

## A. General Project Information

- 1. Organization / Project Sponsor Name: Mendocino County Resource Conservation District
- Project Name: Rural Tank Program for Water Security and Fire Preparedness in Mendocino County Disadvantaged Communities
- 3. Has the organization implemented similar projects in the past? X yes no
- 4. If the project sponsor has worked with NCRP in the past, describe the project and outcome. Prop 84 Water Emergency Preparedness for Underserved Districts, Prop 84 On Farm Water Conservation, Prop 84 Tribal Water Conservation, Prop 84 Gualala Water Projects; All projects completed.
- 5. Please describe the qualifications, experience, and capacity of the project team that will be overseeing project implementation.

The mission of the MCRCD is to conserve, protect and restore wild and working landscapes in Mendocino County. MCRCD is a non-regulatory, public agency providing conservation leadership through technical, financial, and educational support. Since 1945, MCRCD has worked with local communities to voluntarily conserve, protect, and restore natural resources. MCRCD has extensive experience installing rainwater harvest tanks to conserve local water resources and protect fish habitat.

6. Is this project part of a larger project or program? If so, what effectiveness monitoring is being conducted and what are the results? No

#### 7. Project Abstract [500 characters max.]

The Rural Tank Program for Underserved Communities in Mendocino County will install rainwater harvest tanks at fire stations and residences to conserve streamflow in the summer, increase water self-reliance, reduce the risk of catastrophic fires, and protect endangered salmonids. The project aligns with Prop 1 priorities to assist with water infrastructure to adapt to climate change and improve regional water self-reliance, as well as encouraging collaborative water use.

#### 8. Project Description [3,000 characters max.]

The Rural Tank Program for Water Security and Fire Preparedness in Mendocino County Disadvantaged Communities project has four components, all addressing water security and fire safety. The Piercy Rainwater Harvest Project will install five 5,000-gallon tanks in two locations: 3



at the Fire Station and two at the Community Hall/Training Center. Both locations are on Highway 271 and provide easy access to fire personnel, as well as adjacent communities and CAL FIRE. The sphere of influence ranges up to 100 square miles: up to five miles north of the Humboldt-Mendocino county line and 20 miles south to Cummings along Highway 101 corridor and West on Highway 1 to the coast. Piercy's automatic mutual aid agreements with Garberville and Leggett allow them to extend into those areas if required. The tanks will be filled entirely by a rainwater harvest system set up on the roofs of the two buildings. The project will enable the community to have access to water during low-flow months, prevent a catastrophic spread of fire, and enable water sharing with a broad region.

The Leggett Fire Water Project is a community-driven project to install a 70,000 gallon tank in Tan Oak Park to enable the community to respond to wildfire quickly during low-flow months. Leggett is fire vulnerable and water limited in the summer. Many of the water drafting spots along the streams used by the fire departments are dry or have flow too low to be useful. The Leggett Fire Water Project will provide water for fighting fires along Highway 101 and the tank will be the only source of fire water for several miles. This source will be accessible to Leggett, Laytonville, Bell Springs, CAL FIRE and all mutual aid fire services. The project has been a local priority for over a decade and the community initiated fundraising and obtained a geotechnical report. Tan Oak Park is an ideal place for the project due to its accessibility for multiple fire engines to refill simultaneously and easily. This tank alone will be filled by well water.

The Rancho Navarro project includes two components seeking to improve water security and wildfire preparedness in the Rancho Navarro Subdivision within the Navarro watershed. Eight 5,000 gallon rainwater catchment tanks will be installed at the Rancho Navarro Fire House along with gutters, pads, conveyance, and necessary hardware to allow access for fire suppression, and eight to ten individual 5,000 gallon rainwater catchment tanks, pads, and associated conveyance materials will be distributed to rural residents to enhance drought preparedness, increase their water security and fire preparedness. The residential element of the project will be a partnership with Conservation Works and will expand an existing rainwater catchment program.

#### 9. Specific Project Goals/Objectives

Goal 1: Beneficial Uses of Water [100 characters max.] Goal 1 Objective: Ensure water supply reliability and quality for municipal uses while minimizing impacts to sensitive resources [200 characters max.] Goal 1 Objective: Goal 1 Objective: Goal 1 Objective:

#### Goal 2: Public Safety

Goal 2 Objective: Objective: Improve flood protection, forest and community resiliency to reduce the public safety impacts associated with floods and wildfires.



Goal 2 Objective: Goal 2 Objective: Goal 2 Objective:

Goal 3: Climate Adaptation and Energy Independence

Goal 3 Objective: Address climate change effects, impacts, vulnerabilities, including droughts, fires, floods, and sea level rise. Develop adaptation strategies for local and regional sectors

Goal 3 Objective:

Goal 3 Objective:

Goal 3 Objective:

Additional Goals & Objectives (List)

Goal 4: Economic Vitality

Goal 4: Objective: Ensure that economically disadvantaged communities are supported and that project implementation enhances the economic vitality of disadvantaged communities by improving infrastructure.

Goal 5 Ecosystem Conservation and Enhancement

Conserve, enhance, and restore watersheds and aquatic ecosystems, including functions, habitats, and elements that support biological diversity. Enhance salmonid populations by conserving, enhancing, and restoring required habitats and watershed processes.

## **10.** Describe how the project addresses the NCRP Goals and Objectives selected. [1,000 characters max.]

This project provides multiple benefits to three rural communities by increasing water supply for fire suppression activities, ensuring water for non-potable domestic uses during the dry season, and providing greater resiliency in the face of climate related drought and fire. All three are community-driven projects representing great local need and high levels of local support. Currently, there is no reliable water supply for fire suppression in Leggett, Piercy, or Rancho Navarro. The residential tank program improves self-sufficiency and addresses severe water insecurity in the Rancho Navarro community, where wells can go dry in the summer season. Additional water storage from rainwater catchment would provide a secure source of nonpotable domestic water. These projects will enhance the ability of fire departments to respond quickly to emergencies without reliance on low flows in salmonid-bearing streams or overdrafting groundwater during vulnerable periods when demand will be high.

## **11. Describe the physical, biological and/or community need for the project**. [1,000 characters max.]

Piercy and Leggett are located in northern Mendocino County. Many of the spots used by the fire departments go dry and are within salmonid-bearing streams. The Fire Departments remain reliant on the streamflow or residential tanks, which are often unavailable. Fire water tanks have been identified by the community as vital pieces of infrastructure for community safety. In



Leggett, the community has financed the design of the project and secured a loan to lock in a price for the tank.

Rancho Navarro is a densely built community in the Lower Navarro River watershed. Ongoing drought has brought the threat of catastrophic wildfires to the region and well often go dry. Additionally, Rancho Navarro's topography is such that all of the drainage area feeds into either Neefus Gulch, Flynn Creek, or other tributaries to the North Fork Navarro, all of which are Coho Salmon bearing streams and are considered a stronghold for CCC Coho Salmon recovery (see multi-benefits section below).

#### **12.** Describe the financial need for the project. [1,000 characters max.]

All three communties are designated as Economically Disadvatanged and Leggett and Piercy are in areas designated as Severely Economically Disadvantaged. While Leggett has raised some funds and secured a loan, they have only raised 8% of the total project cost. The Rancho Navarro Fire House is entirely volunteer based. They, like the other volunteer fire protection districts of Mendocino County, receive no base funding and face continuously increasing costs for basic PPE and fire fighting equipment. Providing additional water storage in the neighborhood would not be possible without grant funding and will greately improve water security and community resilience.

## 13. Describe potential adverse impacts from project implementation and how they will be mitigated.

No adverse impacted anticipated for the fire water tanks. Creating residential water storage sometimes has the impact of increasing water demand by providing a false sense of security about the availability of water. MCRCD plans to enter into water management agreements with all individual landowners who receive rainwater catchment infrastructure to ensure they are properly maintained for the life of the project and all water use goes toward non-potable domestic use.

- 14. Will this project mitigate an existing or potential Cease and Desist Order or other regulatory compliance enforcement action? yes in our lf yes, please describe. [500 characters max.]
- 15. Does the project address a contaminant listed in AB 1249 (nitrate, arsenic, perchlorate, or hexavalent chromium)?

yes No If yes, provide a description of how the project helps address the contamination. [500 characters max.]

**16.** Describe how the project contributes to regional water self-reliance and addresses climate change. [1,000 characters max.]



Leggett, Piercy, and Rancho Navarro do not currently have a large quantity of water available for emergency use in an accessible area and would be hard pressed to fight fires with local resources alone. All Fire Departments have indicated that the project is necessary for local water availability and self-sufficiency. These projects have great potential to support the entire surrounding community during times of need. Additionally, Rancho Navarro is facing sever water insecurity as many wells go dry for a portion of the year.

Rainwater catchment is a passive form of water storage. It requires no energy intensive pumps or mechanisms to function and reduces demand on wells and surface diversions.Providing additional water storage will reduce greenhouse gas emissions while providing an essential alternative water storage source for rural residents in the area.

# 17. Does the project increase public safety with regards to flood protection, wildfire hazard risk reduction, increasing firefighting capacity, or in other ways contribute to regional emergency resiliency?

🛛 yes

Please explain. [500 characters max.]

lno

Given the speed with which wildfire moves under the influence of drought and climate change, a large and local source of water is essential to preventing catastrophe. Recent ongoing drought in a heavily forested areas increases fire risk substantially and climate change forecasts predict worsening conditions. This project is very timely.

18. Does the project employ new or innovative technologies or practices, including <u>Decision</u>
 <u>Support Tools</u> that support the integration of multiple jurisdictions, including, but not limited to, water supply, flood control, land use, and sanitation?
 If yes, please describe. [500 characters max.]

Yes, rainwater harvest to provide firefighting water supplies and non-potable household use. Althought rainwater harvest is not a new technology, it is an innovative and rapidly burgeoning technology. Requiring no energy inputs and reducing reliance on surface and groundwater supplies, rainwater catchment systems are being rapidly developed and implemented throughout the west.

19. Describe the population served by this project, including any economically disadvantaged communities or Tribes that will directly benefit.

Three populations (Leggett, Piercy, and Rancho Navarro) will be served, all rural, all economically disadvantaged.

20. Describe local and/or political support for this project. [500 characters max.] All three communities have provided letters of support. The Piercy Fire Department is strongly in favor of the project. The Leggett community prioritized the project with fundraising and a geotechnical report. The Anderson Valley Fire Department views



alternative water resources for fire fighting in Rancho Navarro as a critical need. At local meetings in Rancho Navarro related to water security, fire preparedness, and salmonid habitat, community members indicated a desire for 5,000-gallon tanks

21. List all collaborating partners and agencies and nature of collaboration. [750 characters max.] Piercy Fire Department, Leggett Valley Volunteer Fire Department, Families and Friends United By AIDS/Tan Oak Park (providing location for the Leggett tank), Anderson Valley Fire Department- Fire Preparedness/Protection, Rancho Navarro Homeowners Associationresident/landowners organizing body, Conservation Works- partner in installing additional tanks in Rancho Navarro through matching funds, Trout Unlimited/The Nature Conservancy- Navarro Streamflow Enhancement Partnership, North Coast Trout Unlimited- fish passage and habitat enhancement in Neefus Gulch.

#### 22. Is this project part or a phase of a larger project?

Are there similar efforts being made by other groups? If yes to either, please describe. [500 characters max.]



MCRCD, The Nature Conservancy, and Trout Unlimited have funds to engage in Collaborative Water Management planning, developing projects to enhance streamflows, including off-stream storage, rainwater catchment, and infiltration projects in the North Fork Navarro, including Rancho Navarro. North Coast Trout Unlimited is in the process of working with the community to remove an on stream pond on Neefus Gulch for fish passage.

### **B. Project Location**

- 1. Describe the latitude and longitude of the project site. Latitude: 39.9645 Longitude: -123.7750 Lat: 39.827, Long: -123.605 Lat: 39.1931, Long: -123.5860
- Site Address (if relevant): Piercy Volunteer Fire Department, 80401 CA-271, Piercy, CA 95587 Tan Oak Park, 58974 US-101, Laytonville, CA 95454 Rancho Navarro, 19100 Appian Way, Navarro, CA 95463
- 3. Does the applicant have legal access rights, easements, or other access capabilities to the property to implement the project?

🛛 yes	If yes, please describe below
no	If no, please provide a concise narrative below with a schedule, to obtain
	necessary access



NA If NA, please describe below why physical access to a property is not needed

Explanation. [500 characters max.]

Mendocino County RCD will have legal access agreements in place with all project proponents

#### 4. Project Location Notes:

This Project is located in three distinct rural disadvantaged communities: Piercy, Leggett, and Rancho Navarro. Individual tank locations for residents in Rancho Navarro will be selected on basis of water need, individual disadvantaged status (those with need being served first,) and proximity and benefit to a Coho bearing stream.

