



**TOWN OF ORLEANS
PURCHASE ORDER
\$ 25,000 AND GREATER**

FY18

THIS ORDER NUMBER MUST
APPEAR ON ALL INVOICES,
PACKING LISTS, AND PGKS.

ORDER
NUMBER

3770

- DIRECTOR OF TOWN ADMINISTRATION

1. INVOICE MUST BE SENT IN DUPLICATE AND MUST INCLUDE VENDOR'S S.S. OR F.I.D. NO.
2. ORDER NUMBER MUST APPEAR ON INVOICE.
3. OUR TAX EXEMPT NO. E 046 001 258.
4. ISSUE A BILL FOR EACH P.O. SEPERATELY.
5. INVOICES MUST SHOW NUMBER OF UNITS AND UNIT PRICE FOR EACH ITEM.
6. SHIP ALL GOODS PREPAD UNLESS OTHERWISE DIRECTED.
7. THIS P.O. EXPIRES 10 DAYS AFTER REQUIRED DELIVERY DATE.
8. TOWN OF ORLEANS WILL NOT BE LIABLE FOR ANY GOODS RECEIVED WITHOUT AN AUTHORIZED PURCHASE ORDER.

SHIP
PREPAID
TO

AECOM
9 Jonathan Bourne Drive
TO: Pocasset, MA 02559

DATE OF ORDER 6/15/17	VENDOR 119	DEPARTMENT Town Admin	REQUIRED DELIVERY DATE 6/30/18	ACCOUNT TO BE CHARGED 35 175 068 - 589139
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I CERTIFY THAT THIS PURCHASE ORDER COMPLIES FULLY WITH THE TOWN OF ORLEANS PURCHASING PROCEDURES AND CORRESPONDING STATE STATUTES THAT ADEQUATE FUNDS EXIST FOR THIS PURCHASE.

DEPT. HEAD
SIGNATURE

ITEM NO.	QUANTITY	UNIT	CATALOG NO.	DESCRIPTION	UNIT PRICE	REC'D	AMOUNT
				Water Quality and Wastewater Planning Services, in accordance with Change Order No. 4, attached.			\$2,261,000.00 \$2,268,960.00

**THIS PURCHASE IS NOT VALID UNLESS SIGNED
BY TOWN ADMINSTRATOR AND FINANCE
DIRECTOR.**

DIRECTOR OF FINANCE
 DATE 6/15/17

 TOWN ADMINISTRATOR
 DATE 6/15/17

EXHIBIT C

CHANGE ORDER FORM

In accordance with the Purchase Order, dated October 20, 2015, and the Design Engineering Services Agreement dated October 15, 2015, between Town of Orleans, Massachusetts ("Client"), and AECOM Technical Services, Inc. a California corporation, ("AECOM"), this Change Order, with an effective date of 07/05, 2017, modifies that Agreement as follows:

1. Changes to the Services:

1.1 Attachment 1 – Scope of Services, EXHIBIT A – SERVICES, Page 14, add the following new Article:

"11. FY 18 Planning and Implementation

Task 11.1 - Continued Planning and Engineering

11.1.A Effluent Disposal - Downtown Area

- ❖ Description: Activities to support performing detailed Hydrogeologic Evaluation for one potential WWTF groundwater discharge site for the proposed Downtown Area WWTF.
- ❖ Subtasks
 - Utilizing the previously identified site evaluation (based on site suitability, permitting, previous reports, impacts to the environmental, etc.) select the next best preferred site for further consideration with Site 1/1A and Exit 12 already under investigation.
 - Review of Existing Town Reports; Collect Town Site Data (BOH, DPW, etc.); Review of USGS and Other Hydrogeologic Data; Meetings with Town; Conduct Site Visits; and Prepare Health and Safety Plan.
 - Confirm with MassDEP the field investigation requirements for both traditional subsurface groundwater discharge and wick discharge
 - Prepare a Hydrogeologic Evaluation Proposal for both Subsurface and Wick Discharge; Prepare and Submit to MassDEP; Prepare Specifications and Subcontract Agreements; Prepare and Meet with MassDEP to discuss proposed Hydrogeologic Evaluation; Conduct a Site Visit with MassDEP.
 - Conduct Field Investigations (Oversee Drilling and Test Pit Excavation); Collect and Analyze Groundwater and Soil Samples; Perform Soils Conductivity Testing; and Analyze Field Data and Summary.
 - Conduct Groundwater Modeling: Modify the existing USGS Monomoy Lens Groundwater Model for site specific conditions (ie. reduce the grid size to 50 feet by 50 feet, adjust drain nodes, and adjust for geological/aquifer conditions) and Perform Groundwater Modeling Scenarios; Evaluate Groundwater Modeling Results; Evaluate Potential Impacts to Sensitive Receptors; Evaluate Nitrate Loading and Estuary Impacts; and Evaluate for Freshwater Loading.
 - Update Cost Estimate for Groundwater Discharge Infrastructure.
 - Submittal of a Groundwater Discharge Permit Application to MassDEP for review and approval.

