

INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION/ ENVIRONMENTAL ASSESSMENT

Ramona Municipal Water District/Barona Indian Tribe Potable and Recycled Water Infrastructure Project

Prepared for:

**Barona Band of Mission Indians
and
Ramona Municipal Water District**

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**Volume 2-B
Appendices**

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List of Appendices

Volume 2-B

- Appendix E: June 2021 Ramona Municipal Water District Urban Water Management Plan 2020 Update by Dudek
- Appendix F: February 2025 Focused Construction Noise and Vibration Analysis by Ganddini Group, Inc.
- Appendix F-1: February 2025 Sound Plan Noise Figures by Ganddini Group, Inc.

Appendix E

June 2021

Ramona Municipal Water District

Urban Water Management Plan 2020 Update

by Dudek

Urban Water Management Plan 2020 Update

Prepared for:

Ramona Municipal Water District

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JUNE 2021

Table of Contents

<u>SECTION</u>	<u>PAGE NO.</u>
ACRONYMS AND ABBREVIATIONS	VII
1 INTRODUCTION AND LAY DESCRIPTION	1
1.1 Background and Purpose	1
1.2 Urban Water Management Planning and the California Water Code.....	1
1.2.1 Urban Water Management Planning Act of 1983	1
1.2.2 Water Conservation Act of 2009 (SB X7-7).....	2
1.3 Urban Water Management Plans in Relation to Other Planning Efforts	2
1.4 UWMP Organization.....	2
1.5 UWMPs and Grant or Loan Eligibility.....	4
1.6 Lay Description	4
1.6.1 Water Supply	4
1.6.2 Water Use.....	5
1.6.3 Water Supply Reliability.....	6
2 PLAN PREPARATION.....	7
2.1 Basis for Preparing a Plan	7
2.1.1 Public Water Systems.....	7
2.1.2 Agencies Serving Multiple Service Areas/Public Water Systems	7
2.2 Regional Planning.....	8
2.3 Individual Planning and Compliance.....	8
2.4 Fiscal or Calendar Year and Units of Measure	9
2.4.1 Fiscal or Calendar Year.....	9
2.4.2 Reporting Complete 2020 Data.....	10
2.4.3 Units of Measure.....	10
2.5 Coordination and Outreach.....	10
2.5.1 Wholesale and Retail Coordination	10
2.5.2 Coordination with Other Agencies and the Community.....	10
2.5.3 Public Outreach.....	11
2.5.4 Notice to Cities and Counties.....	11
2.5.4 Agency Coordination	11
2.6 Plan Adoption.....	11
2.7 Plan Implementation	12
3 SYSTEM DESCRIPTION.....	13
3.1 General Description.....	13
3.1.1 History of the Ramona Municipal Water District.....	13
3.1.2 Description of Existing Facilities	14
3.2 Service Area Boundary Maps.....	14

3.3	Climate	17
3.4	Population and Demographics	17
3.5	Land Uses / Capital Improvement Program	18
4	CUSTOMER WATER USE.....	20
4.1	Potable, Raw, and Recycled Water Use	20
4.2	Past, Current, and Projected Water Use by Sector.....	20
4.2.1	Past Water Use	20
4.2.2	Current Water Use	21
4.2.3	Projected Water Use	21
4.2.4	Total Water Use.....	22
4.3	Distribution System Water Losses	23
4.4	Water Use for Lower Income Households.....	23
4.5	Climate Change Considerations	24
5	CONSERVATION TARGET COMPLIANCE	25
5.1	Baseline Per Capita Water Use.....	25
5.2	Service Area Population	25
5.3	Gross Water Use.....	26
5.4	2020 Compliance Daily Per Capita Water Use	26
6	SYSTEM SUPPLIES.....	27
6.1	Imported Water.....	27
6.2	Groundwater	27
6.3	Surface Water.....	28
6.4	Wastewater and Recycled Water.....	28
6.4.1	Wastewater Collection, Treatment, and Disposal.....	28
6.4.2	Recycled Water System	31
6.4.3	Recycled Water Beneficial Uses	31
6.4.4	Actions to Encourage and Optimize Future Recycled Water Use.....	37
6.5	Desalinated Water Opportunities	38
6.6	Future Water Projects	38
6.7	Summary of Existing and Planned Sources of Water	38
6.8	Projected Water Supply.....	39
6.9	Energy Use	40
7	WATER SYSTEM RELIABILITY	42
7.1	Constraints on Water Sources	42
7.2	Reliability by Type of Year	42
7.2.1	Water Authority Normal Year Assessment	43
7.2.2	Water Authority Dry Water Year Assessment	43
7.2.3	Water Authority Multiple Dry Water Year Assessment.....	43
7.3	Water Service Reliability – Ramona	44

7.3.1	Normal Year Assessment – Ramona.....	44
7.3.2	Dry Water Year Assessment – Ramona	44
7.3.3	Multiple Dry Water Year Assessment – Ramona	45
7.4	Drought Risk Assessment.....	45
8	WATER SHORTAGE CONTINGENCY PLANNING.....	46
8.1	Water Supply Reliability Analysis.....	46
8.2	Contingency Plan Levels	46
8.2.1	Water Authority Water Shortage and Drought Response Plan	47
8.2.2	District Drought Response Conservation Program	47
8.3	Prohibitions on End Uses.....	50
8.4	Supply Augmentation	51
8.5	Determining Water Shortage Reductions	51
8.6	Catastrophic Supply Interruption.....	52
8.6.1	Emergency Response Plan.....	52
8.6.2	Water Authority Emergency Storage Project	52
8.7	Communication Protocols.....	53
8.8	Compliance and Enforcement	54
8.9	Revenue and Expenditure Impacts	54
8.10	Resolution or Ordinance	55
8.11	Monitoring and Reporting.....	55
8.12	Plan Adoption, Submittal, and Availability	55
9	DEMAND MANAGEMENT MEASURES	56
9.1	Demand Management Measure for Retail Agencies	56
9.1.1	Water Waste Prevention Ordinances.....	56
9.1.2	Metering	56
9.1.3	Public Education and Outreach	56
9.1.4	Programs to Assess and Manage Distribution System Real Loss	56
9.1.5	Water Conservation Program Coordination and Staffing Support.....	56
9.2	Members of the California Urban Water Conservation Council.....	57
9.3	Reporting Implementation	57
9.4	Future Water Conservation Savings.....	57
10	PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION	58
10.1	Inclusion of all 2020 Data	58
10.2	Notice of Public Hearing.....	58
10.3	Public Hearing and Adoption	58
10.4	Plan Submittal	58
10.4.1	Submitting a UWMP to DWR	58
10.4.2	Electronic Data Submittal	59
10.4.3	Submitting a UWMP to the California State Library.....	59
10.5	Public Availability.....	59

10.6	Amending an Adopted UWMP.....	59
11	REFERENCES	60

APPENDICES

A	Urban Water Management Plan Checklist	
B	Ramona Municipal Water District Board of Directors Resolution	
C	Ramona Municipal Water District Drought Response Conservation Program	
D	Proof of Publication: UWMP Public Hearing Notice	

FIGURES

1	Ramona Service Area	15
2	San Vicente Wastewater Service Area.....	33
3	Santa Maria Wastewater Service Area	35

TABLES

Table 1-1.	Retail: Water Supplies — Projected.....	5
Table 1-2.	Retail: Total Water Use (Potable and Non-Potable) (Acre-Feet)	6
Table 2-1.	Retail Only: Public Water Systems	8
Table 2-2.	Plan Identification	9
Table 2-3.	Supplier Identification	10
Table 3-1.	Ramona Municipal Water District Service Area Monthly Climate Summary	17
Table 3-1.	Ramona Municipal Water District Service Area Monthly Climate Summary	17
Table 3-2.	Ramona Municipal Water District Service Area Historical Temperature	17
Table 3-3.	Retail: Population — Current and Projected	18
Table 4-1.	Past Water Use.....	20
Table 4-2.	Retail: Demands for Potable and Non-Potable Water – Actual.....	21
Table 4-3.	Retail: Use for Potable and Non-Potable Water – Projected	22
Table 4-4.	Retail: Total Water Use (Potable and Non-Potable) (Acre-Feet)	22
Table 4-5.	Retail: Last Five Years of Water Loss Audit Reporting.....	23
Table 4-6.	Retail Only: Inclusion in Water Use Projections	23
Table 5-1.	Baselines and Targets Summary from SB X7-7 Verification Form	25
Table 5-2.	2020 Compliance Year Population.....	25
Table 5-3.	2020 Gross Water Use (Acre-Feet).....	26
Table 5-4.	2020 Gallons per Capita per Day (gpcd).....	26
Table 5-5.	2020 Compliance (gpcd).....	26
Table 6-2.	Retail: Wastewater Collected Within Service Area in 2020	28
Table 6-3.	Retail: Wastewater Treatment and Discharge within Service Area in 2020	30

Table 6-4. Retail: Recycled Water Direct Beneficial Uses within Service Area (Acre-Feet) 32

Table 6-5. Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual 37

Table 6-6. Retail: Water Supplies – Actual 38

Table 6-7. Retail: Water Supplies – Projected..... 40

Table 6-8. Recommended Energy Reporting – Water Supply Process Approach..... 41

Table 7-1. Factors Resulting in Inconsistency of Supply 42

Table 7-2. Water Year Type Base Years 43

Table 7-3. Retail: Basis of Water Year Data (Reliability Assessment) 43

Table 7-4. Retail: Normal Year Supply and Demand Comparison (Acre-Feet)..... 44

Table 7-5. Retail: Single Dry Year Supply and Demand Comparison (Acre-Feet) 44

Table 7-6. Retail: Multiple Dry Years Supply and Demand Comparison 45

Table 8-1. Water Shortage Contingency Plan Levels..... 46

Table 8-2. Water Authority Drought Response Matrix – Firm Demands 47

Table 8-3. Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages 48

Table 8-4. Water Shortage Contingency – Consumption Reduction Methods and Mandatory Prohibitions 49

Table 8-5. Demand Reduction Actions..... 50

Table 8-6. Supply Augmentation and Other Actions..... 51

Table 8-7. Water Shortage Contingency – Consumption Reduction Methods and Mandatory Prohibitions 54

Appendix F

February 2025

Focused Construction Noise and Vibration Analysis

by Ganddini Group, Inc.

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
AF	acre-feet
AFY	acre-feet per year
BMP	best management practice
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DMM	Demand Management Measure
DWR	California Department of Water Resources
ERP	Emergency Response Plan
ESP	Emergency Storage Project
gpcd	gallons per capita per day
MG	million gallons
MGD	million gallons per day
MOU	Memorandum of Understanding
PWS	public water system
RUWMP	Regional Urban Water Management Plan
SANDAG	San Diego Association of Governments
SB	Senate Bill
UWMP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan
WSDRP	Water Shortage and Drought Response Plan
WRP	Water Reclamation Plant

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1 Introduction and Lay Description

1.1 Background and Purpose

This section of the 2020 Urban Water Management Plan (UWMP) provides an introduction to the Ramona Municipal Water District (District), summarizes the Urban Water Management Planning Act (UWMP Act), the coordination process, the history and description of the District, the physical water delivery system, and service area characteristics.

The District is a public agency organized under the Municipal Water District Law of 1911, California Water Code (CWC) Section 71000. The District is governed by five-member Board of Directors, whose members are publicly elected to staggered 4-year terms, and an appointed General Manager. The mission of the District is to provide a safe and reliable supply of water to its customers in the District Service Area of San Diego County. This 2020 UWMP identifies a mix of water resources projected to ensure long-term water supply reliability for the District over the next 20 years.

The District is a member agency of the San Diego County Water Authority (Water Authority), which is in turn a member agency of the Metropolitan Water District of Southern California (Metropolitan). The District relies on Metropolitan and the Water Authority to continue to provide a reliable supply of imported treated and untreated water to the region.

1.2 Urban Water Management Planning and the California Water Code

The sections below are summaries of the CWC sections applicable to UWMPs. The California Department of Water Resources (DWR) provides guidance on addressing CWC UWMP requirements, but water suppliers are solely responsible for ensuring that all CWC requirements and applicable laws have been met.

1.2.1 Urban Water Management Planning Act of 1983

The UWMP Act requires the District to develop UWMPs. The UWMPs provide a framework for long-term water planning and inform the public of a supplier's plans for long-term resource planning that ensures adequate water supplies for existing and future demands.

This part of the CWC requires urban water suppliers to report, describe, and evaluate:

- Water deliveries and uses
- Water supply sources
- Efficient water uses
- Demand management measures
- Water shortage contingency planning

1.2.2 Water Conservation Act of 2009 (SB X7-7)

The Water Conservation Act of 2009 required retail urban water suppliers to report in their UWMPs their base daily per capita water use (baseline gallons per capita per day [gpcd]), 2015 interim urban water use target, 2020 urban water use target, and compliance daily per capita water use. These terms are defined in DWR 2016 (Methodologies) consistent with SB X7-7 requirements (DWR 2016).

1.3 Urban Water Management Plans in Relation to Other Planning Efforts

Urban water suppliers provide information on water management specific to their service areas. However, water management does not happen in isolation; there are other planning processes that integrate with the UWMP to accomplish urban planning. Some of these plans include city and county general plans, water master plans, recycled water master plans, integrated resource plans, integrated regional water management plans, groundwater management plans, and others.

This UWMP has been prepared in accordance with State of California Assembly Bill (AB) 797. The bill, adopted in 1983, required all water suppliers in California with more than 3,000 customers or a demand exceeding 3,000 acre-feet (AF) annually to prepare and adopt a UWMP by 1985. The legislation also required the suppliers to adopt follow-up plans by December 31, 1990. Since originally adopted in 1983, the UWMP Act has been modified by several bills:

1. AB 2661, adopted in July 1990, formally extended the process, requiring suppliers to update their plans every 5 years.
2. Subsequently, Senate Bill 553 (SB 553) was signed into law on September 28, 2000, revising the Urban Water Management Planning Act by replacing the 16 Demand Management Measures (DMMs) with the 14 best management practices (BMPs) currently being implemented by Group 1 signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California.
3. AB 2552 was signed into law on September 28, 2000, and requires each urban water supplier to notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing its UWMP and considering changes to the UWMP.
4. AB 1420 was adopted in 2007, and requires water suppliers to implement the water DMMs to be eligible for water management grants or loans administered by DWR.
5. SB X7-7, adopted in 2009, was passed with the goal of reducing municipal water use by 20% by the year 2020. SB X7-7 requires water suppliers to report baseline per capita water use, 2020 interim per capita water use target, 2025 per capita water use targets, and the basis for determining the estimates.

1.4 UWMP Organization

This section provides a brief description of the contents of the plan by section.

Chapter 1 – Introduction and Lay Description: This introductory chapter provides a discussion on the importance and extent of the District’s water management planning efforts.

Chapter 2 – Plan Preparation: Chapter 2 provides information on the District’s process for developing the UWMP, including efforts in coordination and outreach.

Chapter 3 – System Description: Chapter 3 contains an overview of the District, including history, organizational structure, service area, population, climate and a description of existing facilities.

Chapter 4 – Customer Water Use: Past, current, and projected water use is summarized in Chapter 4. Water use is quantified for 5-year increments through the year 2040 for uses such as single- family residential, industrial, commercial, etc.

Chapter 5 – Conservation Target Compliance: The calculation of baseline per capita water use and per capita water use targets are described and presented in Chapter 5 to demonstrate whether the District has achieved the 2020 water use target.

Chapter 6 – System Supplies: This chapter reviews the sources for water in the District, including groundwater, imported water, surface water, and recycled water.

Chapter 7 – Water System Reliability: This chapter discusses the reliability of the water supplies through the planning horizon. It provides a normal, single dry year, and 5 consecutive dry year analysis. It also completes the drought risk assessment.

Chapter 8 – Water Shortage Contingency Planning: This chapter provides a plan for the District’s contingency analysis for water shortages, including discussions of catastrophic water shortages and drought management planning.

Chapter 9 – Demand Management Measures: Chapter 9 provides a description of the District’s efforts to promote conservation and to reduce demand on its water supply.

Chapter 10 – Plan Adoption, Submittal, and Implementation: This chapter describes the steps taken to adopt and submit the UWMP and to make it publicly available. This chapter also discusses the District’s plan to implement the UWMP.

Chapter 11 – References: This chapter presents full citations for the documents referred to in this UWMP.

Appendix A Urban Water Management Plan Checklist

Appendix B Ramona Municipal Water District Board of Directors Resolution

Appendix C Ramona Municipal Water District Drought Response Conservation Program

Appendix D Proof of Publication: UWMP Public Hearing Notice

1.5 UWMPs and Grant or Loan Eligibility

Funding Eligibility for Retail and Wholesale Suppliers

In order for an urban water supplier to be eligible for any water management grant or loan administered by DWR, the agency must have a current UWMP on file that has been determined by DWR to address the requirements of the CWC. A current UWMP must also be maintained by the water supplier throughout the term of any grant or loan administered by DWR.

An UWMP may also be required in order to be eligible for other state funding, depending on the conditions that are specified in the funding guidelines. Agencies should seek guidance on the specifics of any state funding source from the funding agency or agencies.

Changes to California law require that beginning in 2016, urban retail water suppliers must comply with water conservation requirements established by the Water Conservation Act of 2009 in order to be eligible for state water grants or loans.

1.6 Lay Description

1.6.1 Water Supply

The District's 2020 UWMP provides a comprehensive analysis and review of the District's water supplies and ability to supply water in drought conditions. The District relies on imported water from the Water Authority for its water supply. The District purchases treated and untreated water from the Water Authority, which purchases water from Metropolitan. Metropolitan imports water from the Colorado River Aqueduct and the facilities of the State Water Project. In 2020, the Water Authority obtained 31 percent of its water from Imperial Irrigation District, 19 percent from the canal lining program, 18 percent from Metropolitan Water District, 10 percent from surface water, 8 percent from desalinization, and 14 percent from other sources. Metropolitan's water supplies are further detailed in the Water Authority's 2020 UWMP (Water Authority 2021a). In recent years, the District has been 99 percent dependent on Water Authority water and its efforts to develop and manage a diverse, reliable supply for the region.

A small but growing share of the District's local supply comes from recycled water. Recycled water is produced by two wastewater treatment plants operated by the District, the San Vicente and Santa Maria Water Reclamation Plants. The District currently provides recycled water from the Santa Maria Water Reclamation Plant to the Mt. Woodson Golf Club and recycled water from the San Vicente Water Reclamation Plant to the San Vicente Golf Resort (previously the San Diego Country Estates Golf Course). It used to provide water to Spangler Peak Ranch, but the ranch did not renew the recycled water agreement with the District and does not take water anymore.

The District's current and projected water supplies during normal water years are provided in Table 1-1. The District projects to receive all potable water from the Water Authority. The recycled water projections are based on wastewater generation to increase at a similar rate to water demand projections of 0.6% annually.

Table 1-1. Retail: Water Supplies – Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply (Acre-Feet) Reported to the Extent Practicable									
		2025		2030		2035		2040		2045 (Opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Purchased or Imported Water	Water Authority	4,839		4,977		5,121		5,268			
Purchased or Imported Water	Poway	0		0		0		0			
Recycled Water		1,158		1,193		1,229		1,267			
Total		5,997	0	6,170	0	6,350	0	6,535			

Source: DWR 2021a, Submittal Table 6-9.

Notes: opt = optional; Water Authority = San Diego County Water Authority; Poway = City of Poway.

1.6.2 Water Use

The District's water use has declined 3% annually on average over the last 5 years, while the District's population has increased at 0.2% annually¹. The District projects that population will increase at 0.6% annually over the next 20 years², which is higher than the population increase the District has seen over the last 5 years.

Even though demand has decreased over the last 5 years, the projected increase in population growth is higher than the District has seen over the last 5 years. In order to be conservative, the District is projecting an increase in demand of 0.6% annually, consistent with the expected population increase. The demand projections are shown in Table 1-2.

¹ The population increase was calculated using the Department of Water Resource's Population Tool.

² The population projection is from SANDAG Series 13 projections. See section 3.4

Table 1-2. Retail: Total Water Use (Potable and Non-Potable) (Acre-Feet)

	2020	2025	2030	2035	2040	2045 (Opt)
Potable Water, Raw, Other Non-potable	4,747	4,838	4,977	5,120	5,268	
Recycled Water Demand	611	520	520	520	520	
Optional Deduction of Recycled Water Put Into Long-Term Storage ¹	—	—	—	—	—	
Total Water Use	5,358	5,358	5,497	5,640	5,788	

Source: DWR 2021a, Submittal Table 4-3.

Notes: opt = optional.

¹ Long-term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier may deduct recycled water placed in long-term storage from their reported demand.

1.6.3 Water Supply Reliability

As stated previously, the District relies on the Water Authority for their water supply. As part of the Water Authority's 2020 UWMP, the Water Authority reviewed multiple potential drought scenarios. The analyses found that no reduction in the availability of supplies would be necessary over the 20-year planning horizon due to the drought resilience and diversity of water supplies (Water Authority 2021a).

2 Plan Preparation

This chapter includes specific information on how the 2020 UWMP was prepared, coordinated with other agencies and the public, and adopted. This section also includes information on how the UWMP will be implemented by the District.

2.1 Basis for Preparing a Plan

In accordance with the CWC, urban water suppliers with 3,000 or more service connections or supplying 3,000 or more AF of water per year are required to prepare a UWMP every 5 years.

If an agency is below this defined threshold for the year that a UWMP is due but meets the threshold before the next reporting cycle, the agency is required to adopt a UWMP within 1 year after meeting the reporting threshold.

Water suppliers will provide a brief discussion of the applicability of CWC Section 10617 to their agency.

2.1.1 Public Water Systems

Public water systems (PWSs) are the systems that provide drinking water for human consumption. These systems are regulated by the State Water Resources Control Board, Division of Drinking Water. The California Health and Safety Code defines a PWS as a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days per year.

PWS data reported to the State Water Resources Control Board are used to determine whether a retail supplier has reached the UWMP reporting threshold of 3,000 or more connections or 3,000 AF of water supplied. This is done by reviewing the number of connections and volume of water supplied by each PWS that is managed by the water supplier.

Reporting the PWS(s) that are managed by a water agency determines the basis of reporting; that is, it demonstrates whether the agency is considered an urban water supplier for the purposes of submitting a UWMP.

2.1.2 Agencies Serving Multiple Service Areas/Public Water Systems

Many water suppliers within the state have more than one PWS. Such suppliers may determine regional groupings and reporting for these systems based on internal planning requirements, geographic distribution, and similarities between systems. Each PWS that exceeds the UWMP size threshold must either have an individual plan or be included in a multiple system plan.

The names and numbers of each PWS (drinking water only) that is managed by the District and reported in this UWMP are provided in Table 2-1.

Table 2-1. Retail Only: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 (Acre-Feet)
3710019	Ramona Municipal Water District	9,696	4,747
Total		9,696	4,747

Source: DWR 2021a, Submittal Table 2-1.

In this UWMP, all units of measure for volume are in acre-feet (AF), as the District has specified in DWR Submittal Table 2-3 (Table 2-3 in this UWMP).

2.2 Regional Planning

Before developing the UWMP, water agencies should consider the extent to which they will become involved in regional planning processes. Developing a cooperative UWMP may be a natural continuation of other regional coordination efforts, such as Integrated Regional Water Management, or may present an opportunity to begin regional collaboration.

Regional planning can deliver mutually beneficial solutions to all agencies involved by reducing costs for the individual agency, assessing water resources at the appropriate geographic scale, and allowing for solutions that cross jurisdictional boundaries.

Some of the other possible benefits, depending on the level of regional cooperation, can include:

- More reliable water supplies
- Increased regional self-reliance
- Improved water quality
- Better flood management
- Increased economic stability
- Restored and enhanced ecosystems
- Reduced conflict over resources

In support of regional UWMPs and regional water conservation targets, the UWMP portion of the CWC provides mechanisms for participating in area-wide, regional, watershed, or basin-wide urban water management planning.

2.3 Individual Planning and Compliance

Before developing the UWMP, water suppliers should decide what level of regional coordination they wish to engage in for the 2020 cycle of urban water management planning.

Regional planning provides many benefits, including increased regional self-reliance, reduced need for imported water, and proper management of regional water assets. Good regional planning considers all interests and works across jurisdictional boundaries.

Agencies may choose:

- **Individual Reporting** – An agency develops a UWMP that reports solely on its service area. The individual UWMP addresses all requirements of the CWC. The agency notifies and coordinates with appropriate regional agencies and constituents.
- **Regional Reporting** – Working with an Integrated Regional Water Management group, wholesaler, other retailers, or another regional entity, an agency becomes part of a regional group that may develop either of the following:
 - **RUWMP** – A regional group develops a regional urban water management plan (RUWMP) that reports on their combined regional service area. The RUWMP addresses all the requirements of the CWC. The requirements of SB X7-7 may be addressed either by individual agencies or through a Regional Alliance. RUWMPs will submit data for multiple agencies, requiring duplication of many standardized tables.
 - **Regional Alliance** – A regional group develops a Regional Alliance that addresses only the requirements of the Water Conservation Act of 2009 (SB X7-7)—that is, planning, reporting, and complying as a Regional Alliance on 2015 and 2020 water use targets. All other elements of the CWC must be addressed through either an individual UWMP or an RUWMP.

Table 2-2 indicates that the District will prepare an individual UWMP.

Table 2-2. Plan Identification

Select Only One	Type of Plan	Name of RUWMP or Regional Alliance (if Applicable)
<input checked="" type="checkbox"/>	Individual UWMP	
	<input type="checkbox"/> Water Supplier is also a member of a RUWMP	—
	<input type="checkbox"/> Water Supplier is also a member of a Regional Alliance	—
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	—

Source: DWR 2021a, Submittal Table 2-2.

Notes: RUWMP = regional urban water management plan; UWMP = urban water management plan.

2.4 Fiscal or Calendar Year and Units of Measure

2.4.1 Fiscal or Calendar Year

A water supplier may report on a fiscal year or calendar year basis, but must clearly state in the UWMP the type of year that is used for reporting. The type of year should remain consistent throughout the UWMP.

DWR prefers that agencies report on a calendar year basis in order to ensure UWMP data is consistent with data submitted in other reports to the state. However, DWR also understands that for some agencies fiscal year reporting ensures consistency with local, regional, and/or financial reports. The agency may report either calendar year or fiscal year data in the UWMP.

The District is reporting based on the calendar year in this UWMP.

2.4.2 Reporting Complete 2020 Data

2020 UWMPs are required to include the water use and planning data for the entire calendar year of 2020, if an agency is reporting on a calendar year basis.

2.4.3 Units of Measure

Water agencies use various units of measure when reporting water volumes, such as acre-feet (AF), million gallons (MG), or hundred cubic feet (CCF). Agencies may report volumes of water in any of these units, but must maintain consistency throughout the UWMP.

The type of year (calendar) and units of measure (acre-feet) the District will be using throughout the UWMP are reported in Table 2-3.

Table 2-3. Supplier Identification

Type of Supplier (select one or both)	
<input type="checkbox"/>	Supplier is a wholesaler
<input checked="" type="checkbox"/>	Supplier is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables are in calendar years
<input type="checkbox"/>	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP ¹	
Unit	AF

Source: DWR 2021a, Submittal Table 2-3.

Notes: UWMP = urban water management plan; AF = acre-feet.

¹ Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in this table (based on DWR Submittal Table 2-3).

2.5 Coordination and Outreach

2.5.1 Wholesale and Retail Coordination

Retail agencies that receive a water supply from one or more wholesalers are required to provide their wholesaler(s) with the retail agency's projected water demand from that source, in 5-year increments for 20 years, or as far as data is available.

2.5.2 Coordination with Other Agencies and the Community

Water suppliers must coordinate the preparation of their UWMP with other appropriate agencies in the area, to the extent practicable. In order to verify that agencies have fulfilled provisions set forth in CWC Section 10620(d)(3) and CWC Section 10642.

2.5.3 Public Outreach

In accordance with the UWMP Act, the District notified the land use jurisdictions within its service area that it was preparing the 2020 UWMP. The draft 2020 UWMP was available for public review at the District's office and on the District's website. The District reviewed all of the comments received from stakeholders and revised the UWMP accordingly. A copy of the adopted 2020 UWMP will be provided to all applicable parties within 60 days of submission to DWR.

2.5.4 Notice to Cities and Counties

CWC Section 10621(b) requires that suppliers notify cities and counties to which they serve water that the UWMP is being updated and reviewed. The CWC specifies that this must be done at least 60 days prior to the public hearing.

2.5.4 Agency Coordination

This report constitutes the 2020 update to the District's 2015 UWMP. To adequately demonstrate that the District will have a reliable water supply over the next 20 years, the 2020 UWMP quantifies the mix of existing and projected local and imported supplies necessary to meet future water demands within the District's service area. While the 2020 UWMP includes specific documentation on development of the District's water supplies, the UWMPs submitted by the Water Authority and Metropolitan provide details on their water supplies that are the major contributors to the diversification and reliability of supplies for the District (Water Authority 2021; Metropolitan 2021).

Maintaining consistency among the plans of the District, Water Authority, and Metropolitan is important to the accurate reflection of the projected supplies available to meet the demands of the District. To facilitate coordination of UWMPs, the Water Authority formed an UWMP Working Group made up of staff from the Water Authority and its member agencies. This group provided a forum for exchanging demand and supply information. In addition, DWR hosted a special workshop to review the requirements of the UWMP Act. At a separate workshop, the UWMP Working Group received a briefing from Metropolitan on its regional plan, and participants discussed strategies for coordination between the supply agencies.

2.6 Plan Adoption

This 2020 update of the UWMP was prepared from March 2021 through June 2021. The District's Board of Directors held a public hearing regarding the 2020 UWMP on June 8, 2021, and adopted the 2020 UWMP on June 8, 2021, after the public rate hearing was completed. The updated UWMP was submitted to DWR in June 2021. See Appendix B for a copy of the resolution approving the filing of the 2020 UWMP Update. This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).

A copy of the adopted UWMP was submitted to DWR and the California State Library, and is available to the public at the District's office:

Ramona Municipal Water District Office (Engineering Counter)
105 Earlham Street

Ramona, California 92065

2.7 Plan Implementation

This UWMP provides a comparison of water supplies available to the District with the projected water demand through the year 2040, as well as discusses conservation measures the District has implemented to ensure a safe and reliable water source is available to residents of the District. As with previous UWMP updates prepared by the District, this plan will be used to provide the basis for determining that sufficient water supply is available for future proposed development.

The District has incorporated information on the District's wastewater operations in addressing the water recycling element of the 2020 UWMP, which describes the wastewater treatment requirements and water recycling potential.

This UWMP also includes a Water Supply Contingency Plan that the District adopted along with the UWMP.

3 System Description

This section presents history, service area description, and population growth information for the District, as well as a summary of the climate in the District's service area.

3.1 General Description

3.1.1 History of the Ramona Municipal Water District

A timeline detailing the history of the District is presented below.

Year	History
1925	Ramona Irrigation District organized to encompass 660 acres, using water obtained from wells.
1956	Ramona Municipal Water District organized on August 15, 1956, to encompass 20,600 acres that surrounded the Irrigation District.
1958	Poway Pump Station built to deliver Water Authority filtered water to the District. Pump station and 18-inch pipeline become the District's treated water supply.
1967	The District acquires the Ramona Irrigation District.
1970	Annexed San Diego Country Estates, a 3,650-acre development with water and sewer system.
1972	Bargar Water Treatment Plant placed in service. Capacity is rated at 5.3 MGD but clarifiers are limited to 4.0 MGD.
1978	Untreated Water Pump Station (8.4 MGD) and 27-inch pipeline completed in 1978. Capacity is limited by 18-inch supply line, meter rated to 10.8 MGD, and flow rate of 8.2 MGD.
1979	Assessment District 79-1 organized to provide untreated water and encompassed 6,200 acres of agricultural land, primarily avocado groves.
1981	Ramona Fire Protection District dissolved and merged with Ramona Municipal Water District on June 2, 1981.
1981	Ramona Sanitation District (formed in 1946) dissolved and merged with Ramona Municipal Water District (Santa Maria [800 acres, 8,000 population, 2,400 EDU] and San Vicente [2,400 acres, 8,000 population, 2,600 EDU] on July 1, 1981.
1988	Lake Ramona (13,400 AF; can be expanded to 18,400 AF) dedicated for untreated water use on August 27, 1988.
2003	New Poway Pump Station and 30-inch pipeline constructed. Placed in service September 29, 2003. Capacity limited by Water Authority meter to 18.6 MGD.
2003	Construction of San Vicente Water Reclamation Plant expansion to 0.80 MGD and addition of tertiary facilities and pond 3 were completed April 29, 2003.
2015	Replacement of 900 HP pump motor with 900 HP natural gas engine to operate pump at Poway Pump Station.
2020	Board approved decommissioning of the Untreated Water System

Notes: Water Authority = San Diego County Water Authority; District = Ramona Municipal Water District; MGD = million gallons per day; AFD = acre-feet per day; EDU = equivalent dwelling unit; AF = acre-feet; WRP = water reclamation plant; HP = horsepower.

Before 1947, the District and the San Diego region relied on local surface water runoff and groundwater pumped from local aquifers. As the economy and population have grown, local resources have become insufficient to meet the District's water supply needs. The Poway Pump Station was built in 1958 and began delivery of Water Authority treated water to the District. In 1972 the Bargar Water Treatment Plant (WTP) was placed in service to treat water from Lake Sutherland. In 1978 the Poway pump station and pipeline were built to deliver Water Authority water to the District. In August 1988, Lake Ramona was dedicated and the Poway pump station began delivery of untreated

water to the lake. In 2003 an additional Poway pump station and 30-inch pipeline were added to the treated water system, bringing the ultimate capacity to 18.6 million gallons per day (MGD). Since 2007 the District's Bargar WTP has been offline and it does not currently provide any water. Currently, the Water Authority provides all of the District's treated and untreated water supply.

3.1.2 Description of Existing Facilities

The District purchases treated and untreated water from the Water Authority, delivers recycled water to three recycled water customers, and owns three wells that may be used in an emergency. In 2020, the District delivered approximately 4,747 AF of potable and non-potable water. The District's water delivery system consists of 209 miles of water mains; 15 treated water reservoirs with a capacity of 28 million gallons (MG) 7 untreated reservoirs with a capacity of 13.5 MG, and two water reclamation plants producing recycled water at a capacity of 0.35 MGD and 0.50 MGD.

A small but growing share of the District's local supply comes from recycled water. Groundwater does not produce any significant water supply and groundwater recovery projects have not been attempted by the District. Yield from these projects would be considered drought proof since their yield is primarily independent of precipitation.

3.2 Service Area Boundary Maps

The District provides water for urban and agricultural uses to unincorporated areas in the central area of San Diego County, including the census-designated places of Ramona and San Diego Country Estates. The District's service area covers a total of 45,796 acres (72 square miles) and is the eastern boundary of the Water Authority and Metropolitan service areas. The District encompasses the Santa Maria Valley, San Vicente Valley, and surrounding hillsides, with elevations from 840 feet above mean sea level (amsl) to more than 2,800 feet amsl. Figure 1 shows the District's service area. The District also provides untreated water to other parcels outside of the service area under separate agreements.

The District's service area was primarily agricultural prior to 1970, when the district annexed the San Diego Country Estates and further suburban development began in the region. The County's Multiple Species Conservation Plan has identified large areas of the community of Ramona for grasslands and native habitat preservation. The District provides service to approximately 7,000 urban parcels and 3,000 rural parcels (greater than 1 acre).



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3.3 Climate

Climate within the District's service area consists of hot summers and mild winters. The District receives an annual average of 16.7 inches of precipitation in the form of rainfall. The majority of precipitation (more than 80%) occurs during the months of December through April. On a monthly basis, water requirements tend to increase significantly during the summer months, when a decrease in rainfall combined with an increase in temperatures and evapotranspiration levels leads to demands 2–3 times the average daily demand. A monthly climate summary for the District's service area is provided in Table 3-1 and 3-2.

Table 3-1. Ramona Municipal Water District Service Area Monthly Climate Summary

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Annual
Average Max Temperature (°F)	66.6	67.2	68.4	72.6	76.7	84.4	90.2	91.1	88.1	80.5	73.1	67.4	77.2
Average Min Temperature (°F)	38.1	39.1	41	43.1	48.3	51.7	56.3	57.4	55.2	48.1	41.9	36.8	46.4
Average Total Precipitation (in.)	3.47	3.53	3.17	1.21	0.39	0.07	0.11	0.16	0.33	0.68	1.36	1.71	16.22
Average Monthly ET (in.)	2.17	2.80	4.03	5.10	5.89	6.60	7.44	6.82	5.70	4.03	2.70	1.86	55.10

Source: WRCC 2021; DWR 2021b.

Notes: ET = evapotranspiration.

Table 3-2. Ramona Municipal Water District Service Area Historical Temperature

Average Max Temperature	2016	2017	2018	2019	2020
	72.8	72.1	72.5	70.9	73.2

Source: WRCC 2021

3.4 Population and Demographics

When the District was formed in 1956, the population within the District's service area was approximately 5,600 inhabitants. In 2020, the population within the service area is estimated at 33,986 according to the Department of Water Resource's Population Tool. The average population density is approximately 3.0 persons per household. Over the past 10 years the average annual growth rate within the District's service area has been 0.24%. The population projection for the District's service area through 2045 was forecasted using SANDAG's Series 13 Regional Growth Forecast (SANDAG 2013) and is summarized in Table 3-3.

Table 3-3. Retail: Population — Current and Projected

Population Served	2020	2025	2030	2035	2040	2045 (opt)
	33,986	34,386	34,791	35,201	35,615	36,035

Source: DWR 2021a, Submittal Table 3-1.

Note: opt = optional.

Other Demographic Factors

The District's service area consists mostly of single-family residential connections. With the small number of multi-family residential, commercial, and industrial connections, domestic water demand is relatively low. A larger water demand can be seen from the local landscape and agricultural connections that the District serves in this rural portion of the County.

3.5 Land Uses / Capital Improvement Program

The District's water system Water Capital Improvement Program (CIP) (fund 43) consists of projects to improve system capacity and reliability and to be built between FY 20-21 with a total use of funds of \$535,000. The District's water Capital Replacement Program (CRP) (funds 10 & 11) consists of replacement and betterment projects required to maintain and enhance the system reliability. The FY 20-21 budget totals \$4,072,736, which includes the replacement of existing cast Iron pipelines in the downtown area of Ramona.

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4 Customer Water Use

This chapter summarizes historic and future water demands within the District's service area. In 2020 the District supplied 4,747 AF to its customers. The District's entire water supply, excluding recycled water, is currently imported from the Water Authority.

4.1 Potable, Raw, and Recycled Water Use

The District currently provides potable, raw water, and recycled water to customers in their area. The raw water system has seen a significant drop in demand over the last 5 years and the District intends to decommission it in the near future. The raw water customers will have the option of converting to the potable water system if they desire. To be conservative, it has been assumed that all raw water customers will exercise this option. Therefore, the projections will show that 100% of the raw water demand will be shifted to the potable water system. The District provides 300 AF of untreated water directly from the lake as part of the Malone agreement. That water will continue to be delivered and is left in the projections as raw water demand. This chapter addresses potable water demand and also provides the reporting of raw water demand for the year 2020. Raw water use in 2020 is reported in Table 4-1 (see Section 4.2.1, Past Water Use).

Recycled water is addressed comprehensively in Section 6.4 of Chapter 6, but a summary of recycled water demand is included in Section 4.2.4, Total Water Use. The District currently provides recycled water from the Santa Maria Water Reclamation Plant to the Mt. Woodson Golf Club and recycled water from the San Vicente Water Reclamation Plant to the San Vicente Golf Resort. It used to provide water to Spangler Peak Ranch, but the ranch has not renewed their agreement for recycled water with the District and does not take water anymore.

4.2 Past, Current, and Projected Water Use by Sector

This section details the District's past and projected water use. The District tracks reports water use based on the billing system records. The billing records are based on monthly or bi-monthly meter reads of all customers. Each customer is classified into a sector when the account is established. The water use is reported based upon the customer classifications in the billing records.

4.2.1 Past Water Use

The District's raw and potable water use over the last 5 years is shown in Table 4-1. The District has seen its water demand trend down over the last 5 years. The District's population has continued to rise over the last 5 years, so the decrease in demand is attributed to continued improvements in conservation throughout the District.

Table 4-1. Past Water Use

Year	Total Water Use (Acre-Feet)
2016	5,379
2017	5,030
2018	5,241
2019	4,254
2020	4,747

4.2.2 Current Water Use

The District's potable and raw water demands for 2020 are provided in Table 4-2. The demands provided show the breakdown of water use by sector based on the customer classifications and billing data. The 2020 water demand includes water losses, also provided in Table 4-2.

Table 4-2. Retail: Demands for Potable and Non-Potable Water – Actual

Use Type	2020 Actual		
	<i>Additional Description (as Needed)</i>	<i>Level of Treatment When Delivered</i>	<i>Volume (AF)</i>
Single family	—	Drinking water	2,600
Multi-family	—	Drinking water	483
Institutional/governmental	—	Drinking water	223
Agricultural irrigation	—	Drinking water	29
Agricultural irrigation	—	Raw water	820
Commercial	—	Drinking water	270
Other potable	Construction	Drinking water	17
Losses	—	Drinking water	305
Total			4,747

Source: DWR 2021a, Submittal Table 4-1.

Notes: AF = acre-feet.

Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4 (see Chapter 6).

4.2.3 Projected Water Use

Projected water use over the next 20 years in 5-year increments is provided in this section. As discussed in Section 4.2.1, the District's water use has declined 3% annually on average over the last 5 years, while the District's population has increased at 0.2% annually³. The District's residential demand has declined at the same rate as their overall demand, indicating that the decrease in demand is likely the result of conservation and can reasonably be expected to continue even as the population continues to increase. The District projects that the population will increase at 0.6% annually⁴ over the next 20 years, which is higher than the population increase the District has seen over the last 5 years.

The District does not have land use data available to calculate land-use based demand. However, the population projections from SANDAG used by the District also included expected housing demand increases. The housing unit projections and persons per household projections indicated that the expected increase in population would be primarily single-family homes. The residential demand was analyzed in comparison with the overall demand and it was found that the residential demand changes correlated closely with the overall system demands. Since they correlated closely to overall demand, the demand projections used overall population increase to calculate the demand projections. Even though demand has decreased over the last 5 years, the projected increase in population growth is higher than the District has seen over the last 5 years. In order to be conservative, the District is projecting

³ The population increase was calculated using the Department of Water Resource's Population Tool

⁴ The population projection is from SANDAG Series 13 projections. See section 3.4

an increase in demand of 0.6% annually, consistent with the expected population increase. The demand projections are shown in Table 4-3.

As stated in Section 4.2.1, the raw water system is expected to be decommissioned in 2021. All raw water demand is projected to be filled with potable water, because recycled water infrastructure is not in place to serve the raw water customers. The District is still projected to provide 300 AF of untreated water as part of the Malone agreement. That water will continue to be delivered and is in the projections as raw water demand.

Table 4-3. Retail: Use for Potable and Non-Potable Water – Projected

Use Type	Additional Description (as Needed)	Projected Water Use (Acre-Feet) Reported to the Extent that Records Are Available				
		2025	2030	2035	2040	2045 (Opt)
Single family	—	2,678	2,759	2,843	2,929	
Multi-family	—	498	513	528	544	
Institutional/governmental	—	229	236	243	250	
Agricultural irrigation	Raw water	300	300	300	300	
Agricultural irrigation	—	576	602	630	658	
Commercial	—	278	286	295	304	
Other potable	Construction	17	18	18	19	
Losses	—	263	263	263	263	
Total		4,838	4,977	5,120	5,268	

Source: DWR 2021a, Submittal Table 4-2.

Note: Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4 (see Chapter 6).

4.2.4 Total Water Use

Total water system projections are shown in Table 4-4. The projections include projections from Table 4-3 and Table 6-4 (see Section 6.4.3.1, Current and Planned Uses of Recycled Water).

Table 4-4. Retail: Total Water Use (Potable and Non-Potable) (Acre-Feet)

	2020	2025	2030	2035	2040	2045 (Opt)
Potable water, raw, other non-potable	4,747	4,838	4,977	5,120	5,268	
Recycled water demand	611	520	520	520	520	
Optional deduction of recycled water put into long-term storage ¹	—	—	—	—	—	
Total water use	5,358	5,358	5,497	5,640	5,788	

Source: DWR 2021a, Submittal Table 4-2.

Notes: opt = optional.

4.3 Distribution System Water Losses

Distribution system water losses (also known as “real losses”) are the physical water losses from the water distribution system and the District’s storage facilities, up to the point of customer consumption. The District has completed an annual water audit and submitted it to DWR every year since 2016. The 2020 water losses are based on a draft 2020 water audit because the 2020 water audit has not been validated and submitted to the state prior to the completion of the 2020 UWMP. The water losses reported in the annual water audits are presented in Table 4-5.

Table 4-5. Retail: Last Five Years of Water Loss Audit Reporting

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss (Acre-Feet) ¹
01/2016	272.953
01/2017	296.471
01/2018	248.11
01/2019	194.374
01/2020	305.197

Source: DWR 2021a, Submittal Table 4-4.

Notes: 2020 water losses are reported based on a draft 2020 water audit. The 2020 water audit had not been validated prior to the completion of the UWMP.

¹ Taken from the field “Water Losses” (a combination of apparent losses and real losses) from the American Water Works Association (AWWA) Free Water Audit Software v 6.0 worksheet.

4.4 Water Use for Lower Income Households

The projected water demand for lower income housing as required by the UWMP Act is described in this section. A *lower-income household* is defined as a household whose income is 80% or less of the median income in the District’s service area. The number of low-income households in the District’s service area was forecasted using SANDAG’s Series 13 Regional Growth Forecast (SANDAG 2013).

Table 4-6. Retail Only: Inclusion in Water Use Projections

Are Future Water Savings Included in Projections?	No
If “Yes” to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	
Are Lower-Income Residential Demands Included in Projections?	Yes

Source: DWR 2021a, Submittal Table 4-5.

4.5 Climate Change Considerations

The District conducted a climate change analysis by evaluating their supplies and demands and their vulnerability to climate change. The District relies on the Water Authority for its water supply, which has done extensive research on climate change impacts to their water supplies. In their 2020 UWMP, they concluded that they continue to develop a diverse mix of local water supplies and conduct annual tracking to ensure water supply availability is sufficient to meet demands. These ongoing efforts help to ensure the District's water supplies will be resilient to future climate change.

On the demand side, the District has a large volume of agricultural demand. The District anticipates that climate change could result in an increase in irrigation demands from the agricultural sector. However, the District has also seen a decrease in demand in the agricultural sector, which is likely attributable to improvements in irrigation techniques and a decrease in the volume of land that is used for agriculture. Therefore, the District considers a significant change in demand due to climate change to be unlikely.

5 Conservation Target Compliance

With the adoption of the Water Conservation Act of 2009, also known as SB X7-7, the State of California is required to reduce urban per capita water use by 20% by the year 2020. CWC Section 10608.16(a) states: “The state shall achieve a 20 percent reduction in urban per capita water use in California on or before December 31, 2020.” In order to achieve this statewide objective, the Legislature required each retail supplier subject to the Water Conservation Act to develop an urban water use target to help the state collectively achieve a 20% reduction. The Legislature stated that the cumulative results of all retail suppliers’ reductions would meet the statewide legislative requirement.

5.1 Baseline Per Capita Water Use

The determination of baseline per capita water use for the District is summarized in Table 5-1. The District’s baseline and targets presented were calculated in the 2015 UWMP (District 2016). The District’s service area has not changed since 2015, so the 2015 baselines and targets have not been recalculated.

The baseline use is the average annual per capita water use calculated over a period of 10 years between 1997 and 2006. The 10-year baseline was used because recycled water deliveries by the District did not meet the threshold of 10% of total water deliveries. As shown in Table 5-1, the District’s 10-year (1997–2006) baseline per capita water use is 294 gallons per capita per day (gpcd) and its 5-year baseline is 226 gpcd (note that the previous statement that acre-feet [AF] would be used throughout this UWMP for volume does not apply to per capita water use discussions). The District’s confirmed 2020 target is 215 gpcd.

Table 5-1. Baselines and Targets Summary from SB X7-7 Verification Form

Baseline Period	Start Year	End Year	Average Baseline (gpcd)	Confirmed 2020 Target
10–15 year	1997	2006	294	215
5 year	2006	2010	226	

Source: DWR 2021a, Submittal Table 5-1.

Notes: gpcd = gallons per capita per day.

Per DWR direction, all cells in this table have been populated manually from the supplier’s SB X7-7 Verification Form and reported in gallons per capita per day (gpcd); note that the previously stated use of acre-feet for volume throughout this UWMP does not apply for per capita use.

5.2 Service Area Population

The District’s population of 33,986, reported in Table 5-2, was calculated using DWR’s online Population Tool.

Table 5-2. 2020 Compliance Year Population

Compliance Year	Population
2020	33,986

Source: DWR 2021c.

5.3 Gross Water Use

The District's gross water use is provided in Table 5-3. The gross water includes potable and raw water sources; recycled water is excluded.

Table 5-3. 2020 Gross Water Use (Acre-Feet)

Compliance Year 2020	2020 Volume Into Distribution System	2020 Deductions					2020 Gross Water Use
		Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water	Water Delivered for Agricultural Use	Process Water	
	4,000	—	—	—	—	—	4,000

Source: SB X7-7 Table 4.

5.4 2020 Compliance Daily Per Capita Water Use

The District's daily per capita water use is calculated as 105 gpcd, as shown in Table 5-4.