The Piercy project is located in two spots: the Piercy Community Center and the Fire Department. It will serve approximately 250 people within a district of nine square miles, though the sphere of influence ranges up to 100 square miles.

For Leggett, the Tan Oak Park is the only community available in this remote section of Highway 101 in Mendocino County to host this size of tank and ensure it is maintained and functional in times of emergency. Tan Oak Park is owned by Families and Friends United By AIDS, a non profit 501 (c) (3) charitable organization. FAFUBA will provide to the site for the tank and the means for keeping it full.

## C. Benefits To Disadvantaged Communities and/or Tribes

1. Does the project provide direct water-related benefits to a project area comprised of Disadvantaged Communities or Economically Distressed Communities? If partially, please estimate percentage of project that benefits disadvantaged communities and list the communities.

🛛 Entirely

Partially; estimate the percentage of benefits provided directly to DAC:

No

List the Disadvantaged Community(s)

Piercy, Leggett and Rancho Navarro

2. Does the project provide direct water-related benefits to a project area comprised of Severely Disadvantaged Communities (SDAC)? If partially, please estimate percentage of project that benefits disadvantaged communities and list the SDACs.

Entirely

Partially; estimate percentage of benefits provided directly to SDAC: 50%

List the Severely Disadvantaged Community(s)

Piercy, Leggett and Rancho Navarro



**3.** Does the project provide direct water-related benefits to a Tribe or Tribes? If partially, please estimate percentage of project that benefits Tribe(s) and list the Tribes.

Entirely

Partially; estimate percentage of benefits provided directly to Tribe(s):

No 🕅

List the Tribal Community(s)

*If yes, please provide a letter of support from each Tribe listed as receiving these benefits.* 

4. If the project provides benefits to a DAC, EDA or Tribe, explain the water-related need of the DAC, EDA or Tribe and how the project will address the described need. [750 characters max.]

The Fire Departments in all three areas have limited access to both water for fire-fighting and funds for improving infrastructure. In addition, many residents in Rancho Navarro are living on limited fixed incomes, choosing to live simply on their "piece" of land that they purchased years ago when land prices were affordable. Their ability to purchase and install additional storage is limited.

5. Describe the kind of notification, outreach and collaboration that has been completed with the county(ies) and/or Tribes within the proposed project impact area, including the source and receiving watersheds, if applicable. [500 characters max.] Rancho Navarro has regular board meetings that MCRCD staff has attended to discuss water security and fire preparedness with community members. Surveys have been conducted to learn about need and prioritize actions and potential project opportunities for future development. The Leggett Fire Department is working cooperatively with Tan Oak Park to develop this project. Community outreach includes fundraising, a Facebook page and events.

## D. Project Benefits & Justification

 For each of the Potential Benefits that the project claims, complete the following table to describe an estimate of the benefits expected to result from the proposed project. Provide quantitative benefit amounts for at least the primary and secondary benefits. Provide a qualitative narrative description of expected benefits that cannot be quantified. See the NCRP Project Application Instructions for more information and a listing of potential benefits.

#### PROJECT BENEFITS TABLE



Benefit Description	Units	Quantitative Amount	Qualitative Description
Water Supply			
emergency water access for fire dept	gallons	135,000	water tanks
non-potable water for residences	gallons	50,000	water tanks
Water Quality			
Climate Change			
access to water for fire fighting during low flow periods	gallons	135,000	water tanks
water supply when wells dry	gallons	50,000	water tanks
Other Ecosystem Servi	ice Benefi	lts	
enhanced stream flow	gallons	185,000	streamflow not used
Jobs Created or Maint	ained	I	
contractors	dollars	~\$80K	local firms labor
Other Benefits			
fire protection	sq miles	at least 100	adjacent communities
fire protection	people	~1000	3 communities

2. Does the proposed project provide physical benefits <u>outside</u> of the North Coast Region?



If yes, describe the impacts to areas outside the North Coast Region. [500 characters max.]

- **3.** List the impaired water bodies (303d listing) that the project benefits: South Fork Eel River Watershed, Navarro River
- 4. Describe how the project benefits salmonids, endangered/threatened species and sensitive habitats.

The project will protect a minimum of 185,000 gallons of water from being drawn from salmonid-bearing streams over the course of a season. Rancho Navarro is built up in the Neefus Gulch and Flynn Creek sub-drainages to the North Fork Navarro River. The North Fork Navarro is considered a stronghold for CCC Coho Salmon and therefore a priority area or recovery actions in the NMFS/NOAA Coho Recovery Plan (2012), along with the Multi-Species plan for Steelhead, which is a threatened species. This project will help with water resiliency in this priority area, increasing water security, and allowing water to stay in stream for the fish longer to help maintain pool habitat through the dry season. In addition, Rancho Navarro residents increasingly find their wells going dry in the summer. In Leggett and Piercy, the water drafting spots along local streams are dry or the flow is too low to be useful. Reliance on those streams will further endanger salmonids.

5. Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project?

🖂 yes

Please explain. [500 characters max.]

| |no

Yes, rainwater harvest is an emerging alternative method of water supply. The project approach is the simplest and most cost effective approach available. It is straightforward in execution, does not need complex engineering or building permits and allows for climate resiliency to be spread out throughout the landscape. In Leggett, the community has been exploring options and locations for alternative water sources for the tanks for over 10 years.

## 6. Is the proposed project the lowest cost alternative to achieve the physical benefits? yes no

Please explain. [500 characters max.]

Larger tanks are possible, but since COVID and supply chain disruption the cost of metal tanks has skyrocketed. The cost of plastic tanks has risen as well, but still within reach and efficient to execute.

7. How will the project be monitored to determine whether it is producing the desired benefits?



Metrics include number of gallons used in a season, number of fires utilizing the tank, square mileage of fires on which the tank water is used. Tanks will be monitored for performance and filling, potential leakage, and how it is used. The firehouse tanks will also be monitored for how often the water is accessed for fire suppression.

8. Provide a narrative for project technical justification. Include any other information that supports the justification for this project, including how the project can achieve the claimed level of benefits listed below. [3,000 characters max.] MCRCD has been designing and installing rainwater catchment tanks for at least a dozen years. In a separate NCRP Prop 84 grant MCRCD developed a rainwater harvesting curriculum for High School/College levels. Rainwater catchment is a fairly low tech strategy, especially in the 5K-gallon size systems. MCRCD, will work collaboratively with Conservation Works to design and implement the individual landowner tank systems. MCRCD has determined that the roof area is sufficient to fill the rainwater harvest tanks even in a dry season. All tank systems will be fitted with 2 1/2" firehose adaptable fittings. MCRCD will be working with Conservation Works on tanks for residential Rancho Navarro. Conservation Works also has a track record of successfully installing rainwater catchment tanks.

The Leggett tank project has an existing geotechnical report, included in Technical and Reference Supporting Documents.

- 9. List and include any studies, plans, designs or engineering reports completed for the project as a "Technical & Reference Supporting Materials" into one document that includes a Table of Contents and is limited to approximately 50 pages. *Please see the instructions for more information about submitting these documents with the final application.*
- 10. Project Justification & Technical Basis Notes: Please provide any additional information *not included above* that you think is important.

## E. Project Tasks, Budget, And Schedule

- 1. Projected Project Start Date: 8/1/23 Anticipated Project End Date: 12/31/27
- 2. Describe the basis for the costs used to derive the project budget in each budget category. [500 characters max.]

Costs created based on recent rainwater harvest tank installations by MCRCD with costs updated based on current pricing. Costs for contractor and pad development and installation of conveyance is based on similar projects conducted in recent projects in the Navarro and Gualala watersheds with Prop 84 NCRP funded projects. For Leggett, Families and Friends United By



AIDS/Tan Oak Park researched the costs and provided them to MCRCD, which were checked for accuracy based on previous projects.

**3.** Provide a narrative on cost considerations including alternative project costs. [500 characters max.]

Costs were based on current prices with some inflation-based additions, given that the project will not begin for 9-12 months.

**4.** List the sources of non-state matching funds, amounts and indicate their status. Proposition 1 requires a minimum cost share of 50% of the total project costs, though a waiver may apply (see Question 6 below).

Families and Friends United By AIDS/Tan Oak Park: \$13,900, secured

5. List the sources and amount of State matching funds.

DFW Voluntary Drought Initiative- Conservation Works (partner) \$30,000, secured Wildlife Conservation Board Streamflow Enhancement Program \$20,000, secured

6. Cost Share Waiver Requested (DAC or EDA)?

Describe what percentage of the proposed project area encompasses a DAC/EDA, how the community meets the definition of a DAC/EDA, and the water-related need of the DAC/EDA that the project addresses. In order to receive a cost share waiver, the applicant must demonstrate that the project will *directly* provide benefits that address a water-related need of a DAC/EDA.

lno

100% of the project area encompasses a DAC. The median household income in Rancho Navarro is reported at \$45,812 and in Piercy and Leggett at \$36,311, compared to the state median household income of \$63,783. The calculated DAC and SDAC thresholds are \$51,026 and \$38,270 respectively, making Rancho Navarro a DAC and both Piercy and Legget a SDAC. Futhermore, the adjacent communities that may benefit from additional water supply under mutal aid agreements between fire departments, are also identified as DAC.

- 7. Is the project budget scalable? X yes no
- 8. Describe how a scaled budget would impact the overall project, its expected benefits and state the minimum budget amount that would be viable (see Instructions E.7 for scaled budget examples). [500 characters max.]

The number of tanks could be increased or decreased, but would severely impact the ability of the fire departments to respond to fire. The minimum budget amount that would be viable would be 75% or \$375,000, but that would eliminate at least one component of the propgram. The number of tanks for residential landowners could be scaled back in Rancho Navarro, reducing the number of tanks and households served, could reduce budget by 25% if that element had to completely drop out.



9. Major Tasks, Schedule and Budget for Project Solicitation

Please complete MS Excel table available at <u>https://northcoastresourcepartnership.org/ncrp-proposition-1-irwm-round-2-solicitation/</u>see instructions for the information to be included in this document and for how to submit the required excel document with the application materials.

- 10. Project Tasks, Budget and Schedule Notes:
- **11. Project Information Notes.** Please provide any information that that has not been specifically requested that you feel is important for the NCRP to know about your project. This is a community-driven project based on a concrete safety need.

Project Name:

Organization Name:

Rural Tank Program for Water Security and Fire Preparedness in Mendocino County Disadvantaged Communities MCRCD