❖ Assumptions

- Site Study - Two Trips to Town Hall and Site and One Meeting with Town; assumes site location determined by June 30, 2017.
- Hydrogeologic Evaluation - Ten trips to Town Hall/Site; One meeting with MassDEP; Installation of Three to Four Monitoring Wells (Number of Wells Dependent on Depth to Groundwater); One Day of Test Pits; One Day Certified Soil Evaluator; and Use of USGS Monomoy Lens Groundwater Model without having to create a sub-model and no extensive redesign of model.
- No fee and/or user charge for using the existing USGS Monomoy Lens Groundwater Model.
- Town provides a backhoe and operator for test pits (2 days).
- No Permitting Fees.

11.1.B Demonstration Projects-Design and Implementation

11.1.B.1 Shellfish/Aquaculture

❖ Lonnie's Pond

- Perform O&M and monitoring at Demonstration Site.
- Prepare Year 2 report.

❖ Kent's Point

- No Budget Allocated.

❖ Existing Grant Expansion

- Develop Future Implementation planning program Technical Memorandum consistent with overall Management Plan.
- Coordinate with SMAST activities.
- Prepare agenda, attend and prepare minutes on up to three meetings with existing Grant Holders.

❖ Town Cove Quahog Inventory

- Develop Future Implementation planning program Technical Memorandum consistent with overall Management Plan.
- Coordinate with SMAST activities.
- Prepare agenda, attend and prepare minutes on up to three meetings.

11.1.B.2 Permeable Reactive Barriers (PRB)

- ❖ Continued monitoring of PRB at Eldredge Park to confirm performance and nitrogen removal achieved; Planning for other PRB Demonstration Sites and full scale; and Field investigations and Implementations (as funding allows) at Landfill to reduce nitrogen levels but also treat for 1,4-dioxane.

- ❖ Eldredge Park PRB Demonstration Test.
 - Groundwater monitoring of installed demonstration project.
 - Collect groundwater levels at 35 monitoring wells.
 - Conduct quarterly sampling at 26 monitoring wells.
 - Perform quarterly analysis at 26 monitoring wells for: Total N; Nitrate; Ammonia; Nitrite; Fe and MN (dissolved); DOC; Sulfate; Methane; Chloride; and 1,4-Dioxane.
 - Prepare and submit quarterly monitoring reports including an evaluation of monitoring data collected and summary of PRB Demonstration Test performance.
 - Develop an implementation plan for future PRB Demonstration Sites and full scale PRB sites.
 - Assumptions
 - Access to be provided by Town of Orleans and Nauset Regional Schools.
 - The existing monitoring well network installed will be sufficient to monitor PRB performance
- ❖ Town Landfill Nitrogen Assessment.
 - Conduct additional field investigations including data review and evaluation of sources. Install up to 6 monitoring wells with a total of 18 well screens based on recommendations to fill data gaps for groundwater assessment from SMAST.
 - Conduct sampling and analysis of existing and proposed monitoring wells.
 - Update the previous Groundwater Assessments including updates to plume profiles, Time-of-Travel estimates, and load estimates.
 - Prepare a Nitrogen Response Action Plan detailing alternatives.
 - Prepare for and attend two Workshops to review Nitrogen Response Action Plan summarizing alternatives.
 - Prepare Final Design of Nitrogen Response Action Plan selected items.
 - Implement Short Term Nitrogen Response Action items, as funding allows.
 - Implement Long Term Nitrogen Response Action items, as funding allows.
 - Coordinate field activities with the Town DPW regarding the construction of the proposed DPW Facility.
 - Prepare scope of work and associated cost of additional Long Term Nitrogen Response Action items for funding at future Town Meeting(s).

- Assumptions
 - Utilize previous sampling and monitoring data previously collected.
 - The number of Short Term and Long Term Nitrogen Response Action items that will be implemented is contingent upon the recommendations of SMAST and as funding allows.
 - This task does not include work associated with providing public water to properties downstream of the Landfill.

11.1.B.3 Nitrogen Removing Barriers (NRB)

- ❖ Monitoring of installed demonstration projects.
 - Conduct quarterly sampling and analysis.
 - Prepare and submit quarterly monitoring reports.
- ❖ Assumptions
 - Monitor up to 4 sites.
 - Access to be provided by Town of Orleans and Property Owners.

11.1.C Facilities Engineering

11.1.C.1 Meetinghouse Pond Area - Preliminary Design Report (25%)

- ❖ Description: Prepare a Preliminary Design Report (25%) for the Meetinghouse Pond Area that includes the following items: (a) Topographic Survey; (b) Subsurface investigation; (c) Cultural Resource Evaluation; (d) Update Collection System Type Evaluation and Preliminary System Configuration; (e) Prepare Design Data; and (f) Program Cost Estimate Update.
- ❖ No Budget Allocated. To be Funded at Future Town Meeting(s).

11.1.C.2 Downtown Area Impact Evaluation

- ❖ Description: Evaluate the impact on the Downtown Area collection system, wastewater treatment facility and effluent disposal systems from wastewater flows received from the Meetinghouse Pond Area.
- ❖ Subtasks:
 - Prepare a Technical Memorandum that evaluates the impacts on the Downtown Area collection system, wastewater treatment facility and effluent disposal systems from wastewater flows received from the future phased Meetinghouse Pond Area.
 - Update the existing Program Cost Estimate for the Downtown Area that includes a construction cost contingency, as well as Town administration costs (Town Administration, Legal, and Design, Bid and Construction Engineering Services) based on the Impact Evaluation.
 - Update the Design Data Report that will summarize the Collection System design components based on the Impact Evaluation.

