

**9 Element Watershed Based Plan Component Checklist  
for CWA Grant Funding<sup>(1)</sup>**

**Watershed Management Plan Title:** [Ekonk Brook Watershed Based Plan](#)

**Waterbody ID, Hydrologic Unit Code, Watershed Boundary Data Set, or Hydrologic Response Unit:**  
[Ekonk Brook CT3503-00\\_01](#)

**River Basin:** [Thames](#)

**County(ies):** [Windham & New London](#)

**Title of TMDL:**

- a) A TMDL for This Watershed is ("X" as applicable): (  ) Approved      (  ) In Draft  
 b) No TMDL Has Been Developed to Date: (  )

**Comments:**

*[A Total Maximum Daily Load Analysis for Recreational Uses of the Ekonk Brook Sub-regional Basin, Connecticut Department of Energy and Environmental Protection, Hartford, CT. September, 2011.](#)*

<sup>(1)</sup>In order to be eligible for CWA Section 319 incremental\* grant (watershed protection) funding - or to submit a Section 319 grant proposal - a copy of the EPA approved 9 element watershed based plan and this completed checklist must be on file with the Connecticut Department of Environmental Protection's Bureau of Water Protection and Land Reuse. Components and formatting of this checklist may change in response to federal grant funding, grant guideline revisions, or other program initiatives or purposes as deemed appropriate by EPA/CT-DEP. Note that preparation or submittal of an EPA 9 Element watershed based plan, or this checklist, does not obligate the EPA or CT DEP to partially or fully fund any part of a watershed based plan or recommended implementation project.

\* Incremental grant background: Congress enacted Section 319 of the Clean Water Act in 1987, establishing a national program to control nonpoint sources of water pollution. During the last several years EPA has been working with the States to strengthen its support for watershed-based environmental protection by encouraging local stakeholders to work together to develop and implement watershed-based plans appropriate for the particular conditions found within their communities. In particular, EPA and the States have focused attention on waterbodies listed by States as impaired under Section 303(d) of the Clean Water Act. Toward this end States must use \$100 million (\$1 million for Connecticut) of Section 319 funds (referred to as "incremental funds") to develop watershed-based plans that address nonpoint source impairments in watersheds that contain Section 303(d)-listed waters and implement recommendations incorporated in these plans.

<b>Component (A) Identification of Pollutant Causes and Sources</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I. The plan identifies the pollutant <i>causes</i> and <i>sources</i> <u>or</u> groups of similar sources that will need to be managed to achieve the load reductions identified in this watershed based plan or a TMDL, including page number where load reductions are found in this plan.)  <u>Comments:</u>	X		5 - Pollutant Source Assessment  Table 5-1	56  56

<b>Component (B) Pollutant Load Reduction Estimates</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I. The plan provides estimates of load reductions needed to delist water bodies identified in the watershed based plan. <u>This is a requirement of the Watershed Based Plan.</u>  <u>Comments:</u>	X		7 - Watershed Goals and Objectives  7.2 - Pollutant Load reductions  Table 7-1	84  84  85
II. The plan provides <i>estimates</i> of potential load reductions for each pollutant cause or source, or groups of similar sources that need to be managed. (If “No” or “N/A” provide comments below.)  <u>Comments:</u>	X		6 - Pollutant Load Assessment  7.2.2- Watershed Pollutant Load Reduction  Table 7-2	69  84  85
III. A model (as outlined in Attachment B.IV.) is used to <i>estimate</i> pollutant load reductions (assumptions and limitations should be stated). <u>Comments:</u>  1. loading based on existing land cover/use (CLEAR and NLCD) 2. loading reductions based on pre-development watershed 3. no net gain of wetlands is assumed 4. 1% impervious cover to represent ledge and naturally barren land	X		6 - Pollutant Load Assessment  Tables 6-1 & 6-2  7.2.2- Watershed Pollutant Load Reduction  Table 7-2	70  73  86  87