Task #	Major Tasks	Task Description	Major Deliverables	IRWM Task Budget	Non-State Match	Other Match	Total Task Budget	25% Scaled IRWM Budget	50% Scaled IRWM Budget	Current Stage of Completion (%)	Start Date	Completion Date
Α	Category (a): Direct Project Admi	nistration										
1	. Project Management	In cooperation with the County of Humboldt sign a sub-grantee agreement for work to be completed on this project. Develop invoices with support documentation. Provide audited financial statements and other deliverables as required	Invoices, audited financial statements and other deliverables as required	\$41,638.75	\$0.00	\$20,000.00	\$61,638.75	\$31,229.06	\$20,819.38	0%	8/1/23	12/31/27
2	Reporting	Develop monthly reports describing work completed, challenges, and strategies for reaching remaining project objectives. Develop Final Report	Quarterly and Final Reports	\$15,502.25	\$0.00	\$0.00	\$15,502.25	\$11,626.69	\$7,751.13	0%	8/1/23	12/31/27
В	Category (b): Land Purchase/Ease	ment										
1				\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0%		
С	Category (c): Planning/Design/En	gineering/Environmental Documentation							-			
1	Final Design /Plans			\$17,755.90	\$12,400.00	\$0.00	\$30,155.90	\$13,316.93	\$8,877.95	10%	8/1/23	11/1/24
2	Project Performance Monitoring Plan	Develop Monitoring Plan to include goals and measurable objectives	Final Monitoring Plan	\$6,880.86	\$0.00	\$0.00	\$6,880.86	\$5,160.65	\$3,440.43	0%	8/1/23	3/31/24
2	Environmental Documentation: CEQA	Complete environmental review pursuant to CEQA. Prepare all necessary environmental documentation.	Environmental Information Form approved by DWR	\$200.00	\$0.00	\$0.00	\$200.00	\$150.00	\$100.00	0%	8/1/23	3/31/24
3	Environmental Documentation: NEPA			\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0%		
4	Permit Development: Building permit		Building permit	\$1.500.00	\$1.500.00	\$0.00	\$3.000.00	\$1.125.00	\$750.00	0%	8/1/23	3/31/24
5	Permit Development [PLEASE COMPLETE]			\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	-, , -	-,-,
	Feasibility Studies, CEQA											
6	documentation, permitting, design	Oversee the planning and design elements	Documentation of Feasibility Studies, CEQA documentation, permitting, design	\$14,439.34	\$0.00	\$0.00	\$14,439.34	\$10,829.51	\$7,219.67	0%	8/1/23	5/31/24
D	Category (d): Construction/Imple	mentation										
1	Contract Services	Management and oversight of bid process	Bid Documents; Proof of Advertisement; Award of Contract; Notice to Proceed	\$5,521.44	\$0.00	\$0.00	\$5,521.44	\$4,141.08	\$2,760.72	0%	8/1/23	10/1/26
2	Construction Administration	Management and oversight of construction	Construction Management Logs; Completed construction administration tasks documented in monthly progress reports; DWR Certificate of Project Completion	\$26,127.14	\$0.00	\$0.00	\$26,127.14	\$19,595.36	\$13,063.57	0%	8/1/23	10/1/27
3	Mobilization and Site Preparation			\$21,700.00	\$0.00	\$0.00	\$21,700.00	\$16,275.00	\$10,850.00	0%	8/1/23	10/1/27
4	Project Construction/Implementation: Tank and pad installation	Including pad development, tank installations, and conveyance		\$64,000.00	\$0.00	\$0.00	\$64,000.00	\$48,000.00	\$32,000.00	0%	10/1/23	10/1/27
5	Project Construction/Implementation:			\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0%	10/1/23	10/1/27
6	Tank purchase plus rock and gravel for pads and hardware			\$269,347.00	\$0.00	\$30,000.00	\$299,347.00	\$202,010.25	\$134,673.50	0%	8/1/23	10/1/26
7	Mileage			\$1,937.50	\$0.00	\$0.00	\$1,937.50	\$1,453.13	\$968.75	0%	8/1/23	12/31/27
8	Project Signage		sign design	\$3,000.00	\$0.00	\$0.00	\$3,000.00	\$2,250.00	\$1,500.00	0%	8/1/23	6/30/27
9	Project Close Out, Inspection & Demobilization	Inspect project components and establish that work is complete. Verify that all project components have been installed and are functioning as specified will be conducted as part of construction inspection and project closeout. Conduct project completion photo monitoring. Prepare record drawings.	As-Built and Record Drawings; Project completion site photos	\$4,501.20	\$0.00	\$0.00	\$4,501.20	\$3,375.90	\$2,250.60	0%	8/1/23	6/30/27
10	Project Performance Monitoring	The performance of the project will be monitored in accordance to the Monitoring Plan using the following measurement tools and methods: gallons used and fire events per season. people and areas served		\$5,904.05	\$0.00	\$0.00	\$5,904.05	\$4,428.04	\$2,952.03	0%	8/1/23	12/31/27
	Total North Coast Resource Par	tnership IRWM Grant Request		\$499,955.43	\$13,900.00	\$50,000.00	\$563,855.43	\$374,966.57	\$249,977.72			
	Percentage of Total Project Cost			89%	2%	9%	100%	67%	44%			

#### **BUDGET DETAIL: Piercy**

Row (a) Direct Project Administration Costs					
Project Management Type	Personnel by Discipline	Number	Hourly	% of Cost *	Total Admin
		of Hours	Wage		Cost
Labor	Executive Director	10	\$128		\$1,281
Labor	Project Manager	80	\$125		\$10,002
Labor	Business Manager	10	\$100		\$1,000
Labor	Grizzly Corps	16	\$50		\$800
Materials					
Equipment					
Total					\$13,084
* What is the percentage based on (including total amounts)?		n/a			
* How was the percentage of cost determined?		n/a			

tow (c) Planning/Design/Engineering & Environmental Documentation					
Personnel (Discipline)	Major Task Name	Number	Hourly	Total Cost	
		of Hours	Wage		
Project Manager	CEQA documentation, permitting, design,	65	\$125	\$8,127	
	monitoring plan				
Grizzly Corps	CEQA documentation, permitting, design,	20	\$50	\$1,000	
	monitoring plan				
NOE filing				\$50	
Total				\$9,177	

Row (d) Construction/Implementation				
Personnel (Discipline)	Work Task and Sub-Task (from	Number	Hourly	Total Cost
	Work Task Table)	of Hours	Wage	
Project Manager	contract services, construction admin, construction,	50	\$125	\$6,252
	close out inspection, monitoring, sign design			
Grizzly Corps	contract services, construction admin, construction,	20	\$50	\$1,000
	close out inspection, monitoring, sign design			
Contractor: tank installation	installation of tank and pad			\$20,000
Materials and Equipment	Work Task and Sub-Task (from	Number	Unit Cost	
	Work Task Table)	of Units		
5-5000 gallon tanks plus hardware		5	10000	\$50,000
mileage		800	0.625	\$500
rock and gravel for foundation		1	1500	\$1,500
signage		1	1000	\$1,000
Total				\$80,252

#### **BUDGET DETAIL: Leggett**

Row (a) Direct Project Administration Costs							
Project Management Type	Personnel by Discipline	Number	Hourly	% of Cost *	Total Admin		
		of Hours	Wage		Cost		
Labor	Executive Director	10	\$128		\$1,281		
Labor	Project Manager	80	\$125		\$10,002		
Labor	Business Manager	10	\$100		\$1,000		
Labor	Grizzly Corps	16	\$50		\$800		
Materials							
Equipment							
Total					\$13,084		
* What is the percentage based on (including total amounts)?		n/a					
* How was the percentage of cost determined?		n/a					

Row (c) Planning/Design/Engineering & Environm	ow (c) Planning/Design/Engineering & Environmental Documentation				
Personnel (Discipline)	Major Task Name	Number	Hourly	Total Cost	
		of Hours	Wage		
Project Manager	Feasibility Studies, CEQA documentation,	90	\$125	\$11,253	
	permitting, design, monitoring plan				
Grizzly Corps	Feasibility Studies, CEQA documentation,	30	\$50	\$1,500	
	permitting, design, monitoring plan				
Mileage					
Permits				\$3,000	
Geotechnical Analyses, survey, mapping				\$12,400	
NOE filing				\$50	
Total				\$28,203	

Row (d) Construction/Implementation				
Personnel (Discipline)	Work Task and Sub-Task (from	Number	Hourly	Total Cost
	Work Task Table)	of Hours	Wage	
Project Manager	contract services, construction admin, construction,	50	\$125	\$6,252
	close out inspection, monitoring, sign design			
Grizzly Corps	contract services, construction admin, construction,	30	\$50	\$1,500
	close out inspection, monitoring, sign design			
Tank installation	installation of tank and pad			\$10,000
Materials and Equipment	Work Task and Sub-Task (from	Number	Unit Cost	
	Work Task Table)	of Units		
70000 gallon tank		1	101597	\$101,597
mileage		800	0.625	\$500
rock and gravel for foundation		1	5350	\$5,350
plumbing and hydrant		1	3850	\$3,850
signage		1	1000	\$1,000
Total				\$130,049

#### **BUDGET DETAIL: Rancho Navarro Residential Tanks**

Row (a) Direct Project Administration Costs					
Project Management Type	Personnel by Discipline	Number	Hourly	% of Cost *	Total
		of Hours	Wage		Admin
					Cost
Labor	Executive Director	10	\$128.11		\$1,281
Labor	Navarro Watershed Coordinator	60	\$114.97		\$6 <i>,</i> 898
Labor	Project Coordinator	60	\$105.12		\$6,307
Labor	Business Manager	10	\$100.00		\$1,000
Materials					
Equipment					
Total					\$15,487
* What is the percentage based on (including total amounts)?		n/a			
* How was the percentage of cost determined?		n/a			

Row (c) Planning/Design/Engineering & Environ	Row (c) Planning/Design/Engineering & Environmental Documentation						
Personnel (Discipline)	Major Task Name	Number	Hourly	Total Cost			
		of Hours	Wage				
Navarro Watershed Coordinator	Feaibilty studies, CEQA documentation, design, monitoring plan	36.5	\$ 114.97	\$4,196.41			
Project Coordinator	Feaibilty studies, CEQA documentation, design, monitoring plan	34.5	\$ 105.12	\$3,626.64			
Fisheries Biologist		30	125.03	\$3,750.90			
NEO Filing				\$50.00			
Total				\$11,623.95			

Row (d) Construction/Implementation					
Personnel (Discipline)	Work Task and Sub-Task	(from	Number	Hourly	Total Cost
	Work Task Table)		of Hours	Wage	
Navarro Watershed Coordinator			61	\$ 114.97	\$ 5,288.62
Project Coordinator			61	\$ 105.12	\$ 4,835.52
Contractor					\$30,000
Materials and Equipment	Work Task and Sub-Task	(from	Number	Unit Cost	
	Work Task Table)		of Units		
5,000 gallon tanks			10	\$5,625	\$56,250
Hardware					\$10,000
Mileage					468.75
Total					\$ 106,842.89

#### **BUDGET DETAIL: Rancho Navarro Fire Department**

Row (a) Direct Project Administration Costs					
Project Management Type	Personnel by Discipline	Number	Hourly	% of Cost *	Total Admin
		of Hours	Wage		Cost
Labor	Executive Director	10	\$128.11		\$1,281.10
Labor	Navarro Watershed Coordinator	60	\$114.97		\$6,898.20
Labor	Project Coordinator	60	\$105.12		\$6,307.20
Labor	Business Manager	10	\$100.00		\$1,000.00
Materials					
Equipment					\$0.00
Total					\$15,486.50
* What is the percentage based on (including total amounts)?		n/a			
* How was the percentage of cost determined?		n/a			

Row (c) Planning/Design/Engineering & Environmental Documentation					
Personnel (Discipline)	Major Task Name	Number	Hourly	Total Cost	
		of Hours	Wage		
Navarro Watershed Coordinator	Feaibilty studies, CEQA documentation, design, monitoring plan	26.5	\$ 114.97	\$3,046.71	
Project Coordinator	Feaibilty studies, CEQA documentation, design, monitoring plan	24.5	\$ 105.12	\$2,575.44	
NEO Filing				\$50.00	
Total				\$5,672.15	

Row (d) Construction/Implementation					
Personnel (Discipline)	Work Task and Sub-Task (from	Number	Hourly	Total Cost	
	Work Task Table)	of Hours	Wage		
Navarro Watershed Coordinator	Feaibilty studies, CEQA documentation, design,	63.5	\$ 114.97	\$ 7,300.60	
	monitoring plan, sign design				
Project Coordinator	Feaibilty studies, CEQA documentation, design,	63.5	\$ 105.12	\$ 6,675.12	
	monitoring plan, sign design				
Contractor				\$ 20,000.00	
Materials and Equipment	Work Task and Sub-Task (from	Number	Unit Cost		
	Work Task Table)	of U nits			
5,000 gallon tank		8	\$5 <i>,</i> 625	\$45,000	
Hardware				\$5,000	
Mileage				\$469	
signage				\$450	
Total				\$ 84,894.47	



### **ORGANIZATION INFORMATION**

#### 1. Project Name:

Rural Tank Program for Water Security and Fire Preparedness in Mendocino County Disadvantaged Communities

2. Applicant Organization Name: Mendocino County Resource Conservation District

#### 3. Contact Name/Title

Name: Deborah Edelman Title: Water Program Manager Email: deborah.edelman@mcrcd.org Phone Number (include area code): 707-462-3664

### 4. Organization Address (City, County, State, Zip Code):

410 Jones St, Suite C-3, Ukiah CA 95482

#### 5. Organization Type

Public agency

- 501(c)(3) Non-profit organization
- Public utility
- Federally recognized Indian Tribe
- California State Indian Tribe listed on the Native American Heritage Commission's

California Tribal Consultation List

- Mutual water company
- Other:

#### 6. Authorized Representative (if different from the contact's name)

Name: Stephanie Garrabrant-Sierra Title: Executive Director Email: Stephanie.Sierra@mcrcd.org Phone Number (include area code): 707-272-4276

## 7. List all projects the organization is submitting to the NCRP for this Solicitation in order of priority.

Only this one

#### 8. Organization Information Notes:

MCRCD is a non-regulatory, public agency providing conservation leadership through technical, financial, and educational support for voluntary stewardship of natural resources on public and private lands in our community.