- ❖ Assumptions

- Utilize the previously developed preliminary Meetinghouse Pond Area Collection System layout and associated wastewater flows and costs.
- A single wastewater treatment facility is utilized for the wastewater flows from the Downtown Area and Meetinghouse Pond Area.
- Utilize the previously developed preliminary Meetinghouse Pond Area Collection System layout and associated wastewater flows and costs.

11.1.C.3 MassDOT Project – Downtown Area

- ❖ Description: Provide planning and finalize the design of the proposed Downtown Area collection system located within MassDOT improvement projects.

- ❖ Subtasks:

- Overlay the collection system layout from the Downtown Area Preliminary Design Documents (25% Design) with the MassDOT design documents regarding the improvements to the Route 6A and Main Street Intersection and the South Orleans Road and Main Street Intersection.
- Assist the Town in obtaining costs for the proposed wastewater infrastructure located within the MassDOT Improvement areas.

- ❖ Assumptions

- Utilize the previously developed Downtown Area Preliminary Design Documents (25% Design).

11.1.D WWTF/Septage Facility Construction - For Reference Only

- ❖ Description: Design, Bidding and Construction of a new Wastewater Treatment Facility for the Meetinghouse Pond Area. The facility will incorporate septage receiving and process capability. The design of the facility would utilize modular components with the construction phased as the required to address the phase construction of the collection system.

- ❖ No Budget Allocated. To be Funded at Future Town Meeting(s).

11.1.E Tri-Town Transition Requirements - For Reference Only

- ❖ Description: Demolition of the Tri-Town Septage Treatment Facility and Compost Shelter located on Overland Way.

- ❖ No Budget Allocated. Separate funding Article(s).

11.1.F Regulatory Coordination

- ❖ Description: Continued consultation and meetings with regulators to gain approval of aspects of the traditional and non-traditional projects and activities. While preparation of technical material and initial permit application forms are scoped and budgeted to a limited extent under the individual project tasks (such as the MassDEP Groundwater Permit for the Hydrogeologic Investigation at the Effluent Disposal sites and the Request for Determination of Applicability to the Orleans ConCom for the aquaculture demonstration project), other necessary tasks including pre-application meetings, meetings to discuss comments, site visits, are included under this task. Agencies requiring follow-up coordination include MassDEP, Massachusetts Historic Commission, Cape Cod Commission, and NHESP and others.
- ❖ Subtasks
 - Continued coordination and review with variety of state and local agencies regarding proposed project activities and anticipated jurisdictional impacts.
 - Prepare agenda, attend and prepare minutes on up to 6 meetings with the agencies are assumed across all NT and traditional projects.
 - Coordination of planned monitoring activities and review of initial results of the monitoring of demonstration projects (shellfish, PRB and NRB) with SMAST.
 - Coordination with Cape Cod Commission regarding planned activities associated with demonstration projects and studies.

11.1.G Meetinghouse Pond Area Utility Survey - For Reference Only

- ❖ Description: Consultation with the Town and utility companies who have infrastructure located within the Meetinghouse Pond Area in order to obtain utility information, including record information, materials of construction, utility repair/relocation requirements and planned utility upgrades and/or expansions.
- ❖ No Budget Allocated. To be Funded at Future Town Meeting(s).

11.1.H Update of Amended CWMP

- ❖ Description: The Town of Orleans is continuing to build on efforts to improve water quality in coastal embayments and estuaries as well as freshwater ponds by amending the previous Comprehensive Wastewater Management Plan (CWMP) based on additional wastewater engineering and planning developments that have occurred since publication of the approved CWMP/SEIR in 2011. The Town has worked closely with stakeholders and has further developed a draft plan that combines both traditional and non-traditional wastewater management technologies to provide a cost effective solution to reduce nitrogen loading to the town's sensitive water bodies.
- ❖ Subtasks
 - Review and address comments received from the MassDEP and Cape Cod Commission by August 2017 regarding their review to verify that the Town is on the right path in order to obtain concurrence of regulatory compliance.
 - Compile summaries of all work completed in each task of the Water Quality and Wastewater Management Plan including key progress, decisions made, regulatory issues and proposed schedule for remaining planning activities and implementation program.
 - Develop Draft Update of Amended CWMP and Executive Summary.
 - Provide the Draft Updated Amended CWMP and Executive Summary to the Town for review and comment.

- Prepare Notice of Project Change for submission to MEPA.
- Address comments and prepare Final Amended CWMP and Executive Summary and provide to Town for submittal to MassDEP and Cape Cod Commission.
- ❖ Assumptions
 - Submit the Final Amended CWMP and Executive Summary to MEPA, MassDEP and Cape Cod Commission in late 2017.