Table 5-4. 2020 Gallons per Capita per Day (gpcd)

2020 Gross Water From SB X7-7 Table 4	2020 Population From SB X7-7 Table 3	2020 gpcd
4,000	33,986	105

Source: SB X7-7 Table 5.

As described above and summarized in Table 5-5, the District's baseline per capita water use target is 215 gpcd. The District has achieved its target 2020 gpcd and has complied with SB X7-7.

Table 5-5. 2020 Compliance (gpcd)

Actual 2020 gpcd ¹	Optional Adjustments to 2020 gpcd					2020 Confirmed Target gpcd ^{1, 2}	Did Supplier Achieve Targeted Reduction for 2020?
	Enter "0" if Adjustment Not Used			Total Adjustments	Adjusted 2020 <i>gpcd</i> (Adjusted if Applicable)		
	Extraordinary Events	Weather Normalization	Economic Adjustment				
105	0	0	0	0	105	215	Yes

Source: SB X7-7 Table 9.

Notes: gpcd = gallons per capita per day.

¹ As required, all values are reported in gallons per capita per day.

² 2020 confirmed target gpcd is taken from the supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.

6 System Supplies

This section contains a discussion about existing and planned sources of water including imported water, groundwater, surface water, and recycled water.

6.1 Imported Water

The District purchases treated and untreated water from the Water Authority, which purchases water from Metropolitan. Metropolitan imports water from the Colorado River Aqueduct and the facilities of the State Water Project. Metropolitan's water supplies are further detailed in the Water Authority's 2020 UWMP (Water Authority 2021a). In recent years the District has been 99% dependent on Water Authority water and its efforts to develop and manage a diverse and reliable supply for the region.

Water Authority

The District is a member agency of the Water Authority. The Water Authority's 24 member agencies purchase water for retail distribution within their service territories. The Water Authority was established in 1943 to provide supplemental water supply to the San Diego region. The Water Authority is the County's chief source of water, supplying from 75% to 95% of the region's needs, depending on weather conditions and yield from surface, recycled, and groundwater projects (Water Authority 2021a).

After experiencing severe shortages from Metropolitan during the 1987–1992 drought, the Water Authority began aggressively pursuing actions to diversify the region's supply sources by developing water supplies independent of Metropolitan. The Water Authority's 2020 UWMP provides additional information about these projects, which include an agreement with the Imperial Irrigation District to transfer up to 200,000 AF of conserved Colorado River water to the Water Authority by the year 2021; lining of the All-American Canal and the Coachella Canal to provide up to 77,700 acre-feet per year (AFY) of conserved Colorado River water to the Water Authority; and the Carlsbad Seawater Desalination Project, which provides a highly reliable local supply of 56,000 AFY to the region (Water Authority 2021a).

The Water Authority's 2020 UWMP also provides information on the local resources being developed and managed by its member agencies, which include surface water, groundwater, and recycled water, as well as future seawater desalination projects.

The District's sources of treated and untreated water from the Water Authority are the Poway pump stations and pipeline discussed in Section 3.1.1, History of the Ramona Municipal Water District.

6.2 Groundwater

The District owns three wells with a total capacity of 330 gallons per minute and a potential yield of 200 AFY. The District wells are currently not being used due to high nitrate concentrations and would require recertification prior to being placed back in service. Groundwater from private wells is used by local landowners. Because the District does not rely on any groundwater for its water supply, the District is not required to prepare a groundwater management plan.

Due to issues that limit District involvement in groundwater development, which include economic and financial considerations as well as legal, institutional, regulatory, environmental, and water quality issues, the District has not moved forward with plans to use groundwater in its service area. The Santa Maria Basin lies within a major portion of the District's service area. The Santa Maria Basin has numerous private wells and water rights, which are a major concern that would need to be resolved before groundwater projects could move forward. The District did not pump groundwater within the last 5 years.

6.3 Surface Water

The District has two surface storage reservoirs available for use, Lake Ramona and Lake Sutherland. Lake Ramona is owned by the District and is filled with untreated water purchased from the Water Authority. Minimal amounts of surface water runoff enter the lake. Lake Ramona is used to supply untreated irrigation water to customers in the agricultural area on the northwest end of the District.

Lake Sutherland is owned by the City of San Diego; local runoff provides the lake's primary source of untreated water.

6.4 Wastewater and Recycled Water

6.4.1 Wastewater Collection, Treatment, and Disposal

Recycled water that meets Title 22 standards is produced by two wastewater treatment plants operated by the District. The Santa Maria Water Reclamation Plant produces an effluent which meets secondary treatment standards. This treated effluent is then conveyed to the tertiary treatment facilities located at the Rangeland Road treatment site. The San Vicente Water Reclamation Plant produces secondary- and tertiary-level treated effluent.

6.4.1.1 Wastewater Collected within Service Area

The District collected 1,334 AF of wastewater in 2020, as shown in Table 6-2.

Table 6-2. Retail: Wastewater Collected Within Service Area in 2020

Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2020 (AF)	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located within UWMP Area?	Is WWTP Operation Contracted to a Third Party? (Optional)
Ramona Municipal Water District	Metered	763	Ramona Municipal Water District	Santa Maria Water Reclamation Plant	Yes	No

Table 6-2. Retail: Wastewater Collected Within Service Area in 2020

Wastewater Collection			Recipient of Collected Wastewater			
<i>Name of Wastewater Collection Agency</i>	<i>Wastewater Volume Metered or Estimated?</i>	<i>Volume of Wastewater Collected from UWMP Service Area 2020 (AF)</i>	<i>Name of Wastewater Treatment Agency Receiving Collected Wastewater</i>	<i>Treatment Plant Name</i>	<i>Is WWTP Located within UWMP Area?</i>	<i>Is WWTP Operation Contracted to a Third Party? (Optional)</i>
Ramona Municipal Water District	Metered	571	Ramona Municipal Water District	San Vicente Water Reclamation Plant	Yes	No
Total Wastewater Collected from Service Area in 2020		1,334				

Source: DWR 2021a, Submittal Table 6-2.

Notes: UWMP = urban water management plan; WRP = water reclamation plant; WWTP = wastewater treatment plant.

6.4.1.2 Wastewater Treatment and Discharge within Service Area

Table 6-3 identifies the volume of treated wastewater either recycled or disposed of within the service area. In 2020, the District provided recycled water to three customers, including Mt. Woodson Golf Course, San Vicente Golf Course, and Spangler Peak Ranch. In recent months, Spangler Peak Ranch has ceased receiving recycled water from the District. Recycled water not sold to permitted recycled water users is disposed of through spray fields associated with each treatment plant.

Table 6-3. Retail: Wastewater Treatment and Discharge within Service Area in 2020

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (Optional)	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2020 Volumes (Acre-Feet)				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Santa Maria	Spray fields	Rangeland Road spray fields	—	Land disposal	No	Secondary, Undisinfected	500	500	—	—	—
Santa Maria	Mt. Woodson Golf Club	16422 N. Woodson Dr.	—	Land disposal	No	Tertiary	179	—	179	—	—
San Vicente	Spangler Peak Ranch	—	—	Land disposal	No	Secondary, Disinfected – 2.2	91	—	91	—	—
San Vicente	San Vicente Golf Resort	—	—	Land disposal	No	Tertiary	341	—	341	—	—
San Vicente	Spray fields	—	—	Land disposal	No	Secondary, Disinfected – 2.2	47	47	—	—	—
Total							1,158	547	611	0	0

Source: DWR 2021a, Submittal Table 6-3.

6.4.2 Recycled Water System

Recycled water that meets Title 22 standards is produced by two wastewater treatment plants operated by the District: the San Vicente and Santa Maria Water Reclamation Plants. The recycled water system for each facility is described below.

6.4.2.1 San Vicente Wastewater Service Area

The District's San Vicente Wastewater Service Area serves a population of roughly 10,000, located primarily within San Diego Country Estates, a planned community initially developed in the 1970s that includes the San Vicente Golf Resort. Wastewater from this service area is conveyed to the San Vicente Water Reclamation Plant for treatment and effluent disposal. The treatment plant has a current capacity of 0.80 MGD of average dry weather flow.

6.4.2.2 Santa Maria Wastewater Service Area

Existing recycled water facilities for the Santa Maria Wastewater Service Area consist of a tertiary treatment plant and a transmission main to a single end user. Reclaimed water is currently produced at the Santa Maria Water Reclamation Plant at Rangeland Road. This tertiary treatment plant has an influent capacity of 0.360 MGD, with an effluent capacity of 0.342 MGD. Recycled water is conveyed from the Rangeland Road Santa Maria Water Reclamation Plant to the Mt. Woodson Golf Club. Mt. Woodson Golf Club is currently the sole end user of recycled water in the Santa Maria Water Service Area.

6.4.3 Recycled Water Beneficial Uses

6.4.3.1 Current and Planned Uses of Recycled Water

The District relies on recycled water as a means of disposal for treated wastewater effluent at both wastewater treatment facilities. The treatment plants produce both secondary and tertiary effluent, which is used to provide recycled water to the Mt. Woodson Golf Club and San Vicente Golf Resort and for agricultural irrigation. The District currently provides recycled water to its customers under an effluent disposal agreement that details recycled water pricing and each party's responsibilities. Alternative and more beneficial uses of recycled water are currently being evaluated by the District to offset current potable and raw water demands.

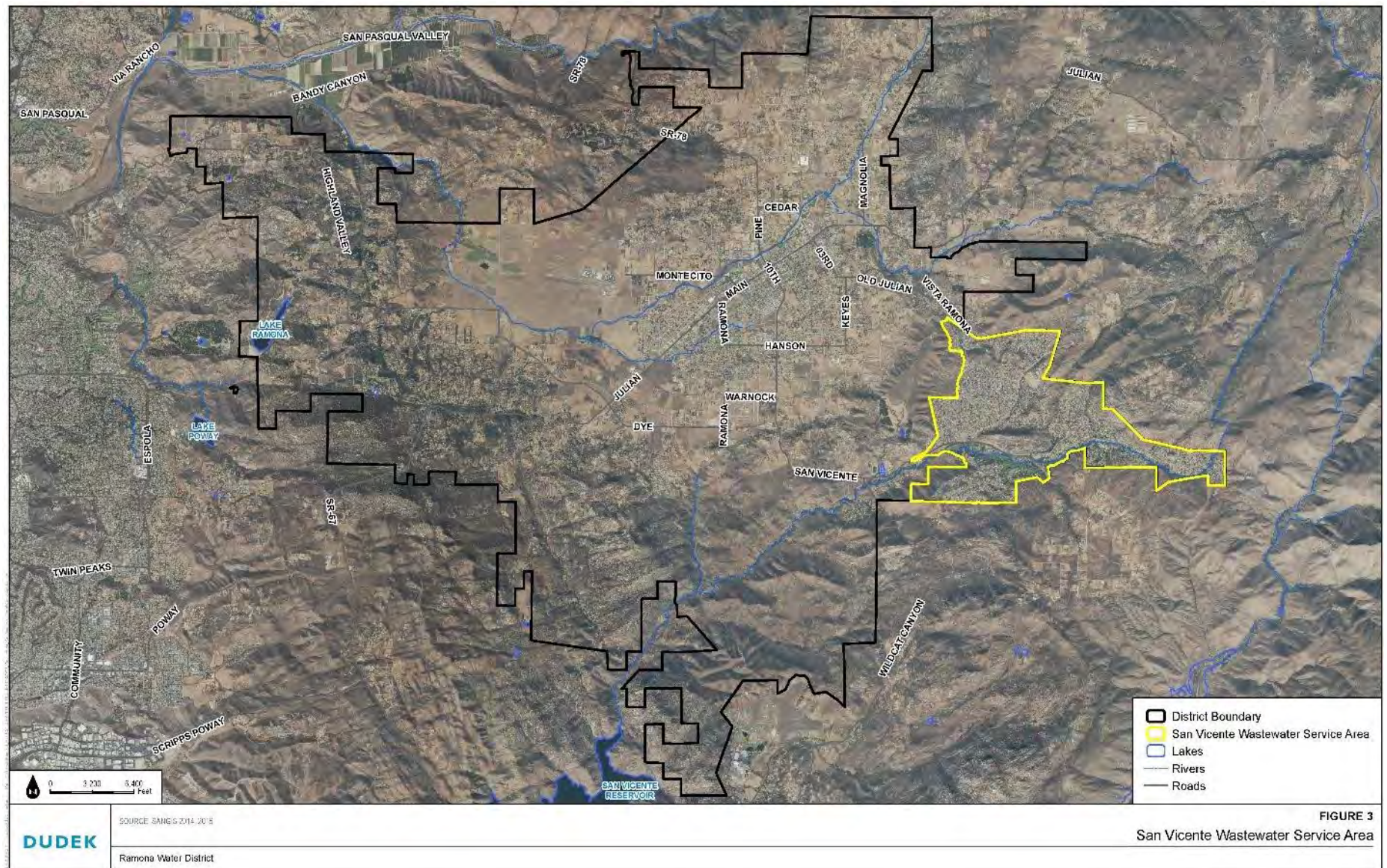
Table 6-4 quantifies the current and projected recycled water to be used within the District's service area. Spangler Peak Ranch didn't renew the recycled water agreement with the District and is therefore no longer receiving recycled water. The projected recycled water demands do not project any future demands from Spangler Peak Ranch. The golf courses' recycled water demand has increased by 25% since 2015. However, the District does not anticipate that the demands will continue to increase, so the projections for the golf courses are constant over the planning horizon.

The 2015 UWMP classified the sprayfields as recycled water used for irrigation. However, the water discharged in the sprayfields is not used beneficially, so it has been reclassified as discharged treated wastewater in Table 6-4 and is not included in the recycled water projections.

Table 6-4. Retail: Recycled Water Direct Beneficial Uses within Service Area (Acre-Feet)

Name of Supplier Producing (Treating) the Recycled Water:		Ramona Municipal Water District								
Name of Supplier Operating the Recycled Water Distribution System:		Ramona Municipal Water District								
Supplemental Water Added in 2020 (volume) Include units		—								
Source of 2020 Supplemental Water		—								
Beneficial Use Type	Potential Beneficial Uses of Recycled Water (Describe)	Amount of Potential Uses of Recycled Water (Quantity)	General Description of 2020 Uses	Level of Treatment	2020	2025	2030	2035	2040	2045 (Opt)
Agricultural irrigation	—	—	Spangler Peak Ranch	Secondary, Disinfected - 2.2	91	0	0	0	0	
Landscape irrigation (exc. golf courses)	—	—	—	—	—	—	—	—	—	
Golf course irrigation	—	—	Mt. Woodson Golf Club and San Vicente Golf Resort	Tertiary	520	520	520	520	520	
Other (description required)	—	—	—	—	—	—	—	—	—	
Total					611	520	520	520	520	

Source: DWR 2021a, Submittal Table 6-4.



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Figure 3 Santa Maria Wastewater Service Area



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6.4.3.2 Planned Versus Actual Use of Recycled Water

Table 6-5 compares 2015 UWMP recycled water use projections for 2020 to actual 2020 recycled water use. As noted in Section 6.4.3.1, Spangler Peak Ranch did not renew the recycled water agreement with the District, which lowered the recycled water demand. In addition, the Santa Maria WRP spray fields have been reclassified from landscape irrigation to discharge water in this update since the spray fields do not provide a beneficial use. These changes explain the differences for agricultural irrigation and landscape irrigation between 2020 projections and actual uses.

Table 6-5. Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual

Beneficial Use Type	2015 Projection for 2020 (AF)	2020 Actual Use (AF)
Agricultural irrigation	234	138
Landscape irrigation (exc. golf courses)	300	
Golf course irrigation	413	520
Commercial use	—	—
Industrial use	—	—
Geothermal and other energy production	—	—
Seawater intrusion barrier	—	—
Recreational impoundment	—	—
Wetlands or wildlife habitat	—	—
Groundwater recharge (IPR)	—	—
Reservoir water augmentation (IPR)	—	—
Direct potable reuse	—	—
Other (description required)	—	—
Total	947	658

Source: DWR 2021a, Submittal Table 6-5.

Notes: UWMP = Urban Water Management Plan; AF = acre-feet; IPR = indirect potable reuse.

6.4.4 Actions to Encourage and Optimize Future Recycled Water Use

The District is currently evaluating alternative and more beneficial uses of recycled water to offset current potable and raw water demands but has not identified any future recycled water opportunities at this time. The District is open for discussion with any private party, developer, or public agency interested in obtaining recycled water from either of the wastewater reclamation plants. There may be opportunities for current raw water customers to take recycled water, since the raw water system is being decommissioned. There may also be opportunities for the District to utilize some of the raw water infrastructure being decommissioned; for example, the Woodson untreated water tank has been identified as a potential conversion tank to recycled water tank to add storage to the recycled water system in the Santa Maria Wastewater Service Area. The recycled water infrastructure is not currently in place to provide recycled water to any raw water customers, but the District will consider options to increase recycled water infrastructure in any way they can. However, the District does not currently have any plans to expand recycled water use in the future.

6.5 Desalinated Water Opportunities

Development of desalinated water sources is not included in the District's planning horizon due to the prohibitive costs associated with desalination when compared to supplying the District's demands with water purchased from the Water Authority. The Water Authority has completed the Carlsbad Desalination Project, which provides a highly reliable local supply of 56,000 AFY for the region and its member agencies. Additional information regarding this project is included in Section 4.4 of the Water Authority's 2020 UWMP (Water Authority 2021a).

6.6 Future Water Projects

As previously mentioned, the District's Bargar WTP is a conventional water treatment plant originally constructed in 1974. Several improvements were implemented after the plant's original construction, including the addition of an inline static mixer (1978), a splitter box (1982), filter-to-waste piping (1998), a chlorine scrubber system (1998), additional sludge drying beds and sludge pumps, and modifications to the chemical feed room.

The Bargar WTP is currently offline and was last operated in 2007, leaving the District dependent on the Water Authority to meet potable water demands. The District currently has no plans for placing Bargar WTP back into service as a source of potable water. Therefore, because the District has no expected future water supply projects or programs that would provide a quantifiable increase to the District's water supply.

6.7 Summary of Existing and Planned Sources of Water

The San Diego County Water Authority is the single water purveyor for treated and untreated water to the San Diego region. The district has three service connections. Two treated and one untreated, Ramona 1 and Ramona 3 are the untreated and treated connections respectively from the water authority. Ramona 2 is the treated connection from the City of Poway Treatment Plant facility. Actual source and volume of water for the year 2020 are provided in Table 6-6. Projections for the volume of water, by source, that is reasonably available, based on historical deliveries for normal years, are provided in Table 6-6.

Table 6-6. Retail: Water Supplies — Actual

Water Supply	Additional Detail on Water Supply	2020		
		Actual Volume (AF)	Water Quality	Total Right or Safe Yield (AF) (Optional)
Purchased or imported water	Water Authority	3,918	Drinking water	—
Transfers	Poway	79	Drinking water	—
Purchased or imported water	Water Authority	3	Other non-potable water	—
Recycled water	Santa Maria and San Vicente WRPs	1,345	Recycled water	—
Total		5,345	—	—

Source: DWR 2021a, Submittal Table 6-8.

Notes: AF = acre-feet; Water Authority = San Diego County Water Authority; Poway = City of Poway; WRP = water reclamation plant.

6.8 Projected Water Supply

The District's current and projected water supplies during normal water years are provided in Table 6-7. The District expects to receive all potable water from the Water Authority. Water from the City of Poway is not expected to be used on a regular basis, so this amount is projected at 0. The recycled water projections are based on the assumption that wastewater generation will increase at a similar rate to water demand projections of 0.6% annually.

Table 6-7. Retail: Water Supplies – Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply (Acre-Feet) Report to the Extent Practicable									
		2025		2030		2035		2040		2045 (Opt)	
		Reasonably Available Volume	Total Right or Safe Yield (Optional)	Reasonably Available Volume	Total Right or Safe Yield (Optional)	Reasonably Available Volume	Total Right or Safe Yield (Optional)	Reasonably Available Volume	Total Right or Safe Yield (Optional)	Reasonably Available Volume	Total Right or Safe Yield (Optional)
Purchased or Imported Water	Water Authority	4,839	—	4,977		5,121	—	5,268			
Purchased or Imported Water	Poway	0	—	—	—	0	—	0			
Recycled Water	—	1,158		1,193		1,229	—	1,267			
Total		5,997	0	6,170	0	6,350	0	6,535			

Source: DWR 2021a, Submittal Table 6-9.

Notes: opt = optional; Water Authority = San Diego County Water Authority; Poway = City of Poway.

6.9 Energy Use

The total water treated and distributed at the two treatment plants, San Vicente and Santa Maria, was reported, as shown in Table 6-8. Volume data were read from the water meters at the plants. The total energy consumed came directly from San Diego Gas & Electric Company monthly billing statements. The data are reported in Table 6-8. The total energy intensity for the District was 3,576.1 kilowatt-hours/MG.

Table 6-8. Recommended Energy Reporting – Water Supply Process Approach

Units	Urban Water Supplier Operational Control							
	Water Management Process						Non-Consequential Hydropower (if Applicable)	
	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (AF)	—	—	—	1,334	1,158	1,158	0	1,158
Energy Consumed (kWh)	—	—	—	1,349,378	—	1,349,378	0	1,349,378
Energy Intensity (kWh/MG)	0.0	0.0	0.0	3,104.3	0.0	3,576.1	0.0	3,576.1

Source: DWR 2021a, Energy Use Table O-1A.

Notes: AF = acre-feet; kWh = kilowatt-hours; kWh/MG = kilowatt-hours per million gallons.

Reporting period was January 1, 2020, through December 31, 2020. Data Source: volume of water was read off meters at the plant and energy use is from San Diego Gas & Electric Company billing statement.

7 Water System Reliability

As stated in the UWMP Act, every urban water supplier shall include, as part of its plan, an assessment of the reliability of its water supply. The water supply and demand assessment must compare the total projected water use with the expected water supply over the next 20 years in 5-year increments. This reliability assessment is required for normal water years, single dry water years, and multiple dry water years.

7.1 Constraints on Water Sources

The District is reliant on the Water Authority's efforts to develop actions to diversify the region's supply sources. The Water Authority's documentation of the existing and projected supply sources being implemented to ensure consistency of their wholesale water supply are provided in the Water Authority's 2020 UWMP (Water Authority 2021a). Factors that could result in inconsistency of the Water Authority supply to the District are presented in Table 7-1.

Table 7-1. Factors Resulting in Inconsistency of Supply

Water Supply Sources	Specific Source Name	Limitation Quantification	Legal & Environmental	Water Quality	Climatic
Water Authority	—	—	Current supply from the Delta is occasionally inconsistent due to legal and environmental decisions. Future supply may not be consistent due to delays in construction, legal rulings, or environmental decisions. Legal decisions regarding the Quantification Settlement Agreement could reduce supplies from the Colorado River.	None.	Drought and climate change could result in reduction of imported water supply. Colorado River supply may be reduced due to an extended drought period.
Recycled Water	—	—	None.	None.	None.

7.2 Reliability by Type of Year

The District currently imports 99% of its water supply from the Water Authority; therefore, the assessment and projected reliability over the next 20 years as stated in this 2020 UWMP is based on the Water Authority's draft 2020 UWMP (Water Authority 2021a). This section presents a summary of the water demands and supplies available to the Water Authority and in turn to the District. The Water Authority's basis of water year data for estimating demands is provided in Table 7-2.

Table 7-2. Water Year Type Base Years

Water Year Type	Base Year(s)
Normal Water Year	2018
Single Dry Water Year	2015
Multiple Dry Water Year	2011–2015

7.2.1 Water Authority Normal Year Assessment

Table 9-1 in the Water Authority's 2020 UWMP shows the normal year assessment, summarizing the total water demands for the Water Authority through the year 2040 along with the supplies necessary to meet demands under normal conditions. If Metropolitan, the Water Authority, and member agency supplies are developed as planned, along with achievement of the SB X7-7 retail conservation target, no shortages are anticipated within the Water Authority's service area in a normal year through 2045 (Water Authority 2021a).

7.2.2 Water Authority Dry Water Year Assessment

The UWMP Act also requires an assessment to compare supply and demands under single dry and multiple dry water years over the next 20 years, in 5-year increments. The single dry-year assessment is presented in Table 9-2 of the Water Authority's 2020 UWMP (Water Authority 2021a).

7.2.3 Water Authority Multiple Dry Water Year Assessment

Tables 9-3 through 9-7 in the Water Authority's 2020 UWMP show the multiple-dry-water-year assessments in 5-year increments (see Table 7-3 in this UWMP). The member agencies' surface and groundwater yields shown in these tables are reflective of supplies available during the 2011–2015 drought.

For the multiple-dry-year reliability analysis, the conservative planning assumption is that Metropolitan will be allocating supplies to its member agencies. By assuming allocations in this reliability assessment, it allows the Water Authority to analyze how storage supplies could be utilized and the likelihood of shortages. Currently, Metropolitan allocates supplies through its Water Supply Allocation Plan. Under the specific parameters assumed in the multiple-dry-year analysis, the Water Authority has determined that some level of shortage could be experienced. Under this scenario, the items discussed in the Water Authority and District shortage contingency analyses, included as Chapter 8 of this UWMP, would be implemented as necessary (Water Authority 2021a).

Table 7-3. Retail: Basis of Water Year Data (Reliability Assessment)

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Volume Available (AF)	% of Average Supply
Normal Year	2018	5,123	100%
Single Dry Year	2016	4,728	—
Consecutive Dry Years: 1st Year	2014	5,066	—
Consecutive Dry Years: 2nd Year	2015	5,049	—
Consecutive Dry Years: 3rd Year	2016	4,728	—
Consecutive Dry Years: 4th Year	2017	5,042	—

Table 7-3. Retail: Basis of Water Year Data (Reliability Assessment)

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Volume Available (AF)	% of Average Supply
Consecutive Dry Years: 5th Year	2018	5,123	—

Source: DWR 2021a, Submittal Table 7-1.

Notes: AF = acre-feet.

7.3 Water Service Reliability – Ramona

The District currently imports 99% of its water supply from the Water Authority; therefore, the assessment contained in the District's 2020 UWMP projects reliability through the next 20 years based on the Water Authority's draft 2020 UWMP (Water Authority 2021a).

As previously stated, the Water Authority has determined that it will be able to meet the District's water demands during normal year, single dry year, and multiple dry year conditions through 2040. Projected District demands are based on the Water Authority's projections and included SB X7-7 water conservation goals as determined in Chapter 5, Conservation Target Compliance, of this UWMP. Recycled water supply is considered a "drought-proof" supply and is not expected to reduce during dry-year periods.

7.3.1 Normal Year Assessment – Ramona

A supply and demand comparison for normal water years is presented in Table 7-4.

Table 7-4. Retail: Normal Year Supply and Demand Comparison (Acre-Feet)

	2025	2030	2035	2040	2045 (Opt)
Supply totals	5,997	6,170	6,350	6,535	
Demand totals	5,358	5,497	5,640	5,788	
Difference	639	673	710	747	

Source: DWR 2021a, Submittal Table 7-2.

Note: opt = optional.

7.3.2 Dry Water Year Assessment – Ramona

Projected water supplies compared to demands for single dry years are presented in Table 7-5.

Table 7-5. Retail: Single Dry Year Supply and Demand Comparison (Acre-Feet)

Metric	2025	2030	2035	2040	2045 (Opt)
Supply totals	5,599	5,811	6,007	6,172	
Demand totals	4,744	4,915	5,068	5,188	
Difference	855	896	939	984	

Source: DWR 2021a, Submittal Table 7-3.

Notes: opt = optional.

7.3.3 Multiple Dry Water Year Assessment – Ramona

Projected water supplies compared to demands for multiple dry years are presented in Table 7-6.

Table 7-6. Retail: Multiple Dry Years Supply and Demand Comparison

Year	Metric	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF) (Opt)
First year	Supply totals	4,592	4,768	4,943	5,106	
	Demand totals	4,592	4,768	4,943	5,106	
	Difference	0	0	0	0	
Second year	Supply totals	4,592	4,768	4,943	5,106	
	Demand totals	4,592	4,768	4,943	5,106	
	Difference	0	0	0	0	
Third year	Supply totals	4,592	4,768	4,943	5,106	
	Demand totals	4,592	4,768	4,943	5,106	
	Difference	0	0	0	0	
Fourth year	Supply totals	4,592	4,768	4,943	5,106	
	Demand totals	4,592	4,768	4,943	5,106	
	Difference	0	0	0	0	
Fifth year	Supply totals	4,592	4,768	4,943	5,106	
	Demand totals	4,592	4,768	4,943	5,106	
	Difference	0	0	0	0	
Sixth year (optional)	Supply totals	4,592	4,768	4,943	5,106	
	Demand totals	4,592	4,768	4,943	5,106	
	Difference	0	0	0	0	

Source: DWR 2021a, Submittal Table 7-4.

Notes: AF = acre-feet; opt = optional.

7.4 Drought Risk Assessment

The Water Authority assessed a projected drought from 2021 to 2025 using a historical period of 2014–2018, which were the years of the lowest local water supply. The Water Authority found that no reduction in the availability of supplies over the 5-year period would be necessary due to the drought resilience of these supplies. The analysis shown in Section 9.6 of the draft 2020 UWMP concluded that the Water Authority has a surplus of water supplies in all 5 years and actions under the Water Shortage Contingency Plan (WSCP) are not required (Water Authority 2021a).

8 Water Shortage Contingency Planning

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. Good planning and preparation can help agencies maintain reliable supplies and reduce the impacts of supply interruptions. The UWMP Act requires urban water agencies conduct a water shortage contingency analysis as part of their 2020 UWMP. This section addresses the District's analysis of a catastrophic shortage situation and drought management plan that is based on the draft Water Authority 2020 UWMP (Water Authority 2021a) and includes a summary of the Water Authority's analysis.

8.1 Water Supply Reliability Analysis

The water supply reliability analysis conducted in Chapter 7 of this UWMP found that the District's water supply is drought resilient and is expected to reliably meet demands throughout the planning horizon. The District relies on the Water Authority for its water supply, so the analysis looked at the Water Authority's Draft 2020 UWMP and their determination on the reliability of their water supply. The Water Authority's analysis determined that their water supplies are drought resilient (Water Authority 2021a).

8.2 Contingency Plan Levels

Table 8-1 identifies the water supply conditions associated with each stage of action. The District has identified each stage by the percent supply reduction and the water supply condition.

Table 8-1. Water Shortage Contingency Plan Levels

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	Voluntary Reductions. Stop washing down paved surfaces. Stop water waste resulting from inefficient landscape irrigation. Irrigate residential and commercial landscape before 10 a.m. and after 6 p.m. only.
2	Up to 20%	Voluntary Reductions. Limit residential and commercial landscape irrigation to no more than three (3) assigned days per week. Limit lawn watering and landscape irrigation using sprinklers to no more than 10 minutes. Stop operating ornamental fountains.
3	Up to 30%	Mandatory Reductions. Limit residential and commercial landscape irrigation to no more than two (2) assigned days per week. Stop filling or refilling ornamental lakes or ponds. Stop washing vehicles except at commercial carwashes that recirculate water.
4	Up to 40%	Emergency Mandatory Reductions. Stop all landscape irrigation, except crops and landscape products of commercial growers. Repair all water leaks within twenty-four (24) hours of notification.
5	Up to 50%	—
6	>50%	—

Source: DWR 2021a, Submittal Table 8-1.

Following the major drought in California of 1987–1992, which led to severe water supply shortages throughout the state, the Water Authority and its member agencies aggressively developed plans to minimize the impact of potential shortages. In 2006, the Water Authority Board of Directors adopted the Water Shortage and Drought

Response Plan (WSDRP) to serve as a comprehensive plan in the event that the region faced supply shortages due to drought or other water shortage conditions (Water Authority 2006).

8.2.1 Water Authority Water Shortage and Drought Response Plan

The WSDRP was developed by the Water Authority in coordination with its member agencies to provide a balanced, flexible, systematic approach to identifying regional actions necessary to reduce the impacts from shortages. It includes all aspects of drought planning, from steps to avoid rationing, to drought response stages, allocation methodology, pricing, tracking actual reductions in water use, and a communication strategy. Multiple actions are identified to manage shortage situations, including both supply augmentation measures and demand reductions up to 50% in water supply. Conservation savings is an essential component of meeting the need for water in a time when available supplies are limited.

The UWMP Act requires information on the stages of action to be undertaken in response to water supply shortages, including up to a 50% reduction in water supply. To meet the requirements, the District is dependent on the Water Authority. The Water Authority, with input from the member agencies, developed a regional drought response matrix. The matrix, presented in Table 8-2, summarizes the three stages: voluntary supply management, supply enhancement, and mandatory cutbacks, including a supply allocation methodology detailed in the WSDRP.

Table 8-2. Water Authority Drought Response Matrix – Firm Demands

<i>Potential Water Authority Drought Actions</i>	Stages		
	<i>Voluntary</i>	<i>Supply Enhancement</i>	<i>Mandatory Cutbacks</i>
Ongoing BMP implementation	X	X	X
Communication strategy	X	X	X
Monitoring supply conditions and storage levels	X	X	X
Call for voluntary conservation	X	X	X
Draw from Water Authority carryover storage	X	X	X
Secure transfer option contracts	X	X	X
Buy phase 1 spot transfers (cost at or below Tier 2 rate)	—	X	X
Call transfer options	—	X	X
Buy phase 2 spot transfers (cost at or below Tier 2 rate)	—	X	X
Implement allocation methodology	—	—	X
Utilized ESP Supplies	—	—	X

Source: Water Authority 2016, Table 11-1.

Notes: Water Authority = San Diego County Water Authority; BMP = best management practice; ESP = Emergency Storage Project.

Additional details of the WSDRP are provided in Section 11 of the Water Authority's 2020 UWMP (Water Authority 2021a).

8.2.2 District Drought Response Conservation Program

On May 12, 2009, the District's Board of Directors adopted the District's Drought Response Conservation Program, included in Appendix C of this UWMP. The Drought Response Conservation Program establishes regulations to be implemented during times of declared water shortages or declared water shortage emergencies. It establishes four levels of drought response actions ("Drought Response Levels") to be implemented in times

of shortage, with increasing restrictions on water use in response to worsening drought conditions and decreasing available supplies (see Table 8-3). Drought Response Level 1 drought condition response measures are voluntary and will be reinforced through local and regional public education and awareness measures that may be funded in part by the District. During Drought Response Levels 2 through 4, all conservation measures and water-use restrictions are mandatory and become increasingly restrictive in order to attain escalating conservation goals (see Table 8-4). Violations of this chapter are subject to criminal, civil, and administrative penalties and remedies specified in this District's legislative code and as provided by law.

Table 8-3. Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages

Stage No.	Water Supply Conditions	% Shortage
Drought Response Level 1 – Drought Watch Condition	A Level 1 condition applies when the Water Authority notifies its member agencies that due to drought or other supply reductions, there is a reasonable probability there will be supply shortages and that a consumer demand reduction of up to 10% required in order to ensure that sufficient supplies be available to meet anticipated demands. The General Manager may declare the existence of a Response Level 1 and take action to implement the Level 1 conservation practices identified in the Drought Response Conservation Program.	Up to 10% Voluntary Restrictions
Drought Response Level 2 – Drought Alert Conditions	A Drought Response Level 2 condition is also referred to as a “Drought Alert” condition. A Level 2 condition applies when the Water Authority notifies agencies that due to cutbacks caused by drought or other reduction of supplies, a consumer demand reduction of up to 20% is required in order to have sufficient supplies available to meet anticipated demands. The District Board of Directors may declare the existence of a Drought Response Level 2 condition and implement the Level 2 conservation measures identified in the Drought Response Conservation Program.	Up to 20% Voluntary Restrictions
Drought Response Level 3	A Drought Response Level 3 condition is also referred to as a “Drought Critical” condition. A Level 3 condition applies when the Water Authority notifies its member agencies that due to increasing cutbacks caused by drought or other reduction of supplies, a consumer demand reduction of up to 40% is required in order to have sufficient supplies available to meet anticipated demands. The District Board of Directors may declare the existence of a Drought Response Level 3 condition and implement the Level 3 conservation measures identified in the Drought Response Conservation Program.	Up to 40% Mandatory Restrictions
Drought Response Level 4 – Drought Emergency Condition	A Drought Response Level 4 condition is also referred to as a “Drought Emergency” condition. A Level 4 condition applies when the Water Authority Board of Directors declares a water shortage emergency pursuant to California Water Code Section 350 and notifies its member agencies that Level 4 requires a demand reduction of more than 40% in order for the Authority to have maximum supplies available to meet anticipated demands. Upon declaration by the Authority of a Drought	Above 40% Mandatory Restrictions

Table 8-3. Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages

Stage No.	Water Supply Conditions	% Shortage
	Emergency Condition, the District may declare a Drought Emergency in the manner and on the grounds provided in California Water Code Section 350 et seq.	

Table 8-4. Water Shortage Contingency – Consumption Reduction Methods and Mandatory Prohibitions

Examples of Prohibitions	Level when Prohibition Becomes Mandatory	Projected Reduction
Stop washing down paved surfaces, including but not limited to sidewalks, driveways, parking lots, tennis courts, or patios, except when it is necessary to alleviate safety or sanitation hazards.	Level 2	Up to 10%
Stop water waste resulting from inefficient landscape irrigation, such as runoff, low head drainage, or overspray, etc. Similarly, stop water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.	Level 2	Up to 10%
Irrigate residential and commercial landscape before 10 a.m. and after 6 p.m. only.	Level 2	Up to 10%
Use a hand-held hose equipped with a positive shut-off nozzle or bucket to water landscaped areas, including trees and shrubs located on residential and commercial properties that are not irrigated by a landscape irrigation system.	Level 2	Up to 10%
Irrigate nursery and commercial growers' products before 10 a.m. and after 6 p.m. only. Watering is permitted any time with a hand-held hose equipped with a positive shut-off nozzle, a bucket, or when a drip/micro-irrigation system/equipment or rotating nozzles are used.	Level 2	Up to 10%
Limit residential and commercial landscape irrigation to no more than three (3) assigned days per week on a schedule established by the General Manager.	Level 2	Up to 20%
Limit lawn watering and landscape irrigation using sprinklers to no more than ten minutes per watering station per assigned day.	Level 2	Up to 20%
Repair all leaks within seventy-two (72) hours of notification by the District unless other arrangements are made with the General Manager.	Level 2	Up to 20%
Stop operating ornamental fountains or similar decorative water features unless recycled water is used.	Level 2	Up to 20%
Limit residential and commercial landscape irrigation to no more than two (2) assigned days per week on a schedule established by the General Manager and posted by the District.	Level 3	Up to 40%
Stop filling or refilling ornamental lakes or ponds, except to the extent to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a Drought Response Level.	Level 3	Up to 40%
Stop washing vehicles except at commercial carwashes that recirculate water, or by high-pressure/low-volume wash systems.	Level 3	Up to 40%

Table 8-4. Water Shortage Contingency – Consumption Reduction Methods and Mandatory Prohibitions

Examples of Prohibitions	Level when Prohibition Becomes Mandatory	Projected Reduction
Repair all leaks within forty-eight (48) hours of notification by the District unless other arrangements are made with the General Manager.	Level 3	Up to 40%
Stop all landscape irrigation, except crops and landscape products of commercial growers and nurseries and as specified in the DRCP.	Level 4	Above 40%
Repair all water leaks within twenty-four (24) hours of notification by the District unless other arrangements are made with the General Manager.	Level 4	Above 40%

Note: DRCP = Drought Response Conservation Program.

8.3 Prohibitions on End Uses

The District has made its own determination as to which prohibitions, and which stage for each prohibition, are most appropriate for its service area. Table 8-5 reports the prohibitions that the District places on end uses in each stage.

Table 8-5. Demand Reduction Actions

Shortage Level	Demand Reduction Actions	How Much Is This Going to Reduce the Shortage Gap?	Additional Explanation or Reference (Optional)	Penalty, Charge, or Other Enforcement?
1	Other – Prohibit use of potable water for washing hard surfaces	1%	—	No
1	Landscape – Restrict or prohibit runoff from landscape irrigation	1%	—	No
1	Landscape – Limit landscape irrigation to specific times	3%	—	No
1	Landscape – Other landscape restriction or prohibition	1%	—	No
1	Water Features – Restrict water use for decorative water features, such as fountains	1%	—	No
1	Other – Require automatic shut-off hoses	<1%	—	No
1	CII – Restaurants may only serve water upon request	<1%	—	No
1	Other – Customers must repair leaks, breaks, and malfunctions in a timely manner	1%	—	No
2	Landscape – Limit landscape irrigation to specific days	5%	—	No
2	Landscape – Prohibit certain types of landscape irrigation	3%	—	No

Table 8-5. Demand Reduction Actions

Shortage Level	Demand Reduction Actions	How Much Is This Going to Reduce the Shortage Gap?	Additional Explanation or Reference (Optional)	Penalty, Charge, or Other Enforcement?
2	CII – Lodging establishments must offer opt out of linen service	1%	—	No
3	Pools – Allow filling of swimming pools only when an appropriate cover is in place	1%	—	Yes
3	Other – Prohibit vehicle washing except at facilities using recycled or recirculating water	1%	—	Yes
4	Landscape – Prohibit all landscape irrigation	10%	—	Yes

Source: DWR 2021a, Submittal Table 8-2.

Note: CII = commercial, industrial, and institutional.

8.4 Supply Augmentation

In addition to the demand reduction actions, the District will implement the supply augmentation actions required at each shortage level, as shown in Table 8-6.

Table 8-6. Supply Augmentation and Other Actions

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How Much Is This Going to Reduce the Shortage Gap?	Additional Explanation or Reference (Optional)
1	Expand Public Information Campaign	5%	—
2	Other Actions (describe)	1%	Restrict new service installations
2	Implement or Modify Drought Rate Structure or Surcharge	3%	—
3	Implement or Modify Drought Rate Structure or Surcharge	5%	—
4	Implement or Modify Drought Rate Structure or Surcharge	12%	—

Source: DWR 2021a, Submittal Table 8-3.

8.5 Determining Water Shortage Reductions

Determination of actual water savings made from implementing the stages of the water shortage contingency plan is estimated based on recording the production and consumption of water as monitored through service meters.

8.6 Catastrophic Supply Interruption

8.6.1 Emergency Response Plan

Interruption and/or damage to the water supply system and/or the sewage system will require immediate emergency response by District staff to direct repairs of the system and restore essential services to the community.

The purpose of the District's Emergency Response Plan (ERP) Manual is to provide a response plan to conduct and manage emergency response operations of the District in the event of such interruption and/or damage. The guidelines set forth in the ERP address the immediate phase of emergency operations and are based on the assumed impacts of a worst-case scenario. Minor emergencies are those incidents that generally affect only a small number of customers, last less than 1 day, and are managed by District personnel. Major emergencies and disasters such as floods, wars, drinking water contamination, earthquakes, droughts, terrorist acts, etc., may affect large service areas beyond normal District capabilities.

The ERP can be considered multi-hazard, as most of the emergency response functions and responsibilities are standard regardless of the nature or the intensity of the emergency. The ERP Manual does not attempt to describe in detail every step necessary to handle a particular emergency; instead, it relies on the individual expertise of District staff members under the direction of District management.

The ERP is integrated with the Water Authority's Integrated Contingency Plan, the County ERP, the Unified San Diego County Emergency Services Organization, and the procedures for emergency response and recovery for the State of California and the Federal Emergency Management Agency.

The ERP includes the following:

- Authorities, policies, and procedures associated with emergency response activities
- Emergency Operations Center activities – including Emergency Operations Center activation and deactivation guidelines
- Multi-agency and multi-jurisdictional coordination, particularly between the District and the Water Authority
- Emergency staffing, management, and organization required to assist in mitigating any significant emergency or disaster
- Mutual aid agreements and covenants that outline the terms and conditions under which mutual aid assistance will be provided
- Pre-emergency planning and emergency operations procedures

In addition, the ERP Manual provides a step-by-step approach to emergency response planning by providing action checklists, resource and information lists, personnel rosters, and listings of established policies and procedures.

8.6.2 Water Authority Emergency Storage Project

In 1998, the Water Authority's Board of Directors authorized implementation of the Emergency Storage Project (ESP) to reduce the risk of potential catastrophic damage that could result from a prolonged interruption of imported water due to earthquake, drought, or other disasters. The ESP is a system of reservoirs, pipelines, and other facilities

located throughout San Diego County that will work together to store and move water around the County in the event of a natural disaster. When completed, the ESP will provide 90,100 AF of stored water for emergency purposes to meet the County's needs through at least 2030. The Water Authority Board of Directors may also authorize supplies from the ESP to be used in a prolonged drought or other water shortage situation where imported and local supplies do not meet 75% of the Water Authority's member agencies' municipal and industrial demands (Water Authority 2021a).

In sizing the ESP, the Water Authority assumed a 75% level of service to all Water Authority member agencies during an outage and full implementation of the water conservation best management practices (BMPs). The following steps from the Water Authority's August 2002 Emergency Water Delivery Plans show the methodology for calculating the allocation of ESP supplies to member agencies in a prolonged outage situation without imported supplies:

1. Estimate the duration of the emergency (i.e., time needed to repair damaged pipelines).
2. Determine each member agency's net demand during the emergency period by adding municipal and industrial water demands and agricultural water demands and then subtracting recycled water supplies.
3. Determine each member agency's usable local supplies during the emergency period (local supplies include surface water and groundwater).
4. Determine each member agency's level of service based on usable local supplies and net demand.
5. Adjust the allocation of ESP supplies based on a member agency's participation in an interruptible agricultural program (e.g., Metropolitan's Interim Agricultural Water Program or the Water Authority's Special Agricultural Water Rate). Interruptible agricultural program customers will be required to take a reduction in deliveries during a water shortage due to an emergency at double the system-wide reduction, up to a maximum of 90%. Water not delivered to interruptible agricultural program customers will be redistributed to member agencies based on the "system-wide" level of service targets.
6. Determine the amount of local supplies that can be transferred between member agencies, with transfers occurring only after a member agency has a level of service greater than 75% based on their usable local supplies.
7. Allocate delivery of usable ESP storage supplies along with available Water Authority and Metropolitan supplies to member agencies, with the goal of equalizing the level of service among the member agencies.

8.7 Communication Protocols

The District uses multiple methods of communication to keep their customers up to date with water shortage concerns. As each stage of conservation is reached, the District will communicate to their customers the current restrictions that are being put in place. The communication that will be done at each level beyond shortage level 1 will include the following:

- Updates posted on the website
- Updates posted in public locations in the service area
- Notices in the customers' monthly billing statements
- Notices/notifications in other media outlets, as available

8.8 Compliance and Enforcement

The District expects high levels of compliance from its customers when conservation is required. The District will continue to focus on education and communication programs to obtain compliance from their customers. If the District is not obtaining the levels of conservation required at each stage, the District will have their field employees issue citations to customers that are not complying with the requirements (see Table 8-7).

Table 8-7. Water Shortage Contingency – Consumption Reduction Methods and Mandatory Prohibitions

Penalties or Charges	Stage When Penalty Takes Effect
Following the effective date of the water allocation as established by the District, any person that uses the water in excess of the allocation shall be subject to a penalty equal to two (2) times the District's billing rate for each billing unit of water in excess of the allocation. The penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed for violation of the DRCP. Each billing period in which an allocation is exceeded shall count as a separate violation. Subsequent violations that occur during a calendar year shall count cumulatively for the purpose of assessing administrative fines for second violations and additional violations.	Level 3
Following the effective date of the water allocation as established by the District, any person that uses the water in excess of the allocation shall be subject to a penalty equal to three (3) times the District's billing rate for each billing unit of water in excess of the allocation. The penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed for violation of the DRCP. Each billing period in which an allocation is exceeded shall count as a separate violation. Subsequent violations that occur during a calendar year shall count cumulatively for the purpose of assessing administrative fines for second violations and additional violations.	Level 4

Note: DRCP = Drought Response Conservation Program.

8.9 Revenue and Expenditure Impacts

Well-designed drought rate structures can reduce the potential financial effects of water shortages and enable the supplier to recover its purchase, treatment, and delivery costs, as well as the additional costs related to the water shortage response program. The District has taken significant steps to reduce potential revenue impacts resulting from fluctuating water sales. In 2002, the District created a Rate Stabilization Fund to provide funds that would mitigate the need for rate increases in the event of an unexpected decline in water sales.

The Water Authority has two rates, a melded municipal and industrial rate of \$280/AF for untreated and \$925/AF for treated and an agricultural rate of \$755/AF for untreated and \$1,035/AF for treated. Additionally there is a transportation rate of \$132/AF and annual fixed rate charges for Customer Service, Emergency Storage, Infrastructure Access, Supply Reliability, Capacity Reservation, and Readiness-to-Serve functions.

8.10 Resolution or Ordinance

Water agencies are required to develop a water shortage contingency resolution or ordinance for submittal with the UWMP. The approved/adopted water conservation resolution is included as Appendix B of this UWMP.

8.11 Monitoring and Reporting

If the District initiates a conservation step, it will monitor the system water demand. It will report the monthly water use compared to the previous year's monthly demand. It will also report the year-over-year water demand reduction. This will include posting the updates on the website and at the District's offices and reporting the reductions to the state as requested.

8.12 Plan Adoption, Submittal, and Availability

The shortage contingency analysis included in this section demonstrates that the District, in conjunction with the Water Authority and its other member agencies, through the District's ERP and the Water Authority's Integrated Contingency Plan, ESP, and WSDRP, are taking actions to prepare for and appropriately handle a catastrophic interruption of water supplies to the District's service area and customers.

The WSCP will be adopted, submitted, and made available as part of this 2020 UWMP. The WSCP will be made available for review and comment, a public hearing will be conducted, and the WSCP will be submitted to all parties as part of the 2020 UWMP and as discussed in Chapter 10.