<b>Component (C) Best Management Practices</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I. The plan provides locations where <i>potential</i> BMPs may be implemented.  <u>Comments</u>	X		8 - BMP Recommendations  Tables 8-2 to 8-10	88  91-115
II. The plan identifies <i>potential</i> BMPs to be installed in "critical" areas.  <u>Comments:</u> This is a requirement of the Watershed Based Plan	X		6.2 Identification of Critical Areas  8 - BMP Recommendations  Tables 8-2 to 8-11	83  88-115  91-115

<b>Component (D) Financial and Technical Assistance</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I: The plan provides estimates of the financial and technical assistance that will be needed to implement the plan. <u>This is a requirement of the Watershed Based Plan.</u>  <u>Comments:</u> This section will include BOTH estimates and potential funding sources for project implementation costs AND Annual maintenance costs of the project.	X		8 - BMP Recommendations  Tables 8-2 to 8-11  9- Financial and Technical Assistance  Table 9-1	88  91-115  116  117
II: The plan identifies sources and authorities that will be relied upon to implement the plan.  <u>Comments:</u>	X		8.1 - Watershed Management Team  Table 8-1 Table 8-2	89  90 91-92

<b>Component (E) Education and Outreach</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I. The plan provides an information/education component that will enhance public understanding of the plan and encourage their early and continued participation in project development. Note: This education and outreach component must link the information to model demonstration or pilot projects that stakeholders can implement post WBP development.	X		10 - Education/ Outreach  Table 10-1	119  120

<b>Component (F) Plan Implementation Schedule</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I. The plan provides a schedule for implementing management measures. (Applicant should base implementation timetable on BMPs in "Component C" above.)  <u>Comments:</u>	X		8 - BMP Recommendations  Tables 8-2 to 8-11	88  91-115

<b>Component (G) Interim Milestones</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I. The plan provides a list or description of interim milestones for determining whether NPS management measures are being implemented.	X		8 - BMP Recommendations  Tables 8-2 to 8-10	88  91-115

<b>Component (H) Monitoring and Assessment</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I. A set of criteria that can be used to determine whether loading reductions are being achieved over time and progress is being made towards attaining water quality standards.  <u>Comments:</u>	X		11 - Monitoring and Assessment	121-122

<b>Component (I) Plan Implementation Effectiveness</b>	<b>Yes</b>	<b>No</b>	<b>Chapter, Section, Table, List, etc.</b>	<b>Page No.(s)</b>
I. A monitoring component to evaluate the effectiveness of the implementation efforts over time measured against the criteria established under item (H).  <u>Comments:</u> The WBP must note that revisions will be made to improve the effectiveness of implementation efforts if monitoring shows no improvement post BMP efforts.	X		12 - Plan Implementation Effectiveness	122

**Watershed Management Plan Component Checklist  
for CWA Grant Funding\*  
Acknowledgment**

I/we, the undersigned, believe that the watershed plan addresses Elements “a-i” of the EPA approved watershed based plan model elements - particularly those elements pertaining to broadly estimating pollutant load reductions that may result from implementation of best management practices - as presented in the, “*Nonpoint Source Program and Grants Guidelines for States and Territories*. Federal Register. October 23, 2003. (Volume 68, Number 205. pp. 60658-60660). <http://www.epa.gov/fedrgstr/EPA-WATER/2003/October/Day-23/w26755.htm>

I/we acknowledge that information provided by this checklist is based on a dynamic watershed based plan. Certain components of the 9 element watershed based plan (and this checklist) may need to be updated as data and information improves.

The signatory(ies) below are under no obligation to partially or fully fund or implement a watershed based plan, or any part thereof, unless funded by an EPA/CT-DEP approved Section 319 grant in accordance with an approved Section 319 workplan.

This checklist is submitted for CWA Section 319/CT-DEP Nonpoint Source Program grant program purposes by:

/Natural Resource Specialist  
Signature/Title

8/31/16  
Date

\_\_\_\_\_  
Signature/Title

\_\_\_\_\_  
Date

\*This CWA Grant Funding Source includes, but is not limited to, CWA Section 319 grant funding.

- Attachment -  
**9 Element Watershed Based Plan Component Checklist**  
**Helpful Notes and Examples**

**Component (A): Identification of Pollutant Causes and Sources**

- I. Causes may include low dissolved oxygen, organic enrichment, nutrients, ammonia, pathogens, siltation, pH, metals, habitat alteration, turbidity, pesticides, priority organics, etc.