Task 11.2 – Adaptive Management Implementation

11.2.A Water Quality Monitoring: MEP Compliance

- ❖ Description
 - Continuation of the SMAST review of water quality data relevant to Orleans; SMAST monitoring of the Aquaculture/Shellfish Propagation in Lonnie's Pond and coordination with other local WQ monitoring programs.
- ❖ Subtasks
 - Review and comment on the results of the data collection and analysis completed by SMAST.
 - Attend two meetings to discuss the data collection, analysis and review comments.

11.2.B Water Quality Monitoring: Project Baselines

- ❖ Description
 - Continuation of coordination with the SMAST limited monitoring program to collect baseline data and post installation operational data for the Aquaculture/Shellfish Propagation Lonnie's Pond Demonstration Project.
- ❖ Subtasks
 - Review and comment on the baseline data and initial post-construction data compiled by SMAST.
 - Attend two meetings to discuss the baseline data, initial operational data and review comments.

11.2.C MEP Study and Report Updates

- ❖ Description: Update and rerun the Nauset Harbor MEP Linked Model.
- ❖ Subtasks
 - Review and comment on the Nauset Harbor MEP model update and model results prepared by SMAST.
 - Attend two meetings to discuss the model update, model results and review comments.

11.2.D Namskaket and Little Namskaket Adaptive Plans - For Reference Only

- ❖ Description: Develop information, preliminary assessment of issues and approach with Brewster for development of integrated adaptive management plans for protection of the Namskaket and Little Namskaket watersheds and tidal marshes.
- ❖ Scope of Services Provided By Others.

11.2.E Stormwater and Fertilizer Management - For Reference Only

- ❖ Description: Coordination with the Orleans Town Engineer regarding findings and recommendations of Fertilizer and Stormwater related programs in the various sub-watersheds. The Town is proceeding on a comprehensive assessment of contributions of nitrogen to the various water bodies in Town from fertilizer and nitrogen, and is developing a plan to reduce those contributions. The work being done to reduce nitrogen contributions from Stormwater and Fertilizer will be taken into account when confirming the remaining Nitrogen from wastewater that must be removed to meet MEP requirements.
- ❖ Scope of Services Provided By Others.

11.2.F Revise Comprehensive Plan for Cedar Pond and Rock Harbor Creek Watershed

- ❖ Description: Coordinate the resolution of saline status of Cedar Pond with MassDEP and MEPA and develop an Amended CWMP for Rock Harbor Creek watershed based on Cedar Pond resolution, employing traditional and non-traditional technologies, as appropriate, and considering the attainability of water quality standards with respect to MEP nitrogen reduction requirements and human uses (e.g. marina) of the lower segment of the Creek.
- ❖ Subtasks
 - Review and comment on the Rock Harbor MEP model update and model results prepared by others.
 - Prepare agenda, attend and prepare minutes for one meeting to discuss the review comments of the Revise Comprehensive Plan for Cedar Pond and Rock Harbor Creek Watershed prepared by others.
 - Prepare an Amended CWMP for Rock Harbor Creek watershed based on Cedar Pond resolution.
 - Prepare agenda, attend and prepare minutes for two meetings to review the draft Amended CWMP for Rock Harbor Creek watershed based on Cedar Pond resolution.

11.2.G Water Quality Remediation and Protection Plans for Priority Freshwater Ponds - For Reference Only

- ❖ Description: Update the 2010 CWMP evaluation of freshwater ponds using most recent water quality data and define priority ponds for remediation and protection. Integrate the stormwater and fertilizer data bases into the evaluation. Refine the Draft Work Plan Development document to direct the development of management plans for the priority ponds. Define and characterize technologies and management strategies that will be evaluated for management plans.
- ❖ Scope of Services Provided By Others.

Task 11.3 Program Management

11.3.A Technical Oversight and Program Management - For Reference Only

- ❖ Description: Provide overall program management for water quality and wastewater management programs for the Town of Orleans.
- ❖ Scope of Services Provided By Others.

11.3.B Public Engagement Coordination

- ❖ Description: Continuation of public engagement in order to keep stakeholders apprised of overall status of the Project, increase the understanding of the technical approach and assumptions, obtain stakeholder feedback.
- ❖ Subtasks
 - Prepare for and attend OWQAP Meetings to keep members apprised of overall status of the Project.
 - Prepare for and attend Workshops regarding Aquaculture/Shellfish Propagation, Permeable Reactive Barriers/Nitrogen Removing Biofilters, and Collection System.
 - Prepare for and attend Other Public Meetings.
 - Prepare and submit brief Status Reports and/or FAQ Flyers that incorporate/discuss the status of the non-traditional technologies demonstration projects (Aquaculture/Shellfish Propagation, Permeable Reactive Barriers, and Nitrogen Removing Biofilters).
- ❖ Assumptions
 - Up to 12 OWQAP Meetings.
 - Up to 12 Workshops.
 - Up to 6 Other Public Meetings.
 - Up to 4 Status Reports and FAQ Flyers.