9 Demand Management Measures

The goal of this Demand Management Measures (DMM) chapter is to provide a comprehensive description of the water conservation programs that the District has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets. Demand management, or water conservation, is frequently the lowest-cost resource available to the District. Water conservation is a critical part of the 2020 UWMP for meeting water supply needs of the Ramona area. The goals of the District water conservation program are to (1) reduce demand for water imported from the Water Authority, (2) demonstrate continued commitment to the BMPs and agricultural efficient water management practices, (3) ensure a reliable future water supply, and (4) reduce consumption during periods of high treated-water demand.

9.1 Demand Management Measure for Retail Agencies

The following sections describe the planned efforts of the District in implementing each of the following DMM categories to meet water use targets.

9.1.1 Water Waste Prevention Ordinances

The District's legislative code, Chapter 7.40: Water Conservation, explicitly states that the waste of water is to be prohibited, and prohibits specific actions that waste water, such as excessive runoff from landscape irrigation and outdoor use of a hose without a shut-off nozzle. This legislative code is in place at all times and is not dependent upon a water shortage for implementation.

9.1.2 Metering

The District is a fully metered agency. Currently, every meter in the District is replaced every 10 years to ensure accuracy and calibration. The District is currently in the process of converting all meters to advanced metering infrastructure or automatic meter reading units, which will increase the accuracy and frequency of meter reading.

9.1.3 Public Education and Outreach

The District supports and participates in County-wide programs established by the Water Authority, including sponsored fourth-grade poster contests and conservation outreach programs. The District also includes public outreach information regarding water conservation on customer bills.

9.1.4 Programs to Assess and Manage Distribution System Real Loss

Currently, the District closely monitors variations in water usage between customers to determine potential sources of water loss in the system.

9.1.5 Water Conservation Program Coordination and Staffing Support

Water conservation program coordination is handled by a single staff member of the District. This staff member coordinates the outreach efforts described in Section 9.1.3 and is also responsible for reporting required information to the State Water Resources Control Board on behalf of the District.

9.2 Members of the California Urban Water Conservation Council

California Urban Water Conservation Council (CUWCC) members have the option of submitting their 2013–2014 BMP annual reports in lieu of, or in addition to, describing the DMMs in their UWMP. The option of submitting the CUWCC BMP report in lieu of describing the DMMs is only available if the supplier is in full compliance with the CUWCC's Memorandum of Understanding (MOU). The submitted reports must include documentation from the CUWCC that the supplier has met the MOU coverage requirements and is in full compliance with the MOU. The District is in full compliance with the MOU and has opted to not submit an annual BMP report as part of this UWMP.

9.3 Reporting Implementation

The District has continued to encourage conservation and educate their customers on its importance. They have continued to take part in conservation programs with the Water Authority and individually. The District has maintained its wastewater prevention ordinance that was previously put in place and continues to educate customers on proper landscape irrigation. The District has replaced 6,152 of their meters with radio-read meters. The new meters have increased the accuracy of their customer meters and are able to provide alerts of potential leaks based on abnormal water usage.

9.4 Future Water Conservation Savings

Projected water savings and effectiveness provided in the 2020 UWMP are based on industry standard methodologies for calculating savings, as defined by the CUWCC. The Water Authority assists the CUWCC in conducting pilot programs and analyzing ways to increase the accuracy of savings calculation methodologies.

This conservation target is appropriate to implement the BMPs and fulfill the District's commitment to the MOU. Additionally, this target coincides with the availability of anticipated funds from the District, the Water Authority, and/or Metropolitan. The estimates of future water savings are based on savings projections from implementing various conservation measures and as a result of state and national efficiency standards. The savings are a projection of the amount of water that will be conserved based on the best information available at this time.

Future water conservation savings are based on historical activity for Residential Surveys, Residential Retrofits, High-Efficiency Clothes Washer Incentives, and Toilet Incentives. Efficiency Standards include water-saving devices installed in new residential construction as part of state-required codes, as well as toilets replaced through natural replacement outside of the toilet incentive. Updated SANDAG demographic information helps determine savings for new construction through BMP implementation, and these data have been incorporated into the District's revised demand forecast, as discussed in Chapter 4, Customer Water Use.

Water savings in the commercial, industrial, and institutional sectors are based on both historical activity and anticipated new water-efficient products that will experience expanded use. These products include multi-load commercial high-efficiency washers, food steamers, commercial dishwashers, and waterless urinals.

A number of financial assistance programs are available to San Diego County agencies: the Water Authority's Financial Assistance Program and Reclaimed Water Development Fund; Metropolitan's Local Resources Program; the U.S. Bureau of Reclamation Title XVI Grant Program; and the State Water Resources Control Board's low-interest loan programs. Together, these programs offer funding assistance for all project phases, from initial planning and design to construction and operation. The District staff periodically reviews the available financial assistance programs to determine whether any of them are appropriate for District activities.

10 Plan Adoption, Submittal, and Implementation

This chapter provides guidance for addressing the CWC requirements for a public hearing, completing the UWMP adoption process, submitting an adopted UWMP, implementing the UWMP, and amending an adopted UWMP.

10.1 Inclusion of all 2020 Data

This UWMP includes comprehensive water use and planning data for the entire year of 2020.

10.2 Notice of Public Hearing

The district provided notice of a public hearing in the local newspaper, the Ramona Sentinel. The posting stipulated the subject matter of the public hearing, date, time, UWMP revision schedule, contact information for the preparer, the location of the hearing, and the location at which to view or obtain a copy of the UWMP. Because the District is neither a city nor a county, it is not required to uphold the 60-day notification requirement. A copy of the public notice is included in Appendix D of this UWMP.

10.3 Public Hearing and Adoption

The public hearing and adoption will take place at the same meeting on June 8, 2021. The meeting agenda includes the public hearing as an agenda item. The public hearing portion of the meeting will take place prior to the adoption portion of the meeting. If necessary, the District's Board may modify the UWMP in response to public input prior to adoption. During the public hearing, the District will provide information on their baseline values, water use targets, and implementation plan required in the Water Conservation Act of 2009. Before the UWMP is submitted to DWR, the District will formally adopt the UWMP, and the adoption resolution will be included as an appendix of the final version of the UWMP.

10.4 Plan Submittal

The following sections provide guidance for submitting UWMPs to DWR, the California State Library, and cities and counties.

10.4.1 Submitting a UWMP to DWR

2020 UWMPs must be submitted to DWR within 30 days of adoption and by July 1, 2021. UWMP submittal will be done electronically through WUEdata, an online submittal tool that will be available in adequate time for submittal of the 2020 UWMPs.

After the UWMP has been submitted, DWR will review the plan using the provided checklist (Appendix A) and make a determination as to whether the UWMP addresses the requirements of the CWC. The DWR reviewer will contact the District as needed during the review process. Upon completion of the UWMP review, DWR will issue a letter to the District with the results of the review.

10.4.2 Electronic Data Submittal

The UWMP, including the WSCP and associated electronic data, will be submitted electronically through the WUEdata portal. The 2020 UWMP submittal tables, the energy analysis, and the 2020 UWMP will be uploaded through the portal.

10.4.3 Submitting a UWMP to the California State Library

No later than 30 days after adoption, the water agency shall submit a CD or hardcopy of the adopted 2020 UWMP, including the WSCP, to the California State Library at the following address:

California State Library
Government Publications Section
PO Box 942837
Sacramento, California 94237-0001
Attention: Coordinator, Urban Water Management Plans

If delivered by courier or overnight carrier to the California State Library, use the following street address instead of the PO Box:

California State Library
Government Publications Section
914 Capitol Mall
Sacramento, California 95814

10.5 Public Availability

The adopted UWMP will be made available for public review at the front desk of the District office during normal business hours.

10.6 Amending an Adopted UWMP

If the District amends an adopted UWMP, each of the steps for notification, public hearing, adoption, and submittal must also be followed for the amended plan.

11 References

- District (Ramona Municipal Water District). 2015 *Urban Water Management Plan*. Prepared for the District by Dudek. Encinitas, California: Dudek. May 2016.
- DWR (California Department of Water Resources). 2016. *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (for the Consistent Implementation of the Water Conservation Act of 2009)*. February 2016. <https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Urban-Water-Management-Plans>.
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- Water Authority (San Diego County Water Authority). 2006. *Water Shortage and Drought Response Plan*. Water Authority, Water Resources Department. May 2006; updated April 2012.
- Water Authority. 2016. *San Diego County Water Authority Final 2015 Urban Water Management Plan*. San Diego: Water Authority, Water Resources Department. June 2016.
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- WRCC (Western Regional Climate Center). 2021. "Period of Record Monthly Climate Summary." April 2021. Accessed April 18, 2021. wrcc.dri.edu.

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Appendix B

Ramona Municipal Water District Board of Directors Resolution

Appendix A

Urban Water Management Plan Checklist

Retail	Wholesale	2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location (Optional Column for Agency Review Use)
x	x	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	1.1
x	x	Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	1.6
x	x	Section 2.2	10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	2.1
x	x	Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	2.5
x	x	Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	2.5.2
x	x	Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	2.5.1
x	x	Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	2.5.1
x	x	Section 3.1	10631(a)	Describe the water supplier service area.	System Description	3.2
x	x	Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	3.3
x	x	Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	3.4
x	x	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	3.4
x	x	Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	3.4
x	x	Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	3.5
x	x	Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	4.2
x	x	Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	4.3
x	x	Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans and other policies or laws.	System Water Use	4.2.3
x	x	Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	4.2.3
x	optional	Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	4.3
x	optional	Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	4.4
x	x	Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	4.5
x	x	Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	5.1
x	x	Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	5.4
x	x	Section 5.1	10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	n/a
x	x	Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	n/a
x	x	Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	5.4
x	x	Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	5.4
x	x	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	7.3
x	x	Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System Supplies	7.3
x	x	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	n/a
x	x	Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	6.1
x	x	Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	6.8
x	x	Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	6.2
x	x	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	6.2
x	x	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	6.2
x	x	Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	n/a
x	x	Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	n/a
x	x	Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years.	System Supplies	n/a
x	x	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	n/a
x	x	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	n/a
x	x	Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	6.4
x	x	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	6.4.2
x	x	Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	6.4.3
x	x	Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	6.4.3.1
x	x	Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	6.4.4
x	x	Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	6.4.4
x	x	Section 6.2.6	10631(a)	Describe desalinated water project opportunities for long-term supply.	System Supplies	6.5
x	x	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	6.4.1
x	x	Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	6.6
x	x	Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Supplies, Energy Intensity	6.9
x	x	Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability.	Water Supply Reliability Assessment	7.1
x	x	Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	7.2
x	x	Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	7.3
x	x	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	7.4

x	x	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	7.4
x	x	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	7.2
x	x	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	7.3
x	x	Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	7.3
x	x	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	8
x	x	Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	8.1
x	x	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	8.2
x	x	Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	8.2
x	x	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	8.2
x	x	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	8.2.2
x	x	Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	8.2.2
x	x	Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	8.4
x	x	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	8.3
x	x	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	8.2
x	x	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	8.2
x	x	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	8.3
x	x	Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	8.6
x	x	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	8.7
x	x	Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	8.7
x		Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency Planning	8.8
x		Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	8.8
x	x	Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	8.8
x	x	Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	n/a
x	x	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	8.9
x	x	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	8.9
x		Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	8.9
x		Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	8.11
x		Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	8.2
x	x	Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	8.12
x	x	Section 8.12	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	8.12
	x	Sections 9.1 and 9.3	10631(e)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	9.1
x		Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	9.1 and 9.3
x		Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	10
x	x	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	10.2
x	x	Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	10.4
x	x	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	10.2, 10.3, 10.5
x	x	Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	10.2, 10.3
x	x	Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	10.3
x	x	Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	10.4.3
x	x	Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	10.4.1
x	x	Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	10.4.1 and 10.4.2
x	x	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	10.5
x	x	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	10.5
x	x	Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	n/a
x	x	Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	n/a

RESOLUTION NO. 21-1554

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE
RAMONA MUNICIPAL WATER DISTRICT TO ADOPT
THE 2020 URBAN WATER MANAGEMENT PLAN**

WHEREAS, California Water Code Section 10610, et seq., known as the Urban Water Management Planning Act mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan ("Plan"), the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the Ramona Municipal Water District (RMWD) delivers water supplies to a population of over 36,000; and

WHEREAS, the Ramona Municipal Water District has implemented conservation measures consistent with the Urban Water Management Plan, and

WHEREAS, The Plan shall be periodically reviewed at least once every five years, and that RMWD shall make any amendment or changes to its Plan which are indicated by the review; and

WHEREAS, The Plan must be adopted after public review and hearing and filed with the California Department of Water Resources by July 1, 2021; and

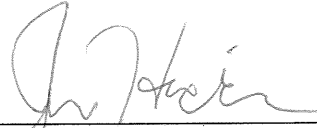
WHEREAS, RMWD has therefore prepared and circulated for public review a draft 2020 Urban Water Management Plan ("2020 Plan"), and a properly noticed Public Hearing regarding said 2020 Plan was held by RMWD on June 8, 2021; and

WHEREAS, RMWD did prepare and shall file said 2020 Plan with the California Department of Water Resources.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Ramona Municipal Water District as follows:

1. That the above recitals are true and correct.
2. RMWD's 2020 Plan is hereby adopted and the Acting General Manager is hereby authorized and directed to file the 2020 Plan with the California Department of Water Resources by the July 1, 2021 due date.

PASSED, APPROVED AND ADOPTED at the regular meeting of the Board of Directors of Ramona Municipal Water District held on the 8th day of June 2021.



Jim Hickle

President, Board of Directors
Ramona Municipal Water District

ATTEST:



Jim Robinson

Secretary, Board of Directors
Ramona Municipal Water District

Appendix C

Ramona Municipal Water District Drought Response Conservation Program

RMWD LEGISLATIVE CODE

Chapter 7.40

WATER CONSERVATION

Contents:

Section 7.40.010	Declaration of Policy.
Section 7.40.020	Findings.
Section 7.40.030	Voluntary Guidelines.
Section 7.40.040	Drought Response Conservation Program.
Section 7.40.041	Violations and Penalties.
Section 7.40.042	Variance.

Section 7.40.010 Declaration of Policy.

California Water Code Sections 375 et seq. and 71640 et seq., authorizes municipal water districts to adopt water conservation measures in a comprehensive water conservation program to reduce the quantity of water used by the people for the purposes of conserving the water supplies of the District and of the State, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, prevent unreasonable use of water, prevent unreasonable method of use of water within the District in order to assure adequate supplies of water to meet the needs of the public, and further the public health, safety, and welfare, recognizing that water is a scarce natural resource that requires careful management not only in times of drought, but at all times. The District may also prohibit use of water during designated periods and for specific uses that it finds to be nonessential. Understanding that the community of Ramona wishes to utilize its limited water resources as efficiently as possible, all members of the Ramona community are encouraged to take steps to voluntarily reduce water consumption throughout the year regardless of whether drought conditions exist. The Board has established an effective cooperative Water Conservation program to provide resources and education to the public. Information about the program can be obtained by contacting the District office, or through the District's website.

The policy established herein is part of the Ramona Municipal Water District's comprehensive Water Conservation program pursuant to California Water Code Sections 375 et seq. and 71640 et seq., based upon the need to conserve water supplies and to avoid or minimize the effects of any future shortage. The Board fully anticipates, encourages and appreciates the joint efforts between the District and the public to conserve water to protect water supplies.

This policy also establishes regulations to be implemented during times of declared water shortages, or declared water shortage emergencies. It establishes four levels of drought response actions ("Drought Response Levels") to be implemented in times of shortage, with increasing restrictions on water use in response to worsening drought conditions and decreasing available supplies. Drought Response Level 1 drought condition response measures are voluntary and will be reinforced through local and regional public education and awareness measures that may be funded in part by the District.

RMWD LEGISLATIVE CODE

During Drought Response Levels 2 through 4, all conservation measures and water-use restrictions are mandatory and become increasingly restrictive in order to attain escalating conservation goals. Violations of this Chapter are subject to criminal, civil, and administrative penalties and remedies specified in this Chapter 7.40 and as provided by law.

Section 7.40.020 Findings.

The District finds and determines the conditions prevailing in the Ramona Municipal Water District service area require water resources be put to maximum beneficial use, to every extent possible. The waste or unreasonable use of water must be prevented, and the conservation of water encouraged. The District's objective is to obtain the maximum reasonable and beneficial use of its water resources, to best serve the members of the community and to ensure public health, safety and welfare.

Section 7.40.030 Voluntary Guidelines.

- A. The following voluntary water conservation guidelines have been established to reduce overall water consumption, and preserve the District's water supply. The District encourages all customers to incorporate water conservation practices into their daily lifestyle, for enhancing the beneficial use of water resources.
 - 1. Acknowledging that landscape irrigation is the single highest usage of water in single-family homes - about 60% of water used, the District establishes the following guidelines to conserve water for landscape and other outside use:
 - a. Water lawn and landscaping only during the cool parts of the day. Early morning is best, as it helps prevent the growth of fungus (watering may be done at any time with a bucket, a hand-held hose equipped with a positive shut-off nozzle, with drip irrigation or rotating nozzles);
 - b. Water lawn only when it needs it - step on the grass, if it springs up underfoot, it does not need water;
 - c. When watering the lawn, water it long enough to seep down into the roots, as surface watering will simply evaporate and be wasted;
 - d. Practice water-wise gardening by using drought tolerant and California-Friendly plants and trees;
 - e. Put a layer of mulch around trees and plants to slow the evaporation of moisture;
 - f. Delay new plantings until the cooler fall months, when plants need less water;
 - g. Water for several short periods instead of one long period, so the soil can absorb the moisture, without wasteful runoff;

RMWD LEGISLATIVE CODE

- h. Use a broom to clean off sidewalks, driveways, parking areas, tennis courts, patios or other paved areas;
 - i. Check for leaks in pipes, hoses, faucets and couplings; repair as soon as possible;
 - j. Use a hand-held bucket or a hand-held hose equipped with a positive shut-off nozzle when washing autos, trucks, trailers, boats, airplanes and other types of mobile equipment; and
 - k. Use untreated or recycled water for grading, if possible.
2. To conserve indoor water use:
- a. Check toilet(s) for leaks. Put a few drops of food coloring in the toilet tank. If, without flushing, the coloring begins to appear in the bowl, the tank has a leak that may be wasting up to 100 gallons of water a day. Install a high-efficiency or an ultra low-flush toilet;
 - b. Take shorter showers. Limit showers to the time it takes to wash and rinse;
 - c. Install water-saving shower heads or flow restrictors;
 - d. Take baths instead of showers. A partially filled tub uses less water than a shower;
 - e. Turn off the water while brushing teeth and shaving;
 - f. Check faucets and pipes for leaks;
 - g. Use automatic dishwashers only for full loads, as every load uses about 25 gallons of water;
 - h. Use automatic clothes washers only for full loads, as every load uses 30 to 35 gallons a cycle. Consider purchasing a High-Efficiency Washer (HEW), when replacing your clothes washer;
 - i. Do not let the faucet run while cleaning vegetables or when washing dishes, as rinsing can be done in a sink full of clean water;
 - j. Do not leave water running for rinsing when washing dishes by hand;
 - k. Serve water to restaurant customers only when specifically requested.

Section 7.40.040 Drought Response Conservation Program.

A. Definitions

RMWD LEGISLATIVE CODE

1. The following words and phrases whenever used in this chapter shall have the meaning defined in this section:
 - a. “Grower” refers to those engaged in the growing or raising, in conformity with recognized practices of husbandry, for the purpose of commerce, trade, or industry, or for use by public educational or correctional institutions, of agricultural, horticultural or floricultural products, and produced: (1) for human consumption or for the market; or (2) for the feeding of fowl or livestock produced for human consumption or for the market; or (3) for the feeding of fowl or livestock for the purpose of obtaining their products for human consumption or for the market. “Grower” does not refer to customers who purchase water subject to the Water Authority Special Agricultural Rate programs.
 - b. “Water Authority” means the San Diego County Water Authority.
 - c. “DMP” means the Water Authority’s Drought Management Plan in existence on the effective date of this Chapter 7.40 and as readopted or amended from time to time, or an equivalent plan of the Water Authority to manage or allocate supplies during shortages.
 - d. “Metropolitan” means the Metropolitan Water District of Southern California.
 - e. “Person” means any natural person, corporation, public or private entity, public or private association, public or private agency, government agency or institution, school district, college, university, or any other user of water provided by the District.
 - f. “SAWR” means the Special Agricultural Water Rate program available from Metropolitan that is administered by the Water Authority.

B. Application

1. The provisions of Chapter 7.40 apply to any person in the use of any water provided by the District and proposed users of District water, as applicable.
2. Chapter 7.40 is intended solely to further the conservation of water. It is not intended to implement any provision of federal, state, or local statutes, ordinances, or regulations relating to protection of water quality or control of drainage or runoff. Refer to the local jurisdiction or Regional Water Quality Control Board for information on any stormwater ordinances and stormwater management plans.
3. Nothing in Chapter 7.40 is intended to affect or limit the ability of the District to declare and respond to an emergency, including an emergency that affects the ability of the District to supply water.

RMWD LEGISLATIVE CODE

4. The provisions of Chapter 7.40 do not apply to use of water from private wells or to recycled water.
5. Unless otherwise specifically authorized in this Legislative Code, nothing in Chapter 7.40 shall apply to use of water that is subject to a special supply program. Violations of the conditions of special supply programs are subject to the penalties established under the applicable program.

C. Drought Response Level 1: Drought Watch Condition

1. A Drought Response Level 1 condition is also referred to as a “Drought Watch” condition. A Level 1 condition applies when the Water Authority notifies its member agencies that due to drought or other supply reductions, there is a reasonable probability there will be supply shortages and that a consumer demand reduction of up to 10 percent is required in order to ensure that sufficient supplies will be available to meet anticipated demands. The General Manager may declare the existence of a Drought Response Level 1 and take action to implement the Level 1 conservation practices identified in this Section.
2. During a Level 1 Drought Watch condition, District will increase its public education and outreach efforts to emphasize increased public awareness of the need to implement the following water conservation practices:
 - a. Stop washing down paved surfaces, including but not limited to sidewalks, driveways, parking lots, tennis courts, or patios, except when it is necessary to alleviate safety or sanitation hazards.
 - b. Stop water waste resulting from inefficient landscape irrigation, such as runoff, low head drainage, or overspray, etc. Similarly, stop water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.
 - c. Irrigate residential and commercial landscape before 10 a.m. and after 6 p.m. only.
 - d. Use a hand-held hose equipped with a positive shut-off nozzle or bucket to water landscaped areas, including trees and shrubs located on residential and commercial properties that are not irrigated by a landscape irrigation system.
 - e. Irrigate nursery and commercial grower’s products before 10 a.m. and after 6 p.m. only. Watering is permitted at any time with a hand-held hose equipped with a positive shut-off nozzle, a bucket, or when a drip/micro-irrigation system/equipment or rotating nozzles are used. Irrigation of nursery propagation beds is permitted at any time. Watering of livestock is permitted at any time.
 - f. Use re-circulated water to operate ornamental fountains.

RMWD LEGISLATIVE CODE

- g. Wash vehicles using a bucket and a hand-held hose with positive shut-off nozzle, mobile high pressure/low volume wash system, or at a commercial site that re-circulates (reclaims) water on-site. Avoid washing during hot conditions when additional water is required due to evaporation.
- h. Serve and refill water in restaurants and other food service establishments only upon request.
- i. Offer guests in hotels, motels, and other commercial lodging establishments the option of not laundering towels and linens daily.
- j. Repair all water leaks within five (5) days of notification by the District unless other arrangements are made with the General Manager.
- k. Use recycled or non-potable water for construction purposes when available and feasible.

D. Drought Response Level 2: Drought Alert Condition

- 1. A Drought Response Level 2 condition is also referred to as a “Drought Alert” condition. A Level 2 condition applies when the Water Authority notifies its member agencies, including the District, that due to cutbacks caused by drought or other reduction in supplies, a consumer demand reduction of up to twenty percent (20%) is required in order to have sufficient supplies available to meet anticipated demands. The District’s Board of Directors may declare the existence of a Drought Response Level 2 condition and implement the mandatory Level 2 conservation measures identified in this Chapter 7.40.
- 2. All District water use shall comply with Level 1 Drought Watch water conservation practices during a Level 2 Drought Alert and shall also comply with the following additional conservation measures:
 - a. Limit residential and commercial landscape irrigation to no more than two (2) days per week. During the months of November through May, landscape irrigation is limited to no more than once per week. This section shall not apply to commercial growers or nurseries.
 - b. Limit lawn watering and landscape irrigation using sprinklers to no more than ten (10) minutes per watering station per watering day. This provision does not apply to landscape irrigation systems using water efficient devices, including but not limited to: weather based controllers, drip/micro-irrigation systems and rotating nozzles.
 - c. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system governed by Section D(2)(a) above, on the same schedule set forth in Section D(2)(a) above, by using a bucket, hand-held hose with positive shut-off nozzle, or low-volume non-spray irrigation.

RMWD LEGISLATIVE CODE

- d. Repair all leaks within seventy-two (72) hours of notification by the District unless other arrangements are made with the General Manager.
 - e. Stop operating ornamental fountains or similar decorative water features unless recycled water is used.
 - f. No irrigating outdoors during and within 48 hours following measurable rainfall.
 - g. Irrigation with potable water of ornamental turf on public street medians is prohibited.
3. During a Drought Response Level 2 condition, the District Board of Directors may find that drought conditions are such that an emergency condition exists and may take additional action to declare a Drought Emergency in the manner and on the grounds provided in California Water Code section 350. In the event of a declared Drought Emergency, no applications for new potable metered water service or upsizing of metered water service shall be accepted, no new temporary meters or permanent meters shall be provided and no new statements of ability to serve or provide potable water service (such as, will serve letters, certificates, or letters of availability, commitment letters, agency clearance forms, out-of-district potable water service agreements) shall be issued, except under the following circumstances:
- a. A valid, unexpired building permit has been issued for the project; or
 - b. The project is necessary to protect the public's health, safety, and welfare; or
 - c. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the District, in its sole discretion.

This provision shall not be construed to preclude the resetting or turn-on of meters to provide continuation of water service or to restore services that have been interrupted for less than a year.

4. The District may establish a water allocation for property served by the District using a method that does not penalize persons for the prior implementation of conservation methods or the installation of water saving devices. If the District establishes a water allocation, the District shall provide notice of the allocation by including the allocation in the regular billing statement for the fee or charge or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. Any penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed for violation of this Chapter. For the purpose of assessing

RMWD LEGISLATIVE CODE

administrative fines pursuant to Chapter 7.40.041, each billing period in which an allocation is exceeded shall count as a separate violation. Subsequent violations that occur during a calendar year shall count cumulatively for the purpose of assessing administrative fines for second violations and additional violations.

E. Drought Response Level 3: Drought Critical Condition

1. A Drought Response Level 3 condition is also referred to as a “Drought Critical” condition. A Level 3 condition applies when the Water Authority notifies its member agencies that due to increasing cutbacks caused by drought or other reduction of supplies, a consumer demand reduction of up to forty percent (40%) is required in order to have sufficient supplies available to meet anticipated demands. The District Board of Directors may declare the existence of a Drought Response Level 3 condition and implement the Level 3 conservation measures identified in this policy.
2. All District water use shall comply with Level 1 Drought Watch and Level 2 Drought Alert water conservation practices and measures during a Level 3 Drought Critical condition and shall also comply with the following additional mandatory conservation measures:
 - a. Limit residential and commercial landscape irrigation to no more than two (2) assigned days per week on a schedule established by the General Manager and posted by the District. During the months of November through May, landscape irrigation is limited to no more than once per week on a schedule established by the General Manager and posted by the District. This section shall not apply to commercial growers or nurseries.
 - b. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system governed by Section E(2)(a), on the same schedule set forth in Section E(2)(a) by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation.
 - c. Stop filling or re-filling ornamental lakes or ponds, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a Drought response level under this Chapter 7.40.
 - d. Stop washing vehicles except at commercial carwashes that re-circulate water, or by high pressure/low volume wash systems.
 - e. Repair all leaks within forty-eight (48) hours of notification by the District unless other arrangements are made with the General Manager.

RMWD LEGISLATIVE CODE

3. During a Drought Response Level 3 condition, the District Board of Directors may find that drought conditions are such that an emergency condition exists and may declare a Drought Emergency in the manner and on the grounds provided in California Water Code section 350. In the event of a declared Drought Emergency, no new potable water service shall be provided, no new temporary meters or permanent meters shall be provided and no applications for new potable metered water service or upsizing of metered water service shall be accepted, no new temporary meters or permanent meters shall be provided and no new statements of ability to serve or provide potable water service (such as, will serve letters, certificates, or letters of availability, commitment letters, agency clearance forms, out-of-district potable water service agreements) shall be issued, except under the following circumstances:

- a. A valid, unexpired building permit has been issued for the project; or
- b. The project is necessary to protect the public's health, safety, and welfare; or
- c. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the District, in its sole discretion.

This provision shall not be construed to preclude the resetting or turn-on of meters to provide continuation of water service or to restore services that has been interrupted for less than a year.

4. The District may establish a water allocation for property served by the District using a method that does not penalize persons for the prior implementation of conservation methods or the installation of water saving devices. If the District establishes a water allocation, the District shall provide notice of the allocation by including the allocation in the regular billing statement for the fee or charge or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. Any penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed for violation of this Chapter. For the purpose of assessing administrative fines pursuant to Chapter 7.40.041, each billing period in which an allocation is exceeded shall count as a separate violation. Subsequent violations that occur during a calendar year shall count cumulatively for the purpose of assessing administrative fines for second violations and additional violations.

F. Drought Response Level 4: Drought Emergency Condition

1. A Drought Response Level 4 condition is also referred to as a "Drought Emergency" condition. A Level 4 condition applies when the Water Authority Board of Directors declares a water shortage emergency pursuant to California Water Code section 350 and notifies its member agencies that Level 4 requires a demand reduction of more than forty

RMWD LEGISLATIVE CODE

percent (40%) percent in order for the Authority to have maximum supplies available to meet anticipated demands. Upon declaration by the Authority of a Drought Emergency Condition, the District may declare a Drought Emergency in the manner and on the grounds provided in California Water Code section 350 *et seq.*

2. All District water use shall comply with conservation practices and measures required during Level 1 Drought Watch, Level 2 Drought Alert, and Level 3 Drought Critical conditions and shall also comply with the following additional mandatory conservation measures:
 - a. Stop all landscape irrigation, except crops and landscape products of commercial growers and nurseries. This restriction shall not apply to the following categories of use unless the District has determined that recycled water is available and may be lawfully applied to the use.
 - i. Maintenance of trees and shrubs that are watered on the same schedule set forth in Section E(2)(a) by using a bucket, hand-held hose with a positive shut-off nozzle, or low-volume non-spray irrigation;
 - ii. Maintenance of existing landscaping necessary for fire protection as specified by the Fire Marshal of the local fire protection agency having jurisdiction over the property to be irrigated;
 - iii. Maintenance of existing landscaping for erosion control;
 - iv. Maintenance of plant materials identified to be rare or essential to the well being of rare animals;
 - v. Maintenance of landscaping within active public parks and playing fields, day care centers, school grounds, cemeteries, and golf course greens, provided that such irrigation does not exceed two (2) days per week according to the schedule established under Section E(2)(a) above;
 - vi. Watering of livestock; and
 - vii. Public works projects and actively irrigated environmental mitigation projects.
 - b. Repair all water leaks within twenty-four (24) hours of notification by the District unless other arrangements are made with the General Manager.

The District may establish a water allocation for property served by the District. If the District establishes water allocation it shall provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. Any penalty for excess water usage shall be cumulative to any other remedy or penalty that may be imposed

RMWD LEGISLATIVE CODE

for violation of this Chapter. For the purpose of assessing administrative fines pursuant to Chapter 7.40.041, each billing period in which an allocation is exceeded shall count as a separate violation. Subsequent violations that occur during a calendar year shall count cumulatively for the purpose of assessing administrative fines for second violations and additional violations.

G. Correlation Between Drought Management Plan and Drought Response Levels

1. The correlation between the Water Authority's Drought Management Plan ("DWP") stages and the District Drought response levels identified in this Chapter is described herein. Under DMP Stage 1, the District may implement Drought Response Level 1 actions. Under DMP Stage 2, the District would implement Drought Response Level 1 or Level 2 actions. Under DMP Stage 3, the District may implement Drought Response Level 2, Level 3, or Level 4 actions.

The Drought Response Levels identified in this Chapter correspond with the Water Authority DMP as identified in the following table:

Drought Response Levels	Use Restrictions	Conservation Target	DMP Stage
1 - Drought Watch	Voluntary	Up to 10%	Stage 1 or 2
2 - Drought Alert	Mandatory	Up to 20%	Stage 2 or 3
3 - Drought Critical	Mandatory	Up to 40%	Stage 3
4 - Drought Emergency	Mandatory	Above 40%	Stage 3 or 4

H. Procedures for Determination and Notification of Drought Response Level

1. The existence of a Drought Response Level 1 condition may be declared by the General Manager upon a written determination of the existence of the facts and circumstances supporting the determination. A copy of the written determination shall be filed with the Clerk or Secretary of the District and provided to the District Board of Directors. The General Manager may publish a notice of the determination of existence of Drought Response Level 1 condition in one or more newspapers, including a newspaper of general circulation within the District. The District may also post notice of the condition on their website.
2. The existence of Drought Response Level 2 or Level 3 conditions may be declared by resolution of the District Board of Directors adopted at a regular or special public meeting held in accordance with State law, including but not limited to Water Code section 350 *et seq.* The mandatory conservation measures applicable to Drought Response Level 2 or Level 3 conditions shall become effective as stated in the Board Resolution. Within ten (10) days following the declaration of the response level, the District shall publish a copy of the resolution in a newspaper used for publication of official notices.
3. The existence of a Drought Response Level 4 condition may be declared in accordance with the procedures specified in California Water Code sections 351 and 352. The mandatory conservation measures applicable

RMWD LEGISLATIVE CODE

to Drought Response Level 4 conditions shall become effective as stated in the Board Resolution. Within ten (10) days following the declaration of the response level, the District shall publish a copy of the resolution in a newspaper used for publication of official notices. If the District establishes a water allocation, it shall provide notice of the allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. Water allocation shall become effective as stated in the Board Resolution.

4. The General Manager may declare the end of Drought Response Level 1. The District Board of Directors may declare an end to a Drought Response Level by the adoption of a resolution at any regular or special meeting held in accordance with State law.

Section 7.40.041 Violations and Penalties.

- A. Violation of Chapter 7.40. Any person, who uses, causes to be used, or permits the use of water in violation of this Chapter 7.40 is guilty of an offense punishable as provided herein.
- B. Separate Offense. Each day that a violation of this Chapter 7.40 occurs is a separate offense.
- C. Administrative Fines. Administrative fines may be levied for each violation of a provision of this Chapter 7.40 as follows:
 1. One hundred dollars (\$100) for a first violation.
 2. Two hundred dollars (\$200) for a second violation of any provision of this ordinance within one (1) calendar year.
 3. Five hundred dollars (\$500) for each additional violation of this ordinance within one (1) calendar year.
- D. Administrative Procedures for Imposing Fines.
 1. Notice of Violation. If the District General Manager determines to impose a fine on a person ("violation") who has violated any provision of Chapter 7.40, he or she shall cause a written notice of the violation to be sent to the violator. The notice shall provide in sufficient detail the violation(s), the amount of the penalty being imposed, and the date or times by which the penalty shall be paid to the District. The notice shall notify the violator that the fine will be imposed in the violator's next water bill and that the violator may appeal the District's imposition of the fine in writing within ten (10) calendar days of the date of said notice. Service of any notice required under this Section shall be made by the following means:
 - a. Personal service in the same manner as a summons in a civil action;
or

RMWD LEGISLATIVE CODE

- b. Registered United States mail, which service shall be completed at the time of deposit into the United States mail.
 - 2. Appeal. Within ten (10) calendar days of the date of such notice from the District, the customer may appeal the proposed fine to the District General Manager in writing, setting forth a description of the violation, any cure measures undertaken, the amount of the fine, the basis for the appeal, and the remedy sought. The General Manager shall consider the appeal and shall issue a written decision to the appellant customer. If the customer fails to appeal the ten (10) calendar days period specified in the District's notice to the customer, the customer shall lose its right to appeal the District's fine.
 - 3. Appeals to District Board of Directors. An applicant may appeal a decision of the General Manager on an appeal of an administrative fine to the District Board of Directors within ten (10) days of the decision upon written request for a hearing. The request shall state the grounds for the appeal. At a public meeting, the District Board of Directors shall act as the approval authority and review the appeal de novo (granting no deference to the prior decision of the General Manager). The decision of the District Board of Directors is final. The violator shall not be permitted to seek a variance pursuant to Section 7.40.042.
- E. Flow-Restricting Devices. Violation of a provision of the mandatory provisions of this Chapter 7.40 is subject to enforcement through installation of a flow-restricting device in the meter.
- F. Misdemeanor. Each violation of the mandatory provisions of this Chapter 7.40 may be prosecuted as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days.
- G. Discontinuation of Service. Willful violations of the mandatory conservation measures and water use restrictions applicable during a declared Drought Emergency condition during either drought Response Levels 3 or 4 may be enforced by discontinuing service to the property at which the violation occurs as provided by Water Code section 356.
- H. Cumulative Remedies. All remedies provided for herein shall be cumulative and not exclusive.

Section 7.40.042 Variance.

- A. If a District conservation measure disproportionately impacts a District customer, then the person may apply for a variance to the requirements as provided in this section.
- B. The variance may be granted or conditionally granted by the Board, only upon a written finding of the existence of facts demonstrating that the application of this Section 7.40 impacts a District customer in a manner that is disproportionate to

RMWD LEGISLATIVE CODE

the impacts to District water users generally or to similar property or classes of water use due to specific and unique circumstances of the user or the user's property.

1. Application. Application for a variance shall be a form prescribed by the District.
 2. Supporting Documentation. The application shall be accompanied by documentation, such as but not limited to, water bills, invoices and receipts, photographs, maps, drawings, and other information, including a written statement of the applicant demonstrating those water conservation measures undertaken by the applicant.
 3. Required Findings for Variance. An application for a variance may be denied if it is found that, based on the information provided in the application, supporting documents, or such additional information as may be requested, and on water use information for the property as shown by the records of the District, all of the following:
 - a. That the variance does not constitute a grant of special privilege inconsistent with the limitations upon other District customers.
 - b. That because of special circumstances applicable to the property or its use, the strict application of Chapter 7.40 would have a disproportionate impact on the property or use that exceeds the impacts to customers generally.
 - c. That the authorizing of such variance will not be of substantial detriment to adjacent properties, and will not materially affect the ability of the District to effectuate the purpose of this chapter and will not be detrimental to the public interest.
 - d. That the condition or situation of the subject property or the intended use of the property for which the variance is sought is not common, recurrent or general in nature.
 4. Approval Authority. The General Manager shall exercise approval authority and act upon any completed application no later than 10 days after submittal and may approve, conditionally approve, or deny the variance. The applicant requesting the variance shall be promptly notified in writing of any action taken. The variance shall specify the duration for which the variance applicable to the subject property shall apply.
- C. Appeals to District Board of Directors. An applicant may appeal a decision or condition of the General Manager on a variance application to the District Board of Directors within ten (10) days of the decision upon written request for a hearing. The request shall state the grounds for the appeal. At a public meeting, the District Board of Directors shall act as the approval authority and review the appeal de novo (granting no deference to the prior decision of the General Manager) by following the variance procedure delineated in Section 7.40.042(A) through (B), (1)-(4) above. The decision of the District Board of Directors is final.

Appendix D

Proof of Publication: UWMP Public Hearing Notice

PROOF OF PUBLICATION (2015.5 C.C.P.)

State Of California,
County of San Diego

I am a citizen of the United States and a resident of the County aforesaid: I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am an authorized representative of


Ramona Sentinel

a newspaper of general circulation, printed and published weekly in the County of San Diego, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Diego, State of California, under the date of April 23, 1927, Case Number 51489; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of the said newspaper and not in any supplement thereof on the following
Dates, to-wit:

May 20 & May 27, 2021

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated: **May 27, 2021**
At: San Diego, California



Signature
Cris Gaza
UT Community Press

7780871



RAMONA MUNICIPAL WATER DISTRICT

NOTICE OF PUBLIC HEARING

Notice is hereby given that on the **8th day of June, 2021, at the hour of 6:00 p.m.**, the Board of Directors of the Ramona Municipal Water District will conduct a Public Hearing. The purpose of the hearing will be to take public input on:

Adoption of the 2020 Urban Water Management Plan

Prior to this meeting, copies of the appropriate documents related to the 2020 Urban Water Management Plan will be available for review on the District's website at www.rmwd.org. Written comments can be addressed to the District Office at 105 Earlham Street, Ramona, California 92065 Attn: UWMP 2020 and sent any time prior to the day set for the public hearing.

At the time stated above, the Board of Directors shall hear and consider all comments, if any, to the 2020 Urban Water Management Plan; and at the conclusion of the hearing, the Board may adopt, revise, change, or amend the Plan.

Date: May 14, 2021

RAMONA MUNICIPAL WATER DISTRICT
105 Earlham Street, Ramona, CA 92065
Phone: 760-789-1330

RA7780871 5/20 & 5/27/2021

Appendix F

February 2025

Focused Construction Noise and Vibration Analysis

by Ganddini Group, Inc.

LONG-TERM POTABLE AND RECYCLED WATER SERVICE TO BARONA INDIAN RESERVATION FOCUSED CONSTRUCTION NOISE AND VIBRATION IMPACT ANALYSIS

Barona Reservation (San Diego County)

June 27, 2024

Revised February 11, 2025



Traffic Engineering • Transportation Planning • Parking • Noise & Vibration
Air Quality • Global Climate Change • Health Risk Assessment

LONG-TERM POTABLE AND RECYCLED WATER SERVICE TO BARONA INDIAN RESERVATION FOCUSED CONSTRUCTION NOISE AND VIBRATION IMPACT ANALYSIS

Barona Reservation (San Diego County)

June 27, 2024

Revised February 11, 2025

prepared by
Roma Stromberg, INCE, MS
Catherine Howe, MS



GANDDINI GROUP INC.

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Santa Ana, California 92705
(714) 795-3100 | ganddini.com

Project No. 19726

TABLE OF CONTENTS

EXECUTIVE SUMMARY	III
1. INTRODUCTION.....	1
Purpose and Objectives	1
Project Description.....	1
Project Location	2
2. NOISE AND VIBRATION FUNDAMENTALS	6
Noise Fundamentals	6
Vibration Fundamentals.....	7
3. EXISTING NOISE ENVIRONMENT.....	10
Existing Land Uses and Sensitive Receptors/Affected Environment	10
Sensitive Receptors	10
Sensitive Species – Least Bell’s Vireo.....	10
Ambient Noise Measurements.....	10
4. REGULATORY SETTING	14
Federal Regulation.....	14
National Environmental Policy Act.....	14
Federal Noise Control Act of 1972	14
United States Department of Housing and Urban Development (HUD)	14
State Regulations	14
California Environmental Quality Act (CEQA).....	14
California Noise Control Act	15
Local Regulations.....	15
San Diego County General Plan Noise Element.....	15
San Diego County Code of Ordinances.....	16
County of San Diego Guidelines for Determining Significance for Noise	17
County of San Diego Guidelines for Determining Significance for Biological Resources	17
5. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS.....	20
Construction Noise Modeling	20
Groundborne Vibration Modeling.....	20
6. NOISE AND VIBRATION IMPACTS/ENVIRONMENTAL CONSEQUENCES	23
Noise Impacts.....	23
Groundborne Vibration Impacts	27
Air Traffic Impacts.....	28
7. REFERENCES.....	37

Appendices

- Appendix A List of Acronyms
- Appendix B Glossary
- Appendix C Noise Measurement Field Worksheets
- Appendix D Construction Noise Modeling

List of Tables

Table 1.	Noise Measurement Summary	12
Table 2.	Maximum Sound Level (Impulsive) Noise Measured at Occupied Property	18
Table 3.	Construction Vibration Damage Criteria	19
Table 4.	CA/T Equipment Noise Emissions and Acoustical Usage Factor Database.....	21
Table 5.	Construction Equipment Vibration Source Levels	22
Table 6.	Construction Noise Levels.....	29
Table 7.	Construction Noise Contours.....	30

List of Figures

Figure 1.	Project Location Map.....	4
Figure 2.	Site Plan	5
Figure 3.	A-Weighted Comparative Sound Levels.....	8
Figure 4.	Typical Levels of Groundborne Vibration.....	9
Figure 5.	Noise Measurement Location Map.....	13
Figure 6.	Construction Noise Contours - A.....	31
Figure 7.	Construction Noise Contours - B	32
Figure 8.	Construction Noise Contours - C.....	33
Figure 9.	Construction Noise Contours - D.....	34
Figure 10.	Construction Noise Contours - E	35
Figure 11.	Construction Noise Contours - F	36

EXECUTIVE SUMMARY

The proposed project consists of two (2) largely parallel new pipelines to convey water, each of less than one (1) mile from existing water distribution facilities within the Ramona Municipal Water District service area, by connection within a county road easement to an existing bridge over San Vicente Creek, along the county road easement to the boundary of the Barona Indian Reservation. The two pipelines include a new 12"-diameter pipeline to convey potable (treated) water, and a new 8"-diameter pipeline to convey recycled water from the District's facilities to the Reservation boundary. The Barona Indian Band of Mission Indians is obtaining a U.S. Housing and Urban Development (HUD) grant which requires compliance with National Environmental Policy Act (NEPA). It is the lead agency under the National Environmental Policy Act (NEPA) for both the on and off-Reservation portions of the project. The Ramona Municipal Water District (RMWD) is the California Environmental Quality Act (CEQA) lead agency for the portion of the pipeline alignments that are off-Reservation.

This noise study is intended to analyze potential noise and vibration impacts in light of applicable policies and ordinances. However, neither the RMWD nor the Barona Band of Mission Indians have adopted noise criteria and the United States Department of Housing and Urban Development (HUD) does not have noise criteria that apply to construction activities. The proposed project is within and adjacent to the County of San Diego. Noise and groundborne vibration thresholds established by the County of San Diego were utilized in the following analysis.

Project Construction Impacts

Project construction will not occur outside of the hours outlined in Section 8.54.070 of the County of San Diego's Municipal Code which prohibits construction activities other than between the hours of 7:00 AM to 7:00 PM. Project construction may however violate the 60 dBA one-hour L_{eq} (in least Bell's vireo habitat) and 75 dBA L_{eq} (8-hour) at occupied land uses. Construction activities may also violate the 82 and 85 dBA L_{25} noise standards for the impulsive noise at specified land uses. In practice, construction will likely occur along one segment of the pipeline at a time, so only receptors in the vicinity of that portion of alignment will be affected and noise levels at any particular receptor will increase and then decrease as construction moves along the pipeline alignment. Mitigation is required as provided in Section 6 of this report.

Groundborne Vibration Impacts

The most vibratory piece of equipment expected to be utilized on the project site is a large bulldozer. A large bulldozer can generate a groundborne vibration level of 0.210 at a distance of 25 feet. Potential damage caused by groundborne vibration is dependent upon the distance from the source and the affected structure. There are no existing buildings extremely susceptible to vibration damage near the proposed alignment. The next most sensitive structure would be non-engineered timber and masonry buildings. The damage impact threshold for these structures is 0.2 PPV. If a large bulldozer is utilized within 25 feet of a such a structure, there is potential for structural damage. There are several pieces of construction equipment including a vibratory roller, and a large bulldozer that may be utilized to construct the project that could result in damage due to groundborne vibration if they are used too close to an existing structure. Potential damage caused by groundborne vibration is dependent upon the distance from the source and the affected structure. There are no existing buildings extremely susceptible to vibration damage near the proposed alignment. The next most sensitive structure would be non-engineered timber and masonry buildings. Implementation of Mitigation Measure 15 (presented in Section 6 of this report) will reduce this impact to less than significant.

1. INTRODUCTION

This section describes the purpose of this study and the proposed project.

PURPOSE AND OBJECTIVES

The purpose of this Noise Study is to model construction noise and groundborne vibration noise associated with installation of two (2) largely parallel new pipelines to convey potable and recycled water to the Barona Reservation from Ramona Municipal Water District facilities. The Barona Band of Mission Indians is the lead agency under the National Environmental Policy Act (NEPA) for the water pipeline project for both the on and off-Reservation portions of the project. Ramona Municipal Water District (RMWD) is the lead agency under the California Environmental Quality Act (CEQA) for the off-Reservation portion of the two pipelines from the District pump station to the Barona Reservation boundary.

This noise study is intended to analyze potential noise and vibration impacts in light of applicable policies and ordinances. However, neither the RMWD or the Barona Band of Mission Indians have adopted noise criteria and the United States Department of Housing and Urban Development (HUD) does not have noise criteria that apply to construction activities. The proposed project is within and adjacent to the County of San Diego. Noise and groundborne vibration thresholds established by the County of San Diego were utilized in the following analysis.

Although this is a technical report, effort has been made to write the report clearly and concisely. A list of acronyms and glossary are provided in Appendix A and Appendix B of this report to assist the reader with technical terms related to noise analysis.

PROJECT DESCRIPTION

The Project consists of two segments: an off-Reservation segment and an on-Reservation segment. The off-Reservation segment consists of two (2) largely parallel new pipelines to convey water, each of less than one (1) mile from existing water distribution facilities within the Ramona Municipal Water District service area, by connection within a county road easement to an existing bridge over San Vicente Creek, along the county road easement to the boundary of the Barona Indian Reservation, all to be performed by the RMWD. The two pipelines include a new 12"-diameter pipeline to convey potable (treated) water, and a new 8"-diameter pipeline to convey recycled water from the District's facilities to the Reservation boundary. The project location is shown on Figure 1 and the proposed alignment is shown on Figure 2.

