

AGENDA PACKET

12/19/18 REGULAR MEETING

DOCUMENT LIST

Agenda Item 5a:

- No documents

Agenda Item 5b:

- No documents

Agenda Item 6a:

- CEDS Webpage at <http://www.capecodcommission.org/index.php?id=249&maincatid=246>

Agenda Item 6b:

- No documents

Agenda Item 8a:

- Cooperative Agreement between Barnstable County and the Town of Harwich to do and perform all dredge related work for Round Cove for an amount not to exceed \$46,800.00

Agenda Item 8b:

- United States Department of Commerce Award Action Request for Award Number NA16NOS4730006
- United States Department of Commerce Financial Assistance Grant Award Number NA16NOS4730006

Agenda Item 8c:

- Memorandum of Agreement between Barnstable County, through the Cape Cod Commission, and the Town Manager on behalf of the Town of Barnstable entered into September 5, 2012, to support planning, design and transportation improvements related to the Bearses Way Study Area
- Amendment #4 to a Memorandum of Agreement between Barnstable County, through the Cape Cod Commission, and the Town Manager on behalf of the Town of Barnstable entered into September 5, 2012, to support planning, design and transportation improvements related to the Bearses Way Study Area, extending the duration until December 31, 2020

Agenda Item 8d:

- Memorandum of Agreement between Cape Cod Regional Government, known as Barnstable County, acting through its County Commissioners and the Cape Cod Water Protection Collaborative, and the Town Manager on behalf of the Town of Falmouth, entered into December 21, 2016, for the Alternative Septic System Demonstration Project
- Amendment to the Memorandum of Agreement between Cape Cod Regional Government, known as Barnstable County, acting through its County Commissioners and the Cape Cod Water Protection Collaborative, and the Town Manager on behalf of the Town of Falmouth, entered into December 21, 2016, for the Alternative Septic System Demonstration Project, extending the duration until December 31, 2019

Agenda Item 8e:

- No documents

Agenda Item 8f:

- No documents

AGENDA ITEM 8a

Authorizing the execution of a cooperative agreement with the Town of Harwich to do and perform all dredge related work for Round Cove for an amount not to exceed \$46,800.00

COOPERATIVE AGREEMENT
BETWEEN
BARNSTABLE COUNTY
AND THE TOWN OF HARWICH

THIS AGREEMENT, made and entered into this 10th day of December, 2018 by and between the County of Barnstable, hereinafter called the "County," and the Town of Harwich, hereinafter called the "Town".

WHEREAS, the Town wishes to have the County undertake the dredging projects covered by this agreement more specifically described by way of the attached plan pursuant to the terms and conditions directed herein.

ARTICLE I. STATEMENT OF WORK

NOW THEREFORE, in consideration of the above premises and in the interest of the mutual advantage in attainment of common objectives, the parties hereto agree as follows:

BARNSTABLE COUNTY AGREES:

1. To do and perform all dredge related work for Round Cove in accordance with the specifications, drawings and plans (Attachment I) up to a maximum contract amount of \$46,800.00. This is based on removing approximately 5,200 cubic yards of material at \$9.00 per cubic yard and the charge for mobilization/demobilization costs as set forth in Article III herein. Final and complete specifications, plans and drawings shall be provided to the County by the Town in a timely manner.
2. To observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the specifications, plans, and drawings identified in Attachment I as applicable to dredging and rough placement of materials.
3. To provide a hydraulic dredge and all related equipment to conduct maintenance dredging for the Town, according to and guided by the specifications, plans, drawings as provided.
4. To pump dredge materials and provide rough beach placement of said materials at a rate of \$9.00 per cubic yard for standard dredge material. This price includes before and after dredge surveys to be performed by the County. The County warrants that the final surveys are performed for the limited purpose of substantiating dredge volumes and under no conditions should said surveys be utilized to delineate navigable channels. The County shall provide the Town access to detailed survey work through Center for Coastal Studies Provincetown at the Town's request and at the Town's expense.

5. To comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage injury or loss or on dredging or handling of dredge materials.
6. To the extent permitted by law, to indemnify and hold harmless any party sustaining damage or loss resulting from the negligence of the County and its employees with respect to the County's performance of its obligations under this Agreement. Nothing in the previous sentence shall be construed as a waiver of the limitations on the Town's liability under the Massachusetts Tort Claims Act or under other provisions of this agreement.
7. Immediately notify the Town and cease operations whenever the dredging operations exceed by more than 10 % the specifications, drawings and plans agreed to as the volume scope of the agreement or whenever situations or conditions are encountered outside the scope of the specifications, drawings, and plans that were nor reasonably foreseeable. The parties agree that variations on the scope of 10 % more than or less than the proposed scope of work is reasonable due to climatic and coastal changes and that price adjustments shall be made accordingly. The parties further agree that changes in excess of 10 % shall require the parties to adjust this contract in writing pursuant to Article V.
8. Without the prior approval of the Town, the dredge will operate between the hours of 7:00 A.M. and 7:00 P.M.

THE TOWN OF HARWICH AGREES:

1. To obtain all required federal, state, and local permits and approvals to conduct the dredge project.
2. To furnish all specifications, drawings, and plans required to perform the dredge project at the execution of this document. Said documents will be incorporated by reference as Attachment I.
3. To conduct required inspections and testing consistent with federal, state and local permits and approvals.
4. To inspect the County's on-site dredging work in a timely manner.
5. To obligate funds to conduct the dredging work specified in Attachment I.
6. To indemnify and hold harmless any party sustaining damage or loss resulting from the negligence of the Town with respect to the Town's performance of its obligations under this Agreement. Nothing in the previous sentence shall be construed as a waiver of the limitations on the Town's liability under the Massachusetts Tort Claims Act or under other provisions of this agreement.

BOTH BARNSTABLE COUNTY AND THE TOWN OF HARWICH AGREE:

That nothing herein shall be construed as obligating either Barnstable County or the Town of Harwich to expend funds or to be obligated to spend funds beyond the scope of this contract.

This AGREEMENT may only be modified in the form of amendments in writing by mutual agreement by both parties. Request for modification will be forwarded to one party by the other party by written notice.

ARTICLE II. TERM OF AGREEMENT

This AGREEMENT shall be effective when signed by all parties and shall remain in effect until the dredging identified in Attachment I is completed to the mutual satisfaction of all parties.

