APPENDIX D

Biological Resources Assessment

Lewiston Community Services District Wastewater Collection, Treatment, and Disposal Project

Biological Resources Assessment

CEQA Lead Agency:
State Water Resources Control Board
Division of Financial Assistance
Regional Programs Unit

Project Applicant:
Lewiston Community Services District
P.O. Box 164
Lewiston, California 96052

Prepared by:
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Redding, California 96002

January 2017

Lewiston Community Services District Wastewater Collection, Treatment, and Disposal Project

Biological Resources Assessment

CEQA Lead Agency:
State Water Resources Control Board
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Regional Programs Unit
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January 2017

Lewiston Community Services District Wastewater Collection, Treatment, and Disposal Project

Biological Resources Assessment

Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

ºF	degrees Fahrenheit
ADWF	average dry weather flows
BLM	Bureau of Land Management
BMPs	best management practices
BOD	biological oxygen demand
BOR	Bureau of Reclamation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
GPD	gallons per day
LCSD	Lewiston Community Services District
LPMWC	Lewiston Park Mutual Water Company
LS	Lift Station
LVWC	Lewiston Valley Water Company
MBTA	Migratory Bird Treaty Act
MMF	maximum monthly flow
NCRWQCB	North Coast Regional Water Quality Control Board
NEPA	National Environmental Policy Act
NSO	northern spotted owl
NSR	North State Resources, Inc.
NWFP	Northwest Forest Plan
Project Report	Planning Grant Project Report
Project	Lewiston Community Services District Wastewater Collection, Treatment, and Disposal Project
PS	Pump Station
PWWF	peak wet weather flow
RWQCB	Regional Water Quality Control Board

SSA	Sewer Service Area
SWRCB	State Water Resources Control Board
TDBLS	Trinity Dam Boulevard Lift Station
TDMHP	Trinity Dam Mobile Home Park
TN	Total Nitrogen
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
WTP	water treatment plant
WWTP	waste water treatment plant

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1. Introduction