The Potable Water Line. The 12-inch potable (treated) water pipeline originates at the intersection of San Vicente Road and Wildcat Canyon Road, within the District's service area. The District currently operates a 16-inch diameter water line within the San Vicente Road right-of-way, to which the new 12-inch pipeline will connect. The 12-inch pipeline will be constructed within the Barona Road (Wildcat Canyon Road) right-of-way from the connection point south, crossing an existing bridge over San Vicente Creek, continuing south to the Reservation boundary just past Little Klondike Road. A new water metering facility will be constructed just inside the Reservation boundary to meter water deliveries from the District to the Reservation. The meter facility will consist of a magnetic flow meter and related equipment mounted on a 12' x 25' concrete pad enclosed by chain link fence.

After the metering station, the 12-inch pipeline leaves the Barona Road (Wildcat Canyon Road) right-of-way, continuing south across Reservation land. The 12-inch pipeline crosses Wildcat Canyon Road twice, using trenchless construction techniques, traversing existing Reservation roads to a point just south of the Reservation paintball area. At this location the Tribe will construct a small pump station, located adjacent to an existing Reservation well site (Well 30). The pump station will be comprised of a concrete block building, approximately 35 feet by 35 feet. This building will house the existing well, the booster pumps, and the

electrical equipment. There will also be an emergency diesel generator on the exterior of the building, enclosed in a 12-foot by 18-foot concrete block wall.

Leaving the pump station, the 12-inch pipeline continues in Reservation roads to Ketuull Uunyaa Way and continues south in Ketuull Uunyaa Way and other unnamed local roadways to Featherstone Canyon Way. At Featherstone Canyon Way, the 12-inch pipeline traverses open land to Barona Road and continues south to connection with an existing 12-inch pipeline within the Reservation water system, adjacent to an existing Reservation well site (Well 21). At this existing location and prior to connection with the existing Reservation distribution system, a Pressure Reducing Station (PRS) will be constructed above ground, with piping, pressure reducing valve, and other miscellaneous equipment and electrical gear connected to the nearby existing well building. The Tribe will construct all on-Reservation pipeline and related facilities.

The Recycled Water Line. The 8-inch recycled water pipeline commences at the San Vicente Wastewater Reclamation Plant, an existing District pump station located just northeast of the intersection of Vicente Meadows Road and San Vicente Road. The pipeline will traverse District property to Vicente Meadows Road and continue south in Vicente Meadows Road to San Vicente Road. The pipeline will continue west in San Vicente Road to its intersection with Wildcat Canyon Road, then continue south, parallel to the proposed 12-inch potable (treated) water pipeline, across the Klondike Creek bridge along Wildcat Canyon Road to the Reservation boundary, a total distance of less than one mile, all to be constructed by the District.

The 8-inch recycled pipeline will also include a magnetic flow meter within the above new metering facility, similar to that of the potable (treated) water pipeline. The 8-inch recycled pipeline continues south, parallel to the 12-inch pipeline, over Reservation land, crossing the Wildcat Canyon Road alignment at the same two locations, also by trenchless construction techniques. Where the potable and recycled lines cross under the county road they (and a third dummy pipeline) will be encased in a larger pipe or sleeve to provide support, stability, and access. The 8-inch recycled pipeline continues to parallel the 12-inch potable pipeline in existing Reservation roads to a point just south of the Reservation paintball area, where the 12-inch pipeline pump station is located. The 8-inch pipeline is not connected to the pump station and traverses south a short distance to connect to an existing 6-inch Reservation non-potable pipeline. This connection is the termination point of the new 8-inch recycled water pipeline. The existing non-potable pipeline generally parallels the 12-inch potable pipeline alignment south, terminating at the existing Reservation golf course where the recycled water is tributary to the golf course ponds.

The overall length of the 12-inch pipeline is approximately 41,900 linear feet. That of the new 8-inch pipeline is approximately 21,700 linear feet. The two pipelines will be aligned parallel, with a separation of 4 feet depending on conditions, designed and built to District standards. Both pipelines will be of polyvinyl chloride, except downstream of the booster station, which will be of steel pipe materials because of the greater pressure at this location.

PROJECT LOCATION

All elements of the Proposed Project lie within Section 35, T13S, R1E, SBB&M (off-Reservation), and T14S, R1 and 2E, SBB&M (un-sectioned because formerly Mexican land grant). The Project Site includes all or a portion of the following APNs:

285-090-07
328-050-01
331-010-01
328-080-01
328-120-03
328-100-02
330-020-01

Off-Reservation Alignment

The 8-inch recycled water pipeline commences at the San Vicente Wastewater Reclamation Plant, an existing District pump station located just northeast of the intersection of Vicente Meadows Road and San Vicente Road. Once the proposed 8-inch recycled water pipeline reaches the intersection of San Vicente Road and Wildcat Canyon Road it will share the alignment and run parallel with the 12-inch potable water pipeline in Wildcat Canyon Road. A horizontal separation of 4 feet must be maintained between the recycled and potable water pipelines throughout the alignment, both off- and on-Reservation. Figure 2 depicts the limits of the off-Reservation alignment as defined by the Tribe's Reservation borders. Off-Reservation, Wildcat Canyon Road is maintained by the San Diego County Department of Public Works (DPW) and thus subject to the County's design standards and permitting requirements. It will be necessary to obtain an Encroachment permit from the County. Approximately 3000 LF of recycled water pipeline and 2100 LF of potable water pipeline will be constructed off-Reservation in Wildcat Canyon Road.

On-Reservation Alignment

After crossing the Reservation boundary Wildcat Canyon Road becomes Barona Road. The proposed recycled and potable water pipelines will run within the Barona Road right of way for approximately 0.35 miles before shifting eastward and moving off the road outside of the County right-of-way and onto Reservation land. The pipes continue to share an alignment until the recycled water line connects to the existing Golf Course Line approximately 1200 feet southeast of the Giant San Diego Paintball Park. Initially the pipeline can run parallel to the road, but after approximately 1,000 feet the terrain adjacent to the road becomes very steep. The road is very narrow in this area and cut into the hillside. It would be very difficult to construct the pipeline without shutting down the road. Since this is the only road accessing the Reservation from the north side, this would be a major disruption to traffic on the Reservation. This would also put the pipeline back in the County easement and would cumulatively be over one mile, which would trigger a CEQA Initial Study which is contained in this document.

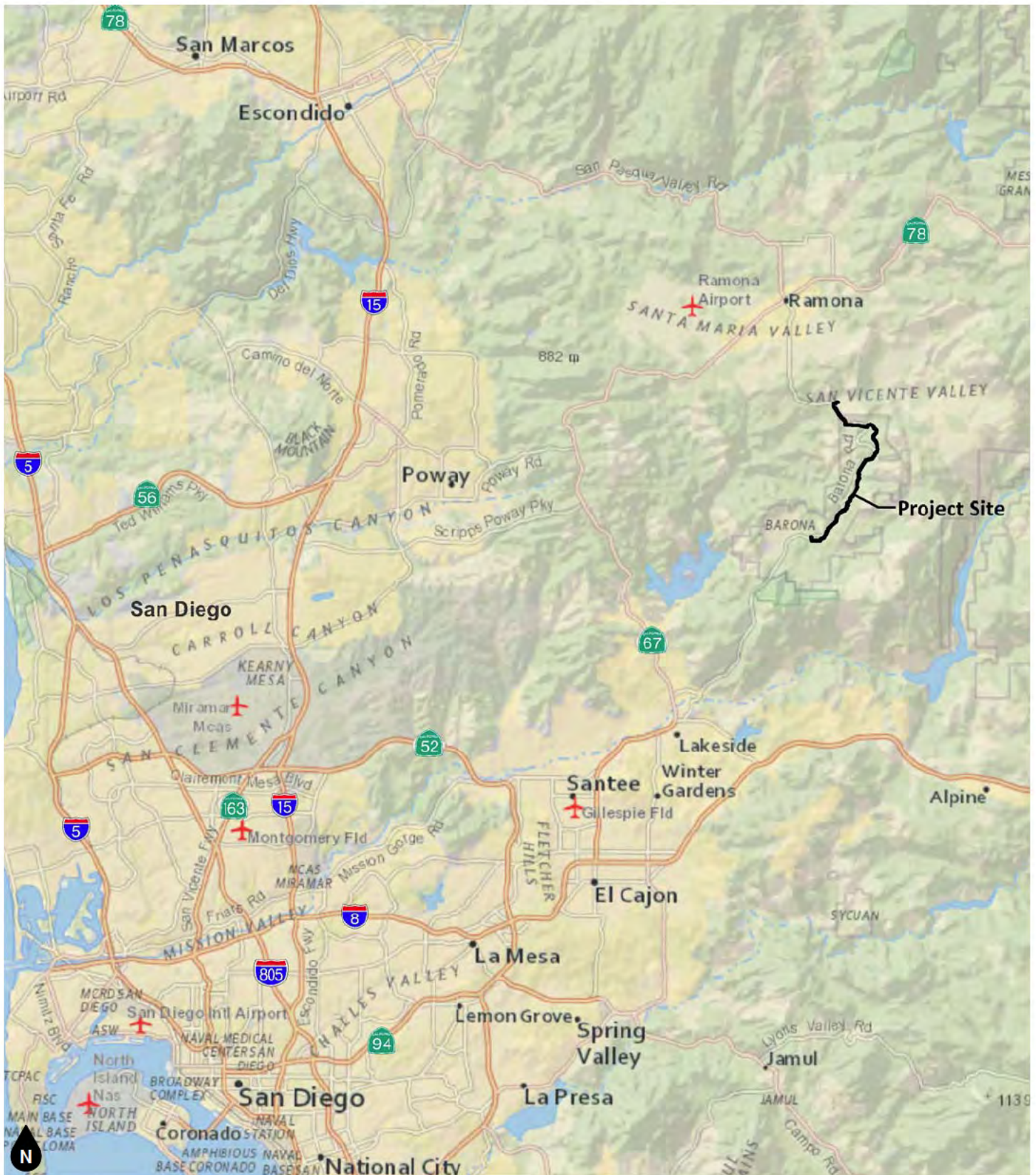


Figure 1
Project Location Map

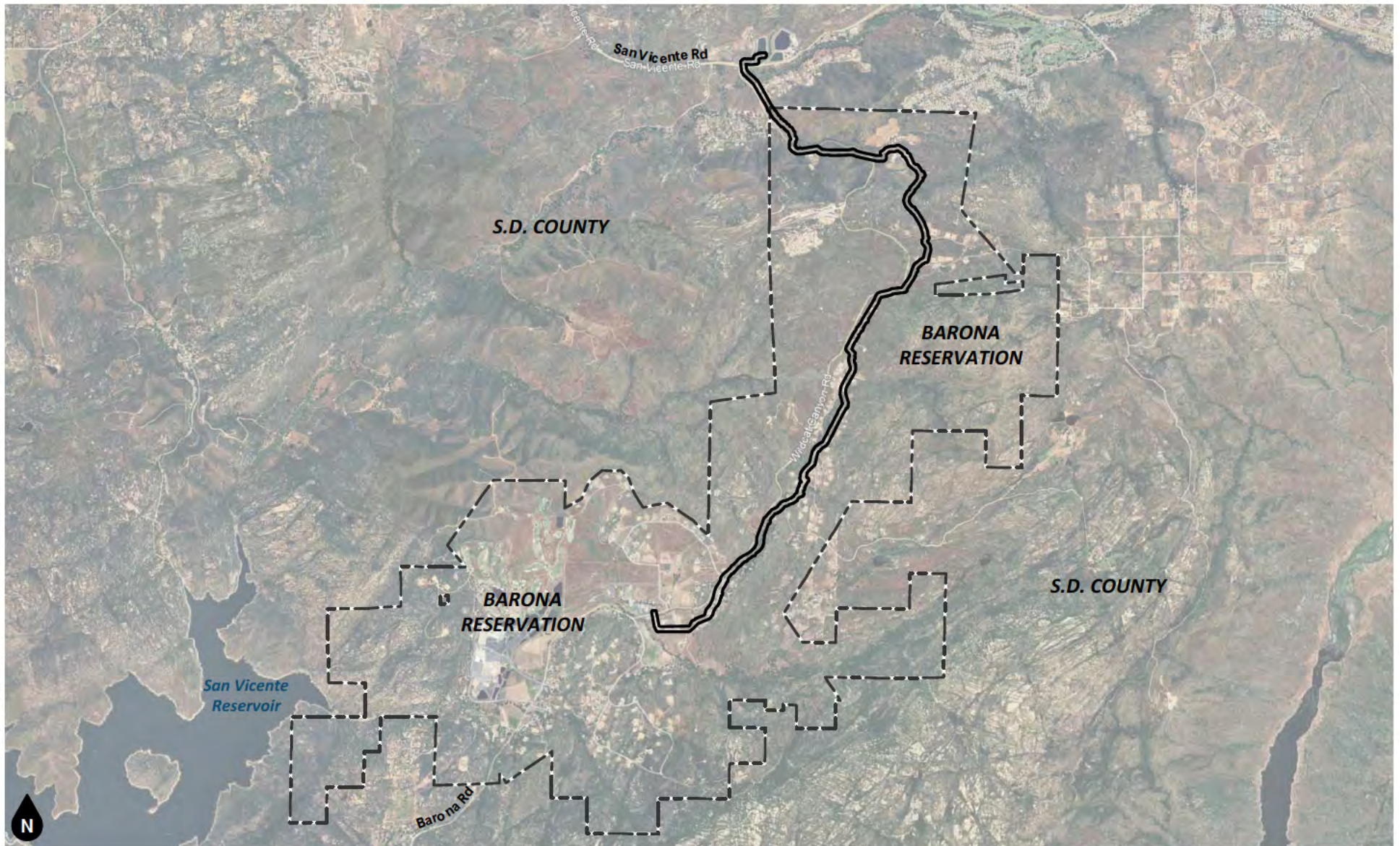


Figure 2
Site Plan

2. NOISE AND VIBRATION FUNDAMENTALS

This section provides an overview of key noise and vibration concepts.

NOISE FUNDAMENTALS

Sound is a pressure wave created by a moving or vibrating source that travels through an elastic medium such as air. Noise is defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in extreme circumstances, hearing impairment.

Commonly used noise terms are presented in Appendix B. The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the “A-weighted” noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A-weighted measurements are written dB(A) or dBA.

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiates uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Decibels are measured on a logarithmic scale, which quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease. Figure 3 shows the relationship of various noise levels to commonly experienced noise events.

Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq} , or the equivalent noise level for that period of time. For example, $L_{eq(3\text{-hour})}$ would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

L_n represents the sound level exceeded for a given percentage of a specified period. For example, L_{25} is the sound level exceeded 25 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time.

Noise standards for land use compatibility are stated in terms of the Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (DNL). CNEL is a 24-hour weighted average measure of community noise. CNEL is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours. DNL is a very similar 24-hour average measure that weights only the nighttime hours.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by the California Department of Transportation’s Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013).

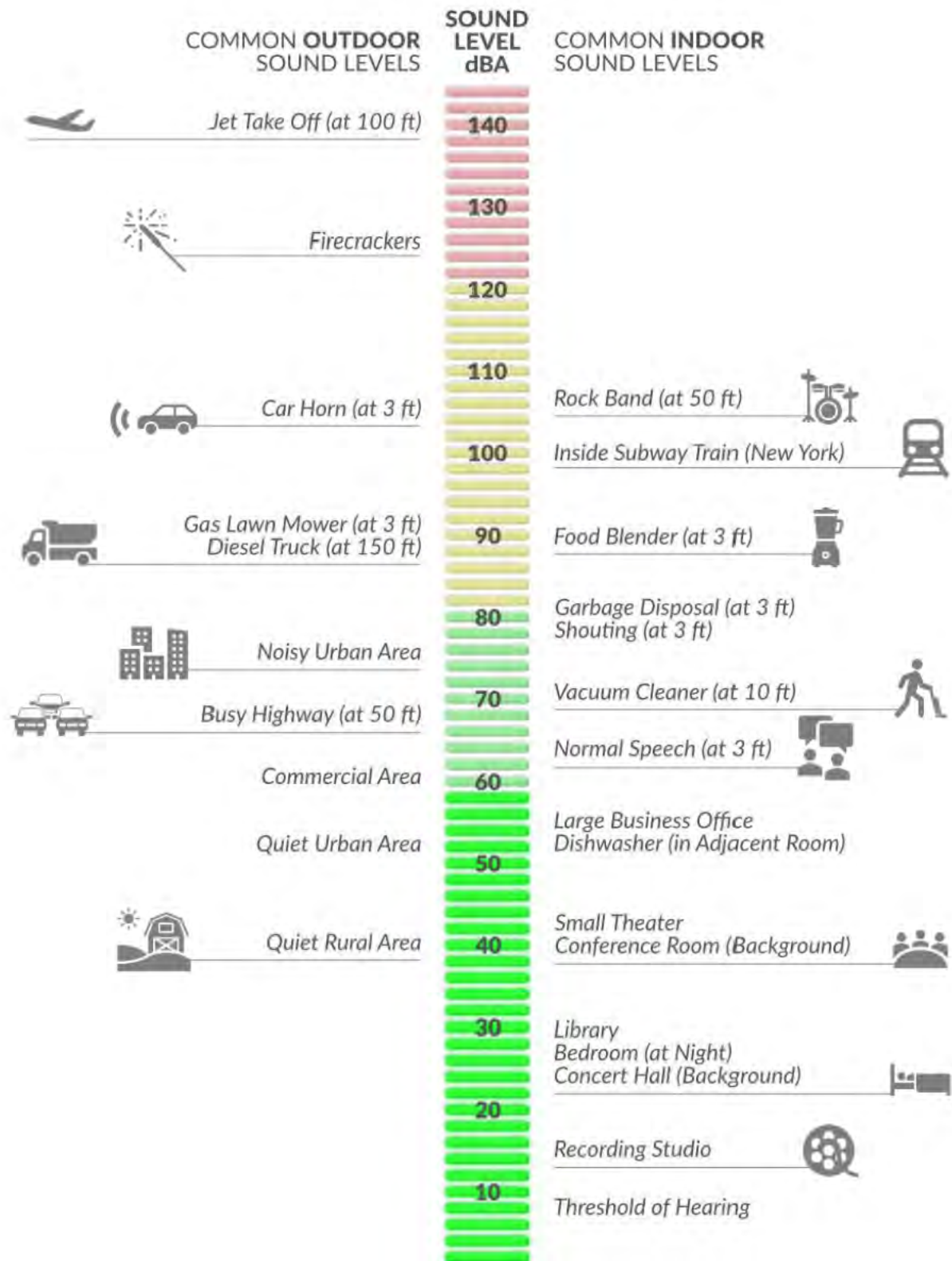
VIBRATION FUNDAMENTALS

The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation".

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second. The RMS of a signal is the average of the squared amplitude of the signal in vibration decibels (VdB), ref one micro-inch per second. The Federal Railroad Administration uses the abbreviation "VdB" for vibration decibels to reduce the potential for confusion with sound decibel.

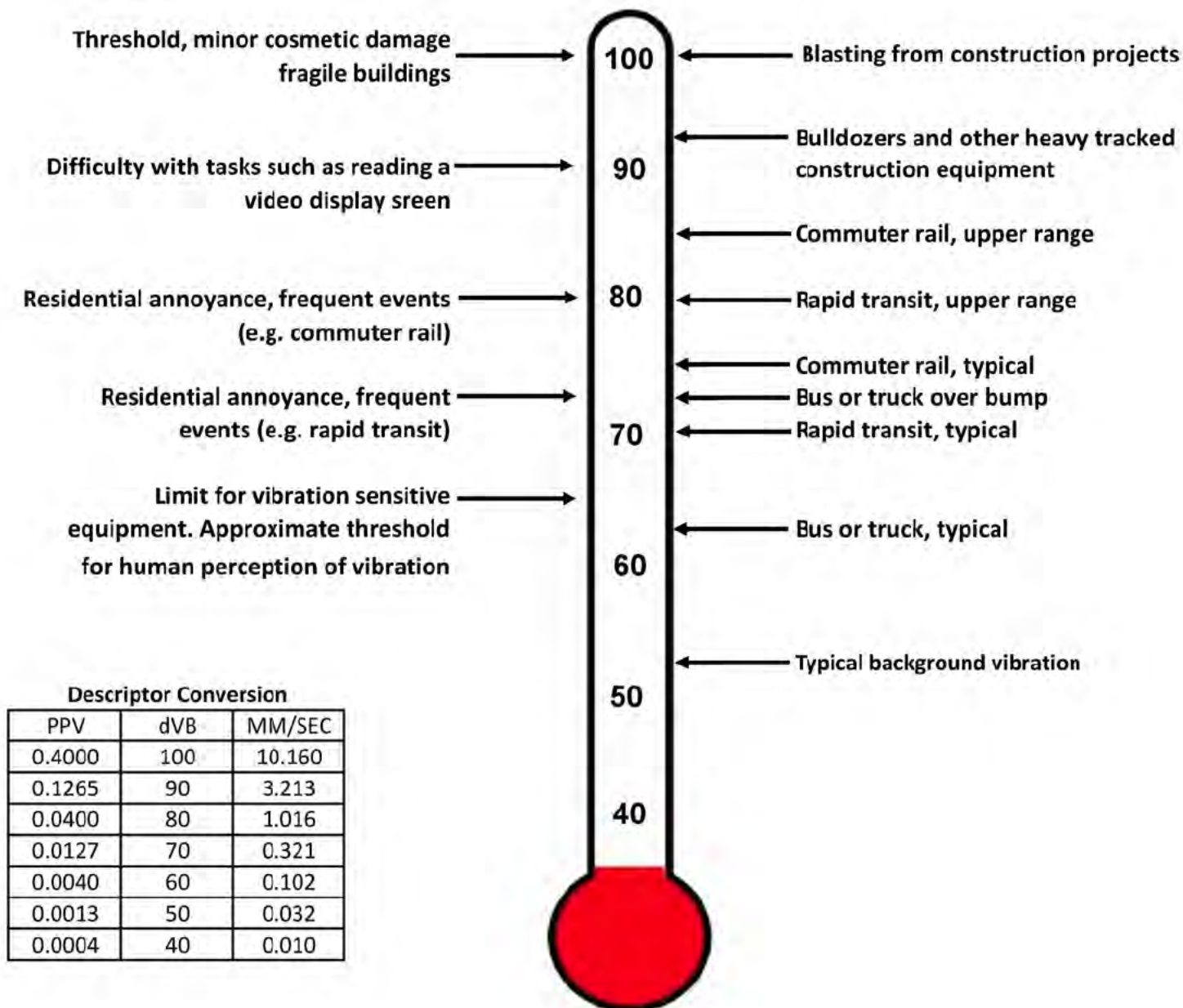
PPV is appropriate for evaluating the potential of building damage and VdB is commonly used to evaluate human response. Decibel notation acts to compress the range of numbers required in measuring vibration. Similar to the noise descriptors, L_{eq} and L_{max} can be used to describe the average vibration and the maximum vibration level observed during a single vibration measurement interval. Figure 4 illustrates common vibration sources and the human and structural responses to ground-borne vibration. As shown in Figure 4, the threshold of perception for human response is approximately 65 VdB; however, human response to vibration is not usually substantial unless the vibration exceeds 70 VdB. Vibration tolerance limits for sensitive instruments such as magnetic resonance imaging (MRI) or electron microscopes could be much lower than the human vibration perception threshold.



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Based on Policy & Guidance from Federal Aviation Administration



Figure 3
A-Weighted Comparative Sound Levels



Source: FRA, 2012. Federal Railroad Administration High-Speed Ground Transportation Noise and Vibration Impact Assessment. Office of Railroad Policy Development, Washington, D.C. DOT/FRA/ORD-12/15. September.

Figure 4
Typical Levels of Groundborne Vibration

3. EXISTING NOISE ENVIRONMENT

This section describes the existing noise setting in the project vicinity.

EXISTING LAND USES AND SENSITIVE RECEPTORS/AFFECTED ENVIRONMENT

Sensitive Receptors

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas.

Sensitive land uses that may be affected by project noise include existing single-family residential properties, a cultural center, a charter school and potentially, the least Bell's vireo, a protected bird species.

Sensitive Species – Least Bell's Vireo

Based on a study conducted by the San Diego Association of Governments (SANDAG) in 1991, it was theoretically estimated that noise levels in excess of 60 dBA L_{eq} in vireo habitat would mask the bird's song, subsequently reducing the reproductive success of this species during their breeding season which occurs between mid-March and mid-September, and its ability to defend its territory.

AMBIENT NOISE MEASUREMENTS

Ambient noise measurements were taken consistent with Section 36.403 of County Code. Specifically, an American National Standards Institute (ANSI Section SI.4 2014, Class 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, eight (8) 15-minute daytime noise measurements were taken between 1:38 PM and 7:02 PM on May 24, 2024. Figure 5 shows the noise measurement location map.

Table 1 provides a summary of the short-term ambient noise data. Field worksheets and noise measurement worksheets are provided in Appendix C.

Measured noise levels in the project vicinity ranged between 48.1 and 72.9 dBA L_{eq} . Vehicles traveling on area roadways were the primary noise source. Other noise sources included a one-time flyover of an F18 aircraft, bird song, occasional distant aircraft. As shown on Figure 5, existing ambient noise measurements were taken at the following locations:

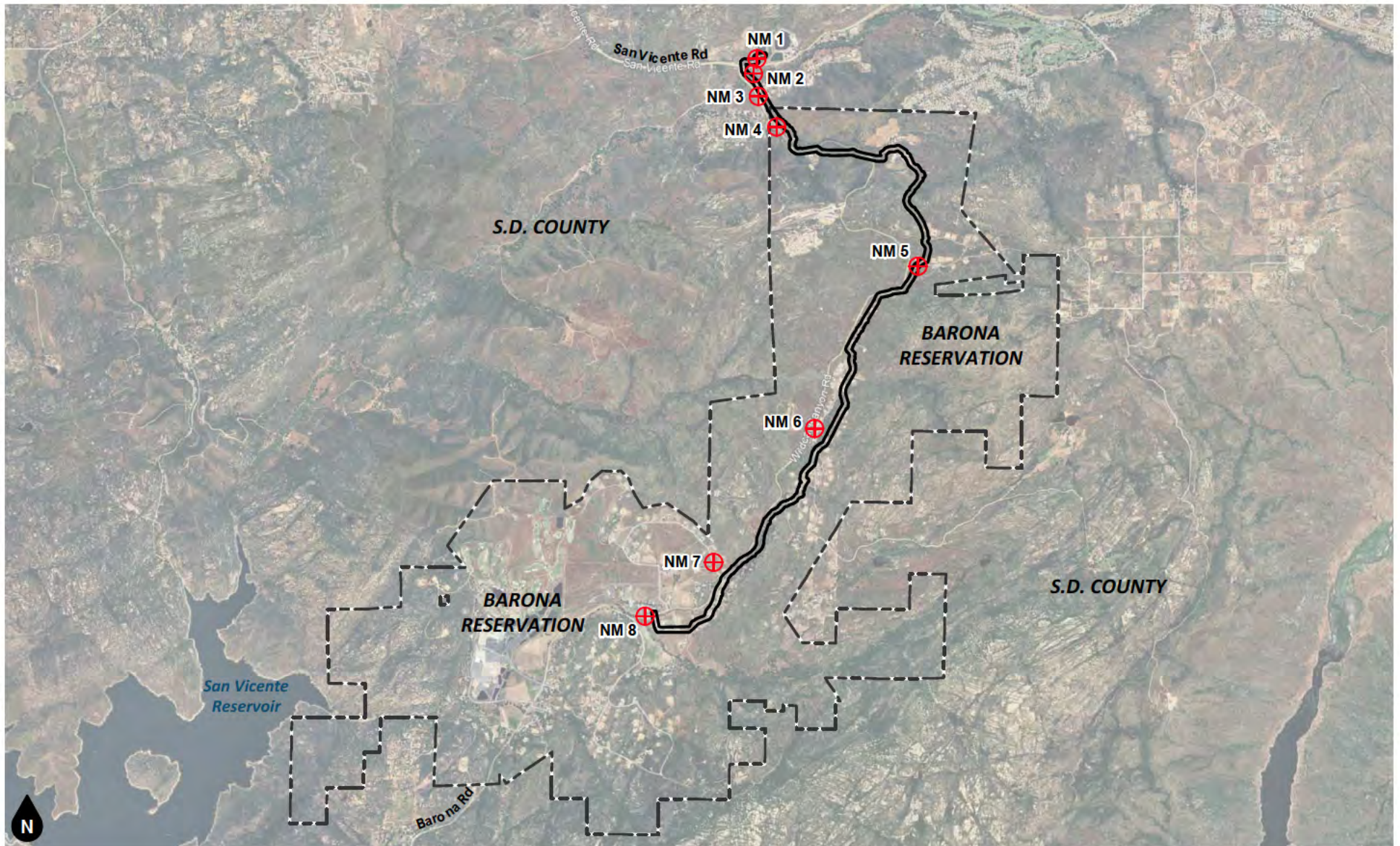
- NM1: represents the existing noise environment within the Riparian Woodland area located near the north end of the proposed pipeline.
- NM2: represents the existing noise environment in the Riparian Woodland area located south of the San Vicente Road and east of Wildcat Canyon Road.
- NM3: represents the existing noise environment at the residential land uses located east of the project site at Tombill Road.
- NM4: represents the existing noise environment of the residential uses located approximately one-half mile south of San Vicente Road on the west side of Barona Road.
- NM5: represents the existing noise environment of the residential land uses east of Wildcat Canyon Road at Capitan Grande Road.
- NM6: represents the existing noise environment of the residential land uses east of Wildcat Canyon Road in the vicinity of Ketuull Uunyaa Way.
- NM7: represents the existing noise environment of the residential land uses west of Wildcat Canyon Road in the vicinity of Akuunyaa Way.
- NM8: represents the existing noise environment of the commercial, school and public land uses in the vicinity of Barona Road between Akuunyaa Way and Dump Road.

Table 1
Noise Measurement Summary

Site Location ¹	Time Started ²	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
NM1	1:38 PM	51.2	61.0	42.7	57.4	54.7	52.0	49.7
NM2	2:14 PM	49.0	59.1	39.7	55.5	52.4	49.7	47.2
NM3	3:03 PM	70.0	86.9	41.4	79.8	73.6	69.4	58.4
NM4	3:55 PM	72.9	86.8	37.8	80.5	78.1	74.7	64.9
NM5	4:47 PM	48.7	57.3	35.6	54.1	52.7	50.0	47.3
NM6	5:24 PM	57.7	68.0	36.2	64.3	62.4	59.2	54.5
NM7	6:10 PM	48.1	61.6	35.1	54.4	52.2	48.7	45.4
NM8	6:47 PM	67.9	79.5	38.9	75.4	73.4	69.6	60.2

Notes:

- (1) See Figure 5 for noise measurement locations. Each noise measurement was performed over a 15-minute duration.
(2) Noise measurements performed on May 24, 2024.



Legend

⊕ Noise Measurement Location
NM 1

Figure 5
Noise Measurement Location Map

4. REGULATORY SETTING

FEDERAL REGULATION

National Environmental Policy Act

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970 and requires federal agencies to assess the environmental effects of their proposed federal actions (projects, permits, authorizations, etc.). NEPA incorporates a systematic interdisciplinary approach to identify potential environmental effects of a federal action. This results in a detailed report which may be an Environmental Impact Statement (EIS) or an Environmental Assessment (EA). The level of analysis and type of report to be prepared is determined by the federal lead responsible agency.

Federal Noise Control Act of 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In response, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Levels of Environmental Noise). The Levels of Environmental Noise recommended that the Ldn should not exceed 55 dBA outdoors or 45 dBA indoors to prevent significant activity interference and annoyance in noise-sensitive areas.

In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, State, and local government agencies.

UNITED STATES DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

Noise Abatement and Control - Introduction "HUD's noise standards may be found in CFR Part 51, Subpart B. For proposed new construction in high noise areas, the project must incorporate noise mitigation features. Consideration of noise applies to the acquisition of undeveloped land and existing development as well. Noise standards set by HUD are intended to protect residential land uses from excessive environmental noise. HUD has not established specific standards for construction related noise. Construction noise thresholds established by San Diego County are used to assess construction noise impacts to potentially affected receptors.

STATE REGULATIONS

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires lead agencies to consider noise impacts. Under CEQA, lead agencies are directed to assess conformance to locally established noise standards or other agencies' noise standards; measure and identify the potentially significant exposure of people to or generation of excessive ground borne vibration or noise levels; measure and identify potentially significant permanent or temporary increases in ambient noise levels; and measure and identify potentially significant impacts associated with air traffic.

California Noise Control Act

This section of the California Health and Safety Code finds that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare. Though not adopted by law, the State of California General Plan Guidelines 2017, published by the California Governor's Office of Planning and Research (OPR) (OPR Guidelines), provides guidance for the compatibility of projects within areas of specific noise exposure. The OPR Guidelines identify the suitability of various types of construction relative to a range of outdoor noise levels and provide each local community some flexibility in setting local noise standards that allow for the variability in community preferences. Findings presented in the Levels of Environmental Noise Document (EPA 1974) influenced the recommendations of the OPR Guidelines, most importantly in the choice of noise exposure metrics (i.e., Ldn or CNEL) and in the upper limits for the normally acceptable outdoor exposure of noise-sensitive uses.

LOCAL REGULATIONS

San Diego County General Plan Noise Element

The County General Plan Noise Element includes land use planning tools to reduce future noise related land use incompatibilities. These include criteria that specify acceptable limits of noise for various land uses throughout the County. These criteria are designed to integrate noise considerations into land use planning to prevent noise/land use conflicts. The County has adopted their own version of the State Land Use Compatibility Guidelines.

The County of San Diego General Plan includes goals regarding noise within the community. Goals applicable to the proposed project are listed below.

- Goal N-1 Land Use Compatibility.** A noise environment throughout the unincorporated County that is compatible with the land uses.
- Goal N-2 Protection of Noise Sensitive Uses.** A noise environment that minimizes exposure of noise sensitive land uses to excessive, unsafe, or otherwise disruptive noise levels.
- Goal N-3 Groundborne Vibration.** An environment that minimizes exposure of sensitive land uses to the harmful effects of excessive groundborne vibration.
- Goal N-5 Non-transportation-Related Noise Sources.** A noise environment that provides minimal noise spillovers from industrial, commercial, agricultural, extractive, and similar facilities to adjacent residential neighborhoods.
- Goal N-6 Temporary and/or Nuisance Noise.** Minimal effects of intermittent, short-term, or other nuisance noise sources to noise sensitive land uses.

San Diego County Code of Ordinances

Section 36.408 Hours of Operation of Construction Equipment

Except for emergency work, it shall be unlawful for any person to operate or cause to be operated, construction equipment"

- *Between 7:00 PM and 7:00 AM*
- *On a Sunday or a holiday. For purposes of this section, a holiday means January 1st, the last Monday in May, July 4th, the first Monday in September, the fourth Thursday in November and December 25th. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10:00 AM and 5:00 PM at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in sections 36.409 and 36.410.*

Section 36.409 Sound Level Limitations on Construction Equipment

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7:00 AM and 7:00 PM, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Section 36.410 Sound Level Limitations on Impulsive Noise

In addition to the general limitations on sound levels in section 36.404 and the limitations on construction equipment in section 36.409, the following additional sound level limitations shall apply"

a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period. The minimum measurement period for any measurement conducted shall be one hour with one-minute intervals at a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute. The maximum sound level depends on the use being made of the occupied property. The uses in Table 2 are as described in the County Zoning Ordinance.

Handling and Transport of Construction Material

Handling, and/or transport of any container or any construction material in a public place, such a way as to create a disturbing, excessive, or offensive noise that either endangers the health or safety of any person and/or causes discomfort or annoyance to a person of normal sensitivity is prohibited in Section 36.411 of County Code.

Variances

The County allows variances to the above discussed code and noise criteria under certain circumstances (County Code Section 36.423). Specifically, a person who proposes to perform non-emergency work on a public right-of-way, public utility facility, public transportation facility or some other project for the benefit of the general public, who is unable to conform to the requirements of this chapter may apply to the County for a variance authorizing the person to temporarily deviate from the requirements of this chapter. The noise control officer shall only grant a variance if the officer makes findings that the applicant's proposed activity

cannot feasibly be done in a manner that would comply with this chapter and the applicant has no other reasonable alternative available. When evaluating a request for a variance the noise control officer shall determine the impact any noise that does not comply with the limits of this chapter will have on each property likely to be affected by the noise. The evaluation must consider the uses on each property on which the non-complying noise will be received, what activities will be impacted on the property and the duration of each impact. The evaluation shall also include the value to the community of the work being done by the applicant, the cost to the community if the applicant is unable to perform the work, the cost to the applicant for mitigating the non-complying noise and any cost to the occupant of the impacted property during the time the period of the impacted property will be subject to the non-complying noise. If the noise control officer grants a variance under this section the variance may impose time limitations on the non-complying activity and may include mitigation measures that the applicant is required to adopt.

County of San Diego Guidelines for Determining Significance for Noise

The County of San Diego Guidelines for Determining Significance for Noise (2009) refers to the above discussions of the Federal, State and County guidelines, policies and ordinances (as applicable to this project). For impacts related to groundborne vibration, these guidelines refer to FTA methodology and criteria (FTA 2018). Groundborne Vibration Criteria is presented in Table 3.

County of San Diego Guidelines for Determining Significance for Biological Resources

The County has established 60 dBA L_{eq} as the noise impact threshold for potential impacts to the least Bell's vireo during their nesting season (San Diego County 2010).

Table 2
Maximum Sound Level (Impulsive) Measured at Occupied Property

Occupied Property Use	Decibels
Residential, village zoning, or civic use	82
Agricultural, commercial or industrial use	85

Table 3
Construction Vibration Damage Criteria

Building/Structural Category	PPV, in/sec	Approximate L_v ⁽¹⁾
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.1	90

Source: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual (September 2018).

(1) RMS velocity in decibels, VdB re 1 micro-in/sec.

5. ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

This section discusses the analysis methodologies used to assess noise impacts.

CONSTRUCTION NOISE MODELING

On-Site Construction Noise

Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work.

Construction noise associated with the proposed project was calculated at the sensitive receptor locations utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters, including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site.

The equipment used to calculate the construction noise levels for each phase were based on the assumptions provided in the Air Quality Study (CalEEMod modeling) conducted for a similar project. Sound emission levels associated with typical construction equipment as well as typical usage factors are provided in Table 4. Noise contours for each applicable standard, (75 dBA L_{eq} [8-hour], 82 dBA L_{25} , 85 dBA L_{25} and 60 dBA L_{eq}) representative of each construction phase, were calculated for the entire pipeline route. Construction noise worksheets are provided in Appendix D.

GROUNDBORNE VIBRATION MODELING

Groundborne vibration modeling was performed using vibration propagation equations and construction equipment source levels obtained from the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018). Table 5 shows typical vibration levels associated with commonly used construction equipment based on data from the FTA.

There are several types of construction equipment that can cause vibration levels high enough to annoy persons in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. For example, as shown in Table 5, a vibratory roller could generate up to 0.21 in/sec PPV at and operation of a large bulldozer could generate up to 0.089 PPV at a distance of 25 feet (two of the most vibratory pieces of construction equipment). Groundborne vibration at sensitive receptors associated with this equipment would drop off as the equipment moves away. For example, as the vibratory roller moves further than 100 feet from the sensitive receptors, the vibration associated with it would drop below 0.0026 in/sec PPV. It should be noted that these vibration levels are reference levels and may vary slightly depending upon soil type and specific usage of each piece of equipment.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{\text{equipment}} = PPV_{\text{ref}} (25/D_{\text{rec}})^n$$

Where: PPV_{ref} = reference PPV at 25ft.

D_{rec} = distance from equipment to receiver in ft.

n = 1.5 (the value related to the attenuation rate through ground)

Table 4
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	-N/A-	0
Backhoe	No	40	80	78	372
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-N/A-	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Forklift ^{2,3}	No	50	n/a	61	n/a
Front End Loader	No	40	80	79	96
Grader	No	40	85	-N/A-	0
Jackhammer	Yes	20	85	89	133
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	50	85	77	9
Paving Equipment	No	50	85	77	9
Pneumatic Tools	No	50	85	85	90
Roller	No	20	85	80	16
Scraper	No	40	85	84	12
Tractor	No	40	84	-N/A-	0
Vibratory Concrete Mixer	No	20	80	80	1
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Notes:

(1) Source: FHWA Roadway Construction Noise Model User's Guide January 2006.

(2) Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4, 2014
<http://www.noisetesting.info/blog/carl-strautins/page-3/>

(3) Data provided Leq as measured at the operator. Sound Level at 50 feet is calculated using Inverse Square Law.

Table 5
Construction Equipment Vibration Source Levels

Equipment		PPV at 25 ft, in/sec	Approximate Lv* at 25 ft
Pile Driver (impact)	upper range	1.518	112
	typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	typical	0.170	93
clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment Manual, 2018.

*RMS velocity in decibels, VdB re 1 micro-in/sec

6. NOISE AND VIBRATION IMPACTS/ENVIRONMENTAL CONSEQUENCES

This section analyzes the significance of project-related noise and groundborne vibration impacts relative to standards established by the County of San Diego and other applicable agencies in the context of CEQA Appendix G of the California Environmental Quality Act Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations) includes an environmental checklist that identifies issues upon which findings of significance should be made. The CEQA Environmental Checklist Appendix G, XIII. Noise, requires determination if the project would result in:

- a) *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*
- b) *Generation of excessive groundborne vibration or groundborne noise levels?*
- c) *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?*

As discussed above in the Regulatory Setting Section of this report, the EPA determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. Furthermore, the Barona Band of Mission Indians have not published construction noise thresholds, and while HUD is a responsible agency, they defer to local policies and ordinances in regard to construction noise. If the Barona Band of Mission Indians agrees, the following analysis can be applied to both CEQA and NEPA analysis.

Noise Impacts

Would the project result in:

- a) *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Construction noise is regulated by Sections 36.408 and 36.409 and 36.410 of the San Diego County Code as presented in Section 4 of this report. The threshold for determining an indirect impacts to the least Bell's vireo, a protected bird species, is 60 dBA L_{eq} during the nesting season.

Worst case construction noise contours were developed using the FTA methodology. Construction noise modeling worksheets for each phase are provided in Appendix D. Anticipated noise construction noise levels and noise contours are provided in Table 6 and Table 7. Noise contours are also shown on Figures 6-11. The noise contour maps are intended to show the extents of the worst-case hour construction scenario for the 60 dBA one-hour L_{eq} and 75 dBA L_{eq} (8-hour) noise standards and a maximum noise level (L_{25}) scenario for the impulsive noise standards of 82 L_{25} and 85 dBA L_{25} . In practice, construction will likely occur along one segment of the pipeline at a time, so only receptors in the vicinity of that portion of alignment will be affected. Noise levels at any particular receptor will increase and then decrease as construction moves along the pipeline alignment.

Compliance with County Ordinance 36.408 Established Hours for Construction

Project construction is expected to occur during normal daytime hours and is not expected to violate the established hours of construction provided in Section 36.4.08 of the County Code. This impact would not be significant.

Project Compliance with County Ordinance 36.409 Sound Level Limitations on Construction Equipment

As shown on Figures 6-11 and in Table 7, project construction has the potential to exceed 75 dBA L_{eq} (eight-hour) noise standard at existing occupied properties, including residential, commercial and civic land uses. Although the nature of the linear construction means that the construction equipment will be moving from one segment to another, and when averaged over an 8-hour day, this verified. Impacts would be less than significant with implementation of Mitigation Measures 1-9, below.

Compliance with County Ordinance 36.410 Sound Level Limitations on Impulsive Noise - 82 dBA L_{25} Noise Standard

Due to the terrain, there may be a need to utilize construction equipment that emits impulsive noise, i.e. blasting, rock excavation, and hoe ram. As shown in Figures 6-11 and Table 6 and Table 7, project construction has the potential to exceed the 82 dBA L_{25} standard at existing residential, village and civic land at an agricultural, commercial or industrial land use. This impact would be significant without mitigation. Implementation of Mitigation Measures 2, 5, 9 and 10 will reduce potential impacts to less than significant

Compliance with County Ordinance 36.410 Sound Level Limitations on Impulsive Noise - 85 dBA L_{25} Noise Standard

Due to the terrain, there may be a need to utilize construction equipment that emits impulsive noise i.e. blasting, rock excavation, and hoe ram. As shown in Figures 6-11 and Table 6 and Table 7, project construction activities have the potential to exceed the 85 dBA L_{25} standard at an agricultural, commercial or industrial land use. This impact would be significant without mitigation. Implementation of Mitigation Measures 2, 5, 9 and 10 will reduce potential impacts to less than significant.

Mitigation Measure 1

All equipment, whether fixed or mobile, will be equipped with properly operating and maintained mufflers, consistent with manufacturer standards.

Mitigation Measure 2

As applicable, all equipment shall be shut off and not left to idle when not in use.

Mitigation Measure 3

To the degree possible, equipment staging will be located in areas that create the greatest distance between construction-related noise and vibration sources and existing sensitive receptors.

Mitigation Measure 4

Jackhammers, pneumatic equipment, and all other loud portable stationary noise sources will be directed away and shielded from existing residences in the vicinity of the project site. Either one-inch plywood or sound blankets can be utilized for this purpose. They should reach up from the ground and block the line of sight between equipment and existing residences. The shielding should be without holes and cracks.

Mitigation Measure 5

No amplified music and/or voice will be allowed on the project site.

Mitigation Measure 7

Haul truck deliveries will not occur between the hours of 7:00 PM and 7:00 AM.

Mitigation Measure 8

Delivery trucks shall not arrive in the vicinity before 7:00 AM and idle near sensitive receptors.

Mitigation Measure 9

Compliance with County Ordinance 36.409 - Sound Level Limitations on Construction Equipment

Noise monitoring shall be conducted by a qualified noise consultant at the property line of representative occupied land uses that are within the 75 dB L_{eq} noise contour as shown in Figures 6-11, during typical construction activities. Measurements shall be conducted over an 8-hour period in order to determine if the 75 dBA L_{eq} (8-hour) standard is violated. If after several noise measurements (3) have been conducted, and it is apparent that the mix of equipment and timing of usage will not exceed the County's 75 dBA L_{eq} (8-hour) noise standard, the noise consultant shall provide a letter report documenting the noise measurements and findings and recommendations as to whether or not continued noise monitoring is necessary.

If noise monitoring does show that construction noise levels exceed the 8-hour L_{eq} standard at occupied properties located within the 75 dBA noise contour, the contractor will implement measures to reduce construction noise levels to below 75 dBA L_{eq} (8-hour) between 7:00 AM and 7:00 PM, on any occupied property located within the 75 dBA noise contour (as measured at the property line

- If needed, temporary noise barriers will be installed to block the line of sight between the noise source(s) and the occupied property. These barriers shall be of sufficient height to block the line of sight between the source(s) and receptor(s) based on recommendations of a competent noise professional.
- If needed, temporary barriers will be solid, with no holes or gaps, from the ground to the height determined by the on-site noise professional.
- For stationary equipment, temporary barriers will also be solid with no holes or gaps, except for openings that are necessary to access the equipment.

Mitigation Measure 10

Compliance with County Ordinance 36.410 - Sound Level Limitations on Impulsive Noise

Noise monitoring shall be conducted by a qualified noise consultant at the property line of representative occupied residential land uses that are within the 82 dB L_{25} noise contour as shown in Figures 6-11, during typical construction activities. Measurements shall be conducted over a 1-hour period in order to determine if the 82 dBA L_{25} standard is violated at occupied residential, village, or civic land uses. If after several noise measurements (3) have been conducted, and it is apparent that the mix of equipment and timing of usage will not exceed this standard, the noise consultant shall provide a letter report documenting the noise measurements and findings and recommendations as to whether or not continued noise monitoring is necessary.

If noise monitoring does show that construction noise levels exceed 82 dBA L_{25} standard at occupied residential, village, or civic land uses, the contractor will implement the following measures:

- If needed, temporary noise barriers will be installed to block the line of sight between the noise source(s) and the occupied property. These barriers shall be of sufficient height to block the line of sight between the source(s) and receptor(s) based on recommendations of a competent noise professional.
- If needed, temporary barriers will be solid, with no holes or gaps, from the ground to the height determined by the on-site noise professional.
- For stationary equipment, temporary barriers will also be solid with no holes or gaps, except for openings that are necessary to access the equipment.

Noise monitoring shall be conducted by a qualified noise consultant at the property line of representative occupied residential land uses that are within the 85 dB L₂₅ noise contour as shown in Figures 6-11, during typical construction activities. Measurements shall be conducted over a 1-hour period in order to determine if the 85 dBA L₂₅ standard is violated at occupied agricultural, commercial or industrial land uses. If after several noise measurements (3) have been conducted, and it is apparent that the mix of equipment and timing of usage will not exceed this standard, the noise consultant shall provide a letter report documenting the noise measurements and findings and recommendations as to whether or not continued noise monitoring is necessary.

If noise monitoring does show that construction noise levels exceed 85 dBA L₂₅ standard at occupied residential, village, or civic land uses, the contractor will implement the following measures:

- If needed, temporary noise barriers will be installed to block the line of sight between the noise source(s) and the occupied property. These barriers shall be of sufficient height to block the line of sight between the source(s) and receptor(s) based on recommendations of a competent noise professional.
- If needed, temporary barriers will be solid, with no holes or gaps, from the ground to the height determined by the on-site noise professional.
- For stationary equipment, temporary barriers will also be solid with no holes or gaps, except for openings that are necessary to access the equipment.