### ELIGIBILITY

#### 1. North Coast Resource Partnership Goals and Objectives

**GOAL 1: INTRAREGIONAL COOPERATION & ADAPTIVE MANAGEMENT** 

Objective 1 - Respect local autonomy and local knowledge in Plan and project development and implementation

Objective 2 - Provide an ongoing framework for inclusive, efficient intraregional cooperation and effective, accountable NCRP project implementation

Objective 3 - Integrate Traditional Ecological Knowledge in collaboration with Tribes to incorporate these practices into North Coast Projects and Plans

#### GOAL 2: ECONOMIC VITALITY

Objective 4 - Ensure that economically disadvantaged communities are supported and that project implementation enhances the economic vitality of disadvantaged communities by improving built and natural infrastructure systems and promoting adequate housing

Objective 5 - Conserve and improve the economic benefits of North Coast Region working landscapes and natural areas

#### GOAL 3: ECOSYSTEM CONSERVATION AND ENHANCEMENT

Objective 6 – Conserve, enhance, and restore watersheds and aquatic ecosystems, including functions, habitats, and elements that support biological diversity
 Objective 7 - Enhance salmonid populations by conserving, enhancing, and restoring required habitats and watershed processes

#### GOAL 4: BENEFICIAL USES OF WATER

Objective 8 - Ensure water supply reliability and quality for municipal, domestic, agricultural, Tribal, and recreational uses while minimizing impacts to sensitive resources Objective 9 - Improve drinking water quality and water related infrastructure to protect public health, with a focus on economically disadvantaged communities Objective 10 - Protect groundwater resources from over-drafting and contamination

#### GOAL 5: CLIMATE ADAPTATION & ENERGY INDEPENDENCE

Objective 11 - Address climate change effects, impacts, vulnerabilities, including droughts, fires, floods, and sea level rise. Develop adaptation strategies for local and regional sectors to improve air and water quality and promote public health Objective 12 - Promote local energy independence, water/ energy use efficiency, GHG emission reduction, and jobs creation

#### GOAL 6: PUBLIC SAFETY



Objective 13 - Improve flood protection, forest and community resiliency to reduce the public safety impacts associated with floods and wildfires

#### 2. Does the project have a minimum 15-year useful life?

- a) 🛛 yes 🗌 no
- b) If yes, will the organization be able to provide compliance documentation outlined in the instructions should the project be selected as a Priority Project?
  Ves no

#### 3. Other Eligibility Requirements and Documentation

no

```
CALIFORNIA GROUNDWATER MANAGEMENT SUSTAINABILITY COMPLIANCE
```

a) Does the project directly affect groundwater levels or quality?

🗌 yes 🛛 no

b) If yes, will the organization be able to provide compliance documentation outlined in the instructions including a Groundwater Sustainability Agency letter of support, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

yes

#### CASGEM COMPLIANCE

- a) Does the project overlie a medium or high groundwater basin as prioritized by DWR?
- b) If yes, list the groundwater basin and CASGEM priority:
- c) If yes, please specify the name of the organization that is the designated monitoring entity:
- d) If yes, please specify whether the local Groundwater Sustainability Agency has endorsed the project:

#### URBAN WATER MANAGEMENT PLAN

- a) Is the organization required to file an Urban Water Management Plan (UWMP)?
- b) If yes, has DWR verified the current 2020 UWMP?
- c) If the 2020 UWMP has not been verified by DWR, explain and provide anticipated date for verification:
- d) Has DWR verified a water loss audit report in accordance with SB 555 as submitted by the urban water supplier?

yes no

e) Does the urban water supplier meet the water meter requirements of CWC 525?

NORTH COAST RESOURCE PARTNERSHIP | northcoastresourcepartnership.org | 3



f) Does the urban water supplier meet the State Water Resources Control Board's Water Conservation and Production Reporting requirement?

yes no

g) If yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

yes no

#### AGRICULTURAL WATER MANAGEMENT PLAN

a) Is the organization – or any organization that will receive funding from the project – required to file an Agricultural Water Management Plan (AWMP)?

🗌 yes 🛛 🕅 no

b) If yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

🗌 yes 🗌 no

#### SURFACE WATER DIVERSION REPORTS

a) Is the organization required to file State Water Resources Control Board (SWRCB) annual surface water diversion reports per the requirements in CWC Part 5.1?

b) If yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

yes no

#### STORM WATER MANAGEMENT PLAN

- a) Is the project a stormwater and/or dry weather runoff capture project?
- b) If yes, does the project benefit a Disadvantaged Community with a population of 20,000 or less?

🗌 yes 🗌 no

- c) If this is a stormwater/dry weather runoff project but does not benefit a small DAC population, please provide documentation that the project has been included in a Stormwater Resource Plan that has been incorporated into the NCRP IRWM Plan:
- d) If no, will the organization be able to provide documentation that the project is included in a Stormwater Resource Plan that has been incorporated into the NCRP IRWM Plan, should the project be selected as a Priority Project?

ves no



#### 4. Eligible Project Type under 2022 IRWM Grant Solicitation

$\boxtimes$	Water reuse and recycling for non-potable reuse and direct and indirect potable reuse
$\boxtimes$	Water-use efficiency and water conservation
	Local and regional surface and underground water storage, including
	groundwater aquifer cleanup or recharge projects
$\boxtimes$	Regional water conveyance facilities that improve integration of separate water systems
$\boxtimes$	Watershed protection, restoration, and management projects, including projects
	that reduce the risk of wildfire or improve water supply reliability
	Stormwater resource management projects to reduce, manage, treat, or capture rainwater or stormwater
	Stormwater resource management projects that provide multiple benefits such as
	water quality, water supply, flood control, or open space
	Decision support tools that evaluate the benefits and costs of multi-benefit stormwater projects
	Stormwater resource management projects to implement a stormwater resource plan
	Conjunctive use of surface and groundwater storage facilities
	Decision support tools to model regional water management strategies to account for climate change and other changes in regional demand and supply projections
	Improvement of water quality, including drinking water treatment and
	distribution, groundwater and aquifer remediation, matching water quality to water use, wastewater treatment, water pollution prevention, and management of urban and agricultural runoff
	Regional projects or programs as defined by the IRWM Planning Act (Water Code §10537)
	Other:

5. Describe how the project provides a benefit that meets at least one of the Statewide Priorities as defined in DWR's <u>Final 2022 Guidelines</u> (see page 7) and Tribal priorities as defined by the NCRP?

This project provides tanks to residences and three fire departments in disadvantaged areas of Mendocino County. The tanks will be used for rainwater harvest and will reduce reliance on surface waters during the summer months, benefitting salmonids, improving fire response, and enabling water self-sufficiency. Statewide Priorities met: Improve Water Security at a Local Level, Drought Preparedness, Promote Water Conservation and New Sources of Water, Strengthen Regional Partnerships.



### CERTIFICATION OF AUTHORITY

By signing below, the Authorized Representative executing the certificate on behalf of the Project Sponsor affirmatively represents that s/he has the requisite legal authority to do so on behalf of the Project Sponsor. The Authorized Representative executing this proposal on behalf of the project sponsor understands that the NCRP is relying on this representation in receiving and considering this proposal. The person signing below hereby acknowledges that s/he has read the entire NCRP 2022 Project Review and Selection Process Guidelines and the NCRP 2022 Proposition 1 IRWM Round 2 Project Application & Instructions documents and has complied with all requirements listed therein.

Official Authorized to Sign for Proposal

Signature

Stephanie Garrabrant-Sierra

Date 11/4/22

#### Rural Tank Program for Water Security and Fire Preparedness in Mendocino County Disadvantaged Communities

#### **Technical and Reference Supporting Documents**

#### **Table of Contents**

Project Overview Map	2
Leggett Project Map	3
Leggett Geotechnical Report	4-37
Leggett Community Donations	38
Leggett Legion Letter of Support	39
Leggett Location Photo	40
Leggett Fire Department Letter of Support	41
Piercy Project Map	42
Piercy Location Photos	43
Piercy Fire Department Letter of Support	44
Rancho Navarro Project Map	45
Rancho Navarro Conservation Works Letter of Support	46
Rancho Navarro Fire Department Letter of Support	47
Rancho Navarro Homeowners Association Letter of Support	48
Rancho Navarro 5,000 Gallon Tank Technical Specifications	49
	Project Overview Map Leggett Project Map Leggett Geotechnical Report Leggett Community Donations Leggett Legion Letter of Support Leggett Location Photo Leggett Fire Department Letter of Support Piercy Project Map Piercy Location Photos Piercy Fire Department Letter of Support Rancho Navarro Project Map Rancho Navarro Conservation Works Letter of Support Rancho Navarro Fire Department Letter of Support Rancho Navarro Fire Department Letter of Support Rancho Navarro Homeowners Association Letter of Support Rancho Navarro 5,000 Gallon Tank Technical Specifications



Geo-referenced PDF available upon request.



Geo-referenced PDF available upon request.



TRANS TECH CONSULTANTS

Civil Engineering, Geology and Environmental Compliance Services License # 697833 (A-Haz)

## **Geotechnical Investigation**

For Tan Oak Park/FAFUBA/Leggett Fire Water Storage Tank c/o Jessica Roemer <u>fafuba@mcn.org</u>

Project

Geotechnical Investigation 50,000 to 70,000 Gallon Fire Water Storage Tank 58974 North Highway 101 Leggett, Mendocino County, California

> September 13, 2022 Job No. 5323.01

> > Submitted by

Trans Tech Consultants Windsor and Ukiah, California (707) 837-8408

Prepared by:



Thomas E. Lion, CEG Senior Engineering Geologist Bill C. Wiggins, PE Registered Civil Engineer

#### **TABLE OF CONTENTS**

Section	ion	Page		
1.0	Introduction			
2.0	Project Location and Setting			
3.0	Field Investigation			
4.0	Site Geology and Site Reconnaissance Observations			
5.0	Subsurface Conditions			
6.0	Geologic Hazards and Seismic Data			
7.0	Conclusions and Discussion			
8.0	Recommendations			
	8.1 Site Preparation and Grading			
	8.2 Foundations			
	8.3 Maintenance			
	8.4 Plan and Specification Review			
	8.5 Construction Phase Monitoring			
9.0	Additional Services and Limitations			
10.0	References			

#### Attachments:

Site Location Map, Plate 1

Site Plan with Test Pits, Plate 2

Appendix A – Service Agreement

Appendix B – Test Pit Logs (TP1 through TP5) Soil Classification Key Bedrock Properties Key

Appendix C – Laboratory Test Results and Seismic Design Parameters

#### **1.0** INTRODUCTION

In accordance with your request, Trans Tech Consultants (TTC) has performed a Geotechnical Investigation for a 50,000-to-70,000-gallon fire water storage tank (GI) at 58974 North Highway 101, Leggett, California (the Subject Site). The GI is prepared for Family and Friends United By AIDS (FAFUBA), the Client. Our services are provided in accordance with the terms and conditions outlined in our Service Agreement dated and authorized by you on August 14, 2021, a copy is attached in Appendix A.

Our scope of work consisted of the following:

- Review and research of available geotechnical and geologic reports for the subject site.
- Site Reconnaissance observations.
- Subsurface exploration consisting of 5 test pits.
- Laboratory testing on samples obtained from the subsurface exploration.
- Engineering geologic evaluation and engineering analysis.
- Preparation of this report presenting the results of our field and laboratory testing, conclusions, and recommendations for the proposed site development.

The scope was based upon initial information from you and our site meeting with Board Member Steven Day on August 13, 2021, regarding the proposed location for the fire water storage tank. The approximate location of a CALTRANS Highway 101 Right-of-Way (ROW) was estimated by you for purposes of our test pit locations. Test pit locations were based on your initial proposed tank location. The test pits were excavated by you on August 26, 2021 and logged and sampled by a TTC representative.

Subsequent surveying by Pope Engineering established the actual location of the ROW in a document dated March 9, 2021. Based on this information, the proposed tank location was shifted about 30 feet generally to the north of the initial proposed tank location. The new location appears to be located mostly on a former bedrock cut created during old grading by Caltrans for the widening of Highway 101 and partly on adjacent non-documented fill and native soils at the perimeter of the revised tank location.

We understand the new water tank will be constructed of welded steel panels approximately 40 feet in diameter and 11 feet high, with an anticipated water capacity of 70,000 gallons. The foundation will likely consist of a perimeter ring beam with an aggregate floor base and center pad footing. The following report provides recommendations for a water storage tank foundation.

This report provides FAFUBA with TTC's findings, conclusions, and recommendations related to Geotechnical aspects of the project design and construction, subject to the limitations provided at the end of this report. If the proposed site developments or locations differ from this report, we should be contacted to review and revise this study, as warranted.



#### 2.0 **PROJECT LOCATION AND SETTING**

The project is located at 58974 North Highway 101, Leggett, California (subject site), as shown on the attached Site Location Map, Plate 1. The site topography and general site features are shown on the Site Plan with Test Pit Locations, Plate 2. The purpose of our Geotechnical Investigation was to evaluate subsurface conditions for a 70,000-gallon fire water storage tank at the Subject Site.

The site elevation of the proposed tank site is approximately 1,320 feet above mean sea level (GOOGLE EARTH, 2022 and POPE, 2022). Site topography at the immediate area of the proposed tank is gently sloping to nearly level on an area of previous bedrock cut in the northern and central portion of the tank site, and of filled ground along the southern perimeter of the proposed tank site. Site drainage flows as slope wash runoff into the adjacent seasonal creek channel north into Rattlesnake Creek, tributary of the South Fork of the Eel River.