ARTICLE III. PAYMENT TO COUNTY:

The cost of the project shall be based on a per cubic yard basis, and calculated on the total cubic yards of material moved, using standard engineering practices, except as specified in Article VIII, and the mobilization and demobilization costs. The cost per cubic yard is \$9.00 for standard dredge material. Commencing July 1, 2018, the Town shall be billed, and the County shall be paid for the following services:

Mobilization costs for project;

Booster pumping adjustment to be determined by the length of the pipe;

100% movement/placement of dredge materials;

Demobilization costs for the project.

The Town shall submit payment within 30 days of date of invoice to the County. Failure to pay said invoice within 30 days will result in the assessment of a late fee in the amount of 1% per month (12% annually) on the unpaid balance remaining after the 30th day. Said late fee will be assessed daily 0.033%. Failure to pay invoice within 90 days may result in legal action. The Town shall be responsible for all legal costs incurred by the County in collection of unpaid debts.

ARTICLE IV. WEATHER CONDITIONS

In the event of temporary suspension of work due to inclement weather conditions, the County shall cease work with no adverse consequences to the County. The decision to cease work shall be made by the County in consultation with the Town.

ARTICLE V. CHANGES IN WORK

No changes in the work covered by this Agreement shall be made without having prior written approval of both the Town and County. Costs for additional cubic yardage shall be determined utilizing the costs identified in Article III.

ARTICLE VI. COUNTY INSURANCE

The County shall maintain the following insurance coverage while conducting the dredge project:

1. Compensation insurance. The County shall maintain during the life of this Agreement Workmen's Compensation Insurance as required by applicable state law.
2. Protection and Indemnity insurance.
3. General liability and excess liability insurance.
4. Pollution insurance.
5. Contingent watercraft liability insurance.

ARTICLE VII. INDEMNIFICATION

To the extent permitted by law, Barnstable County agrees to defend, indemnify, defend and hold harmless the Town of Harwich from any claims, demands, suits or judgments by third parties which may arise out of the negligent activities of Barnstable County or its employees while performing its obligations under this Agreement. Nothing in the previous sentence shall be construed as a waiver of the limitations on the County's liability under the Massachusetts Tort Claims Act or under other provisions of this Agreement.

To the extent permitted by law, the Town of Harwich agrees to defend, indemnify, defend and hold harmless Barnstable County from any claims, demands, suits or judgments by third parties which may arise out of the negligent activities of the Town of Harwich or its employees while performing its obligations under this Agreement. Nothing in the previous sentence shall be construed as a waiver of the limitations on the Town's liability under the Massachusetts Tort Claims Act or under other provisions of this Agreement.

ARTICLE VIII TERMINATION

Either party may terminate this Agreement by providing ten (10) days written notice to the other. The Town shall pay the County all costs incurred by the County to the date of termination, including staff time, review of documents and any other costs associated with the project up to

said termination.

IN WITNESS WHEREOF, the TOWN and the COUNTY execute this Agreement this _____ day of _____, 2018.

BARNSTABLE COUNTY
COMMISSIONERS:

TOWN OF HARWICH

Leo G. Cakounes

Jew Ravanan

12/10/18
Date

Ronald Beaty

Mary Pat Flynn

Date

AGENDA ITEM 8b

Authorizing the execution of an amendment to an agreement for a grant from the National Oceanic and Atmospheric Administration to Barnstable County for the Resilient Cape Cod Project, extending the termination date through June 30, 2019

U. S. DEPARTMENT OF COMMERCE Award Action Request		Award Number NA16NOS4730006
Recipient Name BARNSTABLE, COUNTY OF		Request Type No Cost Extension - Prior Approval Required Document ID: 2769106
Street Address 3195 MAIN ST		Award Period 03/01/2016 - 06/30/2019
City, State, Zip Code BARNSTABLE MA 02630-1105 USA		Total Award Funding Federal: \$522,348.00 Non-Federal: \$258,927.00
Program Office NOS Office for Coastal Management (OCM)		Program Officer Lisa Warr 240-533-0815 lisa.s.warr@noaa.gov
CFDA Number and Project Title 11.473: Resilient Cape Cod: a Path Forward with Innovative Tool Development and Public Engagement		
Requested Extension Date 06/30/2019		
Justification <p>The Resilient Cape Cod project includes a pilot project with the Town of Barnstable to test the tools and resources created as part of this project and advance the Towns resilience planning. CCC staff have been working with Town of Barnstable staff to develop an approach to the Barnstable Pilot Project.</p> <p>In June 2018 the Town of Barnstable was awarded a Municipal Vulnerability Preparedness (MVP) Grant from the Commonwealth of Massachusetts. The MVP Grant will allow the Town to conduct stakeholder workshops to identify and discuss vulnerabilities and priorities for addressing coastal hazards and climate change. The Town and the CCC agreed that it is appropriate to wait to complete the Resilient Cape Cod Barnstable Pilot until after the MVP work is complete. The CCC is a certified provider of the MVP Program and has been selected by the Town to complete the work associated with the MVP Grant. This approach will allow the Town to further build on the priorities identified through the MVP process and will help the CCC determine appropriate roles for the decision-support tool in existing local planning processes. The Resilient Cape Cod Advisory Board agreed this is a reasonable approach given the new funding through the MVP Program.</p> <p>Given this development, the CCC respectfully requests a no cost extension of the NOAA Regional Coastal Resiliency Grant through June 2019.</p> <p>To complete both the MVP work and the Resilient Cape Cod Barnstable Pilot, the CCC and the Town have agreed to conduct the MVP work during the 2018 calendar year and begin the Barnstable Pilot in early 2019.</p>		
Award Action Request Status Approved		
SUBMITTED BY Gail Coyne		DATE 10/31/2018
APPROVED BY Leslye Fulwider		DATE 12/07/2018

Approved by Barnstable County Commissioners:

Leo Cakounes, Chair

Ronald Beaty, Vice-Chair

Mary Pat Flynn, Commissioner

Date

U. S. DEPARTMENT OF COMMERCE

GRANT COOPERATIVE AGREEMENT

FINANCIAL ASSISTANCE AWARD

FEDERAL AWARD ID NUMBER

NA16NOS4730006

RECIPIENT NAME
BARNSTABLE, COUNTY OF

PERIOD OF PERFORMANCE
03/01/2016-02/28/2019

STREET ADDRESS
3195 Main Street

FEDERAL SHARE OF COST
\$522,348.00

CITY, STATE, ZIP CODE
Barnstable MA 02630-1105

RECIPIENT SHARE OF COST
\$258,927.00

AUTHORITY
Statutory authority for this program is provided under Section 310 of the Coastal Zone Management Act (16 U.S.C. 1456c) (titled "Technical Assistance").