For impulsive noise, the measurement period shall be one-hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

Impacts to Sensitive Species

As shown on Figure 11, construction equipment noise levels will exceed 60 dBA L_{eq} in least Bell's vireo habitat as mapped in the Biological Resource Study prepared for the proposed project (Alden Environmental, Inc.). This is considered to be a temporary "indirect impact" If least Bell's vireo are present and mitigation will be required.

Depending on the location and duration of construction activities and related noise levels, if unmitigated, construction noise could result in nest abandonment or avoidance of habitat. Any potential indirect noise impacts to sensitive bird species, breeding habitat and adjacent foraging habitat would be considered a significant impact requiring mitigation. If the least Bell's vireo is present within or in proximity to the project area, then the following conditions must be met in order to reduce impacts to less than significant.

Mitigation Measure 11

Avoid construction activities within the mapped 60 dBA L_{eq} construction noise contour (Figure 11) during the least Bell's vireo breeding season; OR

Mitigation Measure 12

If least Bell's vireo are not detected during the protocol survey, a qualified biologist shall submit substantial evidence to the City and applicable resource agencies which demonstrates whether or not mitigation measures such as noise walls are necessary as follows: 1) If this evidence indicates the potential is high for least Bell's vireo or southwestern willow flycatcher to be present based site conditions, then condition Mitigation 13 shall be implemented as specified below. 2) If this evidence concludes that no impacts to this species are anticipated, no mitigation measures will be necessary.

Mitigation Measure 13

If least Bell's vireo is detected during required pre-construction surveys, a qualified acoustical professional shall design mitigation to reduce construction noise levels to 60 dBA L_{eq} or to ambient noise levels (whichever is louder) at the edge of mapped least Bell's vireo nesting sites. Mitigation may include but is not limited to strategic placement of temporary noise barriers, berms, walls, sound blankets, or strategic placement of large trucks.

Noise monitoring shall be conducted concurrently with implementation of any necessary noise attenuation measures and throughout construction activities within the vicinity of mapped least Bell's vireo nesting sites, to ensure that noise levels from construction activities do not exceed 60 dBA hourly average or the dBA of ambient noise level should they be greater than 60 dBA hourly average (i.e., whichever is greater). If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved until the end of the breeding season or until the fledgling birds have left the nest, whichever occurs first.

Mitigation Measure 14

Where the placement of stationary equipment is necessary to perform construction activities and the equipment would result in noise levels exceeding ambient levels or 60 dBA L_{eq} , whichever is higher, in the vicinity of nest sites, noise shrouds, sound blankets or screening walls will be used to reduce sounds levels from the equipment to ambient conditions or 60 dBA, whichever is higher. A qualified noise consultant will be consulted in order to verify the effectiveness of said mitigation.

Groundborne Vibration Impacts

Would the project result in:

b) Generation of excessive groundborne vibration or groundborne noise levels?

In relation to the Environmental Checklist noise issue "b", the County of San Diego has not established thresholds of significance concerning groundborne vibration. In the absence of County-established thresholds, groundborne vibration impacts are based on guidance from the *Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual* (FTA, September 2018) (see Regulatory Setting section). Accordingly, the project would result in a significant impact if:

The most vibratory piece of equipment expected to be utilized on the project site is a large bulldozer. A large bulldozer can generate a groundborne vibration level of 0.210 at a distance of 25 feet. Potential damage caused by groundborne vibration is dependent upon the distance from the source and the affected structure. There are no existing buildings extremely susceptible to vibration damage near the proposed alignment. The

next most sensitive structure would be non-engineered timber and masonry buildings. The damage impact threshold for these structures is 0.2 PPV. If a large bulldozer is utilized within 25 feet of a such a structure, there is potential for structural damage. There are several pieces of construction equipment including a vibratory roller, and a large bulldozer that may be utilized to construct the project that could result in damage due to groundborne vibration if they are used too close to an existing structure (see Table 5). As shown in Table 3, potential damage caused by groundborne vibration is dependent upon the distance from the source and the affected structure. There are no existing buildings extremely susceptible to vibration damage near the proposed alignment. The next most sensitive structure would be non-engineered timber and masonry buildings. Implementation of Mitigation Measure 15 will reduce this impact to less than significant.

Mitigation Measure 15

The use of large bulldozers shall be avoided within 14 feet of existing structures and the use of vibratory rollers shall be avoided within 25 feet of existing structures. A small bulldozer is an acceptable alternative.

Air Traffic Impacts

Would the project result in:

- c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?*

Finding: No Impact

The closest airport to the project site is the Ramona Airport. It is located approximately 4.5 miles northwest of the project site. Therefore, as the project is not within two miles of a public airport or in the vicinity of a private airstrip, the project would not expose people residing or working in the project area to excessive noise levels associated with airports.

Table 6
Construction Noise Levels

Phase	Noise Level (dBA Leq)		
	50 feet	100 feet	200 feet
Pipeline Installation			
Demolition	87.6	81.6	75.6
Pipe Installation	87.4	81.4	75.4
Backfill and Resurfacing	86.7	80.7	74.7
Striping/Restriping	85.1	79.1	73.1
Connection/Tie-In			
Site Preparation/Grading	87.4	81.4	75.4
Excavation	87.4	81.4	75.4
Existing Pipeline Cut-In	87.2	81.2	75.2
Backfill and Resurfacing	86.7	80.7	74.7
Striping/Restriping	85.1	79.1	73.1

Notes:

(1) Construction noise worksheets are provided in Appendix D.

Table 7
Construction Noise Contours

Phase	Distance to Noise Contour (dBA Leq) in feet		Distance to Contour (dBA, Lmax) in feet	
	60 dBA	75 dBA	82 dBA	85 dBA
Pipeline Installation				
Demolition	1,200	213	63	45
Pipe Installation	1,170	208	63	45
Backfill and Resurfacing	1,075	192	63	45
Striping/Restriping	899	160	63	45
Connection/Tie-In				
Site Preparation/Grading	1,169	209	63	45
Excavation	1,169	208	63	45
Existing Pipeline Cut-In	1,143	204	63	45
Backfill and Resurfacing	1,075	192	63	45
Striping/Restriping	899	160	63	45

Notes:

(1) Construction noise worksheets are provided in Appendix D.

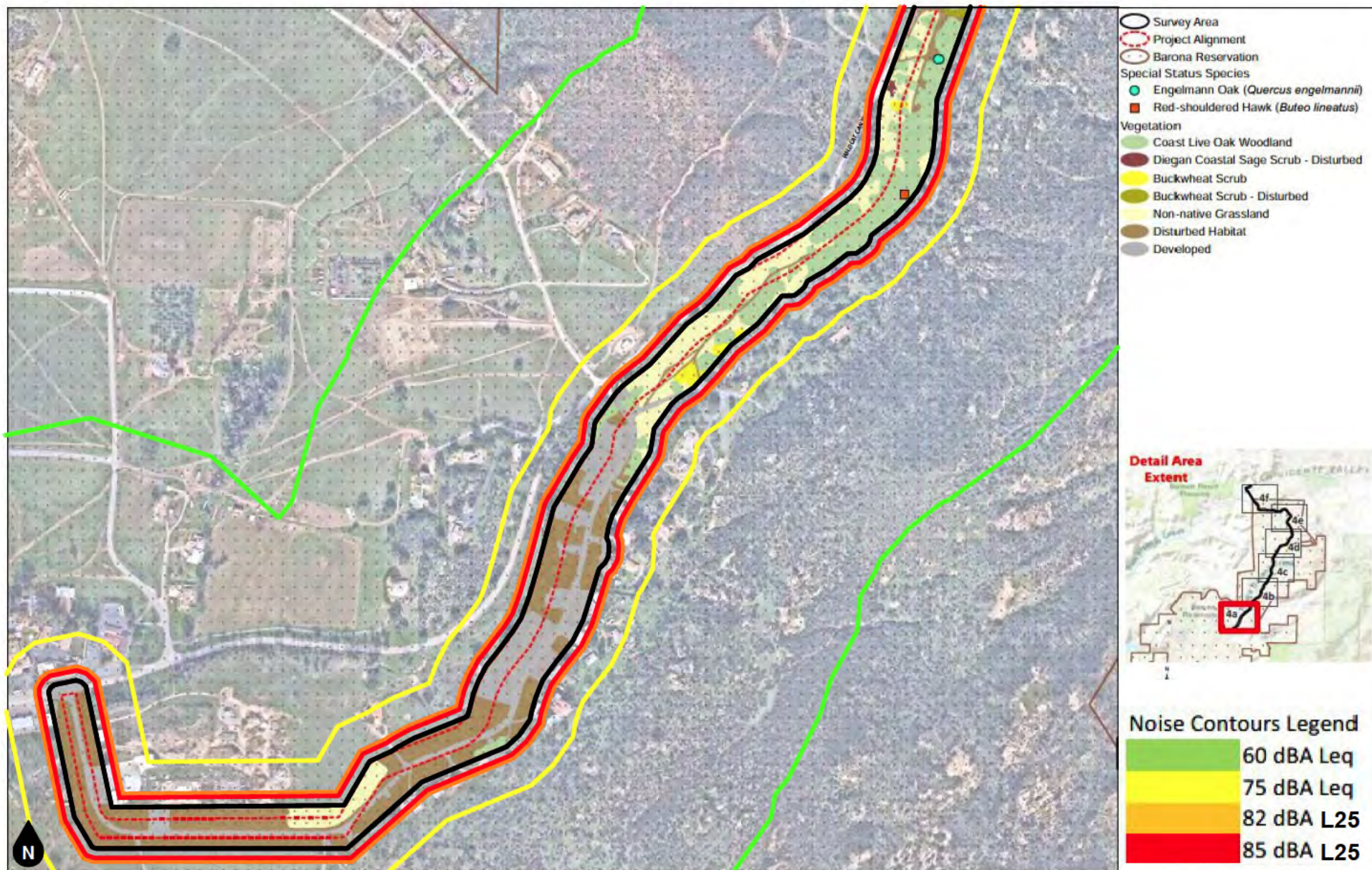


Figure 6
Construction Noise Contours - Bio Figure 4A

Source: Alden Environmental, Inc.

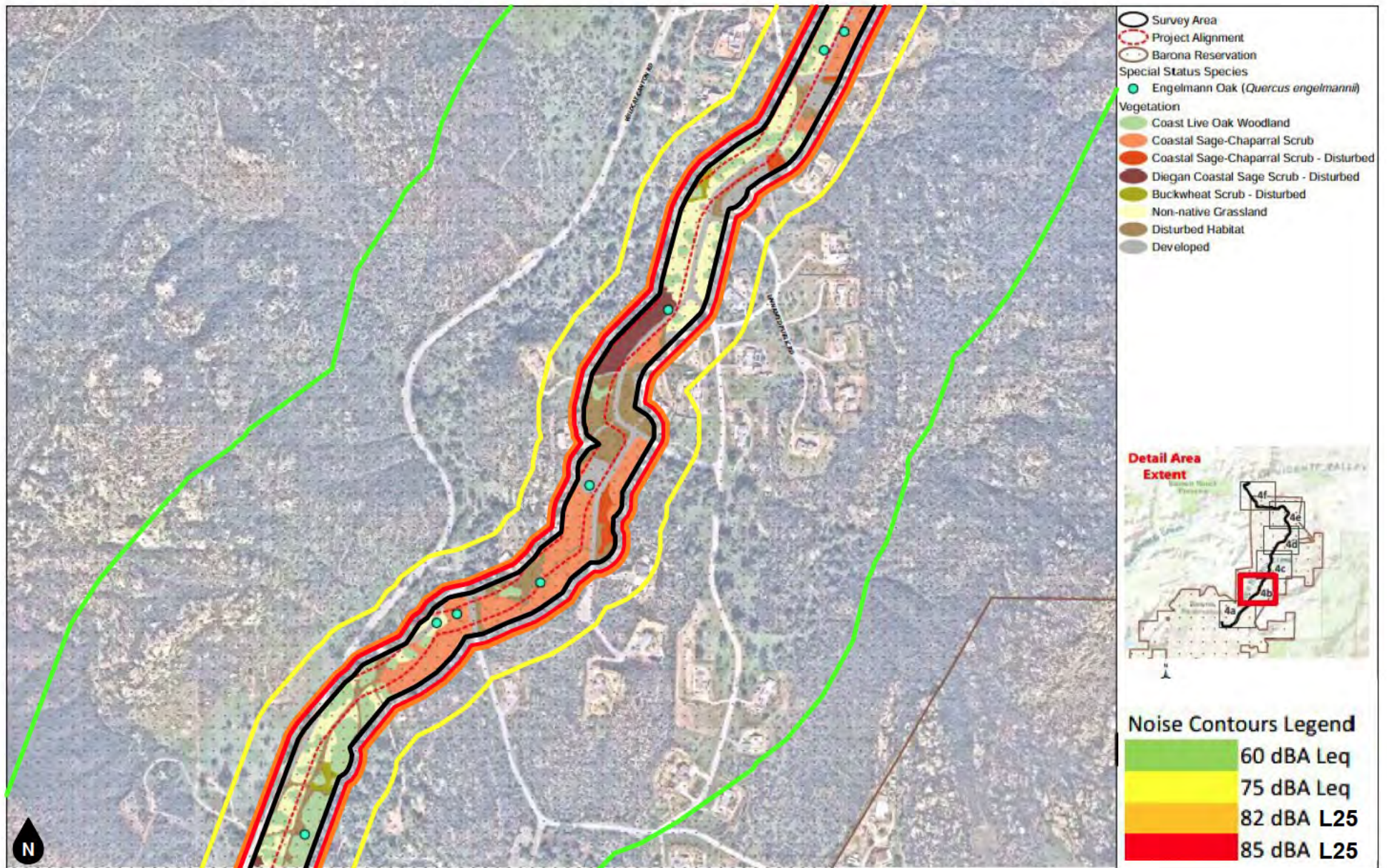


Figure 7
Construction Noise Contours - Bio Figure 4B

Source: Alden Environmental, Inc.

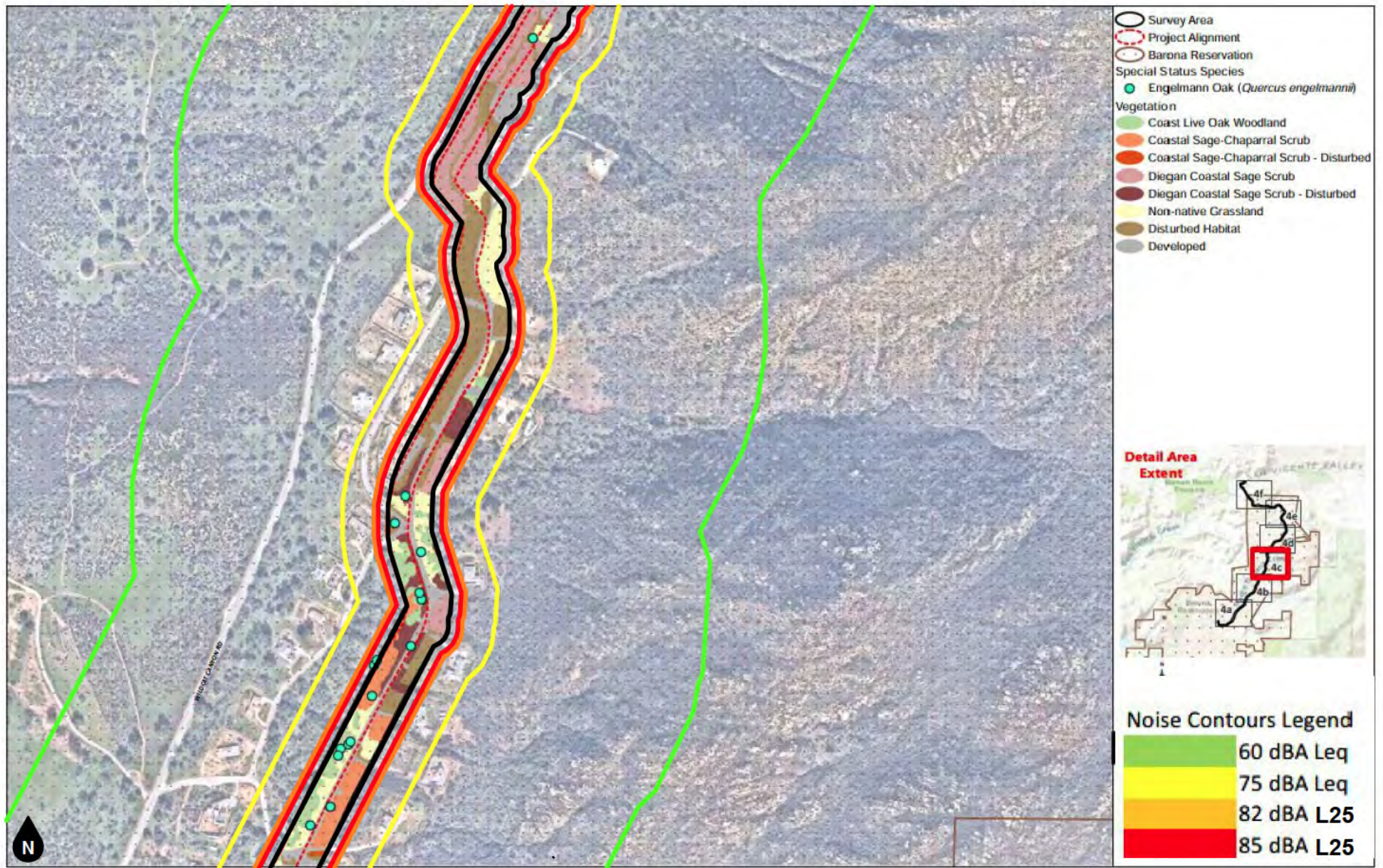


Figure 8
Construction Noise Contours - Bio Figure 4C

Source: Alden Environmental, Inc.

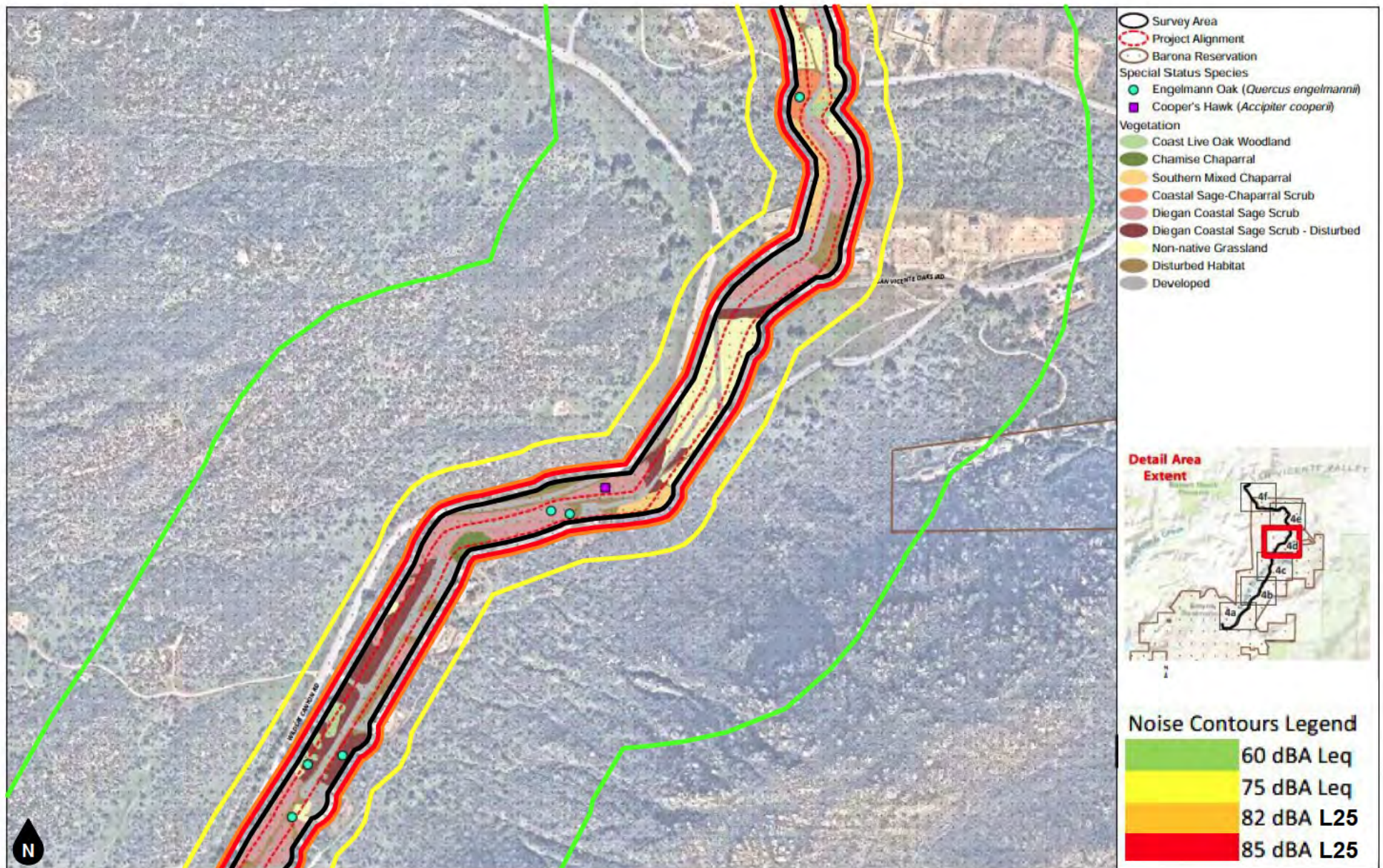


Figure 9
Construction Noise Contours - Bio Figure 4D

Source: Alden Environmental, Inc.

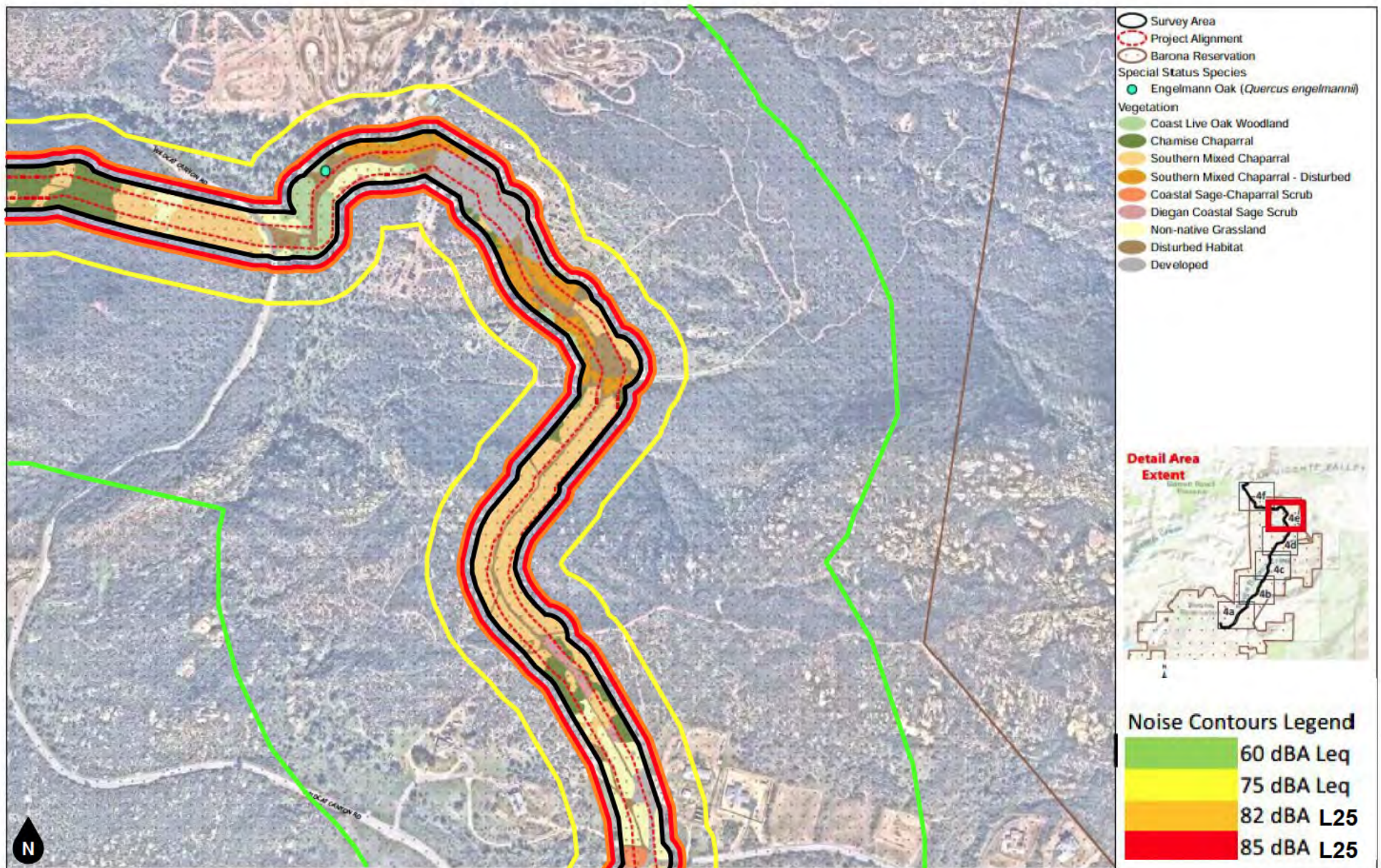


Figure 10
Construction Noise Contours - Bio Figure 4E

Source: Alden Environmental, Inc.

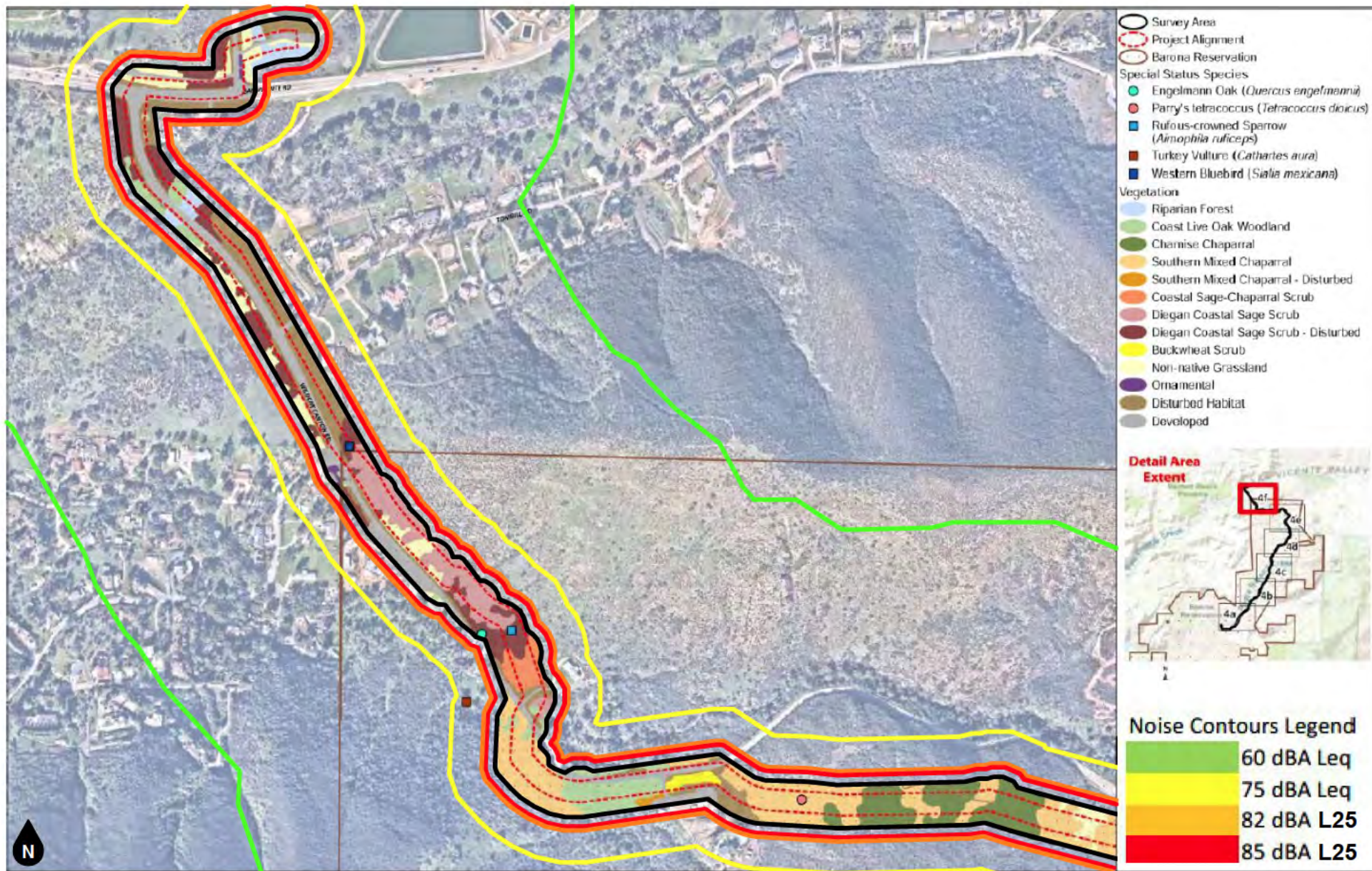


Figure 11
Construction Noise Contours - Bio Figure 4F

Source: Alden Environmental, Inc.

7. REFERENCES

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1974 "Information on Levels of Environmental Noise Requisite to Protect Public Health And Welfare with an Adequate Margin of Safety," EPA/ONAC 550/9-74-004, March 1974.

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2019 Finding of No Significant Impact and Record of Decision Proposed Eastgate Cargo Facility San Diego International Airport. December 23.

APPENDICES

Appendix A List of Acronyms
Appendix B Glossary
Appendix C Noise Measurement Field Worksheets
Appendix D Construction Noise Modeling

APPENDIX A

LIST OF ACRONYMS

Term	Definition
ADT	Average Daily Traffic
ANSI	American National Standard Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
D/E/N	Day / Evening / Night
dB	Decibel
dB(A) or dB(A)	Decibel "A-Weighted"
dB(A)/DD	Decibel per Double Distance
dB(A) Leq	Average Noise Level over a Period of Time
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
L ₀₂ , L ₀₈ , L ₅₀ , L ₉₀	A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, respectively, of the time period
DNL	Day-Night Average Noise Level
Leq(x)	Equivalent Noise Level for "x" period of time
Leq	Equivalent Noise Level
L _{max}	Maximum Level of Noise (measured using a sound level meter)
L _{min}	Minimum Level of Noise (measured using a sound level meter)
LOS C	Level of Service C
OPR	California Governor's Office of Planning and Research
PPV	Peak Particle Velocities
RCNM	Road Construction Noise Model
REMEL	Reference Energy Mean Emission Level
RMS	Root Mean Square

APPENDIX B

GLOSSARY

Term	Definition
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.
CNEL	Community Noise Equivalent Level. CNEL is a weighted 24-hour noise level that is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours.
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
DNL, Ldn	Day Night Level. The DNL, or Ldn is a weighted 24-hour noise level that is obtained by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the nighttime hours.
Equivalent Continuous Noise Level, L_{eq}	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
L_{02} , L_{08} , L_{50} , L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
L_{max} , L_{min}	L_{max} is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. L_{min} is the minimum level.
Offensive/ Offending/Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.

APPENDIX C

NOISE MEASUREMENT FIELD WORKSHEETS

**Noise Measurement
Field Data**

Project Name: Barona Water Pipeline **Date:** May 24, 2024

Project #: 19726

Noise Measurement #: NM1 Run Time: 15 minutes **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: Vicente Meadow Drive & San Vicente Road

Site Description (Type of Existing Land Use and any other notable features): Project Site: Open area with vegetation & small trees, marshy in places.

Adjacent: Reclaimed water pump house ~170' NE of NM1, San Vicente Rd ~120' S & Vicente Meadow Dr ~150' W of NM1. Three water reservoirs ~200' to 1,500' NE of NM1.

Weather: <5% cloud, sunshine. Sunset 7:54 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 8 mph **Humidity:** 55% **Terrain:** Flat

Start Time: 1:38 PM **End Time:** 1:53 PM **Run Time:** _____

Leq: 51.2 dB **Primary Noise Source:** 292 vehicles passing microphone, traveling along San Vicente Rd, S of NM1 during
Lmax 61 dB measurement.

L2 57.4 dB **Secondary Noise Sources:** Some bird song. Occasional distant air traffic. Machinery noise from pump house
L8 54.7 dB ~170' NE of NM1. Leaf rustle from 8 mph breeze through vegetation.

L25 52.0 dB

L50 49.7 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

FIELD CALIBRATION DATE: 5/24/2024



Noise Measurement
Field Data

PHOTOS:



NM1 looking W towards Vicente Meadows Dr (~150' W, parked car). Vicente Meadows Dr intersecting with San Vicente Rd ~ 220' SW of NM1.



NM1 looking NE towards reservoir reclaimed water pump house, ~170' NE of NM1.

Summary			
File Name on Meter	LxT_Data.083.s		
File Name on PC	LxT_0003855-20240524 133841-LxT_Data.083.ldbin		
Serial Number	3855		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User	Ian Edward Gallagher		
Location	NM1 32°59'54.20"N 116°50'32.80"W		
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Measurement			
Start	2024-05-24 13:38:41		
Stop	2024-05-24 13:53:41		
Duration	00:15:00.0		
Run Time	00:15:00.0		
Pause	00:00:00.0		
Pre-Calibration	2024-05-24 13:38:01		
Post-Calibration	None		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	145.2 dB		
Results			
LAeq	51.2		
LAE	80.8		
EA	13.25503 µPa²h		
EA8	424.161 µPa²h		
EA40	2.120805 mPa²h		
LApeak (max)	2024-05-24 13:50:13	85.8 dB	
LASmax	2024-05-24 13:46:49	61.0 dB	
LASmin	2024-05-24 13:50:32	42.7 dB	
			Statistics
LCeq	62.6 dB	LA2.00	57.4 dB
LAeq	51.2 dB	LA8.00	54.7 dB
LCeq - LAeq	11.4 dB	LA25.00	52.0 dB
LAleq	52.9 dB	LA50.00	49.7 dB
LAeq	51.2 dB	LA66.60	48.4 dB
LAleq - LAeq	1.7 dB	LA90.00	45.7 dB
Overload Count	0		
Overload Duration	0.0 s		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.083.s	Computer's File Name	LxT_0003855-20240524 133841-LxT_Data.083.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM1 32°59'54.20"N 116°50'32.80"W
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Start Time	2024-05-24 13:38:41	Duration	0:15:00.0
End Time	2024-05-24 13:53:41	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	51.2 dB		
LAE	80.8 dB	SEA	--- dB
EA	13.3 µPa²h	LAFTM5	54.6 dB
EA8	424.2 µPa²h		
EA40	2.1 mPa²h		
LA _{peak}	85.8 dB	2024-05-24 13:50:13	
LAS _{max}	61.0 dB	2024-05-24 13:46:49	
LAS _{min}	42.7 dB	2024-05-24 13:50:32	
LA _{eq}	51.2 dB		
LC _{eq}	62.6 dB	LC _{eq} - LA _{eq}	11.4 dB
LAI _{eq}	52.9 dB	LAI _{eq} - LA _{eq}	1.7 dB

Exceedances

Count Duration

LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	51.2 dB		62.6 dB		--- dB	
LS _(max)	61.0 dB	2024-05-24 13:46:49	--- dB		--- dB	
LS _(min)	42.7 dB	2024-05-24 13:50:32	--- dB		--- dB	
L _{Peak(max)}	85.8 dB	2024-05-24 13:50:13	--- dB		--- dB	

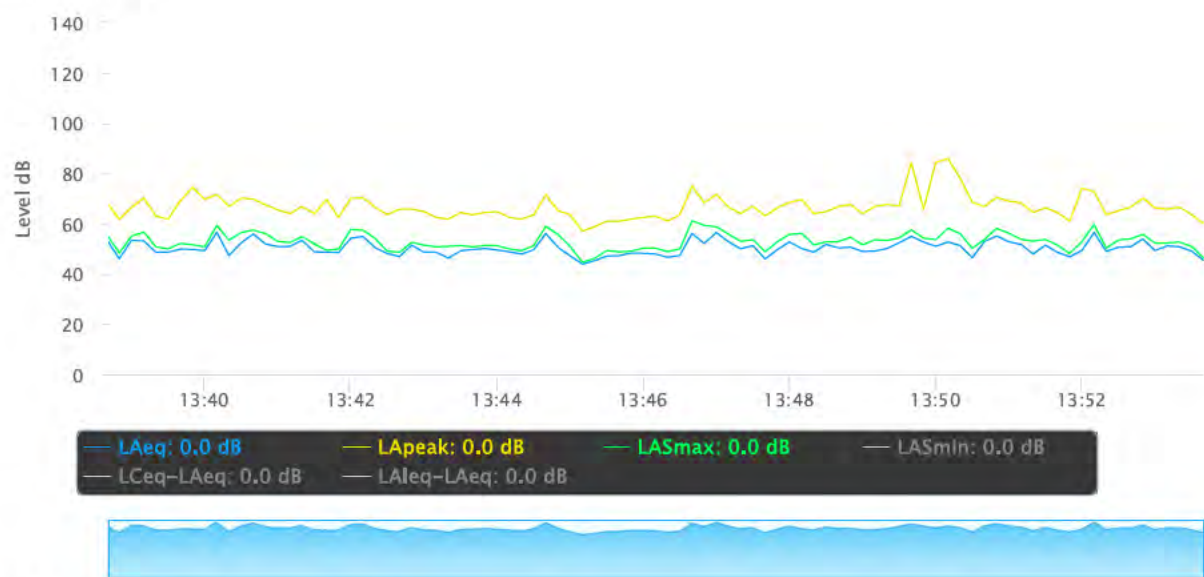
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

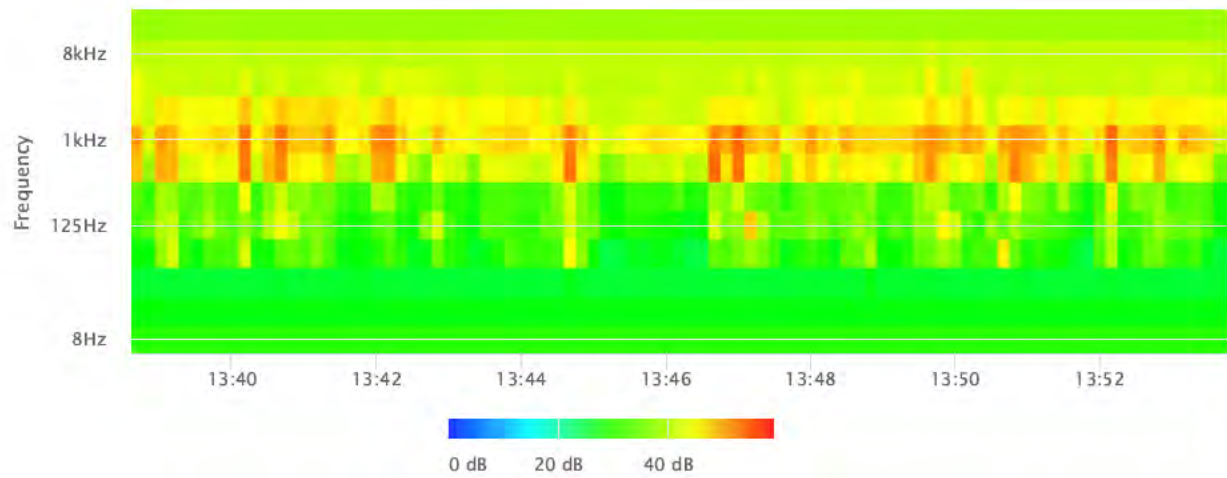
Statistics

LAS 2.0	57.4 dB
LAS 8.0	54.7 dB
LAS 25.0	52.0 dB
LAS 50.0	49.7 dB
LAS 66.6	48.4 dB
LAS 90.0	45.7 dB

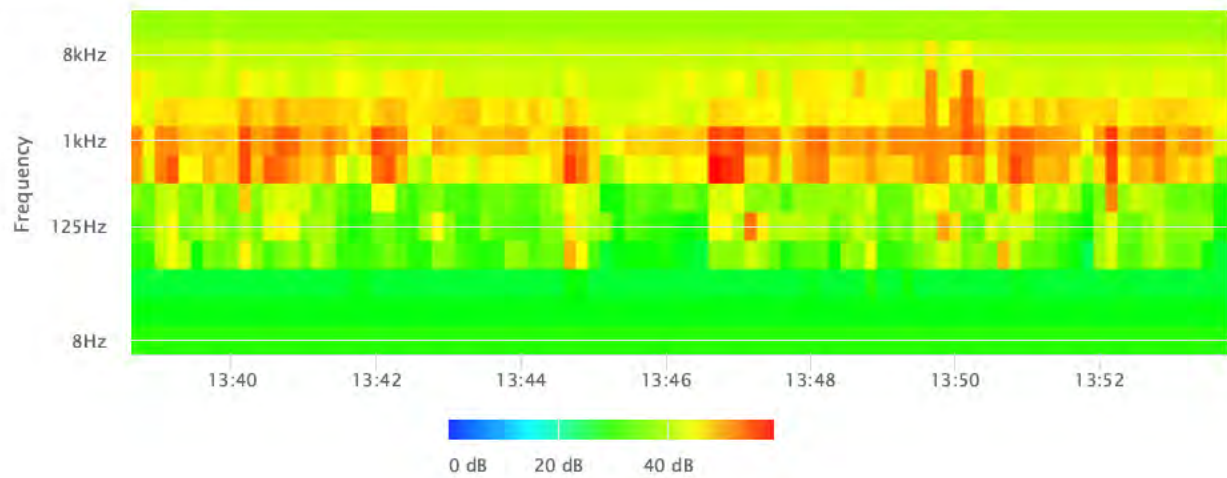
Time History



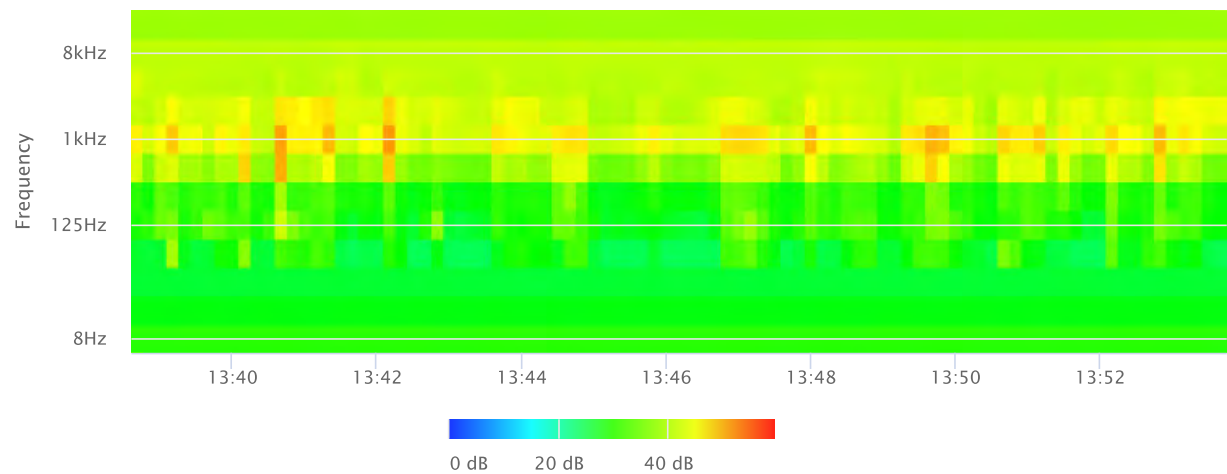
OBA 1/1 Leq



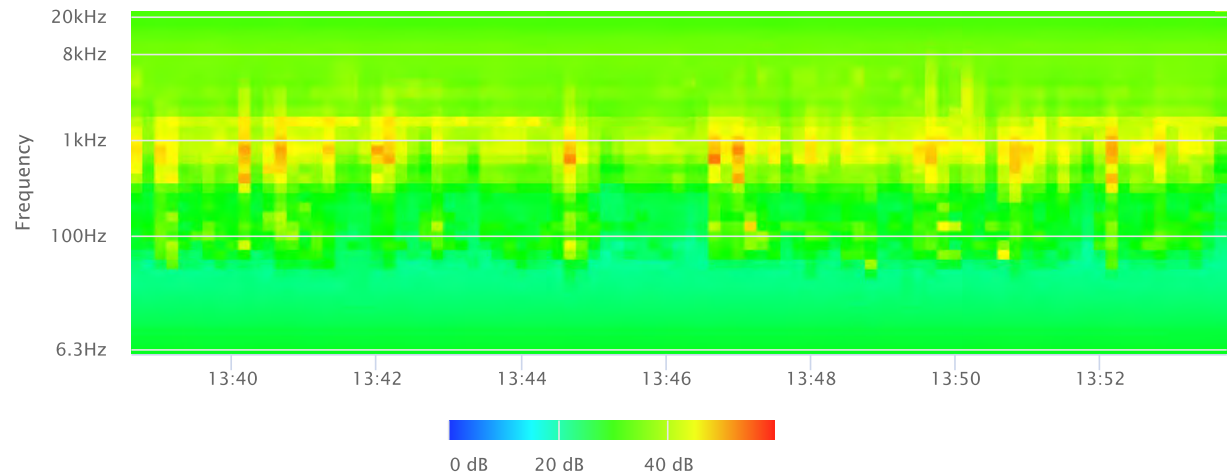
OBA 1/1 Lmax



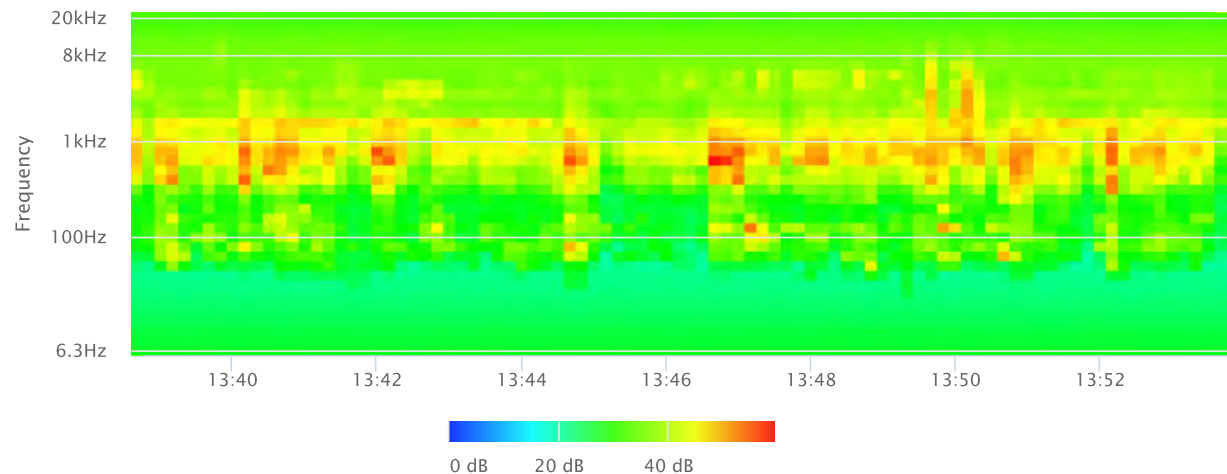
OBA 1/1 Lmin



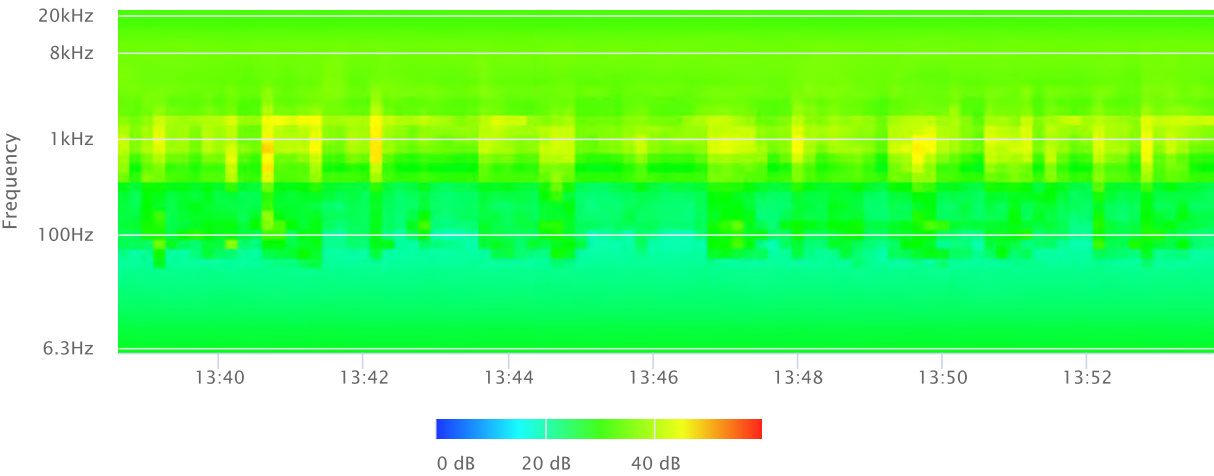
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: Barona Water Pipeline **Date:** May 24, 2024

Project #: 19726

Noise Measurement #: NM2 Run Time: 15 minutes **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 22433 San Vicente Rd, San Diego Country Estates, CA 92065

Site Description (Type of Existing Land Use and any other notable features): Project Site: Open area with vegetation & small trees, marshy in places.

