

4. **Completion of Homework Assignments** – Students will be required to satisfactorily complete and submit the homework assignments. Homework assignments can be completed at the pace that the student determines and no due date will be established by the instructor or program administrator. Submitted homework assignments will be evaluated by the instructor for completeness and to determine if the student has understood the material. Instructors will provide written comments on the student's submission and may require a resubmission of part or all of the homework assignment. If desired by the student, a separate individual session with the instructor may be scheduled to review the homework assignment or concepts being covered. A homework assignment will be deemed completed when the instructor's comments have been satisfactorily addressed. Completion of homework assignments will be tracked in the online classroom.

5. **Obtaining a Diploma** – It is the responsibility of the participating student to complete all of their online, reading, in-person, and homework assignments and to track their progress in the online classroom. Upon verification of a student's successful completion of the course, the program administrator will issue a diploma to that student. It will be the responsibility of the student to upload the diploma to the CASQA QSP/QSD portal as proof of the underlying credential. WGR will maintain a database accessible to CASQA and the Water Board of students who have successfully completed the course.