TOTAL ESTIMATED COST
\$781,275.00

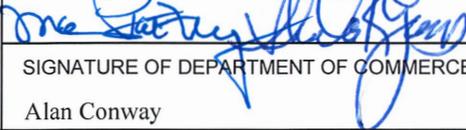
CFDA NO. AND NAME
11.473 , Office for Coastal Management

PROJECT TITLE
Resilient Cape Cod: a Path Forward with Innovative Tool Development and Public Engagement

This Award Document (Form CD-450) signed by the Grants Officer constitutes an obligation of Federal funding. By signing this Form CD-450, the Recipient agrees to comply with the Award provisions checked below and attached. Upon acceptance by the Recipient, the Form CD-450 must be signed by an authorized representative of the Recipient and returned to the Grants Officer. If not signed and returned without modification by the Recipient within 30 days of receipt, the Grants Officer may unilaterally withdraw this Award offer and de-obligate the funds.

- DEPARTMENT OF COMMERCE FINANCIAL ASSISTANCE STANDARD TERMS AND CONDITIONS (DECEMBER 2014)
- R & D AWARD
- FEDERAL-WIDE RESEARCH TERMS AND CONDITIONS, AS ADOPTED BY THE DEPT. OF COMMERCE
- BUREAU-SPECIFIC ADMINISTRATIVE STANDARD AWARD CONDITIONS
- SPECIAL AWARD CONDITIONS
- LINE ITEM BUDGET
- 2 CFR PART 200, UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS, AS ADOPTED PURSUANT TO 2 CFR § 1327.101
- 48 CFR PART 31, CONTRACT COST PRINCIPLES AND PROCEDURES
- MULTI-YEAR AWARD (PLEASE SEE THE MULTI-YEAR SPECIAL AWARD CONDITION.)
- DEPARTMENT OF COMMERCE PRE-AWARD NOTIFICATION REQUIREMENTS FOR GRANTS AND COOPERATIVE AGREEMENTS (REF:79 FR 78390 DECEMBER 30, 2014)
- OTHERS(S):

This award is being made under competitive Federal Funding Opportunity Number NOAA-NOS-OCM-2015-2004324 posted at Grants.gov on 05/18/2015.



SIGNATURE OF DEPARTMENT OF COMMERCE GRANTS OFFICER
Alan Conway

Grants Officer

DATE
01/21/2016

PRINTED NAME, PRINTED TITLE AND SIGNATURE OF AUTHORIZED RECIPIENT OFFICIAL
Mary Pat Flynn, Sheila Lyons, Leo Cakounes, Barnstable County Commissioners

DATE

AGENDA ITEM 8c

Authorizing the execution of an amendment to an agreement, through the Cape Cod Commission, with the Town of Barnstable, entered into September 5, 2012, to support planning, design and transportation improvements related to the Bearses Way Study Area, extending the duration until December 31, 2020

Amendment #4
Between

Barnstable County through
Cape Cod Commission
3225 Main Street
Barnstable, MA 02630

and

Town Manager of behalf of
Town of Barnstable
367 Main Street
Hyannis, MA 02601

The Memorandum of Agreement (Agreement) entered into the fifth day of September 2012, as amended, by and between the Commissioners of Barnstable County, acting by and through the Cape Cod Commission (hereafter referred to as the "Commission") and the Town Manager on behalf of the Town of Barnstable (hereafter referred to as the "Town.") is hereby amended as follows:

3. DURATION

A) This Memorandum of Agreement shall be effective until December 31, 2020 unless an extension in time is agreed to in writing by both parties.

This amendment will not otherwise change any of the stipulations of the original, previously executed Memorandum of Agreement.

IN WITNESS WHEREOF, the TOWN and the COMMISSION execute this Amendment this _____ day of December in the year two thousand eighteen.

BARNSTABLE COUNTY COMMISSIONERS

Leo Cakounes, Chairman

Ronald Beaty, Vice-Chair

Mary Pat Flynn, Commissioner

Date

CAPE COD COMMISSION

Kristy Senatori

Kristy Senatori, Executive Director

12/11/18

Date

TOWN OF BARNSTABLE

Mark Ellis

Mark Ellis, Town Manager

12.7.2018

Date

Memorandum of Agreement
Between

Barnstable County through
Cape Cod Commission
3225 Main Street
Barnstable, MA 02630

and

Town Manager of behalf of
Town of Barnstable
367 Main Street
Hyannis, MA 02601

This Memorandum of Agreement (Agreement) is entered into this ^{5th} day of ~~August~~ ^{September} 2012 by and between Mary Pat Flynn, Sheila Lyons and William Doherty, as they are the Commissioners of Barnstable County, acting by and through the Cape Cod Commission (hereafter referred to as the "Commission") and the Town Manager on behalf of the Town of Barnstable (hereafter referred to as the "Town.")

WHEREAS, the Commission has received mitigation funds as a result of its Development of Regional Impact review process, and

WHEREAS, the funds are required to be used by the Town of Barnstable to support the planning, design and *transportation* improvements in the town, and

WHEREAS, the Town is interested in utilizing the mitigation funds for this purpose.

NOW THEREFORE, the Town enters into this Memorandum of Agreement with the Commission.

1. RESPONSIBILITIES OF THE TOWN

- A) The Town agrees to use these mitigation funds for expenses related to the Bearse's Way study area per its letter dated July 31, 2012, attached to this Agreement.
- B) The Town shall maintain books, records, and other compilations of data pertaining to this work and/or services performed and the funds received and paid out under this Agreement to the extent and in such detail as shall properly substantiate claims for payment under the Agreement. All such records shall be kept for a period of six (6) years or for such longer period as is specified herein. All retention periods start on the first day after final payment under this Agreement. If any litigation, claim, negotiation, audit or other action involving the records is commenced prior to the expiration of the applicable retention period, all records shall be retained until completion of the action and resolution of all issues resulting therefrom, or until the end of the applicable retention period, whichever is later.
- C) The Town shall maintain financial records of the application and expenditure of the funds received hereunder in at least as much detail as may be contemporaneously required to comply with the financial reporting and record keeping requirements mandated by the Bureau of Accounts of the Department of Revenue, or any successor thereto, with respect to the Town's ordinary custody and expenditure of funds.

2. RESPONSIBILITIES OF THE COMMISSION

The Commission agrees to provide the Town with mitigation funds in an amount not to exceed \$127,399.58 plus additional accrued interest for expenses incurred in connection with this Agreement. Upon execution of this agreement, the Commission will provide an initial advance payment to the Town of \$40,000. The Town will document expenditure of funds by providing to the Commission copies of vendor invoices or record of hours worked and cost, as appropriate, and will submit written requests for additional payment of funds as work progresses.