Long time unused asphalt access road E of NM2. Adjacent: San Vicente Rd ~270' N & Wildcat Canyon Rd ~420' SW of NM2.

Weather: <5% cloud, sunshine. Sunset 7:54 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 8 mph **Humidity:** 55% **Terrain:** Flat

Start Time: 2:14 PM **End Time:** 2:29 PM **Run Time:** _____

Leq: 49 dB **Primary Noise Source:** 305 vehicles passing microphone, traveling along San Vicente Rd N of NM2 during

Lmax 59.1 dB measurement.

L2 55.5 dB **Secondary Noise Sources:** Some bird song. Occasional distant air traffic. Leaf rustle from 8 mph breeze

L8 52.4 dB through trees and vegetation.

L25 49.7 dB

L50 47.2 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

FIELD CALIBRATION DATE: 5/24/2024



Noise Measurement
Field Data

PHOTOS:



NM2 looking N across overgrown vegetation towards San Vicente Road (~270' N of NM2).



NM2 looking E towards long unused asphalt access road (overgrown with vegetation).

Summary			
File Name on Meter	LxT_Data.084.s		
File Name on PC	LxT_0003855-20240524 141448-LxT_Data.084.ldbin		
Serial Number	3855		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User	Ian Edward Gallagher		
Location	NM2 32°59'49.67"N 116°50'33.53"W		
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Measurement			
Start	2024-05-24 14:14:48		
Stop	2024-05-24 14:29:48		
Duration	00:15:00.0		
Run Time	00:15:00.0		
Pause	00:00:00.0		
Pre-Calibration	2024-05-24 14:14:14		
Post-Calibration	None		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	145.4 dB		
Results			
LAeq	49.0		
LAE	78.5		
EA	7.913964 μPa²h		
EA8	253.2469 μPa²h		
EA40	1.266234 mPa²h		
LApeak (max)	2024-05-24 14:24:56	84.8 dB	
LASmax	2024-05-24 14:15:42	59.1 dB	
LASmin	2024-05-24 14:17:05	39.7 dB	
			Statistics
LCeq	60.5 dB	LA2.00	55.5 dB
LAeq	49.0 dB	LA8.00	52.4 dB
LCeq - LAeq	11.5 dB	LA25.00	49.7 dB
LALeq	50.8 dB	LA50.00	47.2 dB
LAeq	49.0 dB	LA66.60	45.8 dB
LALeq - LAeq	1.8 dB	LA90.00	43.5 dB
Overload Count	0		
Overload Duration	0.0 s		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.084.s	Computer's File Name	LxT_0003855-20240524 141448-LxT_Data.084.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM2 32°59'49.67"N 116°50'33.53"W
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Start Time	2024-05-24 14:14:48	Duration	0:15:00.0
End Time	2024-05-24 14:29:48	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	49.0 dB		
LAE	78.5 dB	SEA	--- dB
EA	7.9 µPa²h	LAFTM5	52.5 dB
EA8	253.2 µPa²h		
EA40	1.3 mPa²h		
LA _{peak}	84.8 dB	2024-05-24 14:24:56	
LAS _{max}	59.1 dB	2024-05-24 14:15:42	
LAS _{min}	39.7 dB	2024-05-24 14:17:05	
LA _{eq}	49.0 dB		
LC _{eq}	60.5 dB	LC _{eq} - LA _{eq}	11.5 dB
LAI _{eq}	50.8 dB	LAI _{eq} - LA _{eq}	1.8 dB

Exceedances

Count

Duration

LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN

LDay

LNight

--- dB

--- dB

0.0 dB

LDEN

LDay

LEve

LNight

--- dB

--- dB

--- dB

--- dB

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	49.0 dB		60.5 dB		--- dB	
LS _(max)	59.1 dB	2024-05-24 14:15:42	--- dB		--- dB	
LS _(min)	39.7 dB	2024-05-24 14:17:05	--- dB		--- dB	
L _{Peak(max)}	84.8 dB	2024-05-24 14:24:56	--- dB		--- dB	

Overloads

Count

Duration

OBA Count

OBA Duration

0

0:00:00.0

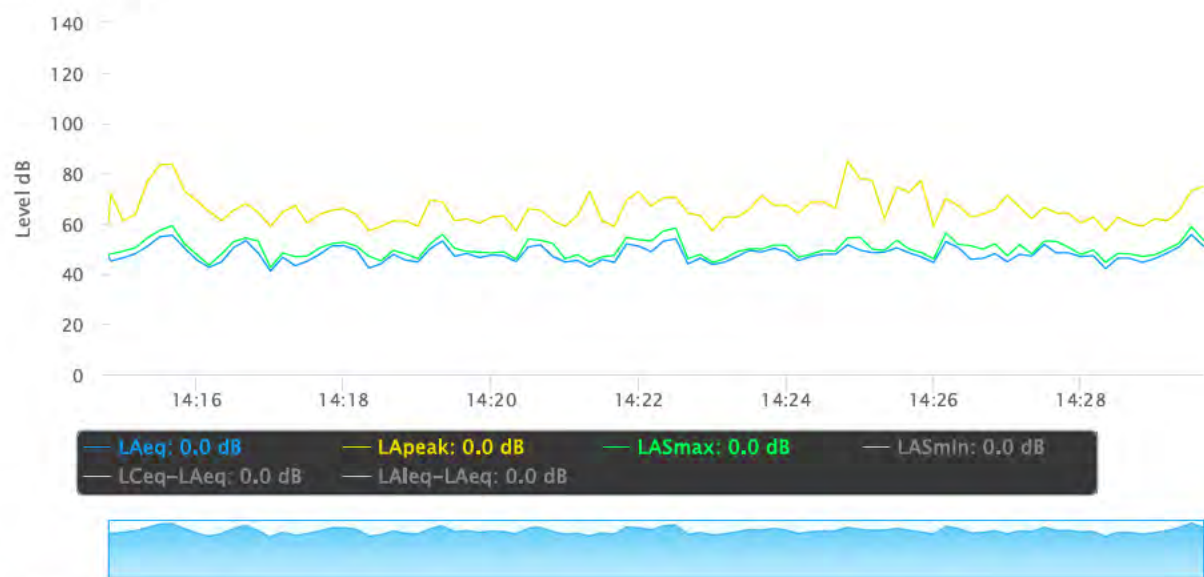
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0:00:00.0

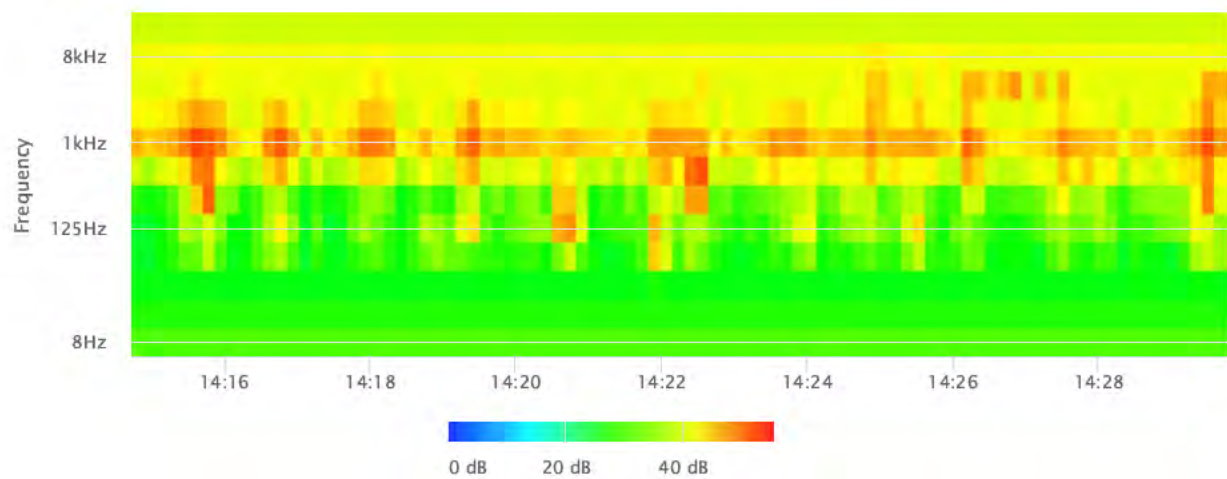
Statistics

LAS 2.0	55.5 dB
LAS 8.0	52.4 dB
LAS 25.0	49.7 dB
LAS 50.0	47.2 dB
LAS 66.6	45.8 dB
LAS 90.0	43.5 dB

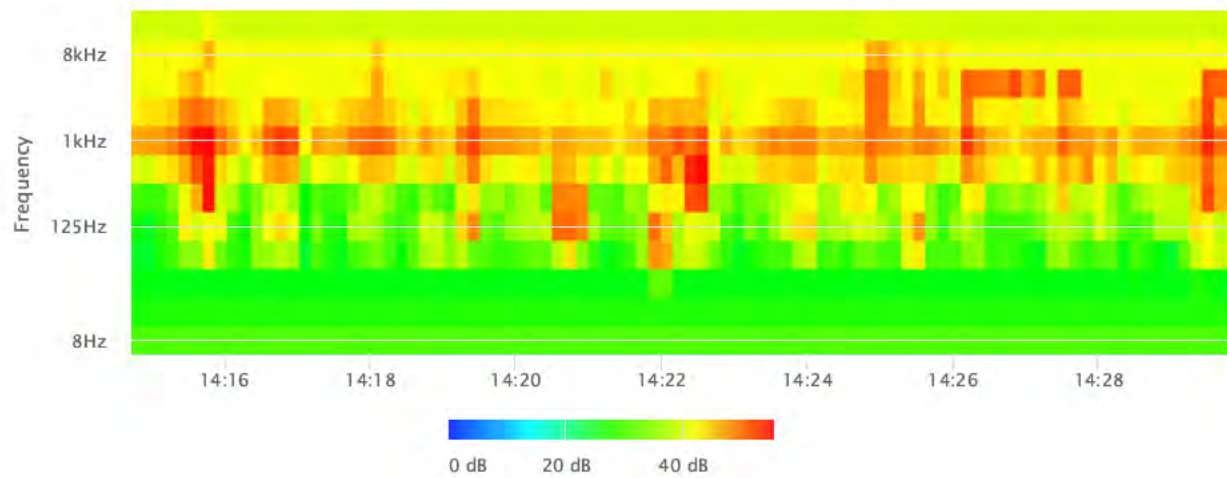
Time History



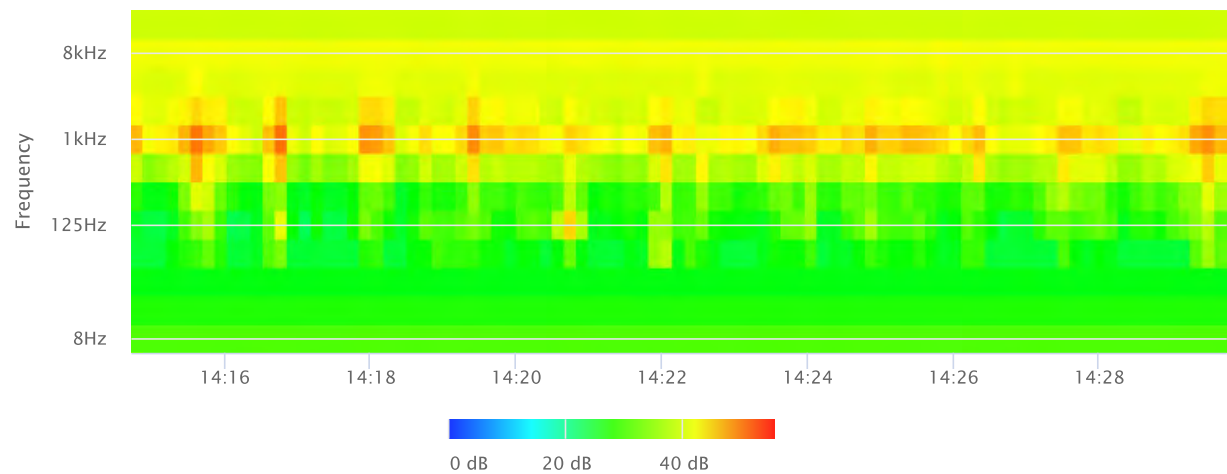
OBA 1/1 Leq



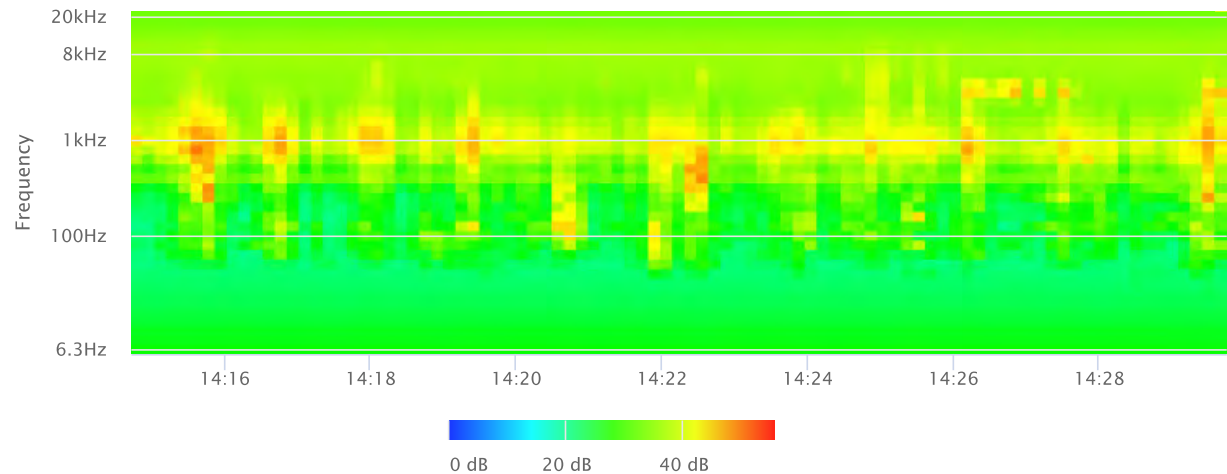
OBA 1/1 Lmax



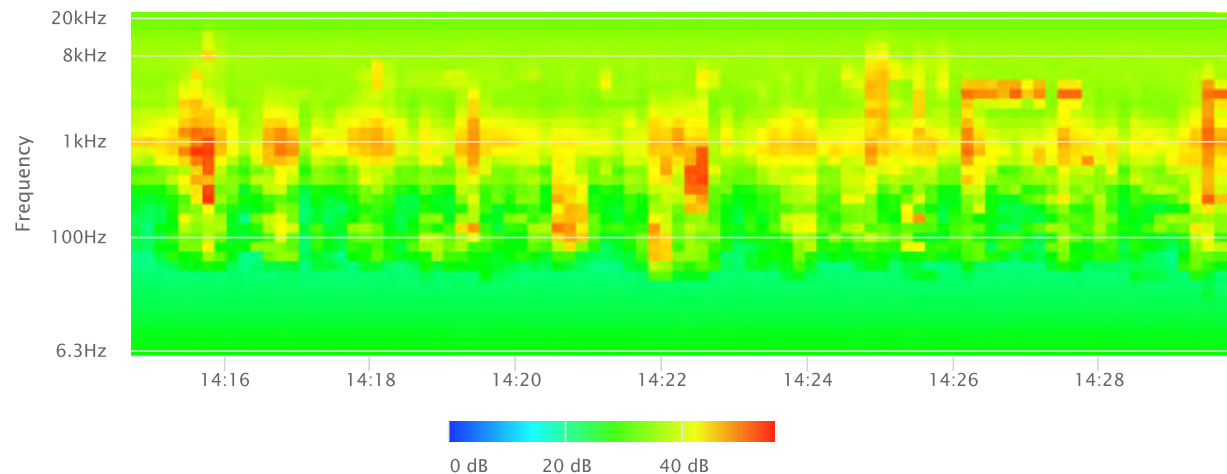
OBA 1/1 Lmin



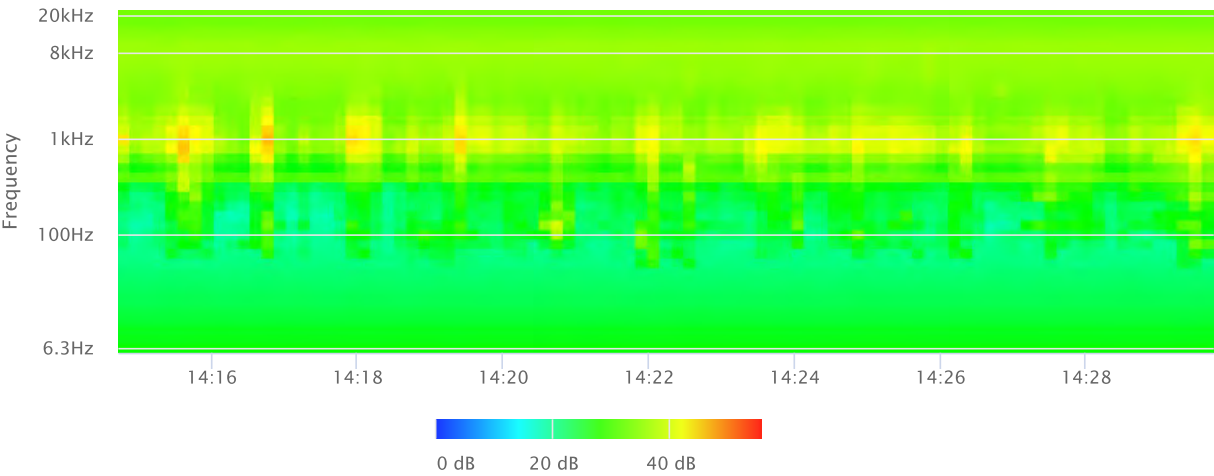
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: Barona Water Pipeline **Date:** May 24, 2024

Project #: 19726

Noise Measurement #: NM3 Run Time: 15 minutes **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: Wildcat Canyon Road & Tombill Road

Site Description (Type of Existing Land Use and any other notable features): Project Site: Intersection between Wildcat Canyon Rd & Tombill Rd. Residential E

of NM3 along Tombill Rd. Open, heavily vegetated land W of NM3. Adjacent: Wildcat Canyon Rd running N-S W of NM3 & Tombill Rd running E-W S of NM3.

Weather: <5% cloud, sunshine. Sunset 7:54 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 8 mph **Humidity:** 55% **Terrain:** Flat

Start Time: 3:03 PM **End Time:** 3:18 PM **Run Time:** _____

Leq: 70 dB **Primary Noise Source:** 149 vehicles passing microphone, traveling along Wildcat Canyon Rd, immediately

Lmax 86.9 dB W of NM3. Noisy F18 aircraft passes overhead 4.5 to 5.5 minutes into sample.

L2 79.8 dB **Secondary Noise Sources:** Some bird song. Occasional distant air traffic. Leaf rustle from 8 mph breeze

L8 73.6 dB through trees and vegetation.

L25 69.4 dB

L50 58.4 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

FIELD CALIBRATION DATE: 5/24/2024

Noise Measurement
Field Data

PHOTOS:



NM3 looking W across Wildcat Canyon Rd & Tombill Rd intersection.



NM3 looking E down Tombill Rd & entry/exit way to Greekside Estates.

Summary			
File Name on Meter	LxT_Data.085.s		
File Name on PC	LxT_0003855-20240524 150307-LxT_Data.085.ldbin		
Serial Number	3855		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User	Ian Edward Gallagher		
Location	NM3 32°59'41.87"N 116°50'32.04"W		
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Measurement			
Start	2024-05-24 15:03:07		
Stop	2024-05-24 15:18:07		
Duration	00:15:00.0		
Run Time	00:15:00.0		
Pause	00:00:00.0		
Pre-Calibration	2024-05-24 15:02:45		
Post-Calibration	None		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	145.4 dB		
Results			
LAeq	70.0		
LAE	99.5		
EA	996.3636 µPa²h		
EA8	31.88363 mPa²h		
EA40	159.4182 mPa²h		
LApeak (max)	2024-05-24 15:07:27	101.9 dB	
LASmax	2024-05-24 15:05:04	86.9 dB	
LASmin	2024-05-24 15:10:34	41.4 dB	
Statistics			
LCeq	77.8 dB	LA2.00	79.8 dB
LAeq	70.0 dB	LA8.00	73.6 dB
LCeq - LAeq	7.8 dB	LA25.00	69.4 dB
LAleq	72.3 dB	LA50.00	58.4 dB
LAeq	70.0 dB	LA66.60	52.4 dB
LAleq - LAeq	2.4 dB	LA90.00	45.5 dB
Overload Count	0		
Overload Duration	0.0 s		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.085.s	Computer's File Name	LxT_0003855-20240524 150307-LxT_Data.085.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM3 32°59'41.87"N 116°50'32.04"W
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Start Time	2024-05-24 15:03:07	Duration	0:15:00.0
End Time	2024-05-24 15:18:07	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	70.0 dB		
LAE	99.5 dB	SEA	--- dB
EA	996.4 µPa²h	LAFTM5	75.3 dB
EA8	31.9 mPa²h		
EA40	159.4 mPa²h		
LA _{peak}	101.9 dB	2024-05-24 15:07:27	
LAS _{max}	86.9 dB	2024-05-24 15:05:04	
LAS _{min}	41.4 dB	2024-05-24 15:10:34	
LA _{eq}	70.0 dB		
LC _{eq}	77.8 dB	LC _{eq} - LA _{eq}	7.8 dB
LAI _{eq}	72.3 dB	LAI _{eq} - LA _{eq}	2.4 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	32	0:06:10.1
LAS > 85.0 dB	2	0:00:06.6
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
--- dB	--- dB	0.0 dB
LDEN	LDay	LEve
--- dB	--- dB	---
		LNight
		--- dB

Any Data

	A	C	Z
	Level	Time Stamp	Level
L _{eq}	70.0 dB		77.8 dB
LS _(max)	86.9 dB	2024-05-24 15:05:04	---
LS _(min)	41.4 dB	2024-05-24 15:10:34	---
L _{Peak(max)}	101.9 dB	2024-05-24 15:07:27	---

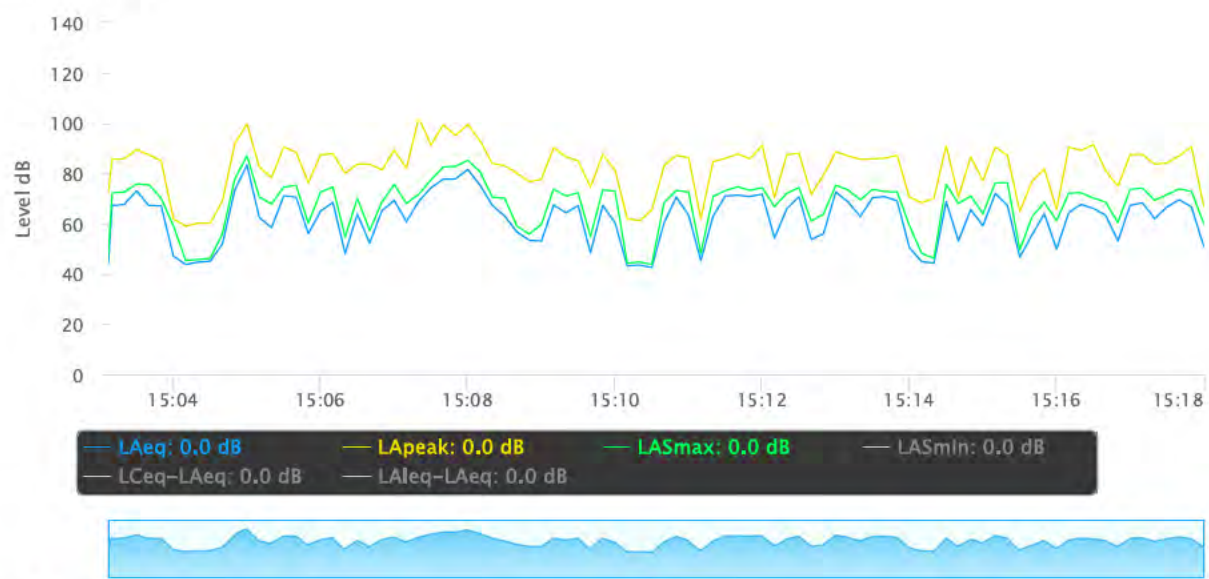
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

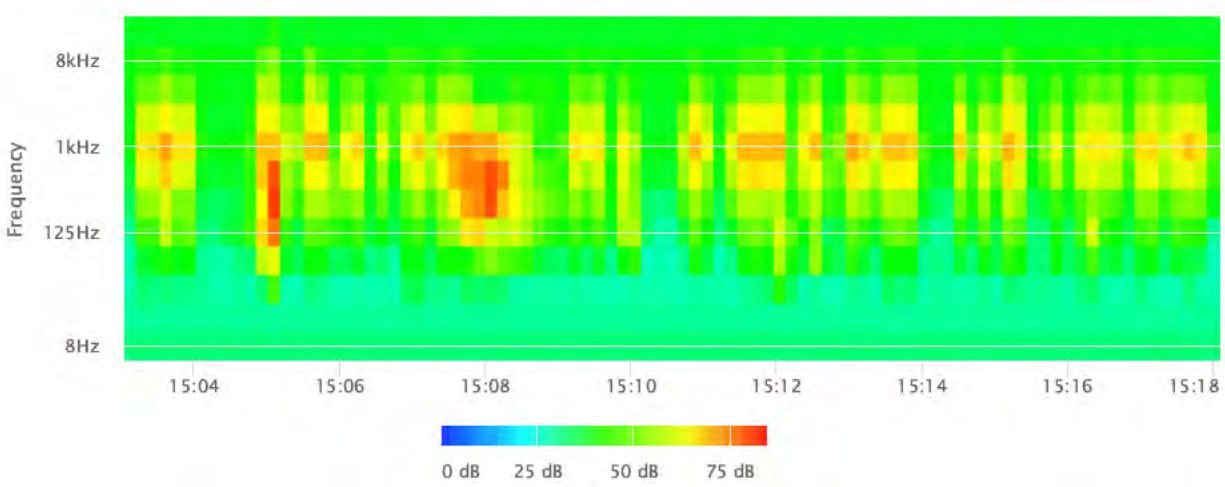
Statistics

LAS 2.0	79.8 dB
LAS 8.0	73.6 dB
LAS 25.0	69.4 dB
LAS 50.0	58.4 dB
LAS 66.6	52.4 dB
LAS 90.0	45.5 dB

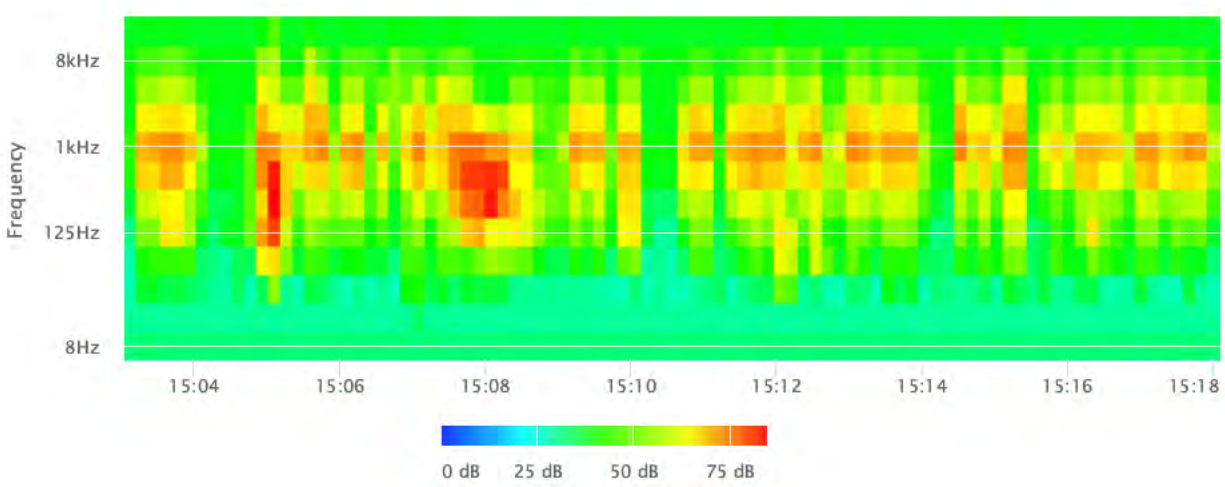
Time History



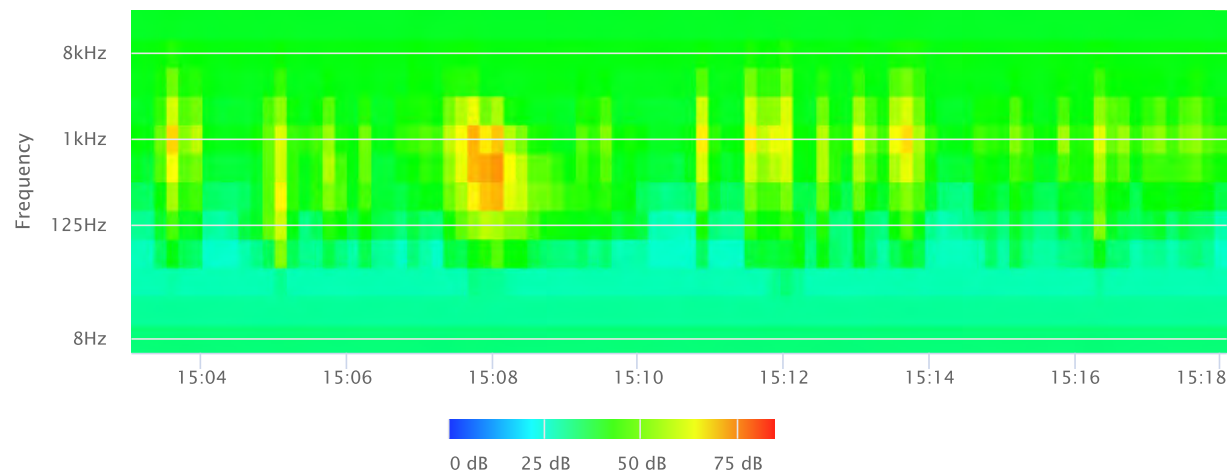
OBA 1/1 Leq



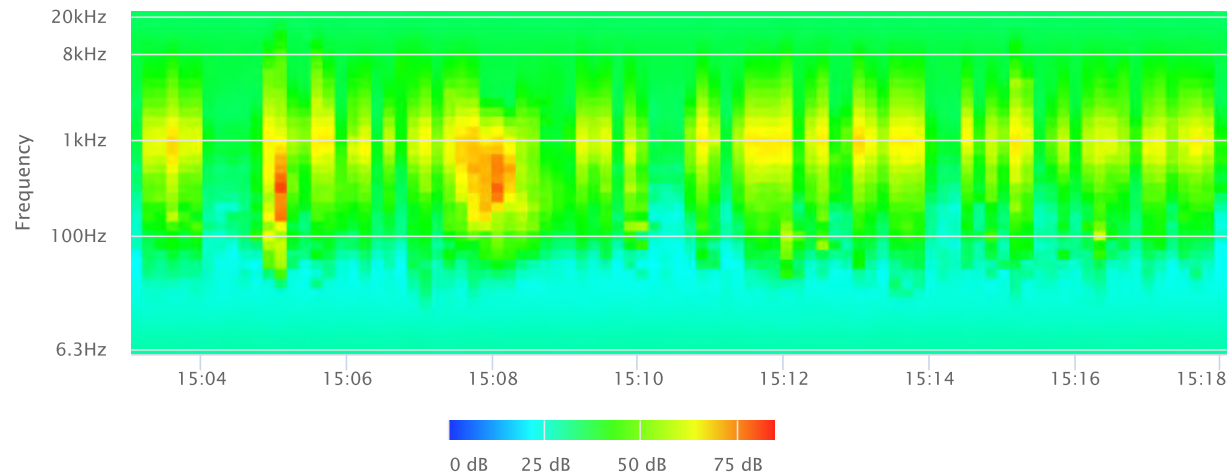
OBA 1/1 Lmax



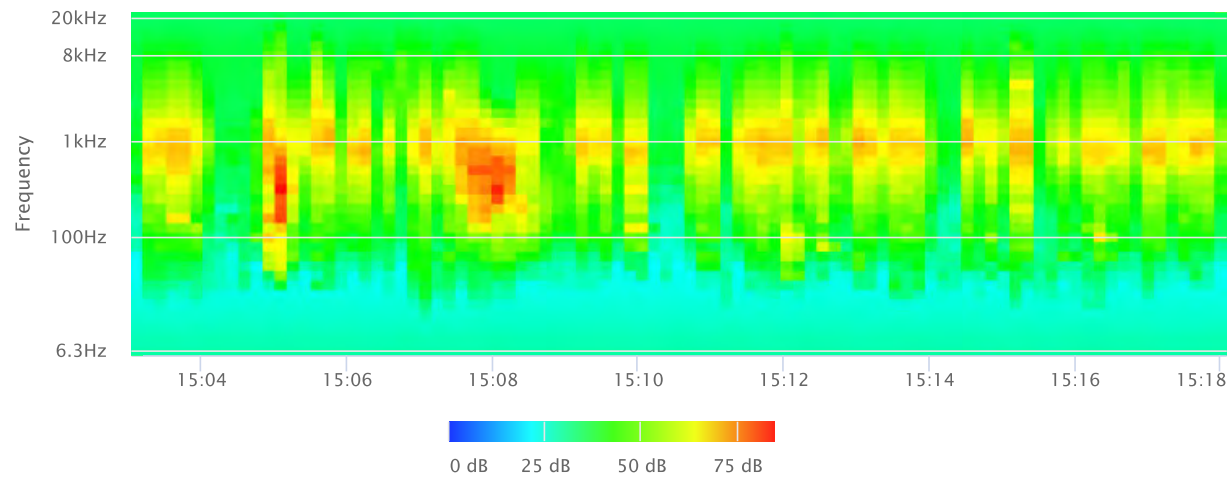
OBA 1/1 Lmin



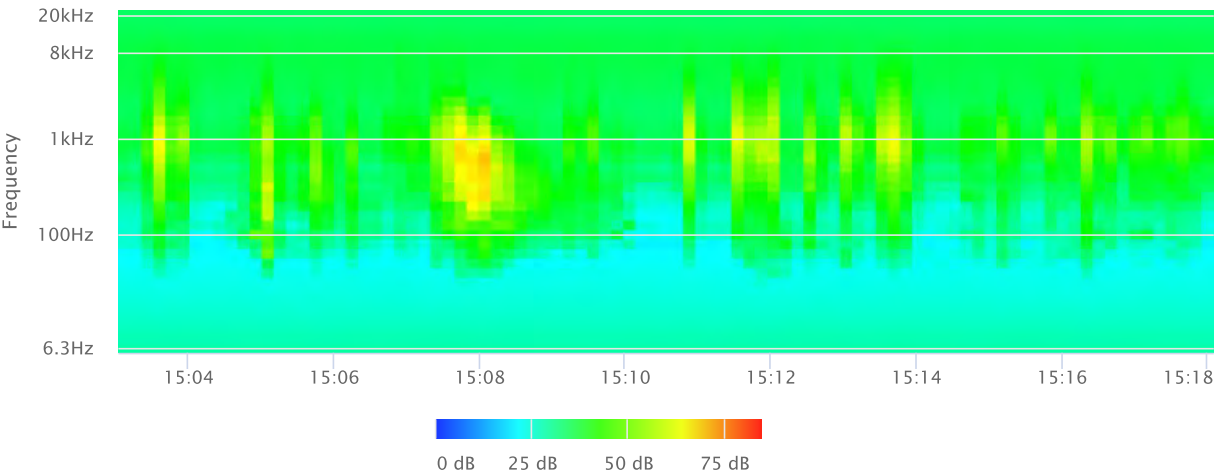
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: Barona Water Pipeline **Date:** May 24, 2024

Project #: 19726

Noise Measurement #: NM4 Run Time: 15 minutes **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 16060 Wildcat Canyon Road, Ramona, CA 92065

Site Description (Type of Existing Land Use and any other notable features): Project Site: Wildcat Canyon Rd traveling NW-SE

Adjacent: Residential to the W and open, heavily vegetated land E & S of NM4.

Weather: <5% cloud, sunshine. Sunset 7:54 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 8 mph **Humidity:** 55% **Terrain:** Flat

Start Time: 3:55 PM **End Time:** 4:10 PM **Run Time:** _____

Leq: 72.9 dB **Primary Noise Source:** 141 vehicles passing microphone, traveling along Wildcat Canyon Rd, immediately

Lmax 86.8 dB NE of NM4.

L2 80.5 dB **Secondary Noise Sources:** Some bird song. Occasional distant air traffic. Leaf rustle from 8 mph breeze

L8 78.1 dB through trees and vegetation.

L25 74.7 dB

L50 64.9 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

FIELD CALIBRATION DATE: 5/24/2024

Noise Measurement
Field Data

PHOTOS:



NM4 looking SE down Wildcat Canyon Road, entry/exit way to residence 16060 Wildcat Canyon Road on the right.



NM4 looking NW along Wildcat Canyon Road, residence 16060 Wildcat Canyon Road on the left.

Summary				
File Name on Meter	LxT_Data.086.s			
File Name on PC	LxT_0003855-20240524 155544-LxT_Data.086.ldbin			
Serial Number	3855			
Model	SoundTrack LxT®			
Firmware Version	2.404			
User	Ian Edward Gallagher			
Location	NM4 32°59'29.99"N 116°50'24.35"W			
Job Description	15 minute noise measurement			
Note	Ganddini Project # 19726 Barona Water Pipeline			
Measurement				
Start	2024-05-24 15:55:44			
Stop	2024-05-24 16:10:44			
Duration	00:15:00.0			
Run Time	00:15:00.0			
Pause	00:00:00.0			
Pre-Calibration	2024-05-24 15:55:28			
Post-Calibration	None			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamplifier	PRMLxT1			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Normal			
OBA Bandwidth	1/1 and 1/3			
OBA Frequency Weighting	A Weighting			
OBA Max Spectrum	Bin Max			
Overload	145.3 dB			
Results				
LAeq	72.9			
LAE	102.5			
EA	1.96268 mPa²h			
EA8	62.80576 mPa²h			
EA40	314.0288 mPa²h			
LApeak (max)	2024-05-24 16:05:00	104.5 dB		
LASmax	2024-05-24 16:05:01	86.8 dB		
LASmin	2024-05-24 16:09:08	37.8 dB		
Statistics				
LCeq	78.1 dB	LA2.00	80.5 dB	
LAeq	72.9 dB	LA8.00	78.1 dB	
LCeq - LAeq	5.2 dB	LA25.00	74.7 dB	
LAleq	76.8 dB	LA50.00	64.9 dB	
LAeq	72.9 dB	LA66.60	55.6 dB	
LAleq - LAeq	3.9 dB	LA90.00	42.9 dB	
Overload Count	0			
Overload Duration	0.0 s			

Measurement Report

Report Summary

Meter's File Name	LxT_Data.086.s	Computer's File Name	LxT_0003855-20240524 155544-LxT_Data.086.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM4 32°59'29.99"N 116°50'24.35"W
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Start Time	2024-05-24 15:55:44	Duration	0:15:00.0
End Time	2024-05-24 16:10:44	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	72.9 dB		
LAE	102.5 dB	SEA	--- dB
EA	2.0 mPa²h	LAFTM5	80.1 dB
EA8	62.8 mPa²h		
EA40	314.0 mPa²h		
LA _{peak}	104.5 dB	2024-05-24 16:05:00	
LAS _{max}	86.8 dB	2024-05-24 16:05:01	
LAS _{min}	37.8 dB	2024-05-24 16:09:08	
LA _{eq}	72.9 dB		
LC _{eq}	78.1 dB	LC _{eq} - LA _{eq}	5.2 dB
LAI _{eq}	76.8 dB	LAI _{eq} - LA _{eq}	3.9 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	36	0:07:52.2
LAS > 85.0 dB	1	0:00:01.5
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
--- dB	--- dB	0.0 dB
LDEN	LDay	LEve
--- dB	--- dB	---
		LNight
		--- dB

Any Data

	Level	A Time Stamp	C Time Stamp	Level	Z Time Stamp
L _{eq}	72.9 dB			78.1 dB	---
LS _(max)	86.8 dB	2024-05-24 16:05:01		---	---
LS _(min)	37.8 dB	2024-05-24 16:09:08		---	---
L _{Peak(max)}	104.5 dB	2024-05-24 16:05:00		---	---

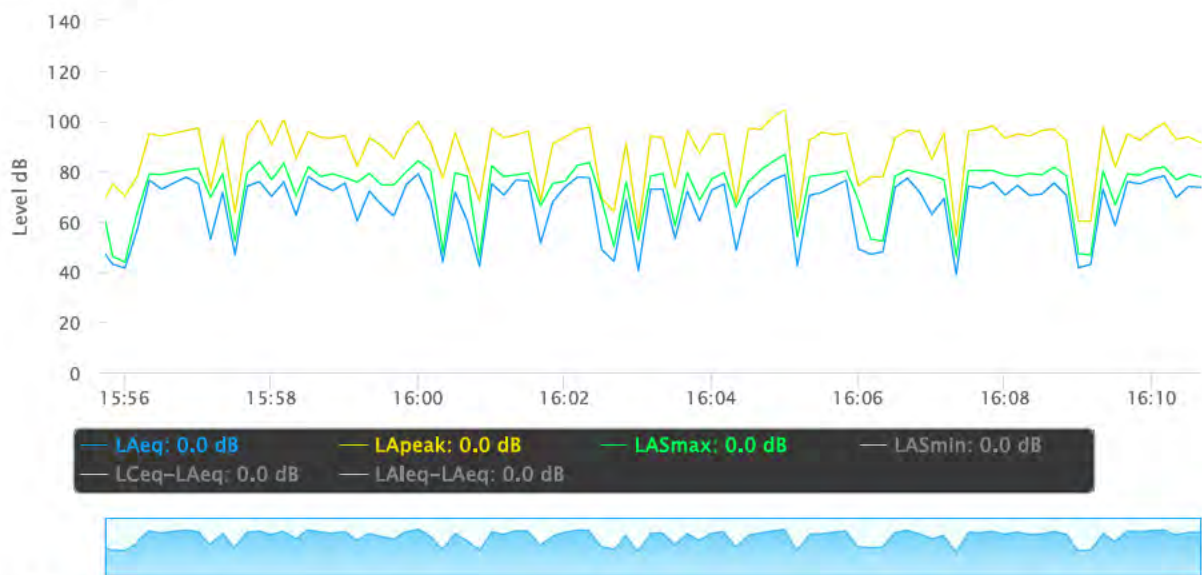
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

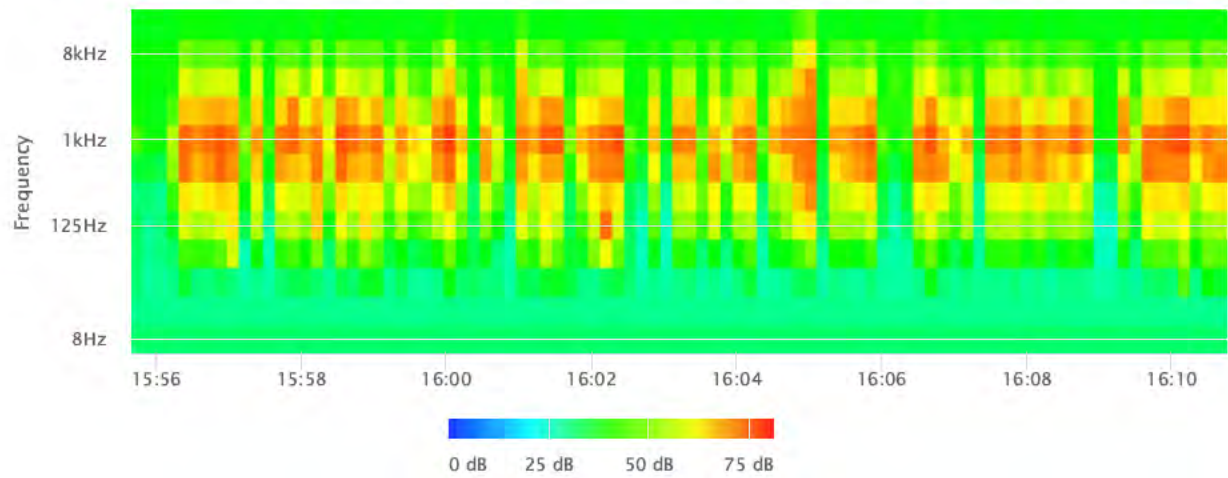
Statistics

LAS 2.0	80.5 dB
LAS 8.0	78.1 dB
LAS 25.0	74.7 dB
LAS 50.0	64.9 dB
LAS 66.6	55.6 dB
LAS 90.0	42.9 dB

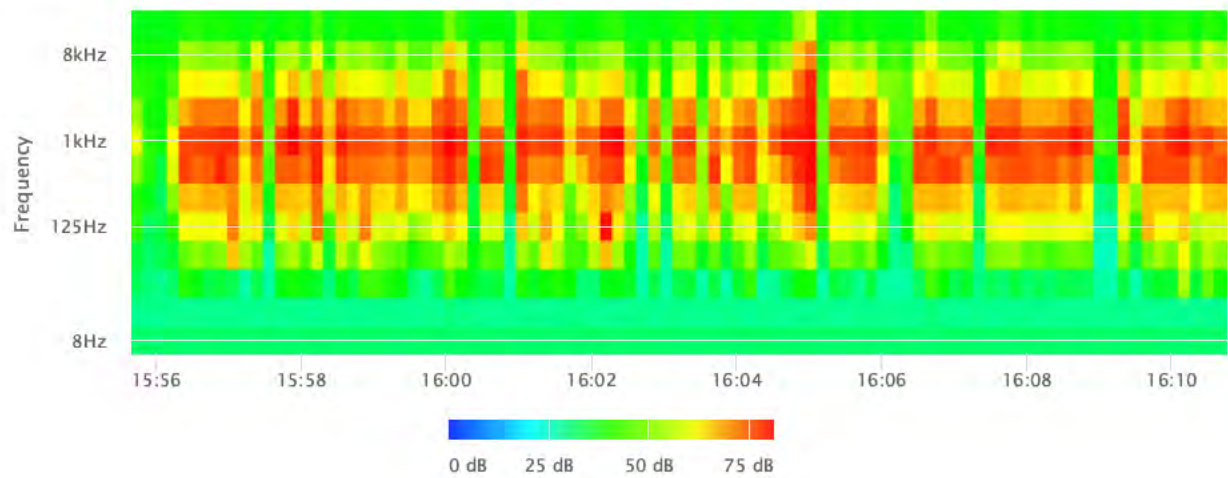
Time History



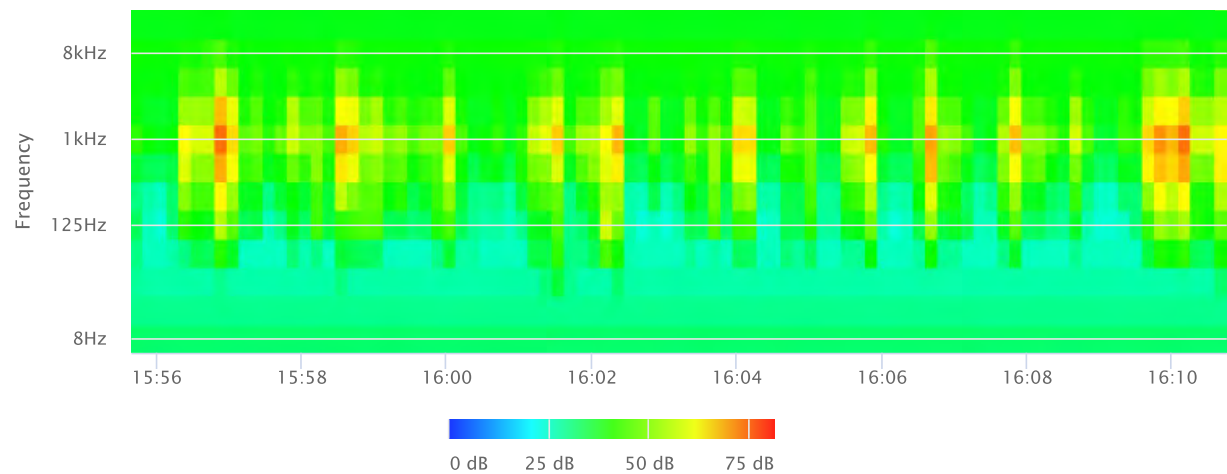
OBA 1/1 Leq



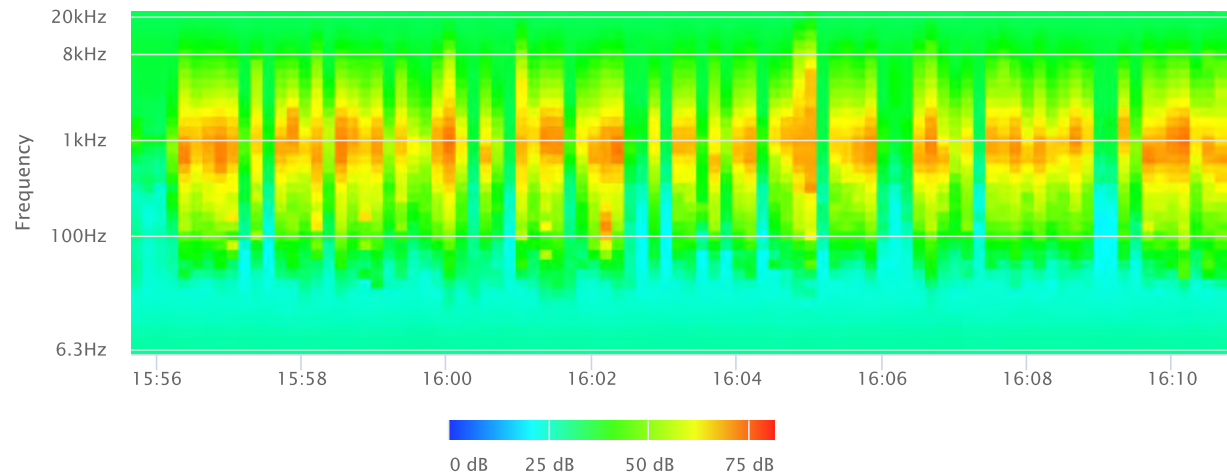
OBA 1/1 Lmax



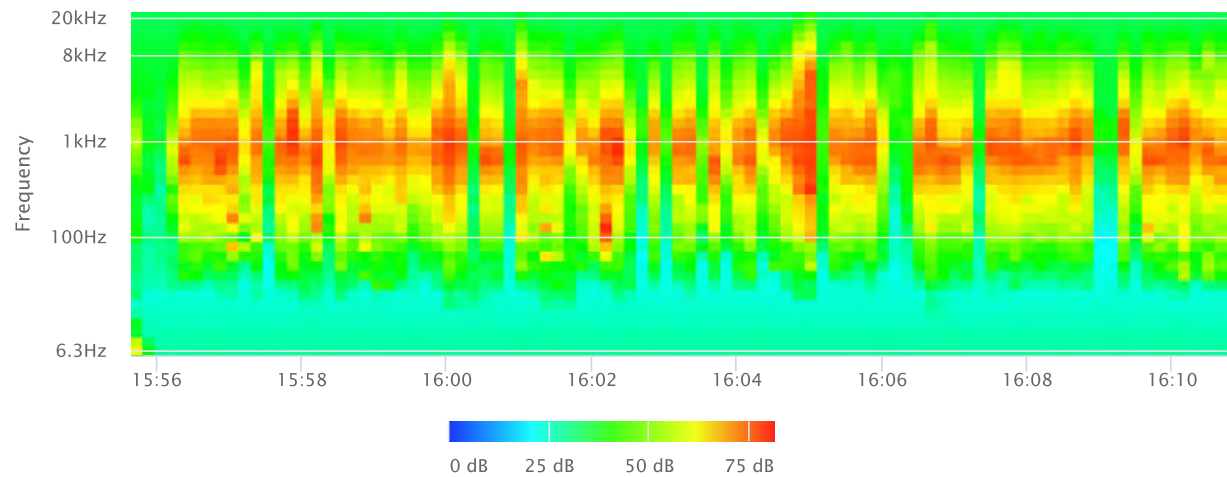
OBA 1/1 Lmin



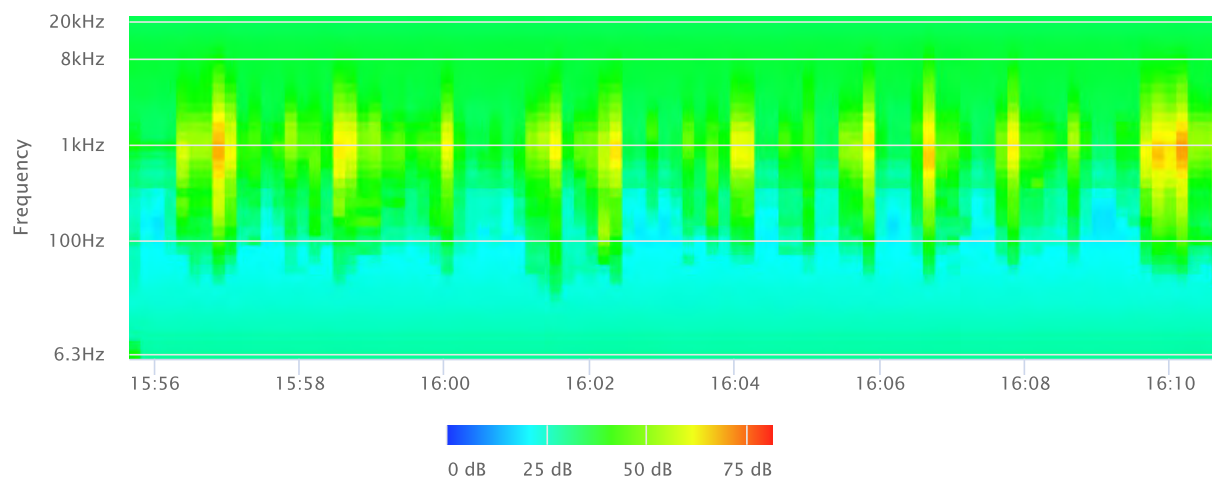
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1 / 3 Lmin



**Noise Measurement
Field Data**

Project Name: Barona Water Pipeline **Date:** May 24, 2024

Project #: 19726

Noise Measurement #: NM5 Run Time: 15 minutes **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 4011 Captain Grande Road, Lakeside, CA 92040

Site Description (Type of Existing Land Use and any other notable features): Project Site: Indian reservation, residential area, homes spaced apart, open land.