Sources or "groups of similar sources" may include agriculture (pasture grazing; animal feeding operations; crop production, irrigation, etc.), urban/construction (stormwater runoff; industrial/municipal discharges, impervious surfaces, etc.), silviculture (forest planting/harvesting), land disposal (illegal dump; littering, septic tanks/septage disposal, etc.), resource extraction (surface mining); flow regulation/modification; etc.

**Component (B): Pollutant Load Reduction Estimates**

- I. The load reduction estimates needed to delist water bodies identified in the watershed based plan may be incorporated from a previously approved CT TMDL or TMDL currently being drafted by DEP. TMDL parameters may include organic enrichment/dissolved oxygen (OE/DO), pathogens, nutrients (Total Nitrogen (TN) / Total phosphorus (TP), siltation, pH, metals, etc., and should be expressed as pounds/yr, tons/yr, percent, etc. Load reduction data may be descriptive or in tabular/list format.
- II. Load reduction *Estimates* of each pollutant load reduction *to be targeted* by the plan should be included. For Section 319 funding purposes, pre-implementation BMP estimates of nitrogen, phosphorus, and sediment load reductions must be provided, if applicable. Estimates should be expressed as *number, pounds, tons, acres, miles, etc.*

Estimates are *predicted* load reductions expected from pre-implementation BMPs for a particular *cause* (e.g., siltation, nutrients) and/or *source* (e.g., agriculture, pasture grazing)

*Example:*

Pollutant:	Unit	Pre-BMP	Post-BMP	% Reduction Estimate
Sediment	tons/acre	12.69	6.8	47
Organic N	pounds/acre	14.8	11.46	23
Nitrate (NO <sub>3</sub> )	pounds/acre	2.22	1.75	47
Organic P	pounds/acre	2.44	1.30	11
Soluble P	pounds/acre	0.19	0.08	57

**III. Load reduction *estimates* may be determined using models (e.g., EPA Region 5, Step L, SWAT, IPSI, RUSLE, etc), technical/research references, or WQ monitoring and assessment data. Model assumptions and limitations should be stated.**

Note: Pollutant load reductions for most on-the-ground management measures can usually be estimated using desktop models or water quality monitoring data for BMPs such as stream bank restoration, cover crops, buffers, nutrient management, seeding and mulching, etc. Estimates of load reduction associated with education and outreach (public involvement; behavior/attitudes changes), technical assistance, land-use ordinances, habitat/biological responses, etc., may not be easily discernable. *However, demonstration projects and pilot projects would have pollutant load reduction models for stakeholders to follow.*

Note: Pre- and post-BMP implementation nitrogen, phosphorus, and sediment load reduction estimates, *as applicable to the project*, are required for Section 319 grant funding.

**Component (C): Best Management Practices**

I. Location of Potential BMPs: This section refers to the *anticipated* locations, if known (pre-BMP implementation). *Potential* sites should be identified using a narrative description; photos, land use/topographic map, etc. Lat/Long and GPS coordinates should also be included, if BMP sites are obvious and definite.

*Example:*

TMDL Causes: Siltation, Nutrients

TMDL Sources: Agriculture, Pasture Grazing

BMP Location: Farmland Approx. (X) Miles (direction) of (Town), Tributary to (Name) River.

II. Description of Potential BMPs: The plan should provide a management practice description; numbers, types, etc. in Critical Areas of Concern in the Watershed

*Example:*

**Problem:** Approx. 75 head of beef cattle with unrestricted access to the (*name of impaired waterbody*), grazing on 30 acres of unimproved pasture land.

**Solution:** Install NRCS Conservation Practice Standard 914. Livestock Fencing: 6,680 feet.

Note: Because some “best” management practices may involve the establishment of committees, hiring coordinators, planning, monitoring/assessments, developing local ordinances, regulation/enforcement, providing technical assistance, establishing citizen volunteers, conducting outreach/training, Load Reductions Estimates as a result of these types of measures may be difficult to quantify. It is acknowledged that BMPs are *estimates* and *may* need to be modified over time as new information is derived, land use’s change, and as the watershed plan is implemented. CT-DEP supports 319 grant outreach and education projects that include demonstration projects and pilot projects for stakeholders to more fully understand the process of NPS implementation.