3. DURATION

A) This Memorandum of Agreement shall be effective until December 31, 2013 unless an extension in time is agreed to in writing by both parties.

B) Either the Town or the Commission may terminate this Agreement by written notice to the other party, if the other party substantially fails to fulfill its obligations hereunder through no fault of the terminating party, or if the other party violates or breaches any of the provisions of this Agreement. Such notice shall be delivered by certified mail at least thirty (30) days before such effective date. In the event of such termination or suspension of this Agreement, the Commission shall be entitled to just and equitable compensation for satisfactory work completed, for services performed and for reimbursable expenses necessarily incurred in the performance of this Agreement up to and including the date of receipt of notice of termination or suspension.

4. AMENDMENT

This Agreement may be amended as mutually agreed by both parties in writing.

5. SIGNATORY AUTHORIZATION

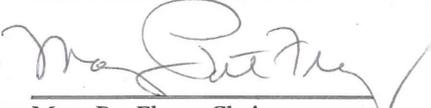
The respective signatories hereto represent and warrant that they are duly authorized to execute this Agreement on behalf of the public entity on whose behalf they have signed this Agreement, and that all substantive and procedural preconditions to their effective execution of this Agreement on behalf of said public entities have been satisfied.

6. INTEGRATED INSTRUMENT

This Agreement shall take effect as an integrated instrument.

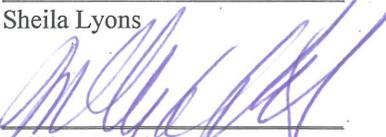
IN WITNESS WHEREOF, the TOWN and the COMMISSION execute this Agreement this _____ day of August in the year two thousand twelve.

BARNSTABLE COUNTY COMMISSIONERS



Mary Pat Flynn, Chairman

Sheila Lyons



William Doherty

9/5/2012
Date

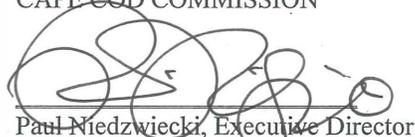
TOWN OF BARNSTABLE



Thomas Lynch, Town Manager

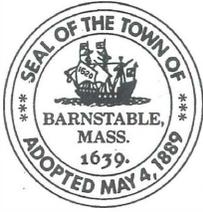
8/23/12
Date

CAPE COD COMMISSION



Paul Niedzwiecki, Executive Director

8/29/12
Date



Town of Barnstable
Growth Management Department
www.town.barnstable.ma.us/growthmanagement

Jo Anne Miller Buntich
Director

July 31, 2012

Paul J. Niedzwiecki, Executive Director
Cape Cod Commission
3225 Main Street
PO Box 226
Barnstable, MA 02630

Re: DRI Transportation Mitigation Funds TR 08025
Condition TC1 and TC3 dated May 14, 2009

Dear Mr. Niedzwiecki,

The Town of Barnstable respectfully requests the release of \$139,364 plus any accrued interest in DRI transportation mitigation funds collected through the above referenced Development of Regional Impact decision.

The Town proposes to use these funds to plan, design and implement transportation improvements and trip reduction with a focus on alternatives to automobile travel in Hyannis. This project completes the multi-modal path that begins at Exit 6 on Iyannough Road and continues to Main Street Hyannis along Bearse's Way and High School Road extension. The segment in this study area, on Bearse's Way from Iyannough Road to Falmouth Road is the segment that has not yet been designed and constructed. The timing of planning for this project coincides with the safety planning that MassDOT has undertaken for the intersection of Falmouth Road and Bearse's Way.

Our draft budget is also attached. Any funds not expended for planning and design would be used for implementation – in this case construction of the transportation improvements.

Thank you for your consideration of our request.

Yours truly,

Jo Anne Miller Buntich, Director

Copies to:

Gail Coyne, Assistant to the Executive Director for Administration and Finance, CCC
Patty Daley, Esq., Chief of Staff, CCC
Glenn Cannon, P.E. Director of Technical Services, CCC
Roger Parsons, PE, Town Engineer

Bearses Way Multi Modal Path Iyannough Road to Falmouth Road Segment

The Town of Barnstable budget to Plan, Design and Construct transportation improvements and trip reduction with a focus on alternatives to automobile travel on the west side of Bearses Way between Iyannough Road and Falmouth Road in Hyannis.

The Project will be achieved by professional survey performed by Town of Barnstable Town Surveyor, professional planning and design by Consultant and Town staff and construction by qualified Contractor after a competitive bid process conducted according to MGL Ch.149.

Project Phase	Estimated Cost	Comments
Survey	\$5,000.00	Completed 2012 by Town Surveyor
Engineering Design	\$35,000.00	To Be Requested by RFP
Construction*	\$275,000.00	To be obtained by competitive Bid
		* Supplemental Funds to be available if needed from Chapter 90
Total Cost	\$315,000.00	

Amendment #1
Between

Barnstable County through
Cape Cod Commission
3225 Main Street
Barnstable, MA 02630

and

Town Manager of behalf of
Town of Barnstable
367 Main Street
Hyannis, MA 02601

The Memorandum of Agreement (Agreement) entered into the fifth day of September 2012 by and between Mary Pat Flynn, Sheila Lyons and William Doherty, as they are the Commissioners of Barnstable County, acting by and through the Cape Cod Commission (hereafter referred to as the "Commission") and the Town Manager on behalf of the Town of Barnstable (hereafter referred to as the "Town.") is hereby amended as follows:

3. DURATION

A) This Memorandum of Agreement shall be effective until June 30, 2015 unless an extension in time is agreed to in writing by both parties.

This amendment will not otherwise change any of the stipulations of the original, previously executed Memorandum of Agreement.

IN WITNESS WHEREOF, the TOWN and the COMMISSION execute this Amendment this 19th day of February in the year two thousand fourteen.

BARNSTABLE COUNTY COMMISSIONERS

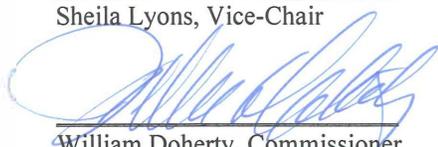
TOWN OF BARNSTABLE


Mary Pat Flynn, Chairman


Thomas Lynch, Town Manager

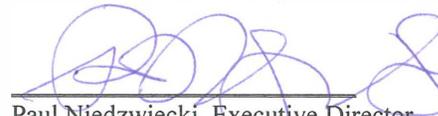
Sheila Lyons, Vice-Chair

3/10/14
Date


William Doherty, Commissioner

CAPE COD COMMISSION

2/19/14
Date


Paul Niedzwiecki, Executive Director

2/20/14
Date

Amendment #2
Between

Barnstable County through
Cape Cod Commission
3225 Main Street
Barnstable, MA 02630

and

Town Manager of behalf of
Town of Barnstable
367 Main Street
Hyannis, MA 02601

The Memorandum of Agreement (Agreement) entered into the fifth day of September 2012, as amended, by and between the Commissioners of Barnstable County, acting by and through the Cape Cod Commission (hereafter referred to as the "Commission") and the Town Manager on behalf of the Town of Barnstable (hereafter referred to as the "Town.") is hereby amended as follows:

3. DURATION

A) This Memorandum of Agreement shall be effective until June 30, 2017 unless an extension in time is agreed to in writing by both parties.