Adjacent: Wildcat Canyon Road/ Barona Road running N-S, ~540' W of NM5. Otherwise, rugged, open land.

Weather: <5% cloud, sunshine. Sunset 7:54 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 8 mph **Humidity:** 55% **Terrain:** Flat

Start Time: 4:47 PM **End Time:** 5:02 PM **Run Time:** _____

Leq: 48.7 dB **Primary Noise Source:** Traffic noise from vehicles traveling along Wildcat Canyon Rd, ~540' W of NM5.

Lmax 57.3 dB _____

L2 54.1 dB **Secondary Noise Sources:** Some bird song. Occasional distant air traffic. Leaf rustle from 8 mph breeze

L8 52.7 dB through trees and vegetation.

L25 50.0 dB _____

L50 47.3 dB _____

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

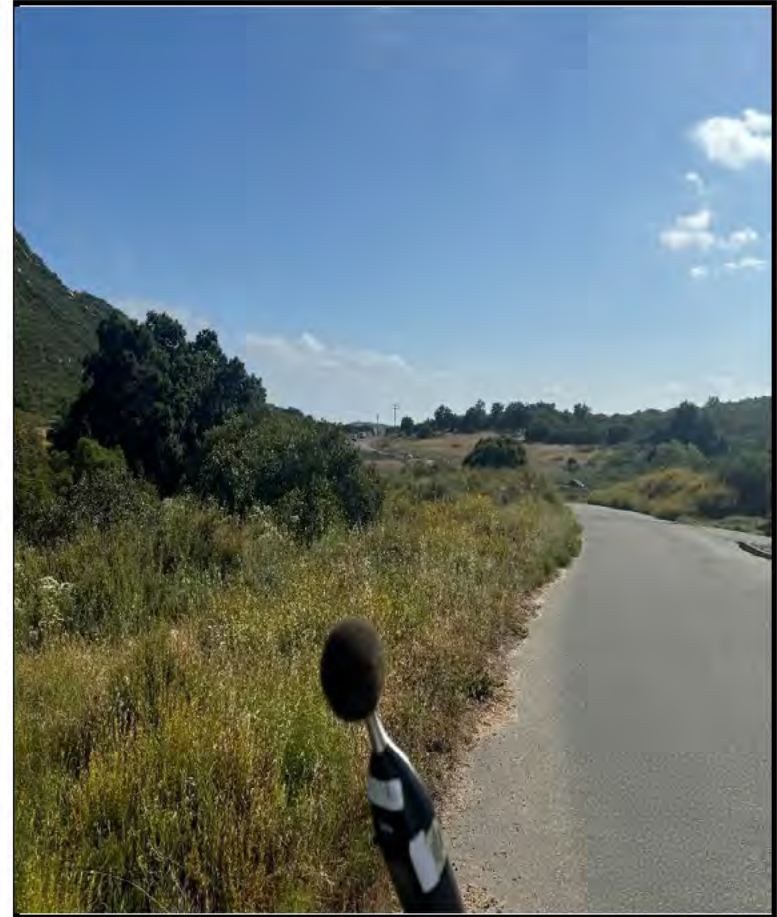
FIELD CALIBRATION DATE: 5/24/2024

Noise Measurement
Field Data

PHOTOS:



NM5 looking W towards fence of residential property 4011 Captain Grande Road, Lakeside.



NM5 looking WSW down Captain Grande Road towards intersection with Wildcat Canyon Road/ Barona Road, ~540' WSW.

Summary				
File Name on Meter	LxT_Data.087.s			
File Name on PC	LxT_0003855-20240524 164752-LxT_Data.087.ldbin			
Serial Number	3855			
Model	SoundTrack LxT®			
Firmware Version	2.404			
User	Ian Edward Gallagher			
Location	NM5 32°58'39.96"N 116°49'21.18"W			
Job Description	15 minute noise measurement			
Note	Ganddini Project #19726 Barona Water Pipeline			
Measurement				
Start	2024-05-24 16:47:52			
Stop	2024-05-24 17:02:52			
Duration	00:15:00.0			
Run Time	00:15:00.0			
Pause	00:00:00.0			
Pre-Calibration	2024-05-24 16:47:03			
Post-Calibration	None			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamplifier	PRMLxT1			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Normal			
OBA Bandwidth	1/1 and 1/3			
OBA Frequency Weighting	A Weighting			
OBA Max Spectrum	Bin Max			
Overload	145.3 dB			
Results				
LAeq	48.7			
LAE	78.3			
EA	7.46027 µPa²h			
EA8	238.7286 µPa²h			
EA40	1.193643 mPa²h			
LApeak (max)	2024-05-24 16:58:58	84.5	dB	
LASmax	2024-05-24 16:49:23	57.3	dB	
LASmin	2024-05-24 16:49:51	35.6	dB	
Statistics				
LCeq	65.5	dB		LA2.00 54.1 dB
LAeq	48.7	dB		LA8.00 52.7 dB
LCeq - LAeq	16.7	dB		LA25.00 50.0 dB
LAleq	51.2	dB		LA50.00 47.3 dB
LAeq	48.7	dB		LA66.60 45.3 dB
LAleq - LAeq	2.5	dB		LA90.00 40.4 dB
Overload Count	0			
Overload Duration	0.0 s			

Measurement Report

Report Summary

Meter's File Name	LxT_Data.087.s	Computer's File Name	LxT_0003855-20240524 164752-LxT_Data.087.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM5 32°58'39.96"N 116°49'21.18"W
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Start Time	2024-05-24 16:47:52	Duration	0:15:00.0
End Time	2024-05-24 17:02:52	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	48.7 dB		
LAE	78.3 dB	SEA	--- dB
EA	7.5 µPa²h	LAFTM5	53.2 dB
EA8	238.7 µPa²h		
EA40	1.2 mPa²h		
LA _{peak}	84.5 dB	2024-05-24 16:58:58	
LAS _{max}	57.3 dB	2024-05-24 16:49:23	
LAS _{min}	35.6 dB	2024-05-24 16:49:51	
LA _{eq}	48.7 dB		
LC _{eq}	65.5 dB	LC _{eq} - LA _{eq}	16.7 dB
LAI _{eq}	51.2 dB	LAI _{eq} - LA _{eq}	2.5 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
--- dB	--- dB	0.0 dB
LDEN	LDay	LEve
--- dB	--- dB	---
		LNight
		--- dB

Any Data

	A	C	Z
	Level	Time Stamp	Level
L _{eq}	48.7 dB		65.5 dB
LS _(max)	57.3 dB	2024-05-24 16:49:23	---
LS _(min)	35.6 dB	2024-05-24 16:49:51	---
L _{Peak(max)}	84.5 dB	2024-05-24 16:58:58	---

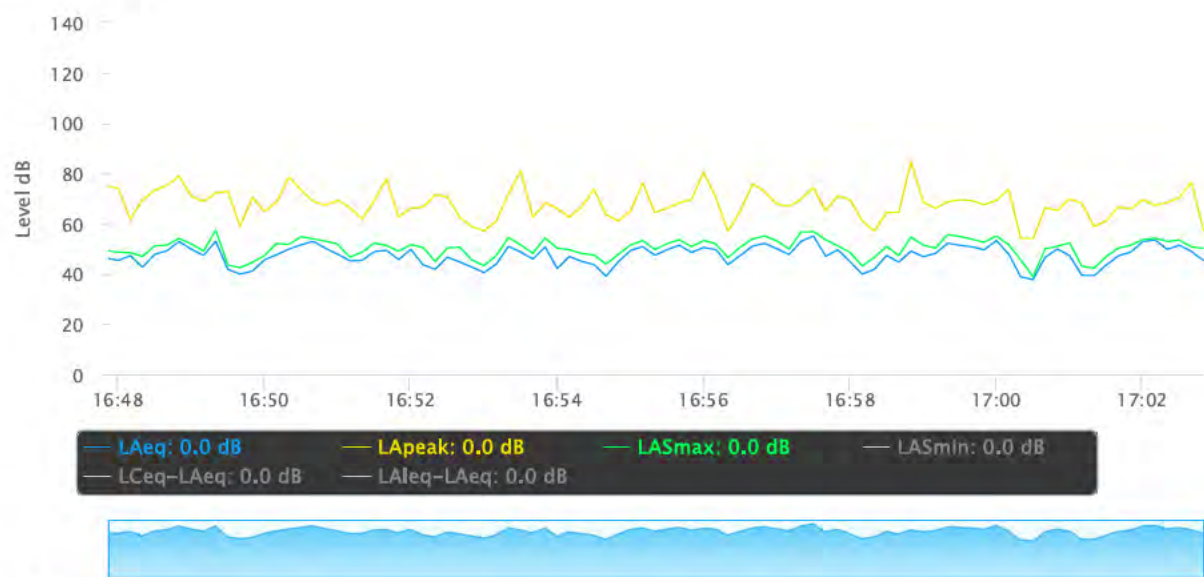
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

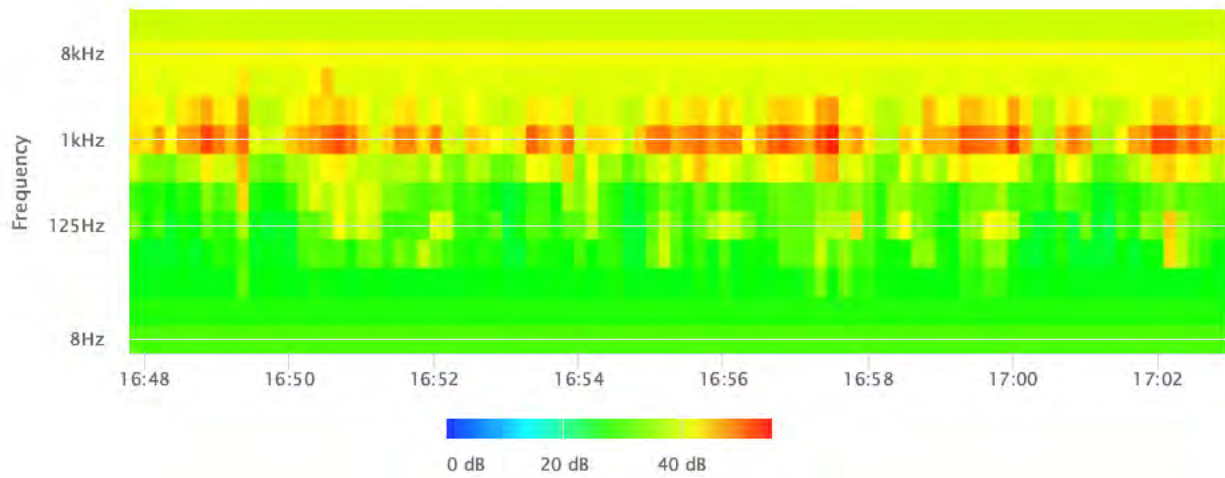
Statistics

LAS 2.0	54.1 dB
LAS 8.0	52.7 dB
LAS 25.0	50.0 dB
LAS 50.0	47.3 dB
LAS 66.6	45.3 dB
LAS 90.0	40.4 dB

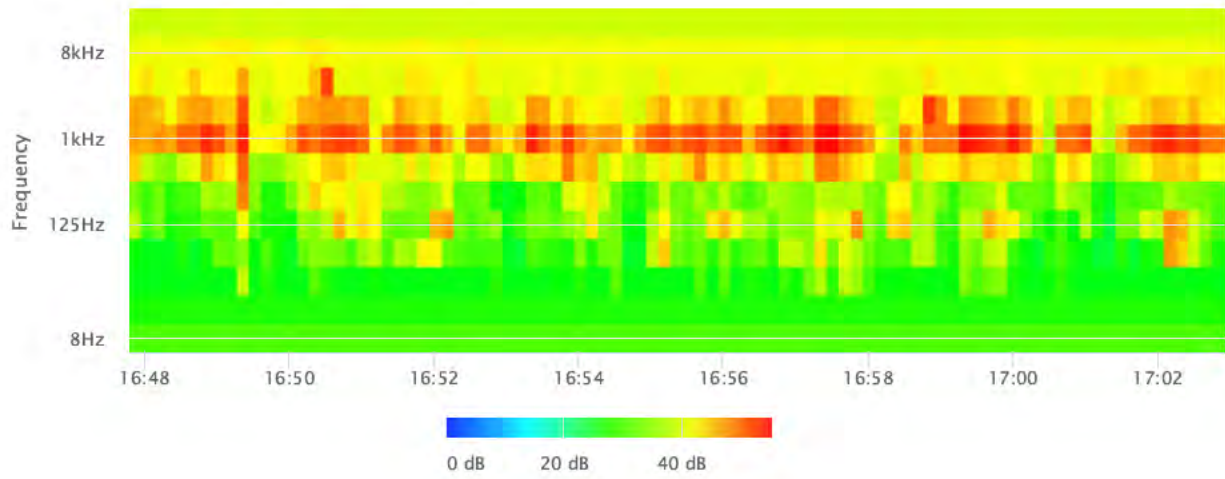
Time History



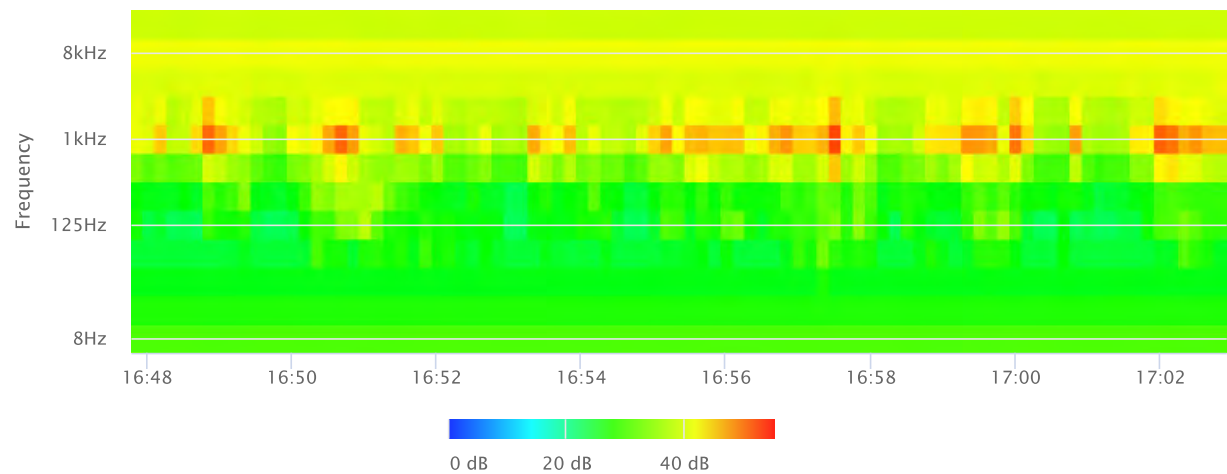
OBA 1/1 Leq



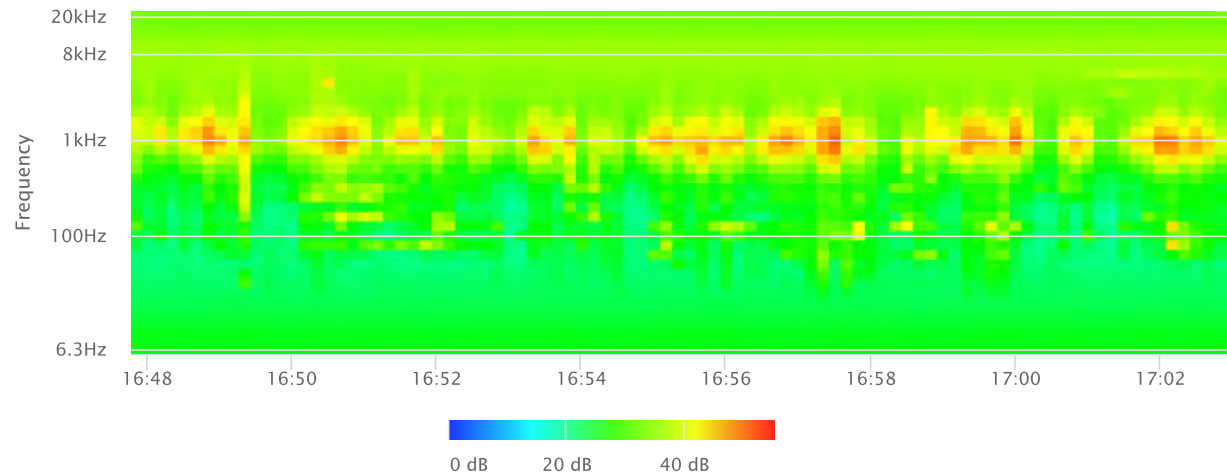
OBA 1/1 Lmax



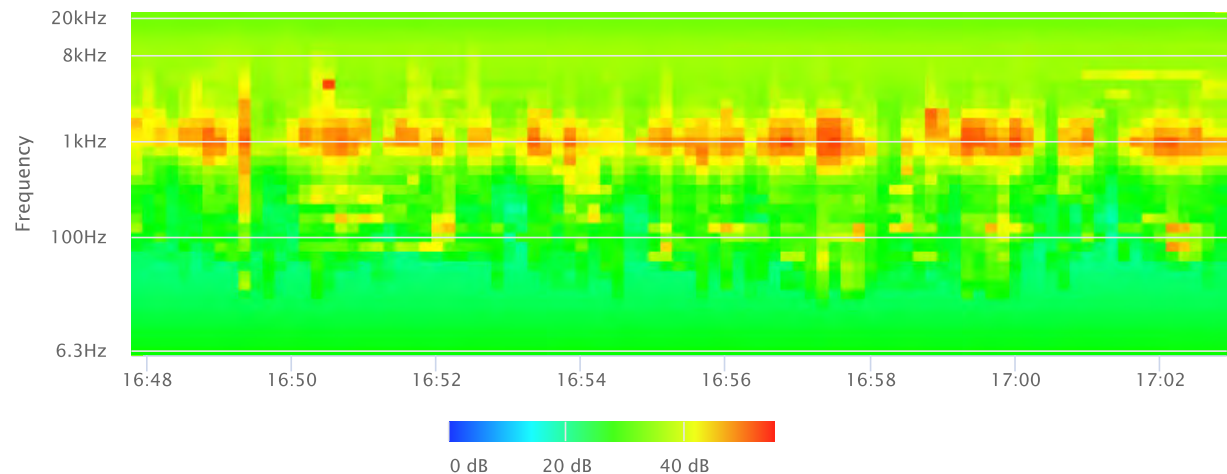
OBA 1/1 Lmin



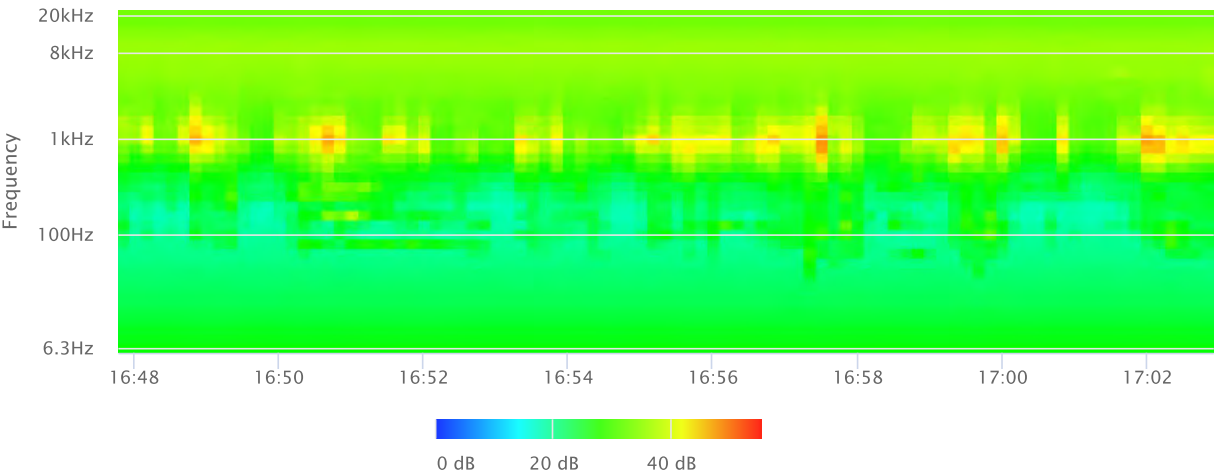
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: Barona Water Pipeline **Date:** May 24, 2024

Project #: 19726

Noise Measurement #: NM6 Run Time: 15 minutes **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 3071 Ketuull Uunyaa Way, Lakeside, CA 92040

Site Description (Type of Existing Land Use and any other notable features): Project Site: Indian reservation, residential area, homes spaced apart, open land.

Adjacent: Wildcat Canyon Road/ Barona Road running N-S, ~150' W of NM6. Otherwise, rugged, open land.

Weather: <5% cloud, sunshine. Sunset 7:54 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 8 mph **Humidity:** 55% **Terrain:** Flat

Start Time: 5:24 PM **End Time:** 5:39 PM **Run Time:** _____

Leq: 57.7 dB **Primary Noise Source:** Traffic noise from vehicles traveling along Wildcat Canyon Rd, ~150' W of NM6.

Lmax 68 dB _____

L2 64.3 dB **Secondary Noise Sources:** Some bird song. Occasional distant air traffic. Leaf rustle from 8 mph breeze

L8 62.4 dB through trees and vegetation.

L25 59.2 dB _____

L50 54.5 dB _____

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

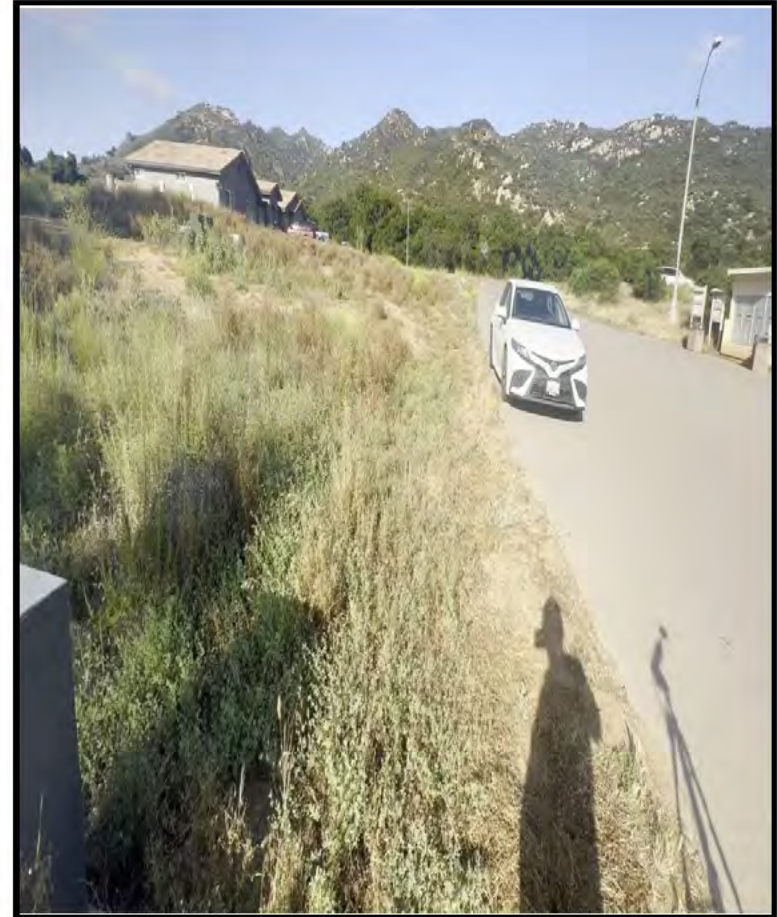
FIELD CALIBRATION DATE: 5/24/2024

Noise Measurement
Field Data

PHOTOS:



NM6 looking ESE down Ketuull Uunyaa Way towards Wildcat Canyon Road/
Barona Road intersection (~180' ESE).



NM6 looking NE towards front yard of residence 3071 Ketuull Uunyaa Way,
Lakeside.

Summary			
File Name on Meter	LxT_Data.088.s		
File Name on PC	LxT_0003855-20240524 172429-LxT_Data.088.ldbin		
Serial Number	3855		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User	Ian Edward Gallagher		
Location	NM6 32°57'39.11"N 116°50'7.87"W		
Job Description	15 minute noise measurement		
Note	Ganddini Project #19726 Barona Water Pipeline		
Measurement			
Start	2024-05-24 17:24:29		
Stop	2024-05-24 17:39:29		
Duration	00:15:00.0		
Run Time	00:15:00.0		
Pause	00:00:00.0		
Pre-Calibration	2024-05-24 17:23:54		
Post-Calibration	None		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	145.3 dB		
Results			
LAeq	57.7		
LAE	87.2		
EA	58.38261 µPa²h		
EA8	1.868243 mPa²h		
EA40	9.341217 mPa²h		
LApeak (max)	2024-05-24 17:29:57	92.3 dB	
LASmax	2024-05-24 17:33:16	68.0 dB	
LASmin	2024-05-24 17:29:11	36.2 dB	
		Statistics	
LCeq	65.5 dB	LA2.00	64.3 dB
LAeq	57.7 dB	LA8.00	62.4 dB
LCeq - LAeq	7.8 dB	LA25.00	59.2 dB
LAleq	60.8 dB	LA50.00	54.5 dB
LAeq	57.7 dB	LA66.60	51.4 dB
LAleq - LAeq	3.2 dB	LA90.00	44.9 dB
Overload Count	0		
Overload Duration	0.0 s		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.088.s	Computer's File Name	LxT_0003855-20240524 172429-LxT_Data.088.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM6 32°57'39.11"N 116°50'7.87"W
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Start Time	2024-05-24 17:24:29	Duration	0:15:00.0
End Time	2024-05-24 17:39:29	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	57.7 dB		
LAE	87.2 dB	SEA	--- dB
EA	58.4 µPa²h	LAFTM5	63.7 dB
EA8	1.9 mPa²h		
EA40	9.3 mPa²h		
LA _{peak}	92.3 dB	2024-05-24 17:29:57	
LAS _{max}	68.0 dB	2024-05-24 17:33:16	
LAS _{min}	36.2 dB	2024-05-24 17:29:11	
LA _{eq}	57.7 dB		
LC _{eq}	65.5 dB	LC _{eq} - LA _{eq}	7.8 dB
LAI _{eq}	60.8 dB	LAI _{eq} - LA _{eq}	3.2 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	13	0:00:22.2
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
--- dB	--- dB	0.0 dB
LDEN	LDay	LEve
--- dB	--- dB	---
		LNight
		--- dB

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	57.7 dB		65.5 dB		--- dB	
LS _(max)	68.0 dB	2024-05-24 17:33:16	--- dB		--- dB	
LS _(min)	36.2 dB	2024-05-24 17:29:11	--- dB		--- dB	
L _{Peak(max)}	92.3 dB	2024-05-24 17:29:57	--- dB		--- dB	

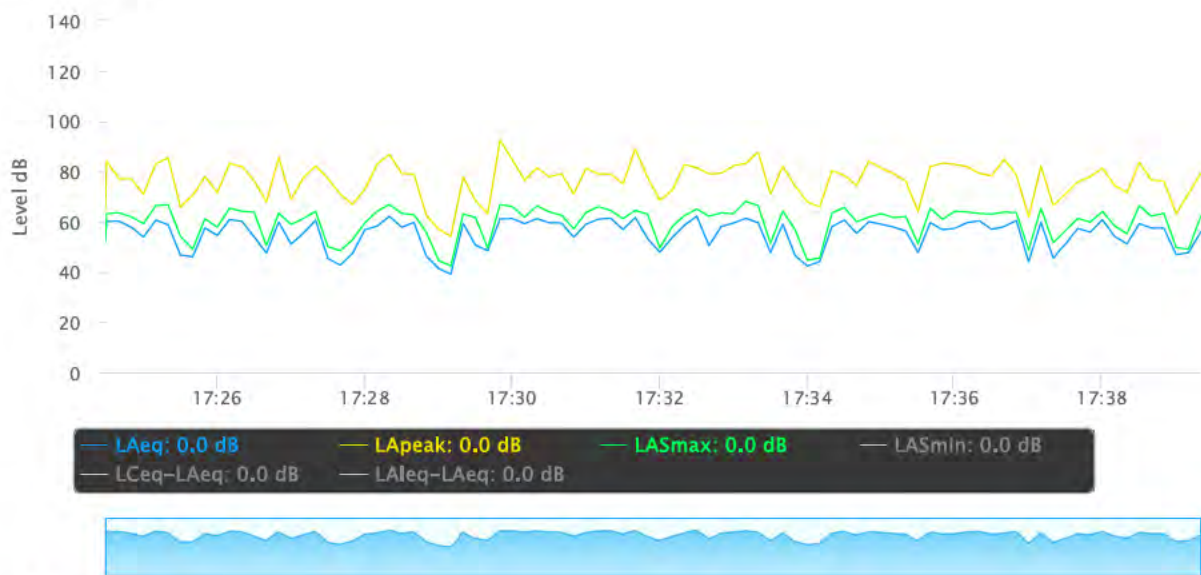
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

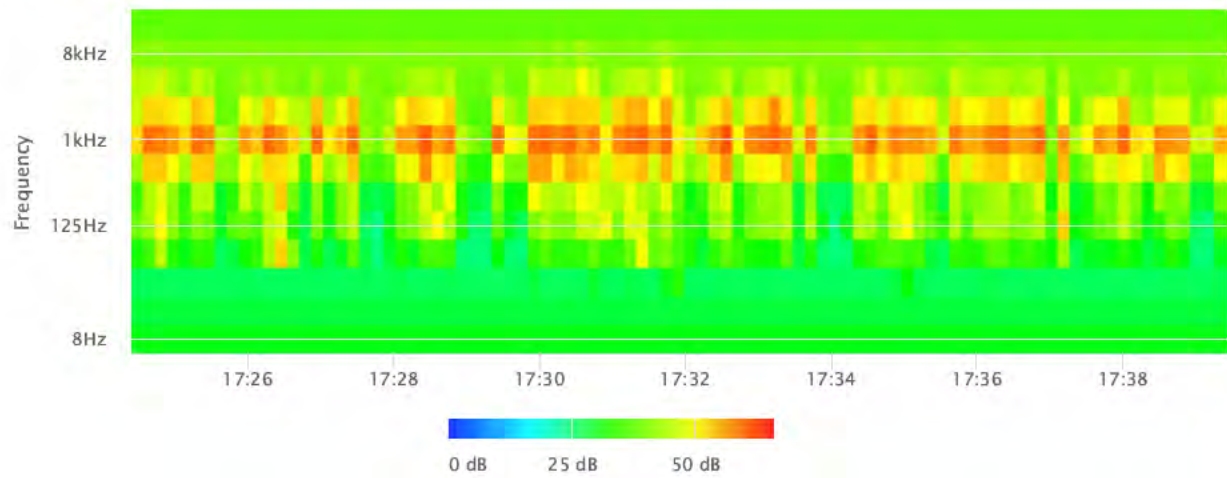
Statistics

LAS 2.0	64.3 dB
LAS 8.0	62.4 dB
LAS 25.0	59.2 dB
LAS 50.0	54.5 dB
LAS 66.6	51.4 dB
LAS 90.0	44.9 dB

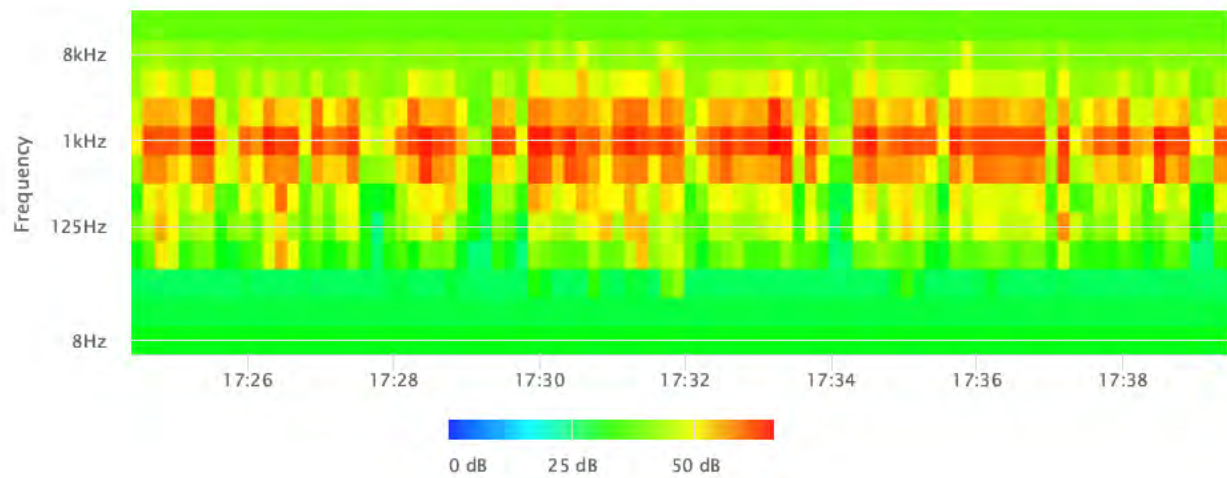
Time History



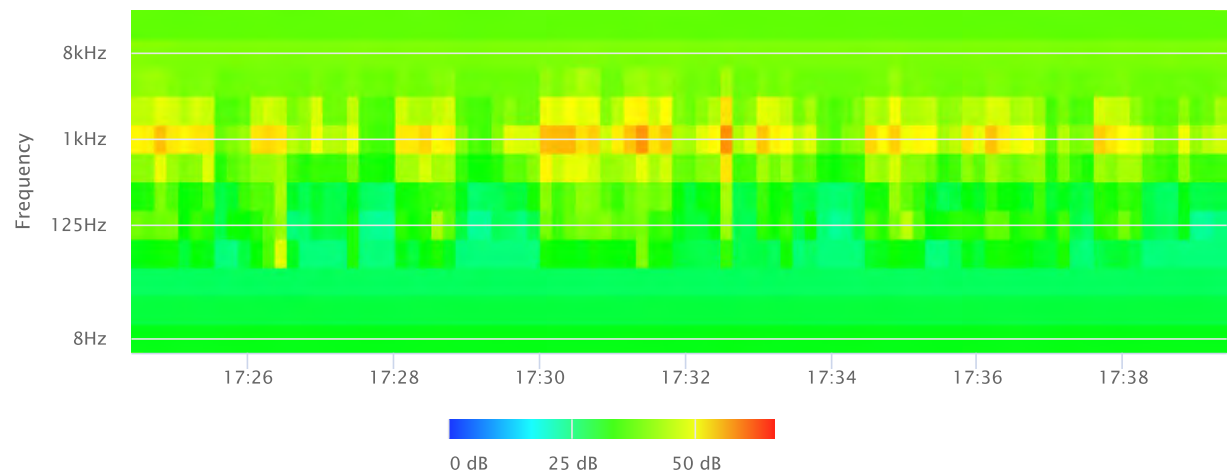
OBA 1/1 Leq



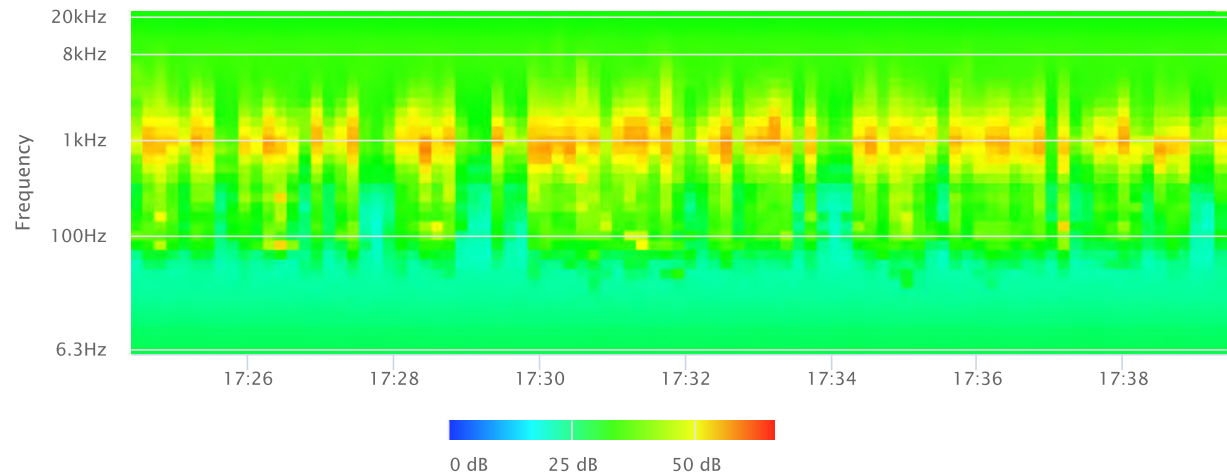
OBA 1/1 Lmax



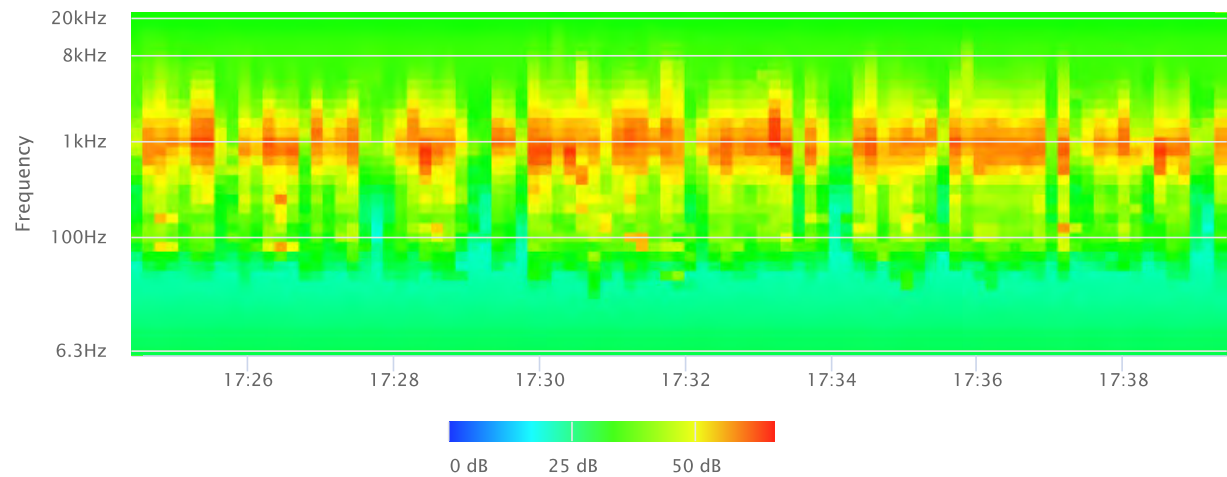
OBA 1/1 Lmin



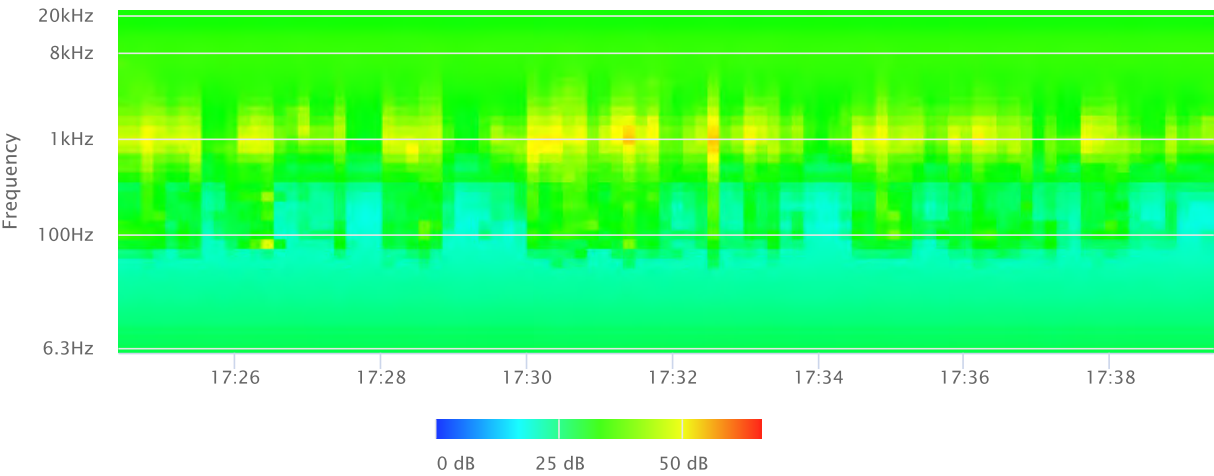
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



**Noise Measurement
Field Data**

Project Name: Barona Water Pipeline **Date:** May 24, 2024

Project #: 19726

Noise Measurement #: NM7 Run Time: 15 minutes **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1170 Barona road, Lakeside, CA 92040

Site Description (Type of Existing Land Use and any other notable features): Project Site: Indian reservation, residential area, homes spaced apart, open land.

Adjacent: Wildcat Canyon Road/ Barona Road running NE-SW, ~520' SE of NM7. Otherwise, rugged, open land.

Weather: <5% cloud, sunshine. Sunset 7:54 PM **Settings:** SLOW FAST

Temperature: 68 deg F **Wind:** 8 mph **Humidity:** 55% **Terrain:** Flat

Start Time: 6:10 PM **End Time:** 6:25 PM **Run Time:** _____

Leq: 48.1 dB **Primary Noise Source:** Traffic noise from vehicles traveling along Wildcat Canyon Rd, ~530' SE of NM7.

Lmax 61.6 dB _____

L2 54.4 dB **Secondary Noise Sources:** Some bird song. Occasional distant air traffic. Leaf rustle from 8 mph breeze

L8 52.2 dB through trees and vegetation.

L25 48.7 dB _____

L50 54.4 dB _____

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

FIELD CALIBRATION DATE: 5/24/2024

Noise Measurement
Field Data

PHOTOS:



NM7 looking E down driveway to residence 1170 Barona Road, Lakeside.



NM7 looking SE down Akuunyaa Way towards Wildcat Canyon Road/
Barona Road intersection (~530' SE).