**Component (D): Financial and Technical Assistance**

I. Estimates of the financial and technical assistance

*Example 1:*

Technical Assistance: Riparian buffers for erosion and sedimentation control to the stream. Project total cost = \$10,000.

Financial Assistance:

A. Section 319 Grant Funding (60% of total cost)

- a. Riparian Plants (detailed listing, count, description and costs of plantings by Applicant included) \$4,000.00
- b. Design of Buffered area to ensure long-term maintenance \$2,000.00

B. In Kind Services: (40% of total cost)

- a. Staff to plant riparian buffer on conservation property \$2,500.00
- b. Staff to educate residents about importance of riparian buffers to NPS improvements and distribute state brochures on LID \$1,500.00

*Example 2:*

Technical Assistance: Three Rain Gardens for stormwater quality and quantity management at three primary municipal facilities in watershed towns.

Project total cost = \$20,000

Financial Assistance:

A. Section 319 Grant Funding (60% of total cost)

- a. Rain garden plantings (detailed listing, count, description and costs of plants by Applicant attached to application) \$10,000.00
- b. Design of Rain Garden to ensure plants will thrive in specific soils and location. Design will also ensure long-term maintenance of the rain garden. \$2000.00

B. Municipal Cash Match (40% of total cost)

- a. Additional rain garden plantings and materials to install rain garden (detailed listing of plants and additional materials attached to application) \$6,000.00
- b. Workshop for town residents to educate on benefits of rain gardens and proper long term care for these types of gardens. \$2,000.00

II. Watershed plan stakeholders should be identified, and roles and responsibilities defined.

A source refers to a federal, state, or local agency; or landowners/landusers, citizen volunteers, foundations/grants/loans/donations, etc., that will provide watershed plan implementation services/funding.

Authorities include but are not limited to laws, rules, regulations, grant/loan programs, etc., that may be necessary to implement the watershed plan,



**Component (E): Education and Outreach**

Education and Outreach may be “watershed-scale” in scope and include, “Partnership” meetings and conferences; school/civic club/service organization presentations; news articles/feature stories; displays, fairs/festivals; tours/field days; agency/citizen cooperation in selection, design, and implementation of management measures, conservation practice “sign-ups” etc.

Implementation Efforts may also be more “site specific focused” or “small-scale”. These projects may include “pilot projects” to encourage additional, larger projects within a specific community, “small scale projects” to address a portion of a larger project site, or “site specific/mini-watershed projects” to address a focused watershed in the larger scale Watershed Based Plan.

**Component (F): Plan Implementation Schedule**

An implementation schedule refers to tasks that ensure that the watershed plan’s goals and objectives will be achieved in an expeditious manner.

Example A:

Milestone 1: Stakeholder will hire a Watershed Project Coordinator by date.

Milestone 2: 10,000 Rain Gardens will be installed by the Stakeholder by date.

Example B: Management measures in “F” and “Interim” milestones in “G” below may be combined into a “Milestone Table” or List, as presented below:

No.	Activities and Interim Practices to Assure that Project Implementation is Timely and Reasonable	Milestone Schedule	Responsible Entity
1.	<u>Milestone:</u> Conduct an area-wide watershed project outreach campaign to inform citizens about the project, its benefits, to encourage enthusiasm and input, and to build and sustain project support for the duration of the project period	Begin: MM/DD/YY End: MM/DD/YY	FRWA with DEP support
1a.	<u>Interim Measure:</u> Develop a stakeholder “contact list” to provide quarterly communication via telephone, e-mail, website, personal contact, meetings, etc.	Begin: MM/DD/YY End: MM/DD/YY	FRWA/Subcontractor
1b.	<u>Interim Measure:</u> Document all correspondence with stakeholders, citizen info. request, and records of meetings for the duration of the project period	Begin: MM/DD/YY End: MM/DD/YY	FRWA
1c.	<u>Interim Measure:</u> Coordinate the development and distribution of newsletter articles, brochures, etc, with the Watershed Project Steering Committee	Begin: MM/DD/YY End: MM/DD/YY	FRWA
2.	Etc.		