#### **3.0** FIELD INVESTIGATION

Our field investigation included reconnaissance of the subject site and supervising the excavation of 5 exploratory test pits (TP1 through TP5) by you on August 26, 2021. Test pits were advanced with a backhoe equipped with a 24-inch-wide bucket to a maximum depth of approximately 7.5 feet below grade (bg). Test Pits were generally excavated at the perimeter of the initially proposed tank location estimated by you based on an initial understanding of the set-back requirement from the assumed location of the CALTRANS Right-of-Way. Approximate locations of test pits TP1 through TP5 are shown on the attached Plate 2.

Select soil and bedrock samples were collected and laboratory tests were conducted. Grab samples were sampled directly from test pits excavation sidewalls and/or backhoe bucket. The test pits were logged by our Certified Engineering Geologist in general conformance with the Unified Soil Classification System and ASTM D 2488 and were adjusted based on the laboratory testing and classification per ASTM D 2487 as needed.

Laboratory testing was performed on select samples in accordance with the latest American Society for Testing and Materials (ASTM) test procedures. Laboratory testing of soil engineering properties included Atterberg limits, dry density, moisture content, and sieve analysis. Strength testing included unconfined compressive strength using a penetrometer.

See the attached test pit logs in Appendix B for detailed soil descriptions, sample depths, and select lab test results. Please refer to Appendix C for a copy of the laboratory testing worksheets.

#### 4.0 SITE GEOLOGY AND SITE RECONNAISSANCE OBSERVATIONS

Published literature and geologic maps of the region indicate the project area is underlain by Tertiary to Cretaceous-age Central Belt Franciscan Complex bedrock units (DMG, 1960; Langenheim et al, 2013). Our Certified Engineering Geologist conducted engineering geologic site reconnaissance observations on August 26, 2021. Observations confirmed the site is underlain by Franciscan Central Belt bedrock composed of meta-greywacke sandstone, with



minor interbedded meta-siltstone and meta-shale and adjacent and partly overlapping granular alluvial terrace deposits in general agreement with previous mapping by DMG and USGS.

#### **5.0** SUBSURFACE CONDITIONS

Excavation of Test Pit TP1 encountered meta-greywacke bedrock and an absence of topsoil or residual soils due to excavation of these soils during construction of Highway 101. Excavation of Test Pits TP2 through TP5 encountered non-documented fill overlying alluvial terrace deposits, excepting relatively shallow meta-greywacke sandstone bedrock in test pit TP4 at about 3.5 feet bg. The maximum depth of exploration was about 7.5 feet bg in test pits TP2 and TP5. Detailed descriptions of the soil and bedrock encountered in the test pits are shown on the Log of Test Pits (TP1 through TP5) in Appendix B.

Atterberg limits (test for soil behavior and consistency) and gradation tests were conducted on representative samples of the near surface soils. An Atterberg limits test on a soil sample from test pit TP3 from 3'-4' had a PI of 4 and classified as CL-ML. Based on the current California Building Code and laboratory testing results and the field log classification by our Engineering Geologist, near surface site soils are considered to range from low to moderately expansive.

TTC anticipates that excavated non-documented fill, in-place native soils and weathered bedrock should be generally suitable for re-use as engineered fill. Although not anticipated, if high plasticity soil is encountered during site grading, it shall not use as select structural fill but may be re-used for general fill materials with mixing and blending with low plasticity soil, moisture conditioning, and compaction as recommended below in Section 8.1.

Groundwater was not encountered in test pits TP1 through TP5. Note that groundwater levels can fluctuate with seasonal variations in total rainfall.

Please note this investigation did not include testing for corrosive soils; if requested, additional testing for corrosive soil conditions can be provided for an additional fee.

#### 6.0 GEOLOGIC HAZARDS AND SEISMIC DATA

The site is not located within an Alquist-Priolo (AP) Fault Zone. The closest Holocene active faults to the subject site are the Maacama Fault located within 14 miles to the south and the Round Valley-Bartlett Springs Fault located within 14 miles to the east (DMG, 1983; USGS, 2022).

No seismic shaking or liquefaction hazard maps are currently available for the subject site; however, the Mendocino County General Plan Seismic Faults Figure 3-12 (MCGP, 2009) identifies Mendocino County valleys as having potentially liquefiable soils. The proposed tank site is underlain by meta-greywacke bedrock in the northern and along the southern perimeter may be underlain by native granular alluvial terrace deposits and non-documented fill as shown on Plate 2. The proposed tank location is predominantly underlain by shallow bedrock. Based on our experience and preliminary review, it our opinion that the tank site liquefaction potential during earthquake events can be considered nil, provided our recommendations are followed.



The proposed water tank pad is located on gently sloping ground, generally at 1% to 10% gradient. The proposed pad is located near the property line and Caltrans ROW. Within the Caltrans ROW to the north of the tank pad is an historic windmill structure built upon a promontory sandstone bedrock knoll. Proposed development will likely create a cut pad on weathered bedrock and will require over-excavation of weak, loose non-documented fill and alluvial terrace deposits along the southern fringe of the proposed tank pad. Slope instability risk within areas of currently proposed development is considered a low risk level.

A Seismic Site Class of C has been estimated for the project site based on subsurface exploration, geologic maps, previous nearby studies, and ASCE 7-16 (OSHPD, 2022). Based on the site class and the latitude/longitude, design spectral response acceleration parameters were determined with the aid of the Structural Engineers Association of California's (SEAOC) and California's Office of Statewide Health Planning and Development (OSHPD) Seismic Design website. The actual foundation design parameters should be verified by your Structural Engineer verifying these calculations using our determination of the Site Class C.

#### 7.0 CONCLUSIONS AND DISCUSSION

Based on our field and laboratory investigations, it appears that the proposed water tank is feasible from a geotechnical and geological standpoint, provided our recommendations are followed, and that noted conditions and risks are acknowledged.

The tank support should be constructed entirely on a bedrock cut pad if feasible, or alternatively on a pad principally supported by bedrock and partly supported by excavated native granular soil and non-documented fill replaced with engineered fill.

Site grading, drainage and foundation plans should incorporate the recommendations provided below. The proposed improvements are not expected to adversely impact adjacent properties from a geotechnical and geologic standpoint.

The site is subject to strong ground motion from seismic sources. Recommendations are presented below to construct a foundation designed to meet current building code earthquake design criteria as a minimum.

The primary geotechnical and geologic engineering site hazards include unsupportive soils, plastic soils, slope stability, cut to fill transition, surface water runoff, and settlement potential. A brief discussion of the site hazards and recommended mitigation measures are presented below for the proposed project improvements.

#### A. Unsupportive Soils

Previously disturbed and/or unsupportive soil were encountered in near surface soils in subsurface exploration investigation test pits TP2 through TP5. Note that to prevent excessive settlement, TTC recommends that over-excavation of weak and porous near surface soils to competent underlying soils or bedrock is required prior to placement of engineered fill. The lateral extent of excavation should extend at least the depth of excavation outside the improvement limits.



#### **B.** Plastic Soils

Clayey and silty soils strata of generally low to moderate plasticity were encountered in the subsurface exploration test pits and lab testing. Based on soil classification in the field logs and laboratory testing, the risk of distress to improvements from plastic soils is considered low to moderate.

However, since site soils contain varying percentages of clay and silt, preventive recommendations are to maintain foundation and slab subgrade soils in a moist condition during construction so that significant soil drying does not occur and for a select fill (gravel cap). Also, it would be prudent to avoid landscape designs that result in landscape watering immediately adjacent to perimeter building foundations. This would reduce the risk of excess moisture being introduced into the soils alongside perimeter foundations and shrink-swell behavior in the site's anticipated low to moderate plasticity soils.

#### C. Slope Stability

Based on our engineering geologic reconnaissance and the general absence of slope instability observed in surface and subsurface investigation of native soils and bedrock at the site, we infer that site near surface soils and bedrock at the proposed water tank site are relatively stable.

#### **D.** Cut/Fill Transition

If feasible, the entire water storage tank pad site should be founded on bedrock cut. The southern perimeter of the proposed water tank site foundation will likely encounter one to three feet of non-documented fill and/or alluvial terrace deposits. Cut to fill transitions can be subject to differential settlement and should be designed appropriately. For the proposed tank pad, a minimum over-excavation for the cut portion should be at least half the maximum engineered fill thickness to mitigate differential settlement. For example, if the maximum engineered fill thickness is 3 feet then the cut portion should be over-excavated and replaced as engineered fill at least 1-1/2 feet thick.

#### E. Surface Water and Ground Water

Potential impacts from surface water and ground water related to seasonal runoff from the ascending hillside can be accommodated by site surface and subsurface drainage improvements during construction to divert seasonal runoff and shallow groundwater away from the water tank pad and foundation.

#### F. Erosion



Newly constructed pads create changes in soil pressures, slope angles, weathering exposure, and vegetative cover conditions. Much of the fine-grained site soils and soils in the greater project vicinity are inherently subject to minor erosion, raveling, and sloughing where exposed with no established vegetation or erosion protection, and it will take time for bare soils to become revegetated. Recommendations are provided below to reduce adverse risk resulting from these soil conditions, but some minor post-construction erosion, raveling, and rilling are anticipated, and a post-construction maintenance program is recommended.

To minimize sediment transport from graded areas into local drainages, minimization of grading volume, and measures to reduce erosion and instability are desirable. Erosion control and monitoring of perimeter slopes of existing cut pads and new pads should be addressed by your project design Civil Engineer. If during site erosion control monitoring there is evidence of accelerated erosion, TTC should be contacted to conduct onsite observations and to provide remedial recommendations.

#### G. Settlement Potential

Due to the variability of soil deposits and the inherent limitations of current engineering and construction practices, some post-construction vertical settlement may occur. TTC estimates that total post-static construction foundation settlement is not likely to exceed 1 inch, and post-construction differential settlement is not likely to exceed 1/2 inch in 40 feet of floor span.

#### 8.0 **RECOMMENDATIONS**

#### 8.1 Site Preparation and Grading

Recommendations include provisions for removal of exposed bedrock and weak or disturbed near surface soil to create a level pad on competent bedrock and/or engineered fill. If the proposed water tank pad footprint extends onto weak native soils or non-documented fill soils, they should be removed to the underlying competent bedrock to at least 5 feet outside the tank footprint and replaced with engineered fill.

Removal depths based on the subsurface exploration are estimated up to 3 feet below existing site grades. Review of the exposed subgrade soils prior to placement of structural fill is recommended below. Based on site topography and anticipated tank dimensions, grading will likely include cutting on the order of 3 to 5 feet to create a level pad area. If the pad extends to native alluvial soils and non-documented fill along the southern perimeter of the tank pad, over-excavation and placement of engineered will be needed, unless alternative structural support is proposed.

As appropriate, notify Underground Service Alert (1-800-227-2600) prior to commencing site work, and use this location service and other methods to avoid injury or risk to life from underground and overhead utilities, and to avoid damaging them.

Conduct a geotechnical site review of exposed subgrade soils exposed during site grading to identify and mitigate any unsupportive soil zones.

Areas to be reconstructed should be cleared of vegetation and of the upper few inches of soil containing organic matter. We anticipate a stripping depth of about 1 to 3 inches. Localized deeper



excavation will be required in bedrock to create a level pad, and to remove areas of nondocumented fill and native granular soils if encountered in the southern perimeter of the proposed pad. Based on nearby test pit logs, TTC anticipates that depending on the final layout of the water tank pad, that up to 1 to 2 feet of unsupportive soils may require removal and replacement with engineered fill as based on the subsurface exploration. Except for organic matter and rocks or irreducible material larger than 6 inches in diameter, the excavated material will be suitable for reuse as compacted fill.

TTC will recommend that remaining unsuitable soils, such as overly weak, compressible, or disturbed soils, be additionally stripped. The exposed subgrade should be scarified, moisture conditioned, and proof-rolled using a heavy vehicle, such as a sheep's foot heavy drum compactor, a loader with a full bucket, full water truck, or equivalent. The proof-rolling should be accomplished with the soil damp or moist (not wet or dry), and a firm, non-yielding surface should be evident during the proof-rolling. If a yielding surface is observed (pumping, weaving under wheel loads), additionally excavate the yielding area, and replace the over-excavated material with engineered fill or imported base rock, in a manner that will result in a stable subgrade surface under proof-rolling, following over-excavation and replacement.

Prior to placement of engineered fill, the subgrade should not be allowed to dry and shrink. Maintain subgrade soils in a moist condition by covering with plastic to avoid saturation from rain or immediate placement of engineered fill as recommended below. Do not cover overly wet or muddy subgrade soil conditions and avoid grading during wet weather conditions.

Engineered fill material should consist of relatively non-plastic (Liquid Limit less than 40, Plasticity Index less than 16) material containing no organic material or debris, and no individual particles over 6 inches across. Bulk samples taken from our subsurface exploration indicate near surface soils should be suitable for reuse as engineered fill with adequate mixing and moisture conditioning.