11.3.C Procurement Development and Financial Analysis

11.3.C.A Procurement Development

- ❖ Description
 - Assist the Town in the development/obtaining approval of Special Legislation for Design-Build-Operate.
 - Continued coordination with the Downtown Area property owners to review costs of the proposed sewerage program and potential ways to allocate those costs across users, parcels or property owners. Evaluate cost impacts to different types of users in the Downtown Area (both residential and non-residential) based on different cost allocations. Compare potential costs to properties associated with the sewerage program to costs of continuing to use on-site systems.
- ❖ Subtasks
 - Investigate potential for developing Design-Build-Operate procurement in phases to allow inclusion of the Meetinghouse Pond Area wastewater collection, treatment and disposal facility at a future time.
 - Provide an updated Design-Build-Operate risk matrix and procurement schedule for development of a RFP for possible Design/Build contractors.
 - Prepare for and attend up to 4 periodic meetings with the Downtown area property owners.

11.3.C.B Financial Analysis

- ❖ Description: Continued development of financial model and additional model runs to determine costs associated with various scenarios based on changes to the overall Program.
- ❖ Subtasks
 - Enhance the model by making the following programming changes: (a) “de-coupled” septage revenue from septage construction and operation and maintenance costs; (b) ability to change distribution of O&M costs; (c) incorporate minimum and maximum calculations with input via the User Selection Tab; (d) incorporate possible tax revenue source; and (e) ability to better represent the per-parcel results in graphical or table format.
 - Prepare cost tables that show costs to properties associated with the sewerage program based on model runs.
 - Meet with the Town’s Legal Representative to review the legality of potential cost allocation methods.
 - Prepare for and attend up to four Financial Model Workshops with the BOS and/or Finance Committee.
 - Prepare a Financial Model User Manual.
- ❖ Assumptions
 - Any new file inputs to the model are in a format that does not change across iterations.
 - Run and Present up to four scenarios for allocating cost across the user groups. Evaluate affordability to the different user groups. Up to three cases will be allowed for each model run.

11.3.D Regulatory Coordination

- ❖ Description: Continued consultation with regulators for discussing numerous issues that cross multiple projects. These issues are the topic at periodic meetings and discussions with the regulators including MassDEP, Cape Cod Commission, USEPA and MEPA. Issues include monitoring (requirements and data base management), water quality standards, adaptive management, funding, and watershed permitting.
- ❖ Subtasks
 - Prepare for and attend meetings with various regulators including MassDEP, Cape Cod Commission, USEPA and MEPA. Prepare presentation materials or handouts as required. Prepare meeting summary.
 - Prepare an e-mail or memorandum summarizing the issues discussed with each of the regulators, findings of the discussion, and/or guidance provided.
 - Coordinate with Cape Cod Commission regarding information needed for continued compliance with the 208 Water Quality Plan.
- ❖ Assumptions
 - Attendance at up to four meetings.
 - Discussions will be based on the work as currently scoped by the Town. Any requests by the agencies to conduct additional work or analysis would require the discussion and approval by the Town.

The following tasks and/or subtasks are subject to future approval by the Orleans Board of Selectmen prior to the commencement of work:

- ❖ Task 11.1.A, Effluent Disposal Area - all subtasks.
- ❖ Task 11.1.B.1, Shellfish/Aquaculture - Existing Grant Expansion and Town Cove Quahog Inventory.
- ❖ Task 11.1.B.2, Permeable Reactive Barriers (PRB) - Town Landfill 1,4-Dioxane and Nitrogen Assessment, Short Term and Long Term Response Action Items.
- ❖ Task 11.1.B.3, Nitrogen Removing Barriers (NRB) - all subtasks.
- ❖ Task 11.1.C.2, Downtown Area Impact Evaluation - all subtasks.
- ❖ Task 11.1.C.3, MassDOT Project – Downtown Area - all subtasks.

2. Change to Deliverables:

2.1 Attachment 1 – Scope of Services, List of Deliverables, add the following new Articles:

Number	Deliverable	Draft	Final
Task No. 11 - FY 18 Planning and Implementation			
Task 11.1 - Continued Planning and Engineering			
11.1.A - Effluent Disposal – Downtown Area			
	o Hydrogeologic Evaluation Proposal	---	100%
	o Hydrogeologic Evaluation	75%	25%
	o Hydrogeologic Evaluation Technical Memorandum	75%	25%
	o Groundwater Discharge Permit Application	---	100%
11.1.B - Demonstration Projects-Design and Implementation			
11.1.B.1 - Shellfish/Aquaculture			
Lonnie’s Pond			
	o Monthly Operation and Maintenance	---	100%
	o Project Report and BOS Meeting	---	100%
Kent’s Point – For Reference Only			
Existing Grant Expansion			
	o Future Implementation planning program Technical Memorandum.	75%	25%
	o Prepare for and attend up to three meetings with existing Grant Holders	---	100%
Town Cove Quahog Inventory			
	o Future Implementation planning program Technical Memorandum.	75%	25%
	o Prepare for and attend up to three meetings.	---	100%