Summary			
File Name on Meter	LxT_Data.089.s		
File Name on PC	LxT_0003855-20240524 181043-LxT_Data.089.ldbin		
Serial Number	3855		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User	Ian Edward Gallagher		
Location	NM7 32°56'49.14"N 116°50'51.57"W		
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Measurement			
Start	2024-05-24 18:10:43		
Stop	2024-05-24 18:25:43		
Duration	00:15:00.0		
Run Time	00:15:00.0		
Pause	00:00:00.0		
Pre-Calibration	2024-05-24 18:10:17		
Post-Calibration	None		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	145.3 dB		
Results			
LAeq	48.1		
LAE	77.6		
EA	6.424451 μPa²h		
EA8	205.5824 μPa²h		
EA40	1.027912 mPa²h		
LApeak (max)	2024-05-24 18:14:34	90.1 dB	
LASmax	2024-05-24 18:14:15	61.6 dB	
LASmin	2024-05-24 18:13:09	35.1 dB	
Statistics			
LCeq	62.6 dB	LA2.00	54.4 dB
LAeq	48.1 dB	LA8.00	52.2 dB
LCeq - LAeq	14.6 dB	LA25.00	48.7 dB
LAleq	53.2 dB	LA50.00	45.4 dB
LAeq	48.1 dB	LA66.60	43.3 dB
LAleq - LAeq	5.1 dB	LA90.00	40.4 dB
Overload Count	0		
Overload Duration	0.0 s		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.089.s	Computer's File Name	LxT_0003855-20240524 181043-LxT_Data.089.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM7 32°56'49.14"N 116°50'51.57"W
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Start Time	2024-05-24 18:10:43	Duration	0:15:00.0
End Time	2024-05-24 18:25:43	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	48.1 dB		
LAE	77.6 dB	SEA	--- dB
EA	6.4 µPa²h	LAFTM5	53.8 dB
EA8	205.6 µPa²h		
EA40	1.0 mPa²h		
LA _{peak}	90.1 dB	2024-05-24 18:14:34	
LAS _{max}	61.6 dB	2024-05-24 18:14:15	
LAS _{min}	35.1 dB	2024-05-24 18:13:09	
LA _{eq}	48.1 dB		
LC _{eq}	62.6 dB	LC _{eq} - LA _{eq}	14.6 dB
LAI _{eq}	53.2 dB	LAI _{eq} - LA _{eq}	5.1 dB

Exceedances

Count Duration

LAS > 65.0 dB	0	0:00:00.0
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	48.1 dB		62.6 dB		--- dB	
LS _(max)	61.6 dB	2024-05-24 18:14:15	--- dB		--- dB	
LS _(min)	35.1 dB	2024-05-24 18:13:09	--- dB		--- dB	
L _{Peak(max)}	90.1 dB	2024-05-24 18:14:34	--- dB		--- dB	

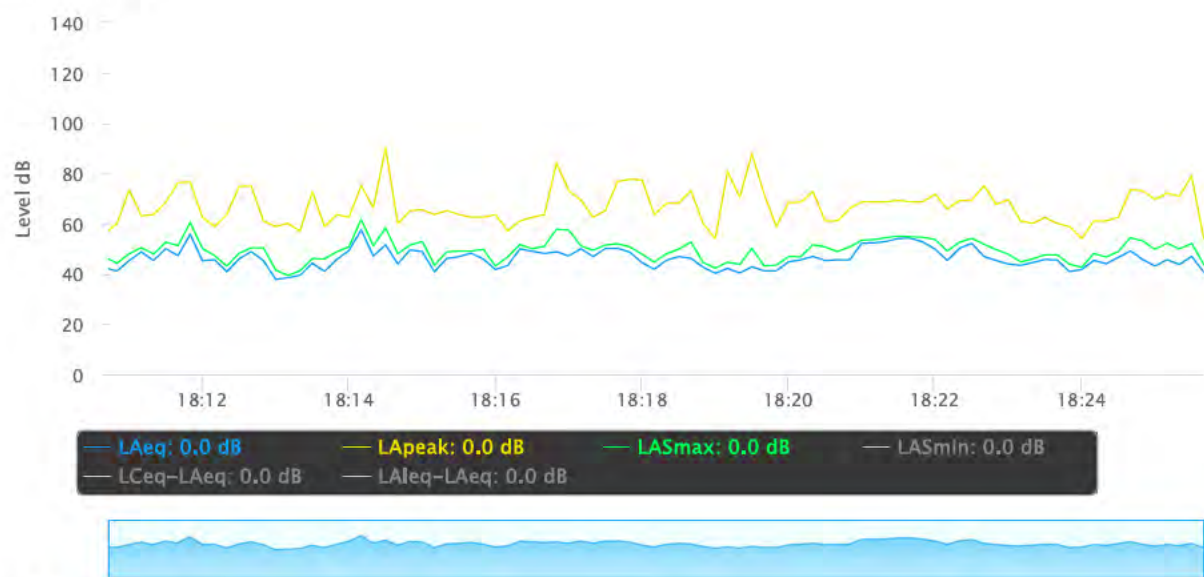
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

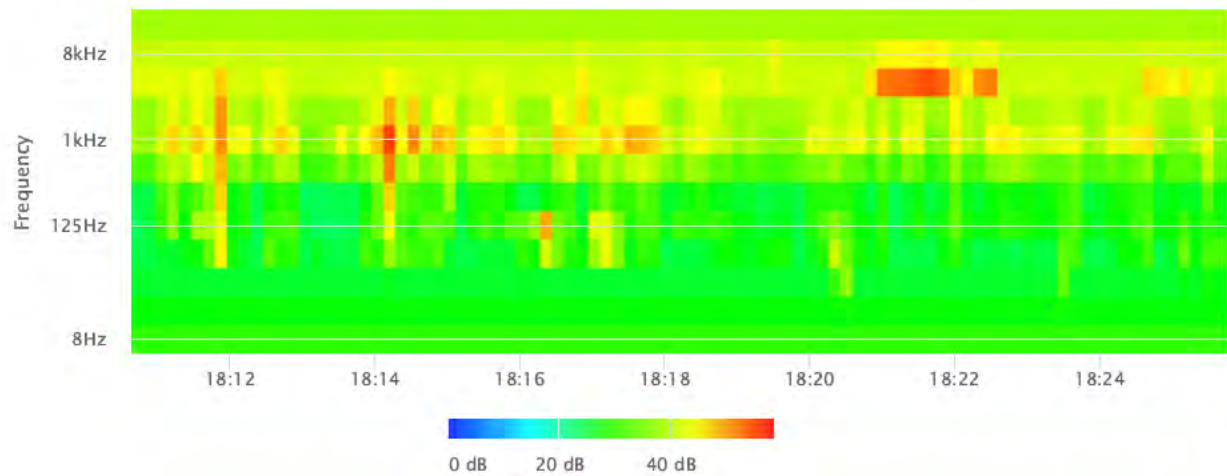
Statistics

LAS 2.0	54.4 dB
LAS 8.0	52.2 dB
LAS 25.0	48.7 dB
LAS 50.0	45.4 dB
LAS 66.6	43.3 dB
LAS 90.0	40.4 dB

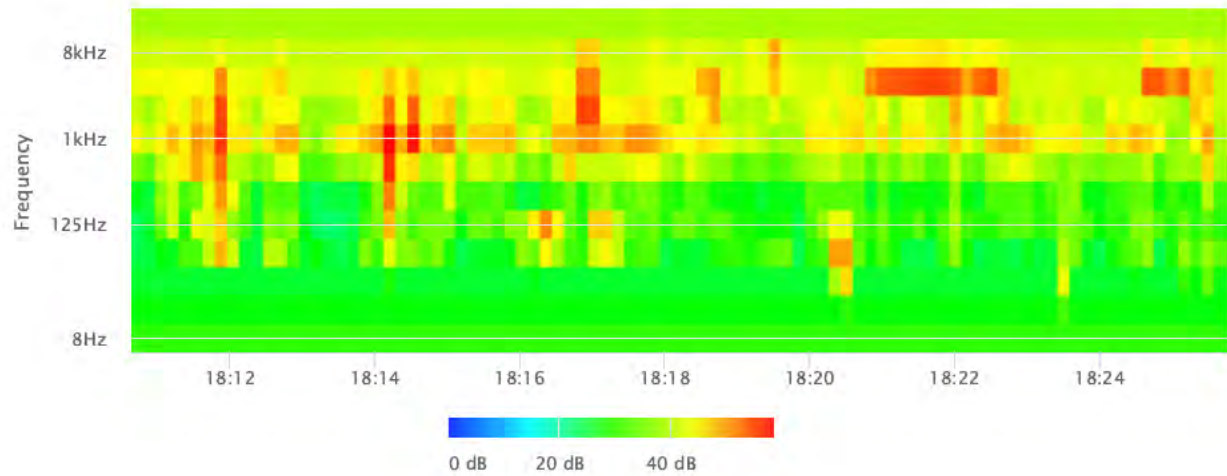
Time History



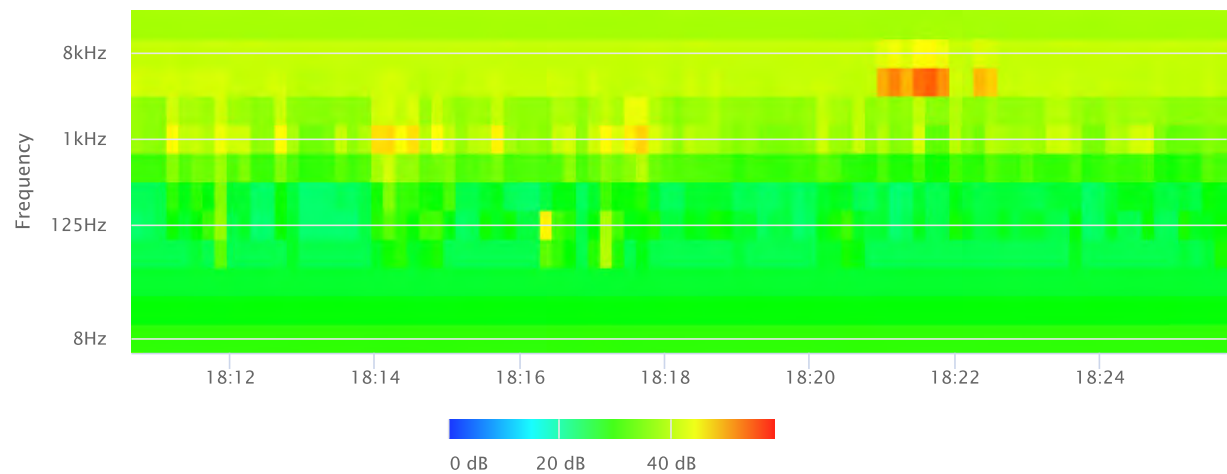
OBA 1/1 Leq



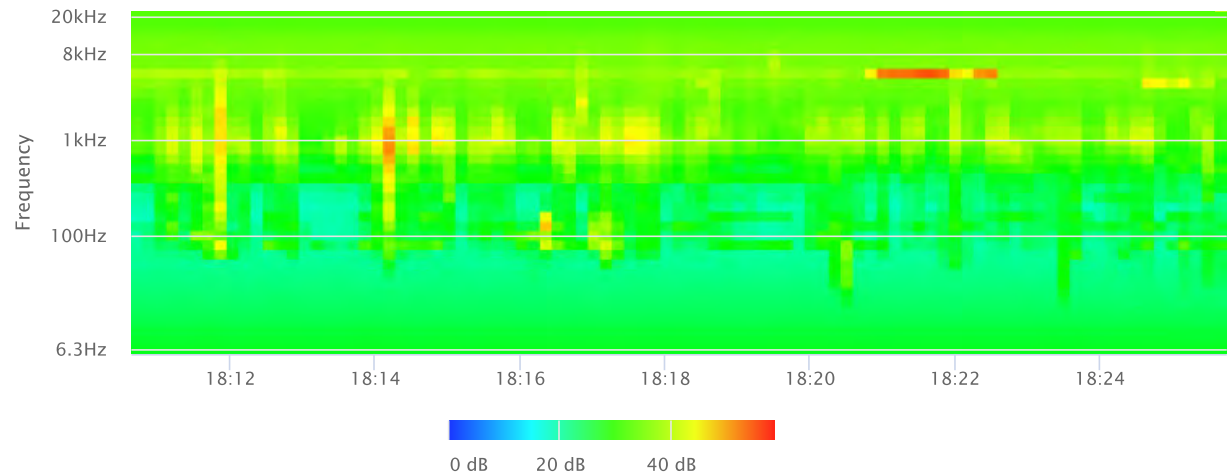
OBA 1/1 Lmax



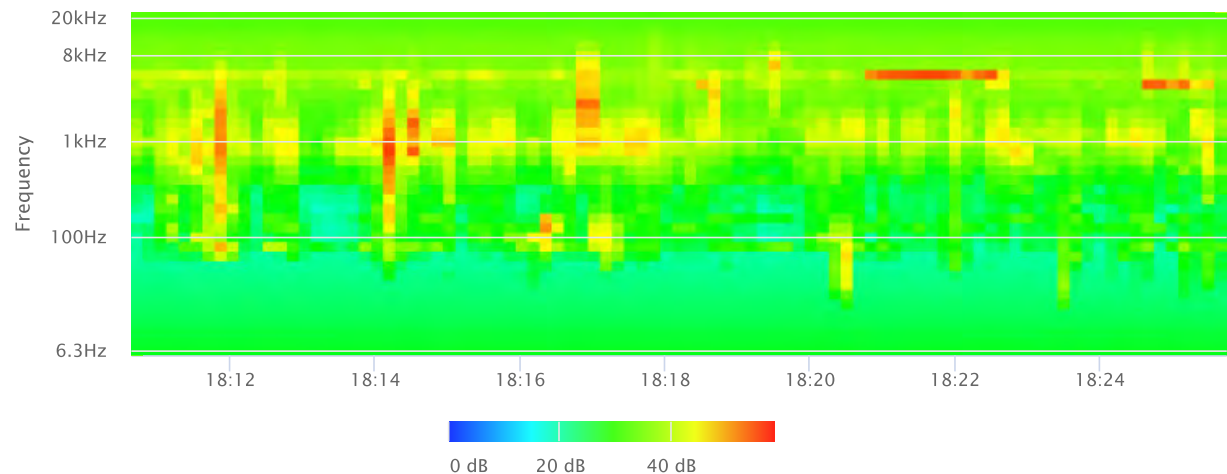
OBA 1/1 Lmin



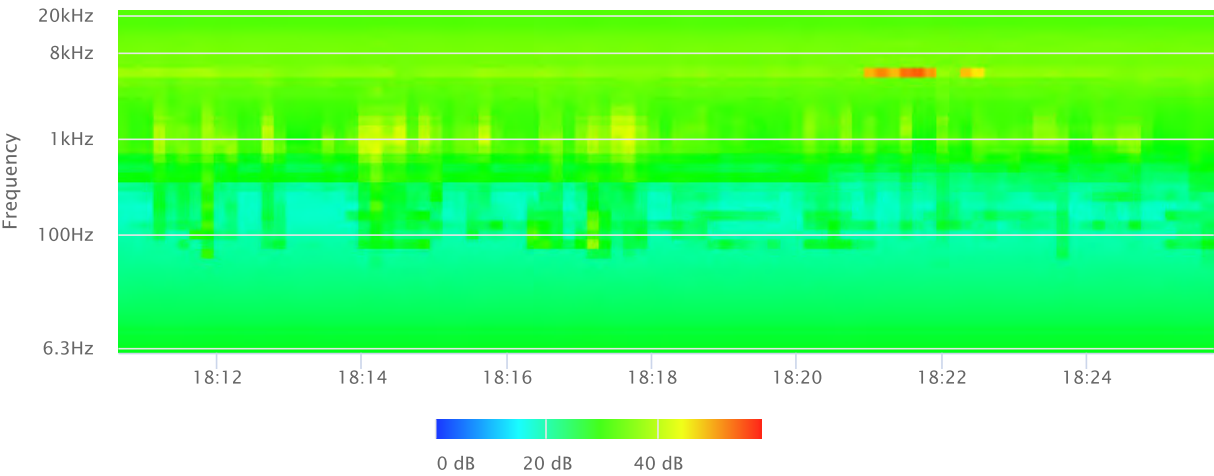
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1 /3 Lmin



**Noise Measurement
Field Data**

Project Name: Barona Water Pipeline **Date:** May 24, 2024

Project #: 19726

Noise Measurement #: NM8 Run Time: 15 minutes **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1095Q Barona Road, Lakeside, CA 92040

Site Description (Type of Existing Land Use and any other notable features): Project Site: Indian reservation, central area, asphalt paved parking, various

commercial buildings. Adjacent: Wildcat Canyon Road/ Barona Road traveling E-W just N of NM8.

Weather: <5% cloud, sunshine. Sunset 7:54 PM

Settings: SLOW FAST

Temperature: 68 deg F **Wind:** 8 mph **Humidity:** 55% **Terrain:** Flat

Start Time: 6:47 PM **End Time:** 7:02 PM **Run Time:** _____

Leq: 67.9 dB **Primary Noise Source:** Traffic noise from the 107 vehicles traveling along Wildcat Canyon Rd/

Lmax 79.5 dB Barona Road ~20' N of NM8.

L2 75.4 dB **Secondary Noise Sources:** Some bird song. Occasional distant air traffic. Leaf rustle from 8 mph breeze

L8 73.4 dB through trees and vegetation. Flag poles clanging in breeze.

L25 69.6 dB

L50 60.2 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

FIELD CALIBRATION DATE: 5/24/2024



Noise Measurement
Field Data

PHOTOS:



NM8 looking N across Barona Road/ Wildcat Canyon Road & parking lot towards building 1095 Barona Road, Lakeside.



NM8 looking SE towards building 1095Q Barona Road, Lakeside.

Summary			
File Name on Meter	LxT_Data.090.s		
File Name on PC	LxT_0003855-20240524 184742-LxT_Data.090.ldbin		
Serial Number	0003855		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User	Ian Edward Gallagher		
Location	NM8 32°56'29.34"N 116°51'21.48"W		
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Measurement			
Start	2024-05-24 18:47:42		
Stop	2024-05-24 19:02:42		
Duration	00:15:00.0		
Run Time	00:15:00.0		
Pause	00:00:00.0		
Pre-Calibration	2024-05-24 18:47:16		
Post-Calibration	None		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	A Weighting		
OBA Max Spectrum	Bin Max		
Overload	145.2 dB		
Results			
LAeq	67.9		
LAE	97.5		
EA	618.759 µPa²h		
EA8	19.800 mPa²h		
EA40	99.001 mPa²h		
LApeak (max)	2024-05-24 18:58:29	96.2 dB	
LASmax	2024-05-24 18:50:34	79.5 dB	
LASmin	2024-05-24 18:59:18	38.9 dB	
Statistics			
LCeq	73.9 dB	LA2.00	75.4 dB
LAeq	67.9 dB	LA8.00	73.4 dB
LCeq - LAeq	6.0 dB	LA25.00	69.6 dB
LAlaq	69.8 dB	LA50.00	60.2 dB
LAeq	67.9 dB	LA66.60	52.7 dB
LAlaq - LAeq	1.9 dB	LA90.00	45.8 dB
Overload Count	0		
Overload Duration	0.0 s		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.090.s	Computer's File Name	LxT_0003855-20240524 184742-LxT_Data.090.ldbin
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM8 32°56'29.34"N 116°51'21.48"W
Job Description	15 minute noise measurement		
Note	Ganddini Project # 19726 Barona Water Pipeline		
Start Time	2024-05-24 18:47:42	Duration	0:15:00.0
End Time	2024-05-24 19:02:42	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	67.9 dB		
LAE	97.5 dB	SEA	--- dB
EA	618.8 µPa²h	LAFTM5	72.6 dB
EA8	19.8 mPa²h		
EA40	99.0 mPa²h		
LA _{peak}	96.2 dB	2024-05-24 18:58:29	
LAS _{max}	79.5 dB	2024-05-24 18:50:34	
LAS _{min}	38.9 dB	2024-05-24 18:59:18	
LA _{eq}	67.9 dB		
LC _{eq}	73.9 dB	LC _{eq} - LA _{eq}	6.0 dB
LAI _{eq}	69.8 dB	LAI _{eq} - LA _{eq}	1.9 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	34	0:06:25.3
LAS > 85.0 dB	0	0:00:00.0
LA _{peak} > 135.0 dB	0	0:00:00.0
LA _{peak} > 137.0 dB	0	0:00:00.0
LA _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
--- dB	--- dB	0.0 dB	
LDEN	LDay	LEve	LNight
--- dB	--- dB	--- dB	--- dB

Any Data

	Level	A Time Stamp	Level	C Time Stamp	Level	Z Time Stamp
L _{eq}	67.9 dB		73.9 dB		--- dB	
LS _(max)	79.5 dB	2024-05-24 18:50:34	--- dB		--- dB	
LS _(min)	38.9 dB	2024-05-24 18:59:18	--- dB		--- dB	
L _{Peak(max)}	96.2 dB	2024-05-24 18:58:29	--- dB		--- dB	

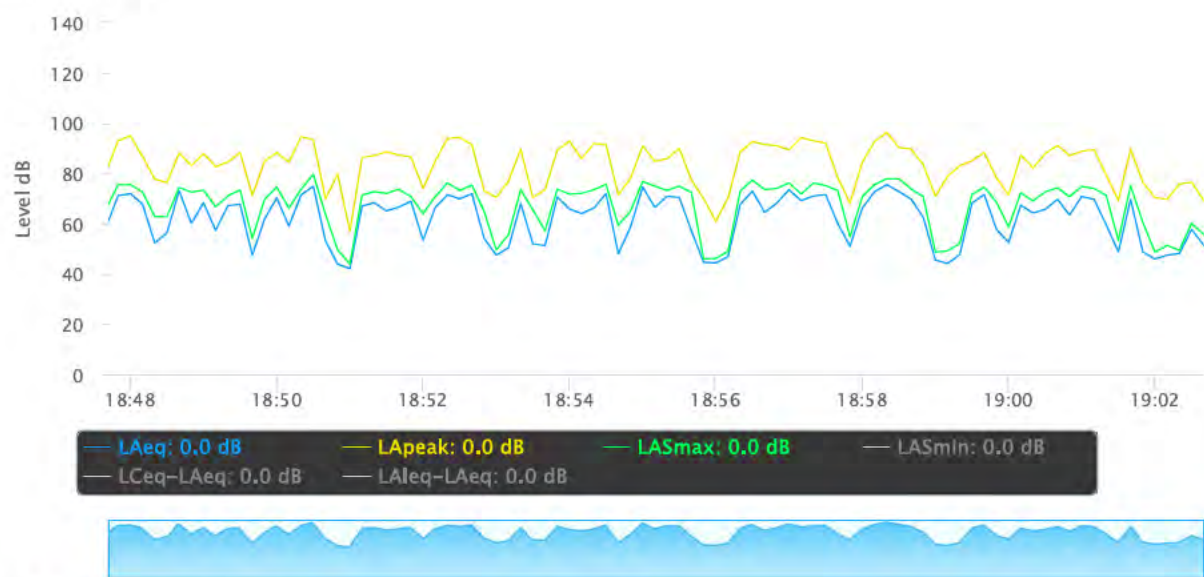
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

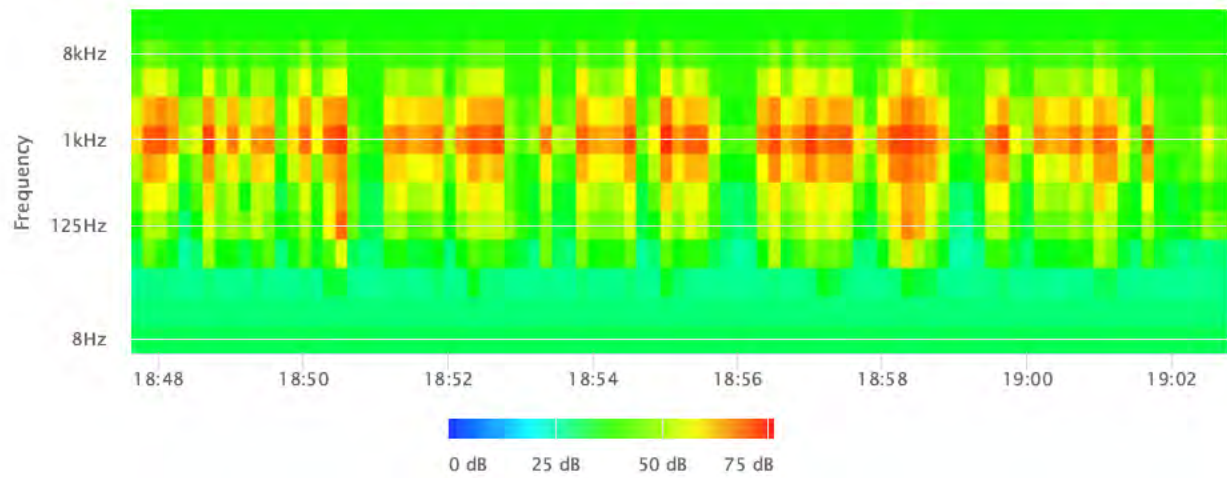
Statistics

LAS 2.0	75.4 dB
LAS 8.0	73.4 dB
LAS 25.0	69.6 dB
LAS 50.0	60.2 dB
LAS 66.6	52.7 dB
LAS 90.0	45.8 dB

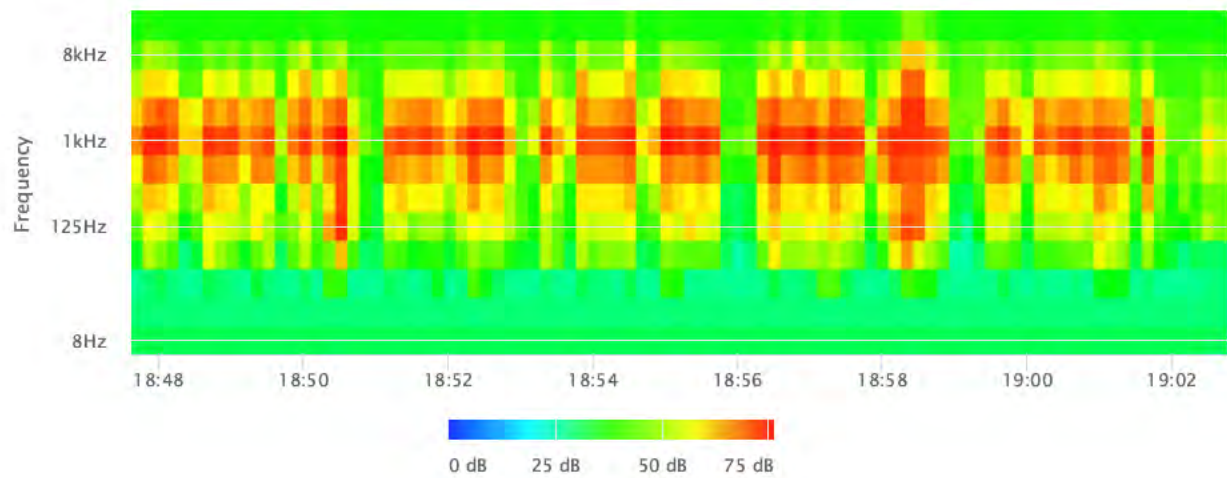
Time History



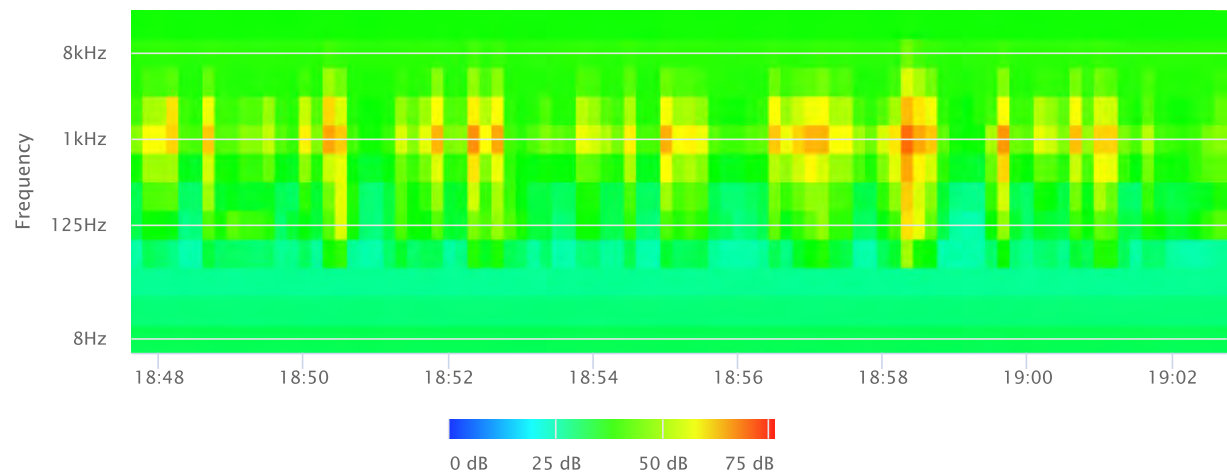
OBA 1/1 Leq



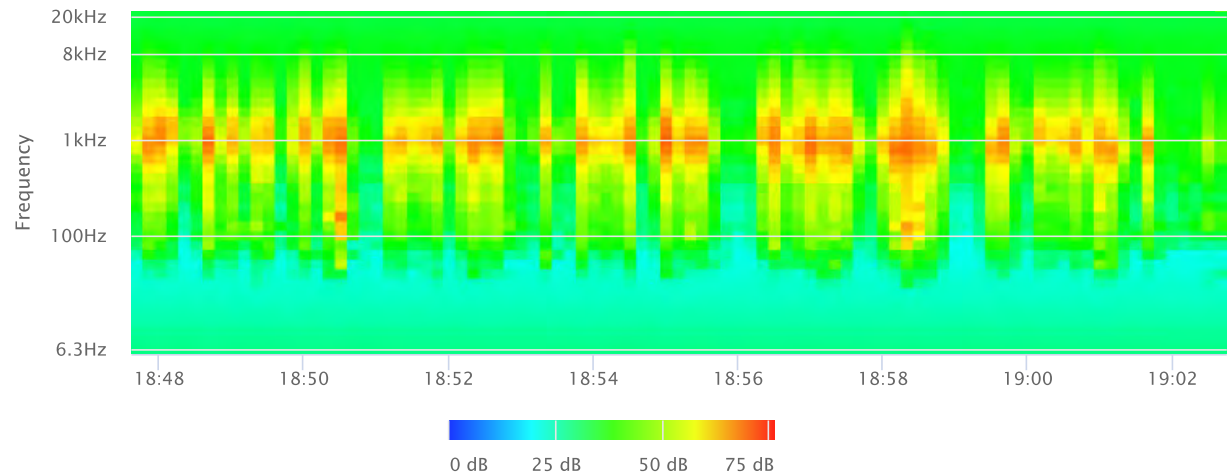
OBA 1/1 Lmax



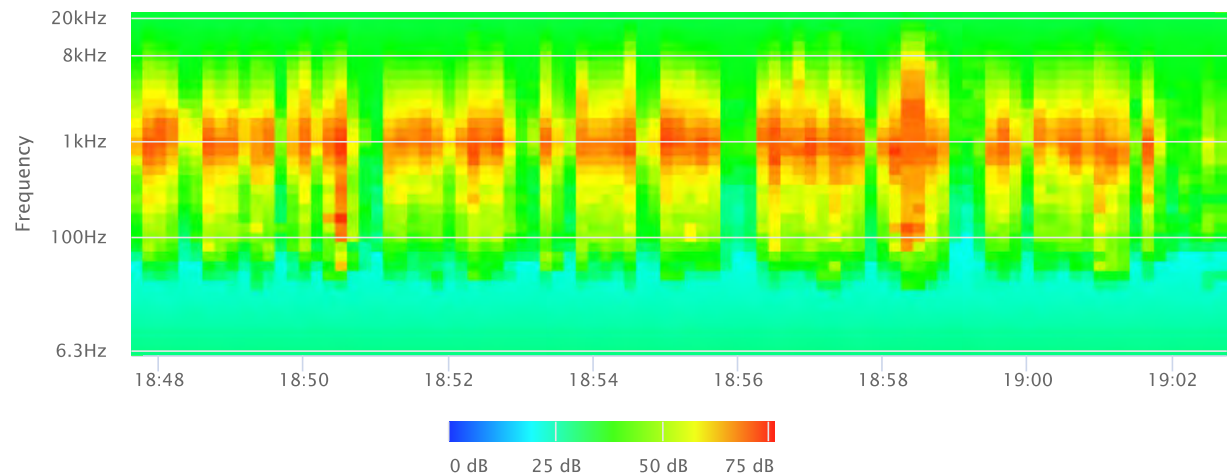
OBA 1/1 Lmin



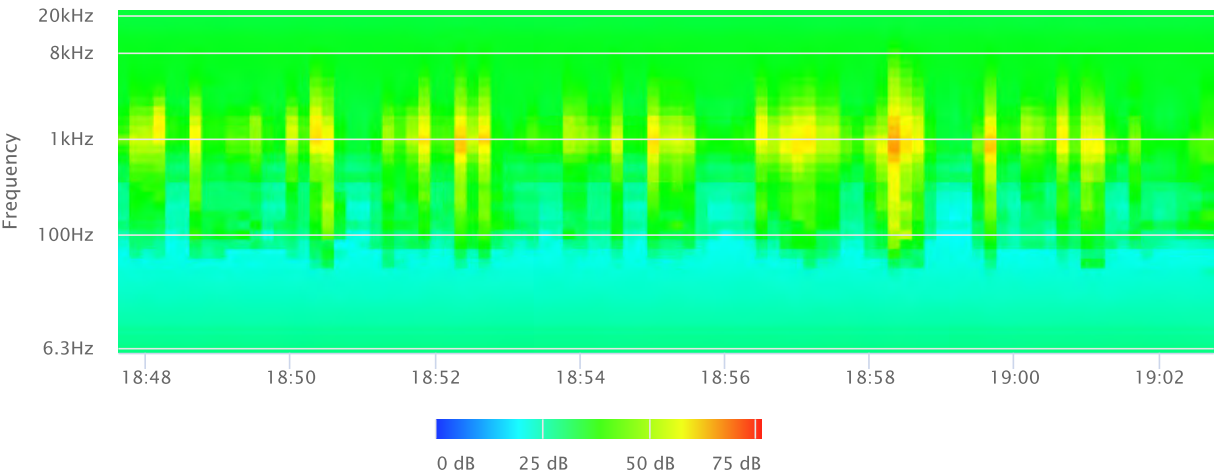
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



APPENDIX D

CONSTRUCTION NOISE MODELING

Receptors along Pipe ine Installation - at 50 feet

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Demolition									
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Other Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Construction Equipment	1	84	50	50	0.50	0.0	-3.0	84.0	81.0
Skid Steer Loaders	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								Log Sum	87.6
Pipe Installation									
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Other Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Construction Equipment (forklifts)	1	61	50	50	0.50	0.0	-3.0	61.0	58.0
Skid Steer Loaders	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								Log Sum	87.4
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Plate Compactors	1	83	50	20	0.20	0.0	-7.0	83.0	76.0
Paving Equipment	1	77	50	50	0.50	0.0	-3.0	77.0	74.0
Skid Steer Loaders	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								Log Sum	86.7
Striping/Restriping									
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Construction Equipment	1	84	50	50	0.50	0.0	-3.0	84.0	81.0
Striping Machine	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								Log Sum	85.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipe line Installation - at 100 feet

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Demolition									
Tractors/Loaders/Backhoes	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Excavators	1	81	100	40	0.40	-6.0	-4.0	75.0	71.0
Other Material Handling Equipment	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Other Construction Equipment	1	84	100	50	0.50	-6.0	-3.0	78.0	75.0
Skid Steer Loaders	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
								Log Sum	81.6
Pipe Installation									
Tractors/Loaders/Backhoes	2	84	100	40	0.80	-6.0	-1.0	78.0	77.0
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Excavators	1	81	100	40	0.40	-6.0	-4.0	75.0	71.0
Other Material Handling Equipment	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Other Construction Equipment (forklifts)	1	61	100	50	0.50	-6.0	-3.0	55.0	52.0
Skid Steer Loaders	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
								Log Sum	81.4
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	100	40	0.80	-6.0	-1.0	78.0	77.0
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Plate Compactors	1	83	100	20	0.20	-6.0	-7.0	77.0	70.0
Paving Equipment	1	77	100	50	0.50	-6.0	-3.0	71.0	68.0
Skid Steer Loaders	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
								Log Sum	80.7
Striping/Restriping									
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Other Construction Equipment	1	84	100	50	0.50	-6.0	-3.0	78.0	75.0
Striping Machine	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
								Log Sum	79.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipe ine Installation - at 200 feet

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Demolition									
Tractors/Loaders/Backhoes	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Excavators	1	81	200	40	0.40	-12.0	-4.0	69.0	65.0
Other Material Handling Equipment	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Other Construction Equipment	1	84	200	50	0.50	-12.0	-3.0	72.0	68.9
Skid Steer Loaders	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
								Log Sum	75.6
Pipe Installation									
Tractors/Loaders/Backhoes	2	84	200	40	0.80	-12.0	-1.0	72.0	71.0
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Excavators	1	81	200	40	0.40	-12.0	-4.0	69.0	65.0
Other Material Handling Equipment	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Other Construction Equipment (forklifts)	1	61	200	50	0.50	-12.0	-3.0	49.0	45.9
Skid Steer Loaders	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
								Log Sum	75.4
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	200	40	0.80	-12.0	-1.0	72.0	71.0
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Plate Compactors	1	83	200	20	0.20	-12.0	-7.0	71.0	64.0
Paving Equipment	1	77	200	50	0.50	-12.0	-3.0	65.0	61.9
Skid Steer Loaders	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
								Log Sum	74.7
Striping/Restriping									
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Other Construction Equipment	1	84	200	50	0.50	-12.0	-3.0	72.0	68.9
Striping Machine	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
								Log Sum	73.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connections - at 50 feet

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation/Grading									
Scraper	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Other Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Skid Steer Loaders	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								Log Sum	87.4
Excavation									
Tractors/Loaders/Backhoes	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Excavators	1	81	50	40	0.40	0.0	-4.0	81.0	77.0
Other Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Construction Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Skid Steer Loaders	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								Log Sum	87.4
Existing Pipeline Cut-In									
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Material Handling Equipment	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Construction Equipment (forklifts)	1	61	50	50	0.50	0.0	-3.0	61.0	58.0
Pumps	2	81	50	50	1.00	0.0	0.0	81.0	81.0
								Log Sum	87.2
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	50	40	0.80	0.0	-1.0	84.0	83.0
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Plate Compactors	1	83	50	20	0.20	0.0	-7.0	83.0	76.0
Paving Equipment	1	77	50	50	0.50	0.0	-3.0	77.0	74.0
Skid Steer Loaders	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								Log Sum	86.7
Striping/Restriping									
Off-Highway Trucks	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
Other Construction Equipment	1	84	50	50	0.50	0.0	-3.0	84.0	81.0
Striping Machine	1	84	50	40	0.40	0.0	-4.0	84.0	80.0
								Log Sum	85.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connections - at 100 feet

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation/Grading									
Scraper	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Tractors/Loaders/Backhoes	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Excavators	1	81	100	40	0.40	-6.0	-4.0	75.0	71.0
Other Material Handling Equipment	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Skid Steer Loaders	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
								Log Sum	81.4
Excavation									
Tractors/Loaders/Backhoes	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Excavators	1	81	100	40	0.40	-6.0	-4.0	75.0	71.0
Other Material Handling Equipment	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Other Construction Equipment	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Skid Steer Loaders	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
								Log Sum	81.4
Existing Pipeline Cut-In									
Tractors/Loaders/Backhoes	2	84	100	40	0.80	-6.0	-1.0	78.0	77.0
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Other Material Handling Equipment	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Other Construction Equipment (forklifts)	1	61	100	50	0.50	-6.0	-3.0	55.0	52.0
Pumps	2	81	100	50	1.00	-6.0	0.0	75.0	75.0
								Log Sum	81.2
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	100	40	0.80	-6.0	-1.0	78.0	77.0
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Plate Compactors	1	83	100	20	0.20	-6.0	-7.0	77.0	70.0
Paving Equipment	1	77	100	50	0.50	-6.0	-3.0	71.0	68.0
Skid Steer Loaders	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
								Log Sum	80.7
Striping/Restriping									
Off-Highway Trucks	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
Other Construction Equipment	1	84	100	50	0.50	-6.0	-3.0	78.0	75.0
Striping Machine	1	84	100	40	0.40	-6.0	-4.0	78.0	74.0
								Log Sum	79.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connections - at 200 feet

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation/Grading									
Scraper	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Tractors/Loaders/Backhoes	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Excavators	1	81	200	40	0.40	-12.0	-4.0	69.0	65.0
Other Material Handling Equipment	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Skid Steer Loaders	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
								Log Sum	75.4
Excavation									
Tractors/Loaders/Backhoes	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Excavators	1	81	200	40	0.40	-12.0	-4.0	69.0	65.0
Other Material Handling Equipment	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Other Construction Equipment	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Skid Steer Loaders	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
								Log Sum	75.4
Existing Pipeline Cut-In									
Tractors/Loaders/Backhoes	2	84	200	40	0.80	-12.0	-1.0	72.0	71.0
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Other Material Handling Equipment	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Other Construction Equipment (forklifts)	1	61	200	50	0.50	-12.0	-3.0	49.0	45.9
Pumps	2	81	200	50	1.00	-12.0	0.0	69.0	69.0
								Log Sum	75.2
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	200	40	0.80	-12.0	-1.0	72.0	71.0
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Plate Compactors	1	83	200	20	0.20	-12.0	-7.0	71.0	64.0
Paving Equipment	1	77	200	50	0.50	-12.0	-3.0	65.0	61.9
Skid Steer Loaders	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
								Log Sum	74.7
Striping/Restriping									
Off-Highway Trucks	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
Other Construction Equipment	1	84	200	50	0.50	-12.0	-3.0	72.0	68.9
Striping Machine	1	84	200	40	0.40	-12.0	-4.0	72.0	68.0
								Log Sum	73.1

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation/Grading									
Scraper	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
Tractors/Loaders/Backhoes	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
Off-Highway Trucks	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
Excavators	1	81	1169	40	0.40	-27.4	-4.0	53.6	49.6
Other Material Handling Equipment	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
Skid Steer Loaders	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Site Preparation/Grading									
Scraper	1	84	209	40	0.40	-12.4	-4.0	71.6	67.6
Tractors/Loaders/Backhoes	1	84	209	40	0.40	-12.4	-4.0	71.6	67.6
Off-Highway Trucks	1	84	209	40	0.40	-12.4	-4.0	71.6	67.6
Excavators	1	81	209	40	0.40	-12.4	-4.0	68.6	64.6
Other Material Handling Equipment	1	84	209	40	0.40	-12.4	-4.0	71.6	67.6
Skid Steer Loaders	1	84	209	40	0.40	-12.4	-4.0	71.6	67.6
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Excavation									
Tractors/Loaders/Backhoes	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
Off-Highway Trucks	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
Excavators	1	81	1169	40	0.40	-27.4	-4.0	53.6	49.6
Other Material Handling Equipment	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
Other Construction Equipment	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
Skid Steer Loaders	1	84	1169	40	0.40	-27.4	-4.0	56.6	52.6
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Excavation									
Tractors/Loaders/Backhoes	1	84	208	40	0.40	-12.4	-4.0	71.6	67.6
Off-Highway Trucks	1	84	208	40	0.40	-12.4	-4.0	71.6	67.6
Excavators	1	81	208	40	0.40	-12.4	-4.0	68.6	64.6
Other Material Handling Equipment	1	84	208	40	0.40	-12.4	-4.0	71.6	67.6
Other Construction Equipment	1	84	208	40	0.40	-12.4	-4.0	71.6	67.6
Skid Steer Loaders	1	84	208	40	0.40	-12.4	-4.0	71.6	67.6
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Existing Pipeline Cut-In									
Tractors/Loaders/Backhoes	2	84	1143	40	0.80	-27.2	-1.0	56.8	55.8
Off-Highway Trucks	1	84	1143	40	0.40	-27.2	-4.0	56.8	52.8
Other Material Handling Equipment	1	84	1143	40	0.40	-27.2	-4.0	56.8	52.8
Other Construction Equipment (forklifts)	1	61	1143	50	0.50	-27.2	-3.0	33.8	30.8
Pumps	2	81	1143	50	1.00	-27.2	0.0	53.8	53.8
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Existing Pipeline Cut-In									
Tractors/Loaders/Backhoes	2	84	204	40	0.80	-12.2	-1.0	71.8	70.8
Off-Highway Trucks	1	84	204	40	0.40	-12.2	-4.0	71.8	67.8
Other Material Handling Equipment	1	84	204	40	0.40	-12.2	-4.0	71.8	67.8
Other Construction Equipment (forklifts)	1	61	204	50	0.50	-12.2	-3.0	48.8	45.8
Pumps	2	81	204	50	1.00	-12.2	0.0	68.8	68.8
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	1075	40	0.80	-26.6	-1.0	57.4	56.4
Off-Highway Trucks	1	84	1075	40	0.40	-26.6	-4.0	57.4	53.4
Plate Compactors	1	83	1075	20	0.20	-26.6	-7.0	56.4	49.4
Paving Equipment	1	77	1075	50	0.50	-26.6	-3.0	50.4	47.3
Skid Steer Loaders	1	84	1075	40	0.40	-26.6	-4.0	57.4	53.4
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	192	40	0.80	-11.7	-1.0	72.3	71.3
Off-Highway Trucks	1	84	192	40	0.40	-11.7	-4.0	72.3	68.3
Plate Compactors	1	83	192	20	0.20	-11.7	-7.0	71.3	64.3
Paving Equipment	1	77	192	50	0.50	-11.7	-3.0	65.3	62.3
Skid Steer Loaders	1	84	192	40	0.40	-11.7	-4.0	72.3	68.3
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Striping/Restriping									
Off-Highway Trucks	1	84	899	40	0.40	-25.1	-4.0	58.9	54.9
Other Construction Equipment	1	84	899	50	0.50	-25.1	-3.0	58.9	55.9
Striping Machine	1	84	899	40	0.40	-25.1	-4.0	58.9	54.9
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Point of Connection - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Striping/Restriping									
Off-Highway Trucks	1	84	160	40	0.40	-10.1	-4.0	73.9	69.9
Other Construction Equipment	1	84	160	50	0.50	-10.1	-3.0	73.9	70.9
Striping Machine	1	84	160	40	0.40	-10.1	-4.0	73.9	69.9
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipeline Installation - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Demolition									
Tractors/Loaders/Backhoes	1	84	1200	40	0.40	-27.6	-4.0	56.4	52.4
Off-Highway Trucks	1	84	1200	40	0.40	-27.6	-4.0	56.4	52.4
Excavators	1	81	1200	40	0.40	-27.6	-4.0	53.4	49.4
Other Material Handling Equipment	1	84	1200	40	0.40	-27.6	-4.0	56.4	52.4
Other Construction Equipment	1	84	1200	50	0.50	-27.6	-3.0	56.4	53.4
Skid Steer Loaders	1	84	1200	40	0.40	-27.6	-4.0	56.4	52.4
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipeline Installation - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Demolition									
Tractors/Loaders/Backhoes	1	84	213	40	0.40	-12.6	-4.0	71.4	67.4
Off-Highway Trucks	1	84	213	40	0.40	-12.6	-4.0	71.4	67.4
Excavators	1	81	213	40	0.40	-12.6	-4.0	68.4	64.4
Other Material Handling Equipment	1	84	213	40	0.40	-12.6	-4.0	71.4	67.4
Other Construction Equipment	1	84	213	50	0.50	-12.6	-3.0	71.4	68.4
Skid Steer Loaders	1	84	213	40	0.40	-12.6	-4.0	71.4	67.4
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipeline Installation - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Pipe Installation									
Tractors/Loaders/Backhoes	2	84	1170	40	0.80	-27.4	-1.0	56.6	55.6
Off-Highway Trucks	1	84	1170	40	0.40	-27.4	-4.0	56.6	52.6
Excavators	1	81	1170	40	0.40	-27.4	-4.0	53.6	49.6
Other Material Handling Equipment	1	84	1170	40	0.40	-27.4	-4.0	56.6	52.6
Other Construction Equipment (forklifts)	1	61	1170	50	0.50	-27.4	-3.0	33.6	30.6
Skid Steer Loaders	1	84	1170	40	0.40	-27.4	-4.0	56.6	52.6
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipeline Installation - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Pipe Installation									
Tractors/Loaders/Backhoes	2	84	208	40	0.80	-12.4	-1.0	71.6	70.6
Off-Highway Trucks	1	84	208	40	0.40	-12.4	-4.0	71.6	67.6
Excavators	1	81	208	40	0.40	-12.4	-4.0	68.6	64.6
Other Material Handling Equipment	1	84	208	40	0.40	-12.4	-4.0	71.6	67.6
Other Construction Equipment (forklifts)	1	61	208	50	0.50	-12.4	-3.0	48.6	45.6
Skid Steer Loaders	1	84	208	40	0.40	-12.4	-4.0	71.6	67.6
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipeline Installation - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	1075	40	0.80	-26.6	-1.0	57.4	56.4
Off-Highway Trucks	1	84	1075	40	0.40	-26.6	-4.0	57.4	53.4
Plate Compactors	1	83	1075	20	0.20	-26.6	-7.0	56.4	49.4
Paving Equipment	1	77	1075	50	0.50	-26.6	-3.0	50.4	47.3
Skid Steer Loaders	1	84	1075	40	0.40	-26.6	-4.0	57.4	53.4
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipeline Installation - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Backfill and Resurfacing									
Tractors/Loaders/Backhoes	2	84	192	40	0.80	-11.7	-1.0	72.3	71.3
Off-Highway Trucks	1	84	192	40	0.40	-11.7	-4.0	72.3	68.3
Plate Compactors	1	83	192	20	0.20	-11.7	-7.0	71.3	64.3
Paving Equipment	1	77	192	50	0.50	-11.7	-3.0	65.3	62.3
Skid Steer Loaders	1	84	192	40	0.40	-11.7	-4.0	72.3	68.3
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipeline Installation - 60 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Striping/Restriping									
Off-Highway Trucks	1	84	899	40	0.40	-25.1	-4.0	58.9	54.9
Other Construction Equipment	1	84	899	50	0.50	-25.1	-3.0	58.9	55.9
Striping Machine	1	84	899	40	0.40	-25.1	-4.0	58.9	54.9
								Log Sum	60.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

Receptors along Pipeline Installation - 75 dBA Leq Contour

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA ¹	Distance to Receptor ³	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Striping/Restriping									
Off-Highway Trucks	1	84	160	40	0.40	-10.1	-4.0	73.9	69.9
Other Construction Equipment	1	84	160	50	0.50	-10.1	-3.0	73.9	70.9
Striping Machine	1	84	160	40	0.40	-10.1	-4.0	73.9	69.9
								Log Sum	75.0

Notes:
(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)
(2) Source: SoundPLAN reference list.
(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).



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Appendix F-1
February 2025
Sound Plan Noise Figures
by Ganddini Group, Inc.



Exhibit A

Barona Water Pipeline Construction Noise Contours at Location 4 (dBA, Leq)

Signs and symbols

* Construction Equipment

Levels in dB(A) Leq

— = 65
— = 70
— = 75
— = 80
— = 85

1 : 125

0 30 60 120 180 240
feet



Exhibit B

Barona Water Pipeline Construction Noise Contours at Location 4 (dBA, Leq)

Signs and symbols

* Construction Equipment

Levels in dB(A) Leq

— = 65
— = 70
— = 75
— = 80
— = 85

1 : 125

0 30 60 120 180 240
feet



Exhibit C

Barona Water Pipeline Construction Noise Contours at Location 6 (dBA, Leq)

Signs and symbols

* Construction Equipment

Levels in dB(A) Leq

— = 65
— = 70
— = 75
— = 80
— = 85

1 : 125

0 30 60 120 180 240
feet



Exhibit D

Barona Water Pipeline Construction Noise Contours at Location 7 (dBA, Leq)

Signs and symbols

* Construction Equipment

Levels in dB(A) Leq

— = 65
— = 70
— = 75
— = 80
— = 85

1 : 125

0 30 60 120 180 240
feet