Engineered fill should be moisture conditioned within 2% of optimum moisture content and compacted to a minimum of 90% of the maximum relative dry density as determined by the ASTM D1557 test method to final design grades. Additional granular/gravel fill may be placed if recommended by the designer, and these materials should also be compacted to a minimum of 90% of the maximum relative dry density as determined by the ASTM D1557 test method if applicable.

Place engineered fill in lifts not exceeding 6 to 8 inches in loose thickness, and thoroughly compact each lift into place until further consolidation ceases. Thoroughly track-walk and compact the finished fill surface. If fill material is too dry, dampen it to a uniform moist condition prior to placement as fill. Do not over wet it. Conducting site grading in the summer season may avoid complications resulting from wet or overly moist soil conditions.

Maximum cutslopes and fill slope inclinations are 3:1 without structural reinforcement.

Bedrock excavation characteristics in the proposed improvement areas can be considered as moderately hard to excavate and practical digging refusal was met in the backhoe excavations at


1-foot bg at the top of bedrock in test pit TP1. The difficulty of excavation of bedrock for the northern adjacent cut slope may vary from moderate to difficult within zones of more competent meta-greywacke sandstone. A large bulldozer with heavy ripper teeth and a large excavator is recommended be to create the proposed cut slopes level area for the foundation of the water tank.

OSHA trench and excavation safety regulations should be acknowledged and followed. Trench sidewall soils may be unstable, and variable soil conditions may be encountered. Backfill for all utility trenches within foundation limits should be select import granular material (¾-inch base rock or crushed fine aggregate) and placed in conformance with structural fill criteria as stated above for areas within fill placement and within 5 feet of planned improvements. Holes resulting from the removal of buried obstructions should be backfilled with compacted fill. Old underground tanks and old septic systems, if encountered, should be removed in accordance with local regulations.

Subsurface exploration test pits within the foundation limits should be excavated for full depth and replaced as engineered fill during site grading.

### 8.2 Foundations

Recommendations above are intended to provide a tank foundation subgrade consisting of at least 12-inches of compacted 3/4-inch Class II base rock, underlain by a competent soil subgrade. TTC anticipates that the foundation design details will be completed by the tank manufacture design engineer. A perimeter ring beam and center spread footing are anticipated for the tank foundation. The tank and foundation design should accommodate minor differential settlement potential. To mitigate adverse effect to the tank bottom should the center of the tank settle more than the perimeter.

The foundation system and its design details should comply with current practice including American Water Works Association (AWWA) tank design criteria for both static and dynamic conditions. Such foundations may be designed so they do not exceed an allowable bearing capacity of 3000 pounds per square foot (psf) for dead plus live loads (these values may be increased by one-third to account for the short-term effects of wind and/or seismic loading). The bearing pressure values may be increased for increases in footing depth as provided in the current edition of the California Building Code. The provided bearing values are applicable to both competent, undisturbed, native subsoils, and placed engineered fill.

Lateral forces may be resisted by friction along the tank foundation and soil contact, and by the passive pressure exerted on embedded portions of the concrete foundation. A friction coefficient of 0.35 may be used for the footing/soil contact, in conjunction with an allowable lateral passive pressure represented by an equivalent fluid weighing 400 pounds per cubic foot (pcf) for short term loadings, such as lateral foundation resistance in response to wind or earthquake loadings. The ground surface around the structure perimeter should be sloped away, or other design measures implemented to provide positive surface water drainage away from perimeter foundation and pavement areas.

All foundation excavations should penetrate bedrock at least 18-inches or engineered fill at least 24 -inches. Footing excavations should be at least 18-inches wide, straight and bottoms should be clean and free of "slough" (loose) material.



The ground surface around the tank perimeters should be sloped away, or other design measures to provide positive surface water drainage away from perimeter foundation areas. Drainage and Erosion

Controlled positive surface drainage should be directed away from the tank pad and transported to surface drainage system. TTC recommends that your Design Civil Engineer incorporate surface and subsurface drainage improvements into their Final Site Grading and Drainage Plans.

Straw, seeding, and erosion control are recommended for all bare soil surfaces.

### 8.3 Maintenance

Maintenance of erosion control measures and site drainage systems is recommended. Frequent periodic maintenance is recommended in the first few wet seasons following construction, with less frequent, but regular, maintenance in the future. Frequent periodic monitoring and maintenance, especially in the first few wet seasons following construction, will significantly reduce risk of larger-scale erosion or cut slope, fill pad, and foundation problems. Landscape rock, drought tolerant vegetation, and jute netting are recommended to minimize soil erosion on bare soil areas.

### 8.4 Plan and Specification Review

During the design phase, it is important that communications between the design team and TTC be maintained to optimize compatibility between the design and site conditions. TTC assumes, in preparing our recommendations, that we will be retained to review those portions of your Civil Engineer's plans and specifications that pertain to site grading and drainage, foundations, and retaining walls. The purpose of this review is to confirm that our earthwork and foundation recommendations have been properly interpreted and implemented during design. If TTC is not provided this opportunity for review of the plans and specifications, our recommendations could be misinterpreted.

### 8.5 Construction Phase Monitoring

The following construction considerations are presented to aid in project planning. These considerations are not intended to be comprehensive; other issues may arise which will require coordination between the owner, the engineer, and the contractor's construction methods and capabilities.

High groundwater or seepage conditions can be problematic, in that earthwork required to create competent subgrade surfaces on which to place fill or improvements can be complicated by the presence of high groundwater. The subgrade soils may tend to weaken, pump, and weave under construction traffic, and saturated soils and surface ponding may be evident. Even small quantities of persistent seepage may substantially complicate construction operations if proposed excavations extend near or below areas of saturated soil. Construction difficulties resulting from near surface ground water or excess soil moisture will tend to become reduced or less likely if grading activities are conducted in the midsummer to early fall time of year. Wet weather grading and construction should incorporate silt fencing and erosion control.

Construction during the dry season minimizes potential groundwater problems but will require specific focused measures to keep exposed soil subgrade from drying out, which can happen



quickly in the sun and heat. Once covered by granular fill, occasional sprinkling should be accomplished to keep the soils from drying out under the granular fill.

To assess construction conformance with the intent of our recommendations, it is important that a representative of our firm monitor and/or verify the following tasks:

- Grading, Drainage, and Foundation plan review.
- Grading observation and relative compaction testing.
- Foundation excavations and preparation.

This construction-phase monitoring is important because it provides the owner and TTC the opportunity to verify anticipated site conditions and recommend appropriate changes in design or construction procedures if site conditions encountered during construction vary from those described in this report. It also allows TTC to recommend appropriate changes in design or construction procedures if construction methods adversely affect the competence of on-site soils to support the structural improvements.

The analyses, conclusions, and recommendations contained in this report are based on site conditions that we observed at the time of TTC's investigation, data from the subsurface explorations and laboratory tests, our current understanding of proposed project elements, and on our experience with similar projects in similar geotechnical environments. TTC has assumed that the information obtained from our limited subsurface explorations is representative of subsurface conditions throughout the site. To confirm this assumption, we must observe and evaluate actual soil conditions encountered during project construction operations. Subsurface conditions may differ from those disclosed by our limited investigations. If differing conditions are encountered during construction, TTC should be notified immediately so that we can reevaluate the applicability of our recommendations. Such an evaluation may result in amended recommendations. If the scope of the proposed construction, including the proposed loads, grades, or structural locations, changes from that described in this report, our recommendations should also be reviewed.

TTC has prepared this report for your exclusive use on this project in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our study, including time and budget constraints. No warranty is expressed or implied. If there is a substantial lapse of time between the submission of this report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, TTC should review this report to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse. This report is applicable only to the project and site studied. The field and laboratory work were conducted to investigate the site characteristics specifically addressed by this report. Assumptions about other site characteristics, such as hazardous materials contamination, or environmentally sensitive or culturally significant areas, should not be made from this report.



### 9.0 Additional Services and Limitations

During the design phase, it is important that communication between the design team and TTC be maintained to optimize compatibility between the design and subsurface conditions. TTC has assumed, in preparing our recommendations, that we will be retained to review those portions of the project that pertain to earthwork. The purpose of this review is to confirm that our earthwork and subsurface drainage recommendations have been properly interpreted and implemented during design.

The analyses, conclusions, and recommendations contained in this report are based on site conditions that we observed at the time of our investigation, data from our subsurface explorations and laboratory tests, our current understanding of proposed project elements, and on our experience with similar projects in similar geotechnical and geologic environments.

TTC has assumed that the information obtained from our limited subsurface explorations is representative of subsurface conditions throughout the site. To confirm this assumption, we must observe and evaluate actual soil conditions encountered during project construction operations.

Subsurface conditions may differ from those disclosed by our limited investigations. If differing conditions are encountered during construction, TTC should be notified immediately so that we can reevaluate the applicability of our recommendations. Such an evaluation may result in amended recommendations.

If the scope of the proposed construction, including the proposed loads, grades, or structural locations, changes from that described in this report, our recommendations should also be reviewed.

TTC has prepared this report for your exclusive use on this project in substantial accordance with the generally accepted Geologic and Geotechnical practice as it exists in the site area at the time of our study, including time and budget constraints.

No warranty is expressed or implied. If there is a substantial lapse of time between the submission of this report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we should review our report to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse. This report is applicable only to the project and site studied. The field and laboratory work conducted to investigate the site characteristics as specifically addressed in this report.

Assumptions about other site characteristics, such as hazardous materials contamination, or environmentally sensitive or culturally significant areas, should not be made from this report.

### **10.0 REFERENCES**

ASCE (2017). ASCE Standard 7-16 Minimum Design Loads and Associated Criteria for Buildings and Other Structures, American Society of Civil Engineers.



- CBSC (2019). California Building Standards Code, Title 24, California Code of Regulations, Part 2, Volume 2 of 2, by the California Building Standards Commission.
- CGS (2022). Fault Activity Map, <u>https://maps.conservation.ca.gov/cgs/fam</u>, California Geological Survey (CGS), accessed on 9/6/2022.
- DMG (1960). Geologic Map of California Ukiah sheet, compiled by Jennings and Strand.
- DMG (1983). Summary Report: Fault Evaluation Program, 1981-1982 Area Northern Coast Ranges Region, California, Open File Report 83-10, California Department of Conservation Division of Mines and Geology.
- GOOGLE EARTH (2022). Aerial Photo Imagery and Ground Elevation Data for 58974 North Highway 101, Tan Oak Park (Laytonville), accessed on 9/6/2022.
- Langenheim et al (2013). Previously Unrecognized Regional Structure of the Coastal Belt of the Franciscan Complex, Northern California, Revealed by Magnetic Data, with Franciscan Central Belt mapped at site location, Figure 1, Geosphere, December 2013.
- MCGP (2009). Mendocino County General Plan, Chapter 3: MC (2009). Mendocino County General Plan, Chapter 3: Development Element, 3-17 Seismicity and Geologic Conditions.
- OSHPD (2022). U.S. Seismic Design Maps, <u>https://seismicmaps.org</u> accessed on 9/7/2022.
- POPE (2022). Topographic Map, Lands of Family and Friends United By Aids, 58794 North Highway 101, Leggett, CA, Pope Engineering, dated 3/9/2022.
- USGS (2022). U.S. Quaternary Faults, <u>https://usgs.maps.argis.com/apps</u>, United States Geological Survey (USGS) interactive Quaternary Faults Map, accessed on 9/6/2022.
- US NAVY (1986). Design Manuals 7.01 and 7.02, Soil Mechanics, Alexandria: Naval Facilities Engineering Command (NAVFAC).





Adapted from Google Earth Pro, 2022 Not to Scale

# TRANS TECH CONSULTANTS

302 South School Street Ukiah, California 95482 (707) 234-8778 transtechconsultants.com

#### Project No. 5323.01

Drawn by: TEL Date: 9/1/22

## Geotechnical Investigation Tan Oak Park/FAFUBA/Legget Fire Water Storage Tank 58974 North Highway 101 Laytonville, California

Site Location Map

Plate 1



# APPENDIX A



Celebrating over 30 Years in Business

General Engineering License #697833 (A-Haz)

Civil Engineer License C46344



# **Service Agreement**

For

Tan Oak Park / FAFUBA / Leggett Fire Water Storage Tank c/o Jessica Roemer <u>fafuba@mcn.org</u>

Project

Geotechnical Investigation 50,000 Gallon Fire Water Storage Tank 58974 North Highway 101 Leggett, California

> August 14, 2021 Job No. 5323.01

> > Submitted by

Bill C. Wiggins, P.E., and Tom Lion, CEG, Trans Tech Consultants

Windsor and Ukiah, California

# **1.0 INTRODUCTION**

Trans Tech Consultants (TTC) presents to Jessica Roemer in care of Family and Friends United By AIDS, FAFUBA (Client) this Service Agreement dated August 14, 2021. The subject of the consulting agreement is a 50,000-gallon fire water storage tank to be constructed at 58974 North Highway 101, Leggett, Mendocino County, California.

