State of California Natural Resources Agency
Ocean Protection Council

Grantee Name:	Stinson Beach County Water District (“Stinson Water”)
Project Title:	Stinson Water Adaptation Plan for a Community Wastewater System
Agreement Number	C0227104
Term of Agreement:	Upon Approval through September 2028

Project Summary:

Stinson Beach County Water District (“Stinson Water”) provides drinking water and onsite wastewater treatment regulation for the small coastal community of Stinson Beach, California, which has no existing sewer system or regional wastewater infrastructure. All residential and commercial properties in Stinson Beach have onsite wastewater treatment systems (“OWTS”). Approximatlely 70% of Stinson Beach’s OWTS are either moderately or highly vulnerable to inundation due to predictions of sea-level rise (“SLR”) and due to seasonal high ground water levels.

Stinson Beach’s OWTS are particularly vulnerable to high ground water levels and localized flooding events that result from storm surge, increasingly higher tides, heavy rainfall events and rising sea levels. During such events, onsite septic systems are essentially inundated, effectively neutralizing treatment and causing raw, concentrated wastewater to freely mix with either surface and/or subsurface water. This creates both an acute and chronic public health risk and can potentially cause significant adverse effects to the local environment and coastal area. During California’s January and February 2023 storm events, storm surge, high waves and tides physically destroyed six particularly vulnerable onsite septic systems in Stinson Beach. Recent storm events this past winter similarly threatened Stinson Beach’s OWTS.

The Bolinas Community Public Utility District (“BCPUD”) provides drinking water and wastewater treatment within the small coastal town of Bolinas, California. The BCPUD sanitary sewage system serves 163 connections within Bolinas, which represents approximately 25 percent of the BCPUD water connections. The existing BCPUD treatment facility provides a green infrastructure solution for wastewater treatment and consist of a series of clay-lined ponds that rely on naturally occurring microbes to breakdown organic material. Treated wastewater is then disposed through spray disposal

on 45 acres of land that includes wetland features to provide additional treatment of site runoff.

The treatment system is located in the middle of an area referred to as “The Mesa,” which is an elevated plateau that is characterized by weakly consolidated sandstone. Although the the treatment facility is well above sea level and not directly impacted by SLR, much of the aging collection system is at sea level and will be directly impacted by SLR. Increased inflow and infiltration (“I&I”), due to SLR and more intense storm events, are also predicted to severely impact the function and capacity of the treatment plant. I&I from sea water is of particular concern as disruption of the ideal salt balance is likely to hinder microbial action and the treatment process.

Within the BCPUD water service area there are also approximately 350 OWTS that are potentially vulnerable to SLR and the associated impacts of climate change. In particular, many of the OWTS located on The Mesa are near the bluff and are highly vulnerable to bluff erosion, which is predicted to hasten in the face of SLR and intensified storm events. Recently, the County of Marin (which oversees the permitting of the OWTS in Bolinas) closed the Bolinas Beach due to the detection of fecal-contaminated fluid seeping along the bluff. The source of this contamination is not currently known; however it is postulated that wastewater from failing OWTS is the culprit.

This feasibility study adopts a cooperative approach to develop a climate-resilient regional wastewater collection system and treatment facility that will serve both Stinson Beach and Bolinas. The development of such a system will mitigate the existing public health threats along this protected coastline. Specifically, this project will assess design options, costs, and explore other issues pertaining to developing a shared and SLR-resilient sanitary sewer system. This project aims to develop a coastal climate mitigation and adaptation strategy that will ensure resiliency to SLR projections consistent with the State’s SLR Guidance Document.

As part of an overall coastal climate mitigation and adaptation strategy that ensures resiliency to SLR projections are consistent with the State’s SLR Guidance Document, Stinson Water and BCPUD plan to perform a feasibility study to assess design options, costs, and other issues pertaining to a proposed regional community wastewater collection system and treatment facility as mitigation against SLR and other public health threats.