This amendment will not otherwise change any of the stipulations of the original, previously executed Memorandum of Agreement.

IN WITNESS WHEREOF, the TOWN and the COMMISSION execute this Amendment this 16th day of March in the year two thousand sixteen.

BARNSTABLE COUNTY COMMISSIONERS

TOWN OF BARNSTABLE



Mary Pat Flynn, Chairman



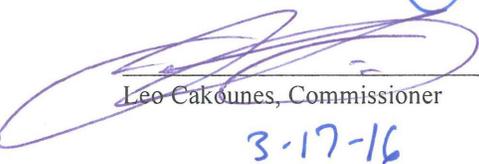
Thomas Lynch, Town Manager



Sheila Lyons, Vice-Chair

3/7/16

Date



Leo Cakounes, Commissioner

CAPE COD COMMISSION


Paul Niedzwiecki, Executive Director

3-17-16

Date

3/9/16

Date

Amendment #3
Between

Barnstable County through
Cape Cod Commission
3225 Main Street
Barnstable, MA 02630

and

Town Manager of behalf of
Town of Barnstable
367 Main Street
Hyannis, MA 02601

The Memorandum of Agreement (Agreement) entered into the fifth day of September 2012, as amended, by and between the Commissioners of Barnstable County, acting by and through the Cape Cod Commission (hereafter referred to as the "Commission") and the Town Manager on behalf of the Town of Barnstable (hereafter referred to as the "Town.") is hereby amended as follows:

3. DURATION

A) This Memorandum of Agreement shall be effective until December 31, 2018 unless an extension in time is agreed to in writing by both parties.

This amendment will not otherwise change any of the stipulations of the original, previously executed Memorandum of Agreement.

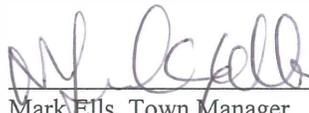
IN WITNESS WHEREOF, the TOWN and the COMMISSION execute this Amendment this 21st day of June in the year two thousand seventeen.

BARNSTABLE COUNTY COMMISSIONERS

TOWN OF BARNSTABLE



Chairman



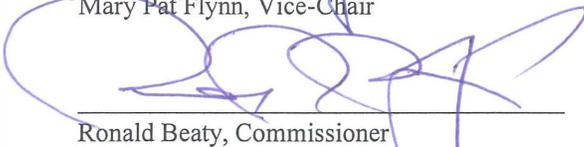
Mark Ellis, Town Manager



Mary Pat Flynn, Vice-Chair

6/13/17

Date



Ronald Beaty, Commissioner

CAPE COD COMMISSION



Paul Niedzwiecki, Executive Director

06/21/17

Date

6/14/17

Date

AGENDA ITEM 8d

Authorizing the execution of an amendment to an agreement, through the Cape Cod Water Protection Collaborative, with the Town of Falmouth, entered into December 21, 2016, for the Alternative Septic System Demonstration Project, extending the duration until December 31, 2019

AMENDMENT
BETWEEN

Cape Cod Regional Government,
Known as Barnstable County, acting through
its County Commissioners and
the Cape Cod Water Protection Collaborative
3225 Main Street
P. O. Box 226
Barnstable, MA 02630

and

Town Manager on behalf of
Town of Falmouth
59 Town Hall Square
Falmouth, MA 02540

FOR THE ALTERNATIVE SEPTIC SYSTEM DEMONSTRATION PROJECT

The Memorandum of Agreement (Agreement) entered into the 21st day of December 2016 by and between the Cape Cod Regional Government, known as Barnstable County, acting by and through its County Commissioners and the Cape Cod Water Protection Collaborative (hereafter referred to as the "Collaborative") and the Town Manager on behalf of the Town of Falmouth (hereafter referred to as the "Town") is hereby amended as follows:

3. DURATION

- a) This Agreement shall be effective until December 31, 2019 unless an extension in time is agreed to in writing by both parties.

This Amendment will not change any of the stipulations of the original, previously defined agreement.

IN WITNESS WHEREOF, the TOWN and the COLLABORATIVE execute this Amendment this _____ day of _____ in the year two thousand and eighteen.

BARNSTABLE COUNTY COMMISSIONERS

TOWN OF FALMOUTH

Leo Cakounes, Chairman

Julian M Suso

Julian Suso, Town Manager

Ronald Beaty, Vice-Chairman

12/6/18

Date

Mary Pat Flynn, Commissioner

Date

FOR THE CAPE COD COLLABORATIVE

Kristy Senatori

Kristy Senatori, Executive Director
Cape Cod Commission

12/11/18

Date

MEMORANDUM OF AGREEMENT
BETWEEN

Cape Cod Regional Government,
Known as Barnstable County, acting through
its County Commissioners and
the Cape Cod Water Protection Collaborative
3225 Main Street
P. O. Box 226
Barnstable, MA 02630

and

Town Manager on behalf of
Town of Falmouth
59 Town Hall Square
Falmouth, MA 02540

This Memorandum of Agreement (Agreement) is entered into this 21st day of December 2016 by and between the Cape Cod Regional Government, known as Barnstable County, acting by and through its County Commissioners and the Cape Cod Water Protection Collaborative (hereafter referred to as the "Collaborative") and the Town Manager on behalf of the Town of Falmouth (hereafter referred to as the "Town.")

WHEREAS, Barnstable County, through the Collaborative, seeks to enhance the water and wastewater management efforts of towns, and

WHEREAS, the Collaborative wishes to contribute accurate, unbiased science that can be used to guide decision-makers in cleaning up coastal waters, and

WHEREAS, the Town is interested in utilizing Collaborative funds for this purpose.

NOW THEREFORE, the Town enters into this Memorandum of Agreement with the Collaborative.