This proposal is based upon available information from you and our site meeting with Board Member Steven Day on August 13, 2021 regarding the proposed location for the fire water storage tank.

# 2.0 SCOPE OF SERVICES

Task A) Perform a subsurface Geotechnical Investigation (GI) and geologic research, including review of available published fault and geologic maps. The preparation for the field investigation includes marking the site perimeter and proposed boring locations in white paint and notifying USA Alert Member Utilities (Utilities) to conduct field marking of their underground utilities to their site meter boxes. Note that the Utilities do not mark the location of the property owner's on-site underground utilities and pipes and conveyances. TTC recommends that you and/or the owner consider contracting directly with a private utility locator to reduce the risk of encountered underground utilities during test pit excavation within the scope of this investigation. Unless authorized by you to conduct a supplemental private utility locate of underground utilities on the private side of the meters, the client and owner assume full responsibility of any damage or consequences of damage that might result from excavating test pits or drilling borings during this subsurface investigation.

In our opinion, a heavy-duty backhoe or excavator may be needed for this project to allow for excavation to adequate depth through shallow surface soils and near surface bedrock to provide the recommendations for the proposed 50,000-gallon fire water storage tank.

The field investigation includes observing exposed conditions in two exploratory test pits that will be extended to excavator refusal by your excavation contractor. The equipment and labor and materials will be paid directly by the client.

Our engineering geologist will collect representative soil samples for description and lab testing for physical properties such as strength and expansion. The field work and lab testing will be combined with our geologic research to prepare an opinion on the suitability of the subject site for the proposed improvements.

TTC shall prepare a GI Report with recommendations for site preparation and grading, water storage tank foundation support, and site drainage. The report will be signed and stamped by Tom Lion, Certified Engineering Geologist and Bill C. Wiggins, P.E., Civil Engineer.



# **3.0 FEE**

Task A – Geotechnical Investigation, Lab Testing, and Report

\$6,000.00

Contract Value

<u>\$6,000.00</u>

Our services will be performed on a fixed fee basis in accordance with the General Conditions, Section 4.0. Supplemental services will be provided on a time and material basis in accordance with the Schedule of Charges in Section 5.0. We will not exceed the estimate without prior authorization.

# 4.0 GENERAL CONDITIONS

The following General Conditions are incorporated into and made part of this Professional Services Agreement:

1. Invoices. For work done on a time and materials basis, we will submit progress invoices to Client as work progresses and a final bill upon completion of the services. Invoices will show the amount due for the work period and any credits or requests for prepayments. Each invoice is due on presentation and is past due thirty (30) days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1.5%) per month or the maximum rate allowed by law on past due accounts. If Client allows any invoice to become past due, Client agrees that Consultant may require a prepayment to cover all or a portion of anticipated project costs. Client further agrees that Consultant may halt work until such requested prepayments are received. Should either party hereto bring suit in court to enforce any term of the Agreement, it is agreed that the prevailing party shall be entitled to recover these costs, expenses, and reasonable attorneys' fees.

2. Right-of-Entry. Unless otherwise agreed, Client will furnish right-of-entry for Consultant to take samples, surveys, and/or explorations.

Consultant will take reasonable precautions to minimize damage to property.

However, cost of restoration or damage which may result from field operations is not included in the fee unless otherwise stated.

3. Utilities. Consultant will request responsible utilities to locate offsite utility lines. Client is responsible for providing the location of onsite utilities.

4. Client agrees to hold Consultant harmless for any damage to underground utilities or underground structures that may result due to Consultant's services.

5. Indemnification. The Client hereby indemnifies and shall defend and hold harmless Consultant, affiliates, employees, and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, costs, and liabilities of whatsoever kind and nature, whether arising before or after completion of the services for injury to or death of persons and for loss of or damage to property including loss of use thereof, pollution and environmental impairment of third parties in any manner directly or indirectly caused or incident to the toxic and hazardous properties of substances and materials except as may be the result of Consultant's negligent acts or omissions in performing the services under this agreement. The parties agree that this indemnity shall survive completion or termination of this agreement.



6. Reports. Reports, plans, and other work prepared by Consultant remain the property of Consultant until all fees for Consultant's services have been paid. Client agrees that all reports and other work furnished to the Client and his agents not paid for will be returned upon demand, and will not be used for licensing, permits, designs and/or construction.

7. Standard of Care and Limitation of Liability. Consultant skill ordinarily exercised by members of the profession practicing under similar conditions at the same time and in the same or a similar locality. No warranty, expressed or implied, is made or intended by rendition of consulting services or by furnishing oral or written reports of the finding made. Consultants' liability is limited to \$50,000 or the Contract Value, whichever is greater.

If acceptable, please sign and return a copy of this agreement via e-mail attachment or standard mail with a retainer of **\$3,000.00**. Thank you for the opportunity to be of service on this project. If you have any questions or need additional information, please do not hesitate to contact us. A copy of our certificate of insurance shall be sent under separate cover.

Very truly yours, Trans Tech Consultants



Bill C. Wiggins, P.E. Civil Engineer C46344

TTC Job No.: 5323.01

Authorization: The undersigned agrees to the terms and conditions of this Contract. Client

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

This agreement may be terminated at any time by either party in writing.



# 5.0 SCHEDULE OF CHARGES

TTC Job No. 5323.01

PERSONNEL	Hourly Rate
Professional Engineer, Geologist	\$200.00
Project Manager	\$185.00
Project Engineer, Geologist	\$175.00
Field Engineer	\$150.00
CAD Draftsperson	\$125.00
Document Manager	\$115.00
Secretary, Word Processor,	\$ 75.00
Expert Witness Services (per hour):	
Testimony/Depositions	\$400.00
Research Preparation	\$250.00
Travel Time	Regular Rates
Per Diem (room and meals)	\$175.00/day

# **OUTSIDE SERVICES AND EXPENSES** Vendor Services and/or Supplies

UNIT PRICE Cost Plus 15%



# APPENDIX B







#### Legend

1 0' - 2.0': Yellow Brown and Grey Brown Silty SANDY GRAVEL (GM-GP), dry to damp, loose to medium dense [Non-documented Fill]

2 2.0' - 3.0': Dark Yellow Brown Gravelly SANDY SILT (ML) damp, soft to medium stiff, porous, low to moderate plasticity [Native Topsoil]

3 3.0' - 5.0': Yellow Brown and Grey Brown Gravelly CLAYEY SILT (CL-ML), damp to moist, medium stiff [Older Alluvial Terrace Deposits]

#### **Additional Notes:**

Total Depth at 5 feet bg. No Caving. No Groundwater. Pocket Pen (**PP**) in tons per square feet (**tsf**). Moisture Content (**MC**) in percent (%), Liquid Limit (**LL**), Plastic Limit (**PL**), Plasticity Index (**PI**). **X TP3-x.x'** = location of sample and sample depth in feet bg. See Appendix B in report for Laboratory Test data.

TRANS TECH CONSULTANTS	ANTS Project No. 5323.01	Geotechnical Investigation Tan Oak Park/FAFUBA/Legget	Log of Test Pit
302 South School Street Ukiah, California 95482 (707) 234-8778 transtechconsultants.com	Drawn by: TEL Date: 9/1/22 Rev: 9/7/22	Fire Water Storage Tank 58974 North Highway 101 Laytonville, California	TP3





# SOIL CLASSIFICATION KEY (Unified Soil Classification System)

	L CLASS	FICATION AND STMBOL CHART	<u> </u>	LABORATORT CLASSIFICATION CRITERIA
(man the sec	COAF	RSE-GRAINED SOILS		
(more than	50% of mat	enal is larger than No. 200 sieve size.)		
	GW	Gravels (Less than 5% tines) Well-graded gravels, gravel-sand mixtures, little or no fines	GW	$C_{u} = \frac{D_{60}}{D_{10}}$ greater than 4; $C_{c} = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3
More than 50% of coarse	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines	GP	Not meeting all gradation requirements for GW
fraction larger	Gravel	s with fines (More than 12% fines)		
sieve size	GM GM	Silty gravels, gravel-sand-silt mixtures	GM	Atterberg limits below "A" line or P.I. less than 4 Above "A" line with P.I. betweer
	GC	Clayey gravels, gravel-sand-clay mixtures	GC	Atterberg limits above "A" line with P.I. greater than 7
	Clean	Sands (Less than 5% fines)		Dec Dec
SANDS	sw	Well-graded sands, gravelly sands, little or no fines	SW	$C_u = \frac{-60}{D_{10}}$ greater than 4; $C_c = \frac{-30}{D_{10} \times D_{60}}$ between 1 and 3
50% or more of coarse	SP	Poorly graded sands, gravelly sands, little or no fines	SP	Not meeting all gradation requirements for GW
fraction smaller	Sands	with fines (More than 12% fines)		
sieve size	SM	Silty sands, sand-silt mixtures	SM	Atterberg limits below "A" Limits plotting in shaded zone with P.I. between 4 and 7 are
SC CI		Clayey sands, sand-clay mixtures	SC	Atterberg limits above "A" borderline cases requiring use of dual symbols.
	FINE-	GRAINED SOILS		· · · · · · · · · · · · · · · · · · ·
(50% or m	ore of mater	ial is smaller than No. 200 sieve size.)	Deterr	mine percentages of sand and gravel from grain-size curve. Depend
SILTS	ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity	Less t More f	e-grained soils are classified as follows: han 5 percent
CLAYS	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	5 to 12	2 percent Borderline cases requiring dual symbol PLASTICITY CHART
50%				
	OL	Organic silts and organic silty clays of low plasticity	176	
SILTS	мн	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		40 CH ALINE:
CLAYS Liquid limit 50%	СН	Inorganic clays of high plasticity, fat clays		30         PI = 0.73(LL-20)           20         CL         MH&OH
or greater	ОН	Organic clays of medium to high plasticity, organic silts	DI AST	10 ML&OL
HIGHLY ORGANIC SOILS	<u>110</u> <u>110</u> PT	Peat and other highly organic soils		0 10 20 30 40 50 60 70 80 90 100 LIQUID LIMIT (LL) (%)

TRANS TECH CONSULTANTS

302 South School Street Ukiah, California 95482 (707) 234-8778 www.transtechconsultants.com Project No. 5323.01

Drawn by: TEL Date: 9/1/22

# Geotechnical Investigation Tan Oak Park/FAFUBA/Legget Fire Water Storage Tank 58974 North Highway 101 Laytonville, California

SOIL CLASSIFICATION KEY

### BEDROCK PROPERTIES KEY

#### LAYERING

MASSIVE THICKLY BEDDED MEDIUM BEDDED THINLY BEDDED VERY THINLY BEDDED CLOSELY LAMINATED VERY CLOSELY LAMINATED Less than 1/4 inch

Greater than 6 feet 2 to 6 feet 8 to 24 inches 2½ to 8 inches 34 to 21/2 inches 1/4 to 3/4 inches

#### JOINT, FRACTURE, OR SHEAR SPACING

VERY WIDELY SPACED WIDELY SPACED MODERATELY SPACED CLOSELY SPACED VERY CLOSELY SPACED EXTREMELY CLOSELY SPACED Less than 1/4 inch

Greater than 6 feet 2 to 6 feet 8 to 24 inches 21/2 to 8 inches 1/4 to 21/2 inches

#### HARDNESS

Soft - pliable; can be dug by hand

Firm - can be gouged deeply or carved with a pocket knife

Moderately Hard - can be readily scratched by a knife blade; scratch leaves heavy trace of dust and is readily visible after the powder has been blown away

Hard - can be scratched with difficulty; scratch produces little powder and is often faintly visible Very Hard - cannot be scratched with pocket knife, leaves a metallic streak

#### STRENGTH

Plastic - capable of being molded by hand

Friable - crumbles by rubbing with fingers

Weak - an unfractured specimen of such material will crumble under light hammer blows

Moderately Strong - specimen will withstand a few heavy hammer blows before breaking

Strong - specimen will withstand a few heavy ringing hammer blows and usually yields large fragments

Very Strong - rock will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments

#### DEGREE OF WEATHERING

Highly Weathered - abundant fractures coated with oxides, carbonates, sulphates, mud, etc., thorough discoloration, rock disintegration, mineral decomposition

Moderately Weathered - some fracture coating, moderate or localized discoloration, little to no effect on cementation, slight mineral decomposition

Slightly Weathered - a few stained fractures, slight discoloration, little or no effect on cementation, no mineral composition

Fresh - unaffected by weathering agents; no appreciable change with depth

7	TRANS	TECH	CONSULTANTS	

**302 South School Street** Ukiah, California 95482 (707) 234-8778 www.transtechconsultants.com

#### Project No. 5323.01

Drawn by: TEL Date: 9/1/22

## Geotechnical Investigation Tan Oak Park/FAFUBA/Legget Fire Water Storage Tank 58974 North Highway 101 Laytonville, California