2a.	Etc.		
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### Component (G): Interim Milestones

*Interim* refer to step-wise or intervening measures that ensure the implementation schedule (“F” above) will be achieved, and may include: **RFPs/contracts executed**; hiring a coordinator, to coordinate specific types/number/dates management practices are to be installed, to identify specific BMP sites/site preparation; various stakeholder coordination/information delivery approaches; monitoring/assessments; outreach/training materials to be produced/distributed; etc.

#### Examples:

*Interim Milestone 1:* The FRWA will issue an RFP to hire a Watershed Project Coordinator by date.

*Interim Milestone 2:* The Stakeholder will execute a contract to install 10,000 rain gardens by date.

*Interim Milestone 3:* The Stakeholder will conduct coordinated *semi-annual* site visits with DEP to ensure BMPs are properly maintained.

Note: Interim Measure(s) may be combined in a tabular format as per *Example “B”* under Component “F” above.

### Component (H): Monitoring and Assessment

Note: The following items are examples of a watershed monitoring and assessment component. One or more may apply to any particular watershed plan.

- a) Water quality samples and stream assessments to assess load reductions will be collected post-BMP implementation (monthly, quarterly, semiannually, etc.) by (agency/cooperator name).
- b) Water quality samples and stream assessments for the watershed/impaired waterbody name will be collected post-BMP implementation on or before date by (agency/cooperator name).
- c) Post-BMP implementation data may be compared with any previously collected water quality data and watershed information to determine if pollutant load reductions have been achieved. If no water quality improvements are noted, the watershed plan may be revised, and/or the types, numbers, locations, etc, of BMPs modified by stakeholders.
- d) Post-BMP implementation data may be compared with any previously collected water quality data and watershed information to determine the scope of pollutant loadings. If non-impaired waters are threatened, the watershed plan may be revised, and/or the types, numbers, locations, etc, of BMPs modified by stakeholders to protect against further degradation.
- e) Post-BMP water quality monitoring data may be compared with NPS TMDL targets to determine if NPS pollutant load reductions have been achieved. If no load reductions have been achieved, the TMDL may be reassessed, as needed.
- f) Information collected from CT-DEP 5-year rotational basin assessments, as well as trend, reservoir, or other water quality monitoring programs - may be used to assess basin-wide and targeted watershed pollutant loading. This data may be used to determine if load reductions are being achieved over time as a result of BMPs installed. If water quality standards are not being met during the 5-year period for a targeted 303(d) listed impaired

water, stakeholders may re-evaluate management practice targeting and effectiveness and/or whether the TMDL should be revised.

- g) The development of load reduction success indicators (to include meeting water quality standards) will be a collaborative effort among watershed stakeholders. Evaluation criteria developed by stakeholders may be reviewed (*semiannually/annually*) as BMPs are installed.
- h) Establishment and implementation of monitoring activities will be coordinated with watershed project partners pre- and post-BMP implementation. Load reduction success may be based on an evaluation of available data and information collected over time. If load reduction criteria are not progressing as expected, stakeholders may revise and re-distribute the watershed plan within (X) months of the evaluation.
- i) If monitoring indicates load reduction expectations are not being achieved incrementally for the resources available/expended, watershed stakeholders may investigate the effectiveness of selected BMP practices, and may revise the watershed plan.

Note: All plans/proposals that include an environmental monitoring component and submitted for 319 grant funding, must have an approved Quality Assurance Plan before Clean Water Act funding (including but not limited to Section 319 funding) can be expended.

#### **Component (I): Plan Implementation Effectiveness**

I. Effectiveness monitoring “over time” may include on-site visits (citizens/resource agency/professional BMP installation or site assessments), documentation of BMP types/numbers/sites; cooperative stakeholder reviews of watershed plan/TMDLs; installation of new/innovative/improved BMPs not proposed in the original plan; water quality monitoring scheme presented in “H” above, etc.

Notes: A process for Revisions to the WBP must be added included in this section to explain how planning efforts will be revised if implementation is not as effective as originally calculated.