1. RESPONSIBILITIES OF THE TOWN

- a) The Town agrees to use these funds for expenses related to the Alternative Septic System demonstration project per Attachment A. The Town also agrees to provide all data collected to the Collaborative for integration into the Cape Cod Water Quality Monitoring Data Base in a format compatible with the fields detailed in Attachment B. A blank database template may be downloaded at www.watershedmvp.org/waterqualitymonitoring.
- b) The Town shall maintain books, records, and other compilations of data pertaining to this work and/or services performed and the funds received and paid out under this Agreement to the extent and in such detail as shall properly substantiate claims for payment under the Agreement. All such records shall be kept for a period of six (6) years or for such longer period as is specified herein. All retention periods start on the first day after final payment under this Agreement. If any litigation, claim, negotiation, audit or other action involving the records is commenced prior to the expiration of the applicable retention period, all records shall be retained until completion of the action and resolution of all issues resulting therefrom, or until the end of the applicable retention period, whichever is later.
- c) The Town shall maintain financial records of the application and expenditure of the funds received hereunder in at least as much detail as may be contemporaneously required to comply with the financial reporting and record keeping requirements mandated by the Bureau of Accounts of the Department of Revenue, or any successor thereto, with respect to the Town's ordinary custody and expenditure of funds and forward any such records, upon request, to the Director of Finance of Barnstable County.

2. RESPONSIBILITIES OF THE COLLABORATIVE

The Collaborative, through Barnstable County, agrees to provide the Town with \$75,000 for expenses incurred in connection with this Agreement. The Town will document expenditure of funds by providing to the Collaborative and the County, through its County Administrator, copies of vendor invoices and will submit written requests for payment of funds along with project status reports as work progresses.

3. DURATION

- a) This Memorandum of Agreement shall be effective until December 31, 2018 unless an extension in time is agreed to in writing by both parties.
- b) Either the Town or the Collaborative may terminate this Agreement by written notice to the other party, if the other party substantially fails to fulfill its obligations hereunder through no fault of the terminating party, or if the other party violates or breaches any of the provisions of this Agreement. Such notice shall be delivered by certified mail at least thirty (30) days before such effective date. In the event of such termination or suspension of this Agreement, the Collaborative shall be entitled to just and equitable compensation for satisfactory work completed, for services performed and for reimbursable expenses necessarily incurred in the performance of this Agreement up to and including the date of receipt of notice of termination or suspension.

4. AMENDMENT. This Agreement may be amended as mutually agreed by both parties in writing.

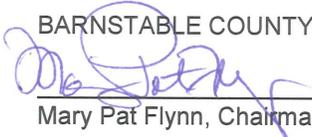
5. SIGNATORY AUTHORIZATION

The respective signatories hereto represent and warrant that they are duly authorized to execute this Agreement on behalf of the public entity on whose behalf they have signed this Agreement, and that all substantive and procedural preconditions to their effective execution of this Agreement on behalf of said public entities have been satisfied.

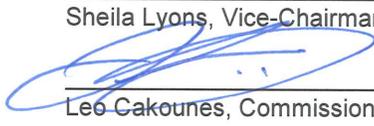
6. INTEGRATED INSTRUMENT. This Agreement shall take effect as an integrated instrument.

IN WITNESS WHEREOF, the TOWN and the COLLABORATIVE execute this Agreement this 21st day of December in the year two thousand and sixteen.

BARNSTABLE COUNTY COMMISSIONERS


Mary Pat Flynn, Chairman

Sheila Lyons, Vice-Chairman


Leo Cakounes, Commissioner

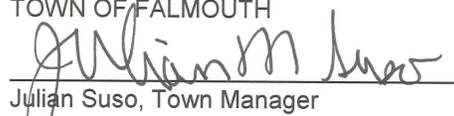
12/21/2016
Date

FOR THE CAPE COD COLLABORATIVE

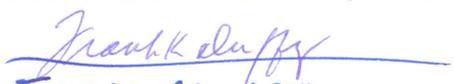

Andrew Gottlieb, Executive Director

12/29/16
Date

TOWN OF FALMOUTH


Julian Suso, Town Manager

1/17/17
Date

APPROVED AS TO FORM

TOWN COUNSEL

1-10-17

ATTACHMENT A

TO: Cape Cod Water Protection Collaborative (CCWPC)
FROM: Town of Falmouth/Buzzards Bay Coalition
RE: Funding Request to Cape Cod Collaborative
DATE: December 6, 2016

Designing A Municipal Model for Mandating, Funding, and Managing Innovative/Alternative (nitrogen-removing) Septic Systems

1. Background

In most watersheds across Cape Cod, on-site Innovative/Alternative, nitrogen-removing septic systems are likely to be an important part of the solution to remediate impaired estuaries and achieve the target nitrogen load reductions required.

In 2016, The Town of Falmouth and the Buzzards Bay Coalition obtained a SNEP grant for the West Falmouth Harbor Shoreline Septic Remediation Project (WFHSSR), where the best off-the-shelf high performing nitrogen-removing septic systems were installed and monitored at 20 properties on or near West Falmouth Harbor. This demonstration project is providing real life information on the performance, costs and logistics of installing nitrogen-removing septic systems that achieve 12 mg N/l or better. This demonstration also validated the adequacy of a \$10,000 incentive to encourage waterfront homeowners to participate in this voluntary program. The proposed demonstration project will build on the experience gained through the WFHSSR project.

More important, it will build on the Town of Falmouth's success in creating a model way of financing the Little Pond Sewer Service Area (LPSSA) that made the Little Pond Sewer project's estimated betterment cost to the average homeowner \$540 per year, instead of the estimated \$1200 per year it would have been using existing state law. For the LPSSA, the Falmouth used a combination of 0% SRF financing and town bonding, and authored special legislation allowing for a 30-year betterment amortization instead of 20 years, a 0% interest rates to the homeowner instead of the 2% or 5% required under existing state law. Since adoption, this special legislation has been codified into state law so that all towns that wish to accept it can take advantage of these affordability strategies. The town also provided a low-pressure pump to over 700 affected homeowners in the LPSSA at no cost, and will provide town reimbursement for some of the added cost to property owners who had to install these low-pressure pumps.

These measures all required drafting and passage of innovative local bylaws and special legislation. We propose to apply the same process the town used to make the LPSSA affordable to the affected homeowners by creating a model for towns to use when utilizing nitrogen-removing septic systems as part of their CWMPs.