BEDROCK PROPERTIES KEY

# APPENDIX C

Trans Tech Consultants-Windsor, CA				1		1	
		1					
MOISTURE & DENSITY	BY DRIVE CYLI	) (ASTM 2937)					
				·			
Project Name: FAFUBA		Job Number:					
Performed By: CK / JM		Date:	9/8/21	ļ	ļ		
Reviewed By: TEL		Date:	4/12/22				
Sample Description							
PP & PVST (tsf)							
Geovane (kPa)							
Job Sample Number	TP-2 at 2.5 ft	TP-3 at 2.5'	TP-3 at 4 ft	TP-5 at 3-4.5 ft			
A. Diameter of Cylinder (in)	3.00	3.00					
B. Total Length of Cylinder (in)	2.75	2.75					
C. Length of Empty Cylinder Top (in)	0.00	0.00					
D. Length of Empty Cylinder Bottom (in)	0.00	0.00					
E. Length of Cylinder Filled (in)	2.75	2.75					
F. Total Weight of Soil and Tube (g)	640.1	696.9					
G. Brass Tube Tare (g)	207.0	212.9					
H. Sample Weight (g)	433.1	484.0					
I. Volume of Cylinder (ft3)	0.011249	0.011249	<u> </u>		ļ		
J. Wet Density (pcf)	84.9	94.9					
K. Pan #	AL	Y	T1	TA			
L. Weight of Wet Soil and Pan	830.2	880.5	1252.3	1567.5			
M. Weight of Dry Soil and Pan	788.6	836.0	1168.1	1497.8			
N. Weight of Water	41.6	44.5	84.2	69.7			
O. Weight of Pan	398.1	396.9	397.0	400.6			
P. Weight of Dry Soil	390.6	439.1	771.1	1097.2			
Q. Percent Moisture (%)	10.7	10.1	10.9	6.4			
R. Dry Density (pcf)	76.7	86.1					
Degree of Saturation (SprGvty=2.65)	24	29					
Geovane (kPa)							

# Wash 200 Sieve Data Sheet

ASTM C117-17

Project Name:	FAFUBA	Tested By:	JM	Date: 9/13/21
Project No:	5323.01	Checked By:	TEL	Date: 4/4/22
Sample No:	TP-3	Test Number:		
Sample Depth:	3'-4'			_
				_

CL-ML USCS Soil Classification:

TEST						
Veriebles	NO		TP-3 @			
Variables	Var.	Units	3'-4'			
Container Number			TL			
Mass of Container (Pre Wash)	M <sub>C</sub>	(g)	397.0			
Mass Container & Soil Pre-Wash	M <sub>CS</sub>	(g)	580.7			
Mass Soil Pre-Wash	Ms	(g)	183.7			
Mass of Container Post Wash (if neccesary)	M <sub>C</sub>	(g)				
Mass Container & Soil Post-Wash (Drv)	$M_{CDS}$	(g)	475.3			
Mass Soil Post-Wash (Dry)	$M_{DS}$	(g)	78.3			
Mass of -200 Material	M <sub>200</sub>	(g)	105.4			
% of -200 particles		(%)	57.4			

NOTES:



# **Atterberg Limits Data Sheet**

ASTM D4318-10

Project Name:	Fafabu	Tested By:	JM	Date:	9/10/21
Proj. Number:	5323.01	Checked By:	TEL	Date:	4/14/22
Sample Loc:	TP-3	Test Number:			
Sample Depth:	3.0'-4.0'	Gnd Elevation:		_	
USCS So	oil Classification: CL-ML				

TEST **PLASTIC LIMIT** LIQUID LIMIT NO Variable 1 2 3 4 1 2 3 4 Units Var. Number of Blows Ν blows 33 27 21 16 Can Number \_\_\_\_ ΤW С DD BD ED AA AF EG Mass of Empty Can 13.5 13.5 13.5 13.5 13.6 13.6 13.6 13.6  $M_{\rm C}$ (g) Mass Can & Soil (Wet) M<sub>CMS</sub> 14.5 14.1 15.0 15.7 29.0 29.6 28.3 28.1 (g) Mass Can & Soil (Dry) 14.0 14.8 15.4 14.3 26.2 26.7 25.6 25.3 MCDS (g) Mass of Soil 0.5 1.3 12.7 12.0  $M_S$ 0.9 1.8 13.1 11.7 (g) Mass of Water  $\mathsf{M}_\mathsf{W}$ 0.2 0.2 0.3 2.7 (g) 0.1 2.8 2.9 2.8 Water Content 21.2 23.4 19.2 16.8 17.4 21.7 22 22.6 (%) W



Number of Blows (N)

100



10

## Families And Friends United By AIDS Tan Oak Park

### LEGGETT FIRE WATER PROJECT

Dear Deborah, This is a partial list of donations received from our community supporters.

Just Rent it Garberville

American Legion Post 815 Leggett Valley

**Benbow Inn, Benbow** 

The Peg House, Leggett

Weathertop Nursery and Building Supply, Laytonville

Gravier's Chevron, Laytonville

Mara Kimmel Bookeeping, Laytonville

Hydro Pacific Inc. Ukiah

Savings Bank of Mendocino County, Ukiah

Eel River Recovery Project, Loleta

**Bell Springs Fire Department** 

Network for Good

KPHT-LP. org 99.9 Fm

And many community members,

Thank You,

### Jessica Roemer Pres BOD FAFUBA

**Facebook: Leggett Fire Water Project** 

www.paypal.com/us/fundraiser/charity/2084099

### Leggett Fire Water Project 58974 N. Hwy 101 Leggett Ca.95585 707 984-6206 <u>www.tanoakpark.org</u> e-mail fafuba@mcn.org



Leggett Valley Post 815 The American Legion P.O. Box 223 Leggett, California 95585

07/19/21

American Legion Post 815 Leggett Valley is in support of the "Leggett Fire Water Project".

There is a dire need to have a large water supply for fire suppression located between Leggett and Laytonville. With a scarce volume of readily available fire fighting water in the area, the completion of the Leggett community fire water project may save much property and many lives.

Tan Oak Park is a perfect place for this project due to its location as well as the accessibility for multiple fire engines to refill simultaneously and easily.

Post 815 commends the FAFUBA organization and Tan Oak Park for their hard work on this project, and the donation of the site for the project. This is a vital piece of infrastructure that our community needs.

Sincerely

Marcus Green Commander Post 815 Robert Kirk Adjutant Post 815





# LEGGETT VALLEY VOLUNTEER FIRE DEPARTMENT

P.O. Box 191 • Leggett, California 95585 (707) 925-6334

8/19/2021

Leggett Valley Fire & Rescue is in support of the "Leggett Fire Water Project".

Convenient access to such a large quantity of water would support the Leggett Fire Department's efforts to protect and effectively support fire suppression efforts in even the most rural, outlying parts of our District. The completion of the Leggett Fire Water Project has the potential to save both lives and property that otherwise may not have adequate water supply for protection efforts.

Tan Oak Park is an ideal location for this project due to the lack of accessible water resources in the southernmost areas of our District. This project has great potential to support the entire surrounding community during times of need.

Leggett Valley Fire & Rescue is committed to supporting all efforts made by FAFUBA to raise funds for this project.

Sincerely,

Ely Reighter Chief 5700



# Piercy Fire Department Water Resources Development



Geo-referenced PDF available upon request.









# **Piercy Fire Protection District**

PO Box 206, Piercy, CA 95587

October 19, 2022

North Coast Resource Partnership

Prop 1 Review Committee

RE: Letter of support and commitment for the Rural Tank Program for Water Security and Fire Preparedness in Mendocino County Disadvantaged Communities

Dear Review Committee:

The Piercy Fire Protection District is fully supportive and committed to the project being submitted by the Mendocino County Resource Conservation District. We find securing an adequate supply of water for our fire engines is a constant concern for the Piercy Volunteer Fire department, especially, in the current climate conditions here in California.

Piercy is located in Northern Mendocino County. Our community is very rural, with the majority of our residents living on dirt roads, many roads one way in/out. Water sources are problematic and drawing water from the South Fork Eel River has its challenges and access availability. Some neighborhood homes have offered their water storage tanks as a water source, however, in a wildland fire emergency they may not be accessible.

We have two (2) locations where we would like to install water tanks (Rain Water Catchment Tanks) that would be easy to access. 3 at our Fire Station (each 5,000 gal tanks) and 2 at our Community Hall/Training Center (each 5,000 gal tanks). Both these locations are on Highway 271 and easy to get to. Cal Fire and other nearby mutual aid Fire Departments know these sites.

The Piercy Fire Protection District, our Fire Chief and Volunteers, thank you for this opportunity to submit our request.

Sincerely,

Larry Casteel

Larry Casteel Commissioner Piercy Fire Protection District (P) 707-367-4125 email: larrycasteel@gmail.com



# Rancho Navarro Fire Department Water Resources Development



Geo-referenced PDF available upon request.



October 21, 2022

North Coast Resource Partnership P.O. Box 262 Healdsburg, CA 95448

RE: Letter of Support and Commitment for the Rancho Navarro Rainwater Catchment Proposal

Dear North Coast Resource Partnership:

Conservation Works is pleased to submit a letter in support for the application submitted by the Mendocino County Resource Conservation District (MCRCD) to NCRP's Regional Water Security, Climate and Drought Preparedness program.

The Rural Tank Program for Water Security and Fire Preparedness in Mendocino County Disadvantaged Communities project includes elements that synergize with Conservation Works' current "Rain Catchers in Your Neighborhood" project funded through CDFW and NOAA Fisheries Voluntary Drought Initiative Grant Program. Our project will increase capacity for offstream water storage with rooftop rainwater collection, storage, and re-use systems deployed in rural residential communities, including the Navarro River watershed specifically targeting the Rancho Navarro Subdivision. MCRCD's Water Security, Conservation and Preparedness in Mendocino County's Drought Stressed Communities proposal includes components to install a series of rainwater catchment tanks at the Rancho Navarro Volunteer Fire Department and 8-10 individual 5,000-gallon tanks distributed to rural residents in the community for nonpotable water resilience. Taken together, the two projects will greatly increase off-stream water storage for water security and fire preparedness in this rural community.

We are supportive of the project and committed to collaborate with MCRCD to accomplish our shared goals.

Respectfully,

Don Hencock

Oona Heacock Executive Director



# ANDERSON VALLEY FIRE DEPARTMENT

P. O. Box 398 14281 Highway 128 Boonville, CA 95415 Phone (707) 895-2020 FAX (707) 895-2239 admin@andersonvalleyfire.org

November 1, 2022

### Re: Letter of Support and Commitment for the Rainwater Catchment Proposal

Dear North Coast Resource Partnership:

The Anderson Valley Fire Department is pleased to submit a letter in support for the application submitted by the Mendocino County Resource Conservation District (MCRCD) to NCRP's Regional Water Security, Climate and Drought Preparedness program.

The Water Security, Conservation and Fire Preparedness in Mendocino County's Drought Stressed Communities project includes components to be implemented within the Rancho Navarro Community within the Anderson Valley to improve fire preparedness and water security for our rural residents. In the proposed project, MCRCD will install a total of 90,000gallons of additional water storage, including (8) 5000-gallon rainwater catchment tanks at the Rancho Navarro Fire House and (8-10) 5000-gallon rainwater catchment tanks for individual residences.

This project would greatly improve the availability of water resources for fire preparedness in this particularly vulnerable part of our district and we are in support of the project.

Respectfully,

Andres Avila Fire Chief Anderson Valley Fire Department

Rancho Navarro Association PO Box 334 Navarro, CA 95463

November 3, 2022

Re: Letter of Support and Commitment for the Rainwater Catchment Proposal

Dear North Coast Resource Partnership:

The Rancho Navarro Association (RNA) is pleased to submit a letter of support for the application submitted by the Mendocino County Resource Conservation District (MCRCD) to NCRP's Regional Water Security, Climate and Drought Preparedness program.

The Water Security, Conservation and Preparedness in Mendocino County's Drought Stressed Communities project includes components implemented within the Rancho Navarro Community to improve fire preparedness and water security for our rural residents. Components of this project include a series of rainwater catchment tanks installed at the Volunteer Fire Department that will provide water for fire suppression activities and 8-10 individual 5,000-gallon tanks distributed to rural residents for non-potable water resilience.

RNA understands that MCRCD will enter into individual access agreement with residents to establish a water management and maintenance agreement to ensure tanks will be maintained and water will be used only for pre-existing vegetable gardens, non-potable household use, and fire protection. We are supportive of the project and confident that landowners will be willing and excited to work with MCRCD for its successful implementation.

Respectfully,

Nancy Appolito

Nancy Ippolito President, Rancho Navarro Association