Number	Deliverable	Draft	Final
11.1.B.2 - Permeable Reactive Barriers (PRB)			
Eldredge Park PRB Demonstration Test			
	○ Quarterly groundwater monitoring Reports	---	100%
PRB Site Evaluations			
	○ Implementation plan for future PRB Demonstration Sites and full scale PRB sites	75%	25%
Town Landfill Nitrogen Assessment			
	○ Field investigations based on recommendations to fill data gaps for groundwater assessment from SMAST.	---	100%
	○ Sampling and analysis of existing and proposed monitoring wells.	---	100%
	○ Groundwater Assessment Update.	---	100%
	○ Nitrogen Response Action Plan Alternatives.	75%	25%
	○ Workshops to review Nitrogen Response Action Plan Alternatives.	---	100%
	○ Design of Nitrogen Response Action Plan selected items.	75%	25%
	○ Implementation of Short Term Nitrogen Response Action Plan items, as funding allows.	75%	25%
	○ Implementation of Long Term Nitrogen Response Action Plan items, as funding allows.	75%	25%
	○ Scope of work and associated cost of additional Long Term Nitrogen Response Action Plan items for funding at future Town Meeting(s).	75%	25%
11.1.B.3 - Nitrogen Removing Barriers (NRB)			
	○ Quarterly Groundwater Monitoring Reports	75%	25%
11.1.C Facilities Engineering			
11.1.C.1 – Meetinghouse Pond Area - Preliminary Design Report (25% Design) – For Reference Only			
11.1.C.2 Downtown Area Impact Evaluation			
	○ Technical Memorandum that evaluates the impacts on the Downtown Area from wastewater flows received from the future phased Meetinghouse Pond Area.	75%	25%
	○ Update the existing Program Cost Estimate for the Downtown Area based on the Impact Evaluation.	---	100%
	○ Update the Design Data Report based on the Impact Evaluation.	---	100%

Number	Deliverable	Draft	Final
11.1.C.3	MassDOT Project – Downtown Area		
	○ Overlay the collection system layout with the MassDOT design documents.	75%	25%
	○ Assist the Town in obtaining costs for the proposed wastewater infrastructure located within the MassDOT Improvement areas.	---	100%
	11.1.D - WWTF/Septage Facility Construction - For Reference Only		
	11.1.E - Tri-Town Transition Requirements - For Reference Only		
	11.1.F - Regulatory Coordination		
	○ Meetings	---	100%
	11.1.G - Meetinghouse Pond Utility Survey - For Reference Only		
	11.1.H Update of Amended CWMP		
	○ Draft Update of Amended CWMP and Executive Summary	75%	25%
	○ Final Update of Amended CWMP and Executive Summary	---	100%
	Task 11.2 – Adaptive Management Implementation		
	11.2.A - Water Quality Monitoring: MEP Compliance		
	○ Review of the data collection and analysis completed by Others Technical Memorandum	75%	25%
	○ Coordination Meetings	---	100%
	11.2.B - Water Quality Monitoring: Project Baselines		
	○ Review of the baseline data and initial operational data compiled by Others Technical Memorandum	75%	25%
	○ Coordination Meetings	---	100%
	11.2.C - MEP Study and Report Updates		
	○ Technical Memorandum on the review of the Nauset Harbor MEP model update and model results by Others	75%	25%
	○ Coordination Meetings	---	100%
	11.2.D - Namskaket and Little Namskaket Adaptive Plans – For Reference Only		
	11.2.E - Stormwater and Fertilizer Management – For Reference Only		

Number	Deliverable	Draft	Final
11.2.F - Revised Comprehensive Plan for Cedar Pond and Rock Harbor Creek Watershed Reports			
	o Technical Memorandum on the review of the Revised Comprehensive Plan for Cedar Pond and Rock Harbor Creek Watershed Reports by Others	75%	25%
	o Amended CWMP for Rock Harbor Creek Watershed	75%	25%
	o Coordination Meetings	---	100%
11.2.G - Water Quality Remediation and Protection Plans for Priority Freshwater Ponds - For Reference Only			
Task 11.3 - Program Management			
11.3.A - Technical Oversight and Program Management - For Reference Only			
11.3.B - Public Engagement Coordination			
	o OWQAP Meetings	---	100%
	o OWQAP Sub-committee Workshop Minutes - Draft and Final	75%	25%
	o Other Public Meeting Minutes - Draft and Final	75%	25%
	o E-mail Status Reports and/or FAQ Flyers on the non-traditional technologies demonstration projects	---	100%
11.3.C – Procurement Development and Financial Analysis			
Procurement Development			
	o Design-Build-Operate Workshops.	---	100%
	o Updated Design-Build-Operate risk matrix and procurement schedule for development of a RFP for possible Design/Build contractors.	75%	25%
	o Periodic meetings with the Downtown area property owners.	---	100%
Financial Model			
	o Model Enhancements: (a) "de-coupled" septage revenue from septage construction and operation and maintenance costs; (b) ability to change distribution of O&M costs; (c) incorporate minimum and maximum calculations with input via the User Selection Tab; and (d) ability to better represent the per-parcel results in graphical or table format.	75%	25%
	o Cost tables that show costs to properties associated with the sewerage program based on model runs.	---	100%
	o Financial Model Workshops with the BOS and/or Finance Committee.	---	100%
	o Financial Model User Manual.	75%	25%
	o		

Number	Deliverable	Draft	Final
11.3.D - Regulatory Coordination			
	o Meeting Minutes	---	100%
	o Regulatory findings or guidance Technical Memorandum	75%	25%

3. **Change in Project Schedule (attach schedule if appropriate):**

Modify the time for completion from July 1, 2017 to June 30, 2018.