This project aligns with the Ocean Protection Council’s (“OPC”) Strategic Plan by prioritizing increased coastal resilience in the face of climate change, specifically through setting a proactive approach to SLR planning for vulnerable and critical wastewater treatment infrastructure. Specifically, this project supports the following OPC Strategic Objectives and Targets:

1. Objective 1.1: Build resiliency to Sea-Level Rise, Coastal Storms, Erosion and Flooding
    a. Target 1.1.1: Ensure California's coast is resilient to at least 3.5 feet of sea-level rise by 2050, as consistent with the State's Sea-Level Rise Guidance Document as appropriate for a given location or project.
    b. Target 1.1.2: In conjunction with ongoing efforts, develop a site-specific infrastructure resiliency plan focused on state roads, railroads, wastewater treatment plants, water supply facilities, ports, and power plants.

Objective:

The main objective of this project is to perform a a feasibility study to assess design options, costs, and other issues pertaining to a proposed regional community wastewater collection system and treatment facility as mitigation against SLR and other public health threats.

Part of this plan is to evaluate how to operate the existing BCPUD wastewater treatment facility to be in compliance for an annual rainfall equivalent to a 25- to 50-year recurrence interval and evaluate options to reasonably expand the existing BCPUD wastewater collection system to accommodate additional homes within the BCPUD service area that currently rely on septic systems for wastewater disposal. The existing BCPUD wastewater treatment facility is designed for approximately annual rainfall equivalent to a 10-year recurrence interval The plan shall identify preferred alternatives for facility upgrades to address vulnerabilities and include estimated costs and recommended strategies to finance the upgrades.

The project also explores the cost and feasibility of potentially regionalizing the approach to include the neighboring community of Bolinas, which already has its own small sewage collection and wastewater treatment system located in the lower-lying areas of the community, as well as 350 OWTS throughout the community.

A centralized regional wastewater system would improve climate resilience for both communities, and provide opportunities for cost sharing. Moreover, as SLR and other issues caused by climate change continue to present more challenges, isolated coastal communities with few resources may need to work together to respond to these challenges. This project may be an example and a model of collaboration and teamwork between two separate communities and agencies. Because this feasibility study involves active participation and collaboration between the two water districts, it is anticipated that through a regional approach, both communities may take advantage of cost savings from economies of scale and sharing operational resources, mitigate climate risks, provide employment opportunities for local residents, improve service to residents and visitors, and better protect public health and safety and the environment.

Project Tasks and Deliverables:

TASK 1A: **Compile Documents, Data, and Other Pertinent Information to Create an Comprehensive Inventory of all Existing OWTSs in Stinson Beach and Bolinas**

Gather and organize all historical and recent studies, data, and any other documents that may provide information pertinent to this Project, including any studies performed by the County to date pertaining to their SLR Adaptation Plan. Collect detailed information and compile a comprehensive inventory regarding the number, locations, and general conditions of the existing OWTS systems in both Stinson Beach and Bolinas.

Deliverable: Draft Technical Memorandum and Database/Inventory
Final Database/Inventory of files and data
Final Technical Memorandum with summary tables

TASK 1B: **Compile Documents, Data, and Other Pertinent Information to Create an Comprehensive Inventory and Develop a Condition Assessment of BCPUD Existing Sanitary Sewer Infrastructure**

Conduct a comprehensive condition assessment of current state and capacity of existing sanitary sewer infrastructure in Bolinas using closed-circuit television inspection of the entire system and recommend short-term (0-5 years) improvements to address immediate needs.

Deliverable: Draft Technical Memorandum and Database/Inventory
Final Database/Inventory of files and data
Final Technical Memorandum with summary tables

TASK 2A: **Update Stinson Water GIS with All Existing OWTS Locations in Stinson Beach**

Based in the information gathered in Task 1A, update the Stinson Water Geographical Information System (GIS) showing the locations of each of the OWTSs in Stinson Beach.