2. Project Goals

The purpose of this proposed demonstration project is to create a practical and workable approach for the installation of nitrogen-removing septic systems at the watershed-level. There are many regulatory, financial and technical considerations that need to be addressed for these systems to be installed for Total Maximum Daily Load (TMDL) compliance. These items include:

- A regulatory approach for implementing requirements for nitrogen-removing septic systems as part of a town's CWMP
- A municipal management framework for tracking compliance with operation, maintenance and monitoring (O&M&M) requirements once systems are installed
- Public financing options
- A study of the amount of public subsidy that would facilitate homeowner participation
- A menu of nitrogen-removing septic systems that have a reliable performance of 12 mg N/L or less final effluent
- Cost information for a variety of field conditions (including equipment and installation as well as O&M&M)

A successful strategy for nitrogen-removing septic systems requires developing a regulatory framework that is acceptable to property owners and state officials. One approach might be to develop a model zoning bylaw that requires all residential and commercial properties within 300 feet of a waterbody to install a nitrogen-removing septic system at some point. Issues that will be explored as part of this project include the benefit of focusing on shorefront properties and the percent of an estuary's nitrogen load that can generally be attributed to shorefront properties as well as what triggers should be established for installation. A time limit requiring all systems to be upgraded within a certain number of years could also be mandated. Possible events that could require an upgrade to a nitrogen-removing septic are:

- Sale of property
- Added bedroom
- Increases to building footprint of a certain percent
- Failed septic systems

In addition to the regulatory framework, a key aspect of implementation is developing a town-managed program for financing and tracking the O&M&M requirements of nitrogen-removing septic systems. Current laws will be reviewed and if necessary, model legislation will be drafted to enable creative incentive financing. Lessons from other communities that currently require or are considering nitrogen-removing septic systems (such as Wareham, MA, Tisbury, MA and Charlestown, RI) will also be evaluated. Finding workable answers to these issues is critical to the practical adoption of the nitrogen-removing septic systems.

To expand our knowledge of the practical efficacy of the nitrogen-removing technology options that are available to property owners, at least ten (10) additional properties will be incentivized to voluntarily install a nitrogen-removing septic system that achieves 12 mg N/l or better effluent. The minimum price point for an incentive will be explored and documented as part of this process. These installations will also provide important data points on actual installation costs (including labor, materials and

landscaping) as well as cost information on O&M contracts and monitoring. It is important to have field-verified costs for a range of property types if these types of systems are to be widely required.

3. Project Tasks and Timeline:

Task 1: Engineering and Permitting (Board of Health and Conservation Commission) I for nitrogen-removing septic systems (blackwater storage tank not included)

Timeframe: January 2017 – June 2017

Deliverable: At least ten I/A systems permitted in West Falmouth watershed

Task 2: Installation of nitrogen-removing septic systems

Timeframe: March 2017 – December 2017

Deliverable: At least ten I/A systems installed in West Falmouth watershed

Task 3. Monitor nitrogen-removing septic systems

Timeframe: March 2017 – December 2018

Deliverable: At least ten I/A systems monitored in West Falmouth watershed

NOTE: Systems will be installed on an ongoing basis as permits are received. Timing of installation will vary depending on how quickly property owners execute contracts for both engineering and installations. Installer schedules will also impact installation dates. Experience during Phase I of the WFHSSR project should expedite this process. Systems will be monitored for a one year period, beginning after they are installed.

Task 4. Assemble information for development of a municipal management structure, financing approaches and regulations, discuss at Falmouth Water Quality Management Committee meetings

Timeframe: January 2017 – June 2017

Task 5. Prepare a draft municipal management, financing and regulatory approach for implementing nitrogen-removing septic systems at the watershed-level. This includes:

- Drafting local regulations that require nitrogen-removing septic systems if necessary
- Drafting Special Legislation at the state level if necessary

Timeframe: January 2017 – January 2018

Deliverable: Draft Municipal Management and Financing Approach Technical Memorandum

Task 6. Review and revise draft approach, including discussion at one public meeting through the Falmouth Water Quality Management Committee. This includes:

- Presenting local regulations to Town Meeting that require nitrogen-removing septic systems if necessary
- Filing any required Special Legislation at the state level

Timeframe: February 2018 - June 2018

Task 7. Prepare Final Project Report

July 2018 - December 2018

Deliverable: Final Municipal Management and Financing Approach Technical Memorandum

4. Budget

The project duration is 24 months, which allows time for the Town of Falmouth to assemble relevant municipal models from other communities, hold several public meetings and working sessions to address the issues related to a municipal model for financing and management and begin drafting appropriate regulations and legislation. This timeframe also allows for the installation of nitrogen-removing septic systems, several months of monitoring, and reporting.

The project schedule is detailed in Section 3, and begins January 2017. The main milestones for FY 2017 are:

- Review of model municipal financing and management approached from other communities
- Summary of findings
- Outline of a municipal approach for mandating, financing and managing nitrogen-removing septic systems at the watershed scale
- Installation nitrogen-removing septic systems
- Monitoring

Because some installations will be permitted before others, and because of installer scheduling the timeframe spans several months.

The total cost for this project is \$210,323. The WQMC requests that the CCWPC contribute \$75,000, which is 36% of the total project cost and would be spent by June 30, 2017. These funds leverage a total of \$135,323 from the Town of Falmouth and the BBC. As detailed in Table 1, the leveraged funds include \$41,973 from the Town of Falmouth in the form of staff and committee time dedicated to project execution, and \$93,350 from the BBC in the form of a cash match of \$50,000 and staff time valued at \$43,350.

CCWP funds would be used to incentivize the installation of best off-the-shelf nitrogen-removing septic systems at waterfront properties in the West Falmouth Harbor watershed and cover a portion of the cost of monitoring these systems.

The main milestones for the balance of the project duration (July 2017 – January 2018) are:

- Draft and final Technical Memorandum that presents the details of a municipal approach for mandating, financing and managing nitrogen-removing septic systems at the watershed scale
- Installation of at least 10 I/A systems
- Analysis of monitoring data

5. Budget Summary

Total Project Cost: \$210,323

Total Cost Contribution from Town of Falmouth:
Staff Contribution: \$41,973

Total Cost Contribution from Buzzards Bay Coalition: \$93,350
Buzzards Bay Coalition CASH match: \$50,000
Buzzards Bay Coalitions staff contribution: \$43,350

Total value of funds leveraged: \$135,323

Cape Cod Water Protection Collaborative requested funds: \$75,000

Table 1. Budget Details

TOWN OF FALMOUTH

	Project Hours	Hourly Rate (\$)	Number of Members	Value (\$)	
Town Staff*	90	45		\$ 4,050	
Board of Health Agent	50				5 hours/participant x 10 = 50 hours
Conservation Agent	40				4 hours/participant x 10 (Any property within 100' of resource area) = 40 hours
Tech Consultant	416	75		\$ 31,200	4 hours/week x 104 weeks = 416 hours
WQMC	12	27	7	\$ 2,268	.5 hour/month x 24 months = 12 hours
Board of Health	12	27	5	\$ 1,620	2 hours/month x 6 months = 12 hours (includes George H.)
Conservation Commission	15	27	7	\$ 2,835	1.5 hour/ participant= 15 hours (including meetings and site visits)
				subtotal: \$ 41,973	

* Sum of BOH Agent and Conservation Agent hours

BUZZARDS BAY COALITION (BBC)

Cash contribution				\$ 50,000
Senior Attorney	510	85		\$ 43,350
				subtotal: \$ 93,350

TOTAL LEVERAGED FUNDS	\$ 135,323
Total project cost	\$ 210,323
CCWPC % of total project cost	36%

**ATTACHMENT B
Cape Cod Water Quality Monitoring Data Base**

FIELD	EXPLANATION
Stn_OLD	Station name in earlier versions of the database.
Stn_NEW	Station name as adopted or revised in spring 2014.
Stn_EQUIV	Equivalent station name for temporary station variants (sampled at other end of dock, other side of road bridge, etc.).
SAMP_DATE	Date sample collected.
YEAR	Year sample collected.
UniqueID	A unique ID generated by the formula =[@[Stat_NEW]]&"-"&[@[Dataset]]&"-"&YEAR([@[SAMP_DATE]])&"-"&MONTH([@[SAMP_DATE]])&"-"&DAY([@[SAMP_DATE]])&"-"&HOUR([@[TIME_FIX]])&"-"&MINUTE([@[TIME_FIX]])&"-"&[@[S_D1]]&"-"&[@[SamDep_m2]]&"-"&[@[Dup]]. Note that because some depths and times may be added to the database, this field may change, so it is advised not to use until these corrections are made.
Embayment	Principal embayment name.
Sub_Embay	Subembayment name
WQI_AREA	Water Quality Index Embayment Area under which the station was typically aggregated by the Coalition, usually the same as subembayment.
Dataset	Data origins: X= Oxygen data set, N= Nutrient data set
Source	Program Source (BBC= Coalition program, Pondwatchers=Falmouth Pond watchers, or other specific study
GEN_QC	Gen_QC=9 will kill the entire line of data in the "Final" column fields. This is justified if for example there is doubt as to whether the sample was properly labeled. See the rules tab for all QC codes.
TIME	Time (repaired from original entries)
Time_QC	If there is doubt about the time entry, a value of 2 will be indicated. See the rules tab for all QC codes.
Dup	0=no replicates, 1= there is another sample taken at approximately the same depth and location, but a few minutes different (these values should be filtered out if there are corresponding "2" records), 2= the value for the record represent the mean of two values in the database (respective O2 or Nutrient data).
S_D	"S" for Shallow or "D" for "Deep." Generally, S samples are taken 15 cm from the surface and D samples taken 30 cm from the bottom.
SamDep_m	Sample depth as reported
SamDep_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
SECCHI_M	Secchi depth in meters.
Secc_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes. Flagged for review include 2's were greater than total depths and 8's for likely data entry errors.
Tot_Dep_m	Total depth of station on that particular sampling date and time.
TotDep_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
TEMP_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes. Flagged for review include 2's outside of norms for time of year and 8's for likely data entry errors for impossible summer temps (e.g. 2.3 C in July).
DO_Meth	DO method (see Methods tab)
DO_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
Sal_meth	salinity method
Sal_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes. Flagged for review; including 2's were outside of norms, and 8's for likely data entry errors.
PO4_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
TP_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
NH4_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
NOX_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
TDN_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
PON_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
POC_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
CHLa_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
CHLa_METH	Chlorophyll a method
Phae_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
Lab_sal_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
lab_cond	Laboratory conductivity measurement
DOC_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
QA_Comm	Comments entered during QA review
Lab_Comm	Comments added by laboratory
BWV_Comm	Baywatcher Comments from data sheet.
H2O_surf	Observation about the surface of the water.

Birds	Observation about birds.
Fish	Observations about fish.
Chla_ugl_DO	Additional chlorophyll a data collected during O2 monitoring. This data may not have been added to the regular chlorophyll column
pH	pH as measured using YSI Sondes.
BEAU	Beaufort scale to estimate wind speed.
BEAU_QC	Flags for sites that need to be investigated, etc. See the rules tab for all QC codes.
EBB	E = Ebbing (outgoing) tide of low slack, F = Flooding (incoming) tide of high slack.
WTHR	1: Cloudless, 2: Pt. Cloudy, 3: Overcast, 4: Fog/Haze, 5: Drizzle,6: Intermit. Rain, 7: Rain, 8: Snow.
Prec_FIN	24 Hour Precipitation 1:None, 2:Light, 3:Heavy.
WIND	Wind direction, generally 8 compass points, sometimes more.
O2_WQI_range	DO data collected during month and hours valid for DO percent calculation.
TempC_FIN	Temperature in degrees C after removal of bad data by filters.
SAL_FIN	Salinity after removal of bad data by filters.
DOmg_FIN	Dissolved oxygen in mg/L after removal of bad data by filters.
DO_Per_FIN	DO percent calculation
NH4uM_FIN	Ammonia in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns)
NOxuM_FIN	Nitrate+ Nitrite in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
DINuM_FIN	Dissolved inorganic nitrogen in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
DINppm_FIN	Dissolved inorganic nitrogen in mg/l after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
TDNuM_FIN	Total Dissolved nitrogen in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
DONuM_FIN	Dissolved organic nitrogen in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
DONppm_FIN	Dissolved organic nitrogen in mg/l after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
PONppm_FIN	Particulate organic nitrogen in mg/l after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
PONuM_FIN	Particulate organic nitrogen in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
TONppm_FIN	Total organic nitrogen in mg/l after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
TONuM_FIN	Total organic nitrogen in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
TNppm_FIN	Total nitrogen in mg/l after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns)
TNuM_FIN	Total nitrogen in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
PO4uM_FIN	Orthophosphate (inorganic) in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
TPuM_FIN	Total Phosphorus in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
POCuM_FIN	Particulate organic carbon in micromolar after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
DOCuM_FIN	Dissolved organic carbon in μ M after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
Chla_ugL_FIN	Chl a in μ g/l after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
Pheo_ugL_FIN	Phaeophytin in μ g/l after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns).
CHL_PHA_FIN	Chlorophyll + Phaeophytin in μ g/l after removal of bad data by filters and corrections of non-detects to one half of detection limit (see QC values=7 in original columns),, not yet validated for limits of detection, etc.