4. **Change in Consultant's Compensation:**

The Services set forth in this Change Order will be performed on the following basis:

- No change to Compensation
- Time & Material (See Exhibit B for the Hourly Labor Rate Schedule)
- Time and Materials with a Not-to-Exceed amount of \$181,000. The Hourly Labor Rate Schedule is set forth in EXHIBIT B (if applicable). Services are based on 1,005 hours of labor plus expenses to provide the scope of services outlined in Task 11.3.B – Public Engagement Coordination. Reimbursable expenses are included in the overall Not to Exceed cap. Payment will be based on actual time and reimbursable expenses incurred.

Number	Deliverable	Payment Amount
Task No. 11 - FY 18 Planning and Implementation		
Task 11.3 - Program Management		
11.3.B - Public Engagement Coordination		
	o OWQAP Meetings	\$82,000
	o Workshop Minutes - Draft and Final	\$54,400
	o Other Public Meeting Minutes - Draft and Final	\$27,200
	o E-mail Status Reports and/or FAQ Flyers on the non-traditional technologies demonstration projects	\$17,400

- Cost Plus Fixed Fee: [Cost \$ Numerical Amount and Fee \$ Numerical Amount]

[X] Lump Sum of \$2,087,960

Number	Deliverable	Payment Amount
Task No. 11 - FY 18 Planning and Implementation		
Task 11.1 - Continued Planning and Engineering		
11.1.A - Effluent Disposal – Downtown Area		
	o Hydrogeologic Evaluation Proposal	\$15,000
	o Hydrogeologic Evaluation	\$228,300
	o Hydrogeologic Evaluation Technical Memorandum	\$35,000
	o Groundwater Discharge Permit Application	\$20,000
11.1.B - Demonstration Projects-Design and Implementation		
11.1.B.1 - Shellfish/Aquaculture		
Lonnie’s Pond		
	o Monthly Operation and Maintenance	\$101,500
	o Project Report and BOS Meeting	\$18,000
	Kent’s Point – For Reference Only	\$0
	Existing Grant Expansion	
	o Future Implementation planning program Technical Memorandum.	\$13,800
	o Prepare for and attend up to three meetings with existing Grant Holders	\$12,000
	Town Cove Quahog Inventory	
	o Future Implementation planning program Technical Memorandum.	\$13,800
	o Prepare for and attend up to three meetings.	\$12,000
11.1.B.2 - Permeable Reactive Barriers (PRB)		
Eldredge Park PRB Demonstration Test		
	o Quarterly groundwater monitoring Reports	\$100,000
PRB Site Evaluations		
	o Implementation plan for future PRB Demonstration Sites and full scale PRB sites	\$36,000

Number	Deliverable	Payment Amount
Town Landfill Nitrogen Assessment		
	o Field investigations based on recommendations to fill data gaps for groundwater assessment from SMAST.	\$426,700
	o Sampling and analysis of existing and proposed monitoring wells.	\$20,000
	o Groundwater Assessment Update.	\$20,000
	o Summary of Nitrogen Response Action Plan Alternatives.	\$20,000
	o Workshops to review Nitrogen Response Action Plan Alternatives.	\$20,000
	o Design of Nitrogen Response Action Plan selected items.	\$75,000
	o Implementation of Short Term Nitrogen Response Action Plan items, as funding allows.	\$100,000
	o Implementation of Long Term Nitrogen Response Action Plan items, as funding allows.	\$400,000
	o Scope of work and associated cost of additional Long Term Nitrogen Response Action Plan items for funding at future Town Meeting(s).	\$20,000
11.1.B.3 - Nitrogen Removing Barriers (NRB)		
	o Conduct Quarterly Sampling and Analysis and Prepare and submit quarterly monitoring reports.	\$43,600
11.1.C - Facilities Engineering		
11.1.C.1 - Meetinghouse Pond Area - Preliminary Design Report (25% Design) – For Reference Only		
11.1.C.2 - Downtown Area Impact Evaluation		
	o Technical Memorandum that evaluates the impacts on the Downtown Area from wastewater flows received from the future phased Meetinghouse Pond Area.	\$32,100
	o Update the existing Program Cost Estimate for the Downtown Area based on the Impact Evaluation.	\$5,000
	o Update the Design Data Report based on the Impact Evaluation.	\$5,000
11.1.C.3 - MassDOT Project – Downtown Area		
	o Overlay the collection system layout with the MassDOT design documents.	\$30,900
	o Assist the Town in obtaining costs for the proposed wastewater infrastructure located within the MassDOT Improvement areas.	\$7,500
11.1.D - WWTF/Septage Facility Construction - For Reference Only		

Number	Deliverable	Payment Amount
11.1.E - Tri-Town Transition Requirements - For Reference Only		
11.1.F - Regulatory Coordination		
	o Meetings	\$15,800
11.1.G - Meetinghouse Pond Utility Survey - For Reference Only		
11.1.H Update of Amended CWMP		
	o Draft Update of Amended CWMP and Executive Summary	\$47,500
	o Final Update of Amended CWMP and Executive Summary	\$20,000
Task 11.2 – Adaptive Management Implementation		
11.2.A - Water Quality Monitoring: MEP Compliance		
	o Review of the data collection and analysis completed by Others Technical Memorandum	\$3,300
	o Coordination Meetings	\$1,500
11.2.B - Water Quality Monitoring: Project Baselines		
	o Review of the baseline data and initial operational data compiled by Others Technical Memorandum	\$14,300
	o Coordination Meetings	\$1,500
11.2.C - MEP Study and Report Updates		
	o Technical Memorandum on the review of the Nauset Harbor MEP model update and model results by Others	\$3,300
	o Coordination Meetings	\$1,500
11.2.D - Namskaket and Little Namskaket Adaptive Plans - For Reference Only		
11.2.E - Stormwater and Fertilizer Management – For Reference Only		
11.2.F - Revise Comprehensive Plan for Cedar Pond and Rock Harbor Creek Watershed		
	o Technical Memorandum on the review of the Revised Comprehensive Plan for Cedar Pond and Rock Harbor Creek Watershed Reports by Others	\$5,500
	o Amended CWMP for Rock Harbor Creek Watershed	\$32,560
	o Coordination Meetings	\$10,500
11.2.G - Water Quality Remediation and Protection Plans for Priority Freshwater Ponds - For Reference Only		

Number	Deliverable	Payment Amount
Task 11.3 - Program Management		
11.3.A - Technical Oversight and Program Management - For Reference Only		
11.3.B - Public Engagement Coordination – Reimbursed via Time and Materials		
11.3.C - P3 Development and Financial Analysis		
Procurement Development		
	○ Design-Build-Operate Workshops.	\$9,700
	○ Updated Design-Build-Operate risk matrix and procurement schedule for development of a RFP for possible Design/Build contractors.	\$7,500
	○ Periodic meetings with the Downtown area property owners.	\$6,000
Financial Model		
	○ Model Enhancements: (a) "de-coupled" septage revenue from septage construction and operation and maintenance costs; (b) ability to change distribution of O&M costs; (c) incorporate minimum and maximum calculations with input via the User Selection Tab; and (d) ability to better represent the per-parcel results in graphical or table format.	\$28,000
	○ Cost tables that show costs to properties associated with the sewerage program based on model runs.	\$5,000
	○ Financial Model Workshops with BOS and Finance Committee.	\$15,000
	○ Financial Model User Manual.	\$7,500
11.3.D - Regulatory Coordination		
	○ Meeting Minutes	\$5,000
	○ Regulatory findings or guidance Technical Memorandum	\$15,800

Therefore, the total authorized Compensation, inclusive of the Change Order is \$6,564,520.

AECOM Total Funding Allocation Summary

Description	Value
FY16 Town Meeting – FY16 Water Quality and Wastewater Planning	\$990,000
FY17 Town Meeting – FY17 Interim Planning and Implementation (June 2016 through October 2016)	\$551,560
Compost Shelter Demolition – Design Phase	\$5,000
Cape Cod Commission Aquaculture/Shellfish Propagation Grant	\$15,000
FY17 Special Town Meeting – FY17 Planning and Implementation (November 2016 through June 2017)	\$2,734,000
FY18 Town Meeting – FY18 Planning and Implementation	\$2,268,960
Total Funding Allocation	\$6,564,520

AECOM Engineering Agreement Summary

Description	Value
Original Agreement - FY16 Water Quality and Wastewater Planning	\$990,000
Change Order No. 1 - FY17 Interim Planning and Implementation (June 2016 through October 2016)	\$571,560
Change Order No. 2 - FY17 Planning and Implementation (November 2016 through June 2017)	\$2,734,000
Change Order No. 3 - FY17 Planning and Implementation (November 2016 through June 2017) Scope Modifications	\$0
Change Order No. 4 - FY18 Planning and Implementation	\$2,268,960
Total Authorized Compensation	\$6,564,520

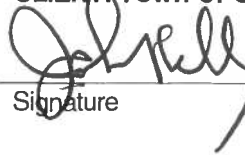
5. **Project Impact:** None
6. **Other Changes** (including terms and conditions): None
7. All other terms and conditions of the Agreement remain unchanged.

8. Each Party represents that the person executing this Change Order has the necessary legal authority to do so on behalf of the respective Party.

AECOM Technical Services, Inc.

CLIENT: Town of Orleans, MA





Signature

Signature

Betsy Shreve-Gibb

John Kelly

Printed Name

Printed Name

Vice President

Orleans Town Administrator

Title

Title

Address

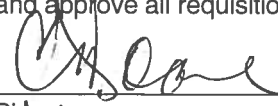
Address

9 Jonathan Bourne Road
Pocasset, MA 02559

19 School Road
Orleans, MA 02653

Town Accountant's Certificate

I hereby certify that an appropriation in the amount of this contract is available therefore and that the undersigned official of the Town has been authorized to execute said contract and approve all requisitions and change orders.



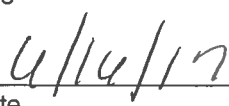
Signature

Cathy Doane

Printed Name

Finance Director/Town Accountant

Title



Date

[End of Agreement]

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