Deliverable: GIS Update Completed

TASK 2B: **Create GIS Database of all Existing OWTS Locations and Existing Sanitary Sewer Infrastructure in Bolinas**

Based on the information gathered in Tasks 1A and 1B, create a new GIS database for BCPUD identifying the locations and applicable attributes of all existing OWTSs and sanitary sewer infrastructure in Bolinas.

Deliverable: GIS Development Completed

TASK 3: **Compile and Review Historical Surface and Ground Water Quality Monitoring and Collect Additional Data as Necessary**

Using all historical surface and ground water quality monitoring data in both Stinson Beach and Bolinas, identify seasonal trends and water quality violations with respect to ammonia/nitrate/nitrite, Total Coliform, E. coli, and other contaminants of concern to assess the impacts of the existing OWTSs in both systems and the BCPUD wastewater treatment system.

Deliverable: Draft Technical Memorandums:

i. All onsite wastewater treatment systems in Stinson Beach
ii. All onsite wastewater treatment systems in Bolinas
iii. All existing collection system and existing treatment facility in Bolinas

Final Technical Memorandums:

i. All onsite wastewater treatment systems in Stinson Beach
ii. All onsite wastewater treatment systems in Bolinas
iii. All existing collection system and existing treatment facility in Bolinas

TASK 4: **Identify the Vulnerability of Existing Wastewater Systems**

Incorporate data gathered in Tasks 1, 2 and 3 to analyze and identify the specific OWTSs and existing sanitary sewer infrastructure in both Stinson Beach and Bolinas that are subject to adverse surface and subsurface water quality impacts, SLR, storm events, and flooding under different inundation scenarios as demonstrated in Marin County's 2023 Vulnerability Assessment to show which OWTSs and existing sanitary sewer infrastructure would be impacted in each scenario. Explain how Stinson Water and BCPUD manage existing flooding risks for their respective wastewater systems (e.g., protective measures already in place, planned, or proposed). Develop a "Need for Project Analysis" to

define flows and loads for the respective Stinson Water and BCPUD service areas and identify drivers for facility improvements including an assessment of the vulnerability of future flooding risks over a 50-year time horizon, and recommend strategies for how each agency will manage those risks, including a basis for the conclusions presented. This evaluation will use the Ocean Protection Council's Sea-Level Rise Guidance of a 3.5 feet in the San Francisco Bay region by 2050. Analysis will consider sea level rise, groundwater rise, and changing climate patterns. Analysis will consider the collection, treatment, and discharge systems. Mitigation and control measures needed to maintain, protect, and improve wastewater infrastructure under existing and possible future conditions will be defined.

Deliverable: Draft Technical Memorandums:

i. All onsite wastewater treatment systems in Stinson Beach
ii. All onsite wastewater treatment systems in Bolinas
iii. All existing collection system and existing treatment facility in Bolinas

Final Technical Memorandums:

i. All onsite wastewater treatment systems in Stinson Beach
ii. All onsite wastewater treatment systems in Bolinas
iii. All existing collection system and existing treatment facility in Bolinas

<u>TASK 5</u>: Complete an Alternatives Analysis for the BCPUD Existing Wastewater Collection and Treatment System

Based on the results of Task 4, recommend mitigation and control measures needed to maintain, protect, and improve BCPUD's wastewater infrastructure under existing and possible future conditions. Climate adaptation strategies may include regional collaboration as indicated in Task 6, near-term measures, long-term design modifications and improvements, new monitoring, and updated emergency response planning.

This analysis will evaluate how to operate the facilities in compliance for an annual rainfall on a 25- to 50-year return interval. The facility's current storage capacity is designed for approximately an annual rainfall on a 10-year return interval. The plan shall identify preferred alternatives for facility upgrades to address vulnerabilities and include estimated costs.

Deliverable: Draft Technical Memorandum
Final Technical Memorandum

TASK 6: **Conceptual Design of a Community Wastewater System**

Using the data gathered in Task 4 and 5, conduct a brief alternatives analysis and determine the size, scope and capacity of a sanitary sewer collection and treatment system that would replace, all existing OWTSs in Stinson Beach and those in Bolinas where vulnerable and economically feasible. Conceptual design will incorporate/upgrade/replace all existing sanitary sewer infrastructure in Bolinas, as feasible. Options to include conceptual design of:

1) A comprehensive approach incorporating Stinson Beach and Bolinas into a single, regional system; and
2) Two comprehensive but separate systems, each, for Stinson Beach and Bolinas

Conceptual designs to include general layout and location of all proposed infrastructure, conceptual-level cost estimates, engineering constraints, regulatory constraints, economic feasibility, constructability, operation and maintenance considerations, real estate considerations, evaluation of a Joint Powers Authority (under the regional approach), LAFCO considerations, environmental/permitting considerations, and proposed implementation schedules. Conceptual design also to identify potential uses of treated effluent, including but not limited to non-potable recycled water, wetland restoration, deep well injection/disposal, and/or shallow well groundwater recharge.

Deliverable: Draft Technical Memorandum
Final Technical Memorandum

TASK 7: **Prepare a SLR Adaptation Plan Report Summarizing all Work from Tasks 1 through 6**

Prepare a technical report summarizing the results of Tasks 1 through 6 into a comprehensive SLR Adaptation Plan. This report will focus on relevant, but easily consumable information for use in public comment and input.

Deliverable: Draft Technical Memorandum
Final Technical Memorandum

TASK 8: **Outreach and Public Involvement**

Outreach to the public may be ongoing during this Project. The Project Team will seek public input during various stages of the development of the SLR Adaptation Plan. Public engagement may be continuous and conducted in incremental steps as the Project details are developed. All

planned Public outreach meetings and work products distributed for the Public meetings will include solicitation from the California Coastal Commission and/or the Bay Conservation Development Commission.

Deliverable: Meetings minutes/summaries of public comments (to be submitted after each meeting)

TASK 9: **Project Administration**

The General Managers of Stinson Water and BCPUD will be actively involved in all aspects of the Project to ensure the Project remains on schedule. Progress Reports and other activities related to grant administration will be submitted quarterly and include compiling receipts for reimbursable costs incurred during the Project.

Deliverable: Quarterly progress reports

Accessibility:

The project team will coordinate production and accessibility of all public-facing documents, reports and websites.

Anticipated Project Schedule:

2025												
Task	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1a								D		D		
1b								D		D		
2a											D	
2b												
3												D
4												
5												
6												
7												
8												
9						D			D			D

2026												
Task	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1a												
1b												
2a												
2b	D											
3		D										
4				D		D						
5												
6												
7												
8							PM					
9			D			D			D			D

PM = Public Meeting
D = Deliverable

Anticipated Project Schedule (cont.):

2027												
Task	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1a												
1b												
2a												
2b												
3												
4												
5						D				D		
6						D				D		
7												
8										PM		
9			D			D			D			D

2028												
Task	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1a												
1b												
2a												
2b												
3												
4												
5												
6												
7				D			D					
8								PM				
9			D			D			D			

PM = Public Meeting
D = Deliverable

Budget: $1,500,000.00

	Task 1a	Task 1b	Task 2a	Task 2b	Task 3	Task 4	Task 5	Task 6	Task 7	Task 8	Task 9	Project Total
Personnel	$40,000	$26,000	$13,000	$22,000	$7,000	$19,000	$44,000	$55,000	$11,000	$24,000	$54,000	$315,000
Travel	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subcontractor(s)	$40,000	$124,000	$25,000	$90,000	$70,000	$165,000	$166,000	$350,000	$100,000	$50,000	$0	$1,180,000
Equipment/Materials	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,000	$0	$5,000
Overhead*	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Task Total:	**$80,000**	**$150,000**	**$38,000**	**$112,000**	**$77,000**	**$184,000**	**$210,000**	**$405,000**	**$111,000**	**$79,000**	**$54,000**	**$1,500,000**

**Overhead may not be applied to subcontractors or equipment (materials valued over $5,000 per item).*

Personnel Breakdown:

Title	Maximum Hourly Rate
Kent Nelson, Stinson Water	$ 167.50
Georgia Woods, BCPUD	$ 87.45
Marc Matheson, Stinson Water	$ 66.29
Chris Kelley, Stinson Water	$ 156.30
BCPUD Support Staff	$ 55.96

Agreement Contacts:

Grantee: Stinson Water
Contact Name: Marc Matheson
Contact Number: (415) 868-1333
Contact Address: 3785 Shoreline Hwy, PO Box 245
Stinson Beach, CA 94970
Contact Email: mmatheson@stinsonwater.org

California Natural Resources Ocean Protection Council
Contact Name: Megan Williams
Contact Number: (916) 653-5656
Contact Address: 715 P Street, 20th Floor
Sacramento, CA 95814
Contact Email: Megan.Williams@resources.ca.gov

BOLINAS COMMUNITY PUBLIC UTILITY DISTRICT
BCPUD BOX 390 270 ELM ROAD BOLINAS CALIFORNIA 94924 415 868 1224

January 5, 2025

California Ocean Protection Council
California Natural Resources Agency
715 P Street, 20th Floor
Sacramento, CA 95814

Re: Letter of Support from BCPUD for Stinson Water's SB-1 Grant Proposal

Dear California Ocean Protection Council Members:

On behalf of the Bolinas Community Public Utility District (BCPUD), I am writing to express my strong support for the Stinson Beach County Water District ("Stinson Water") and its SB-1, Track 1, grant proposal.

Currently, Stinson Beach does not have a public wastewater system; instead, the town and its thousands of weekly visitors are served by individual and highly vulnerable septic systems. Given that many are located at sea level, along the coastline, these systems are particularly vulnerable to sea level rise (SLR) and other coastal impacts of climate change. Their proposal looks at the feasibility of replacing all 750 Onsite Wastewater Treatment Systems (OWTSs) with a consolidated climate resilient public sanitary sewer system. To this end, the study will examine the viability of developing a "regional" wastewater treatment system that could serve both Stinson Beach and the neighboring village of Bolinas, with the ultimate intent of building a regional system that prevents wastewater from contaminating the surrounding Bolinas Lagoon tidal estuary (part of the Greater Farallones National Marine Sanctuary).

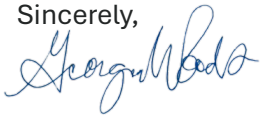
The BCPUD operates a small public sanitary sewer system consisting of ~150 sewer connections. The remaining homes in Bolinas (~450) are otherwise served by OWTSs, many of which are at risk of failure, like those in Stinson Beach. In fact, recently the County of Marin detected fecal effluent along the bluff and closed the underlying Bolinas Beach. Although the source of this contamination has not been identified, one presumed culprit is the eroding OWTSs that reside along the cliff's edge. Given the recent beach closure, there is great interest to incorporate the most vulnerable OWTSs in Bolinas into BCPUD's sewer system. However, this system, which treats wastewater via its transport through a series of natural ponds, is currently at capacity. In addition, gross models of SLR predict that portions of BCPUD's existing

collection system will be inundated by SLR. Therefore, this proposed study also looks at the feasibility of upgrading and improving BCPUD's sewer collection system, and its historic 50-year-old wastewater pond systems, to expand its capacity and augment its resiliency to SLR and other associated impacts of climate change.

The BCPUD has worked closely with Stinson Water in drafting this proposal to ensure that prospective funds are used efficiently and effectively to address the needs of both communities. The BCPUD greatly appreciates Stinson Water's efforts to spearhead a regional solution to address our collective vulnerabilities in treating wastewater. We look forward to working together on this project, and hope it lays the groundwork for future collaborations. We also believe it will demonstrate to other rural communities in California how the formation of partnerships will be essential in addressing the complex and daunting challenges presented by climate change.

We urge you to fund BCPUD's partnership with Stinson Water, as we aim to mitigate a profound public health risk in the face of SLR and to protect the significant and valued oceanic sanctuary surrounding our communities.

Sincerely,



Georgia Woods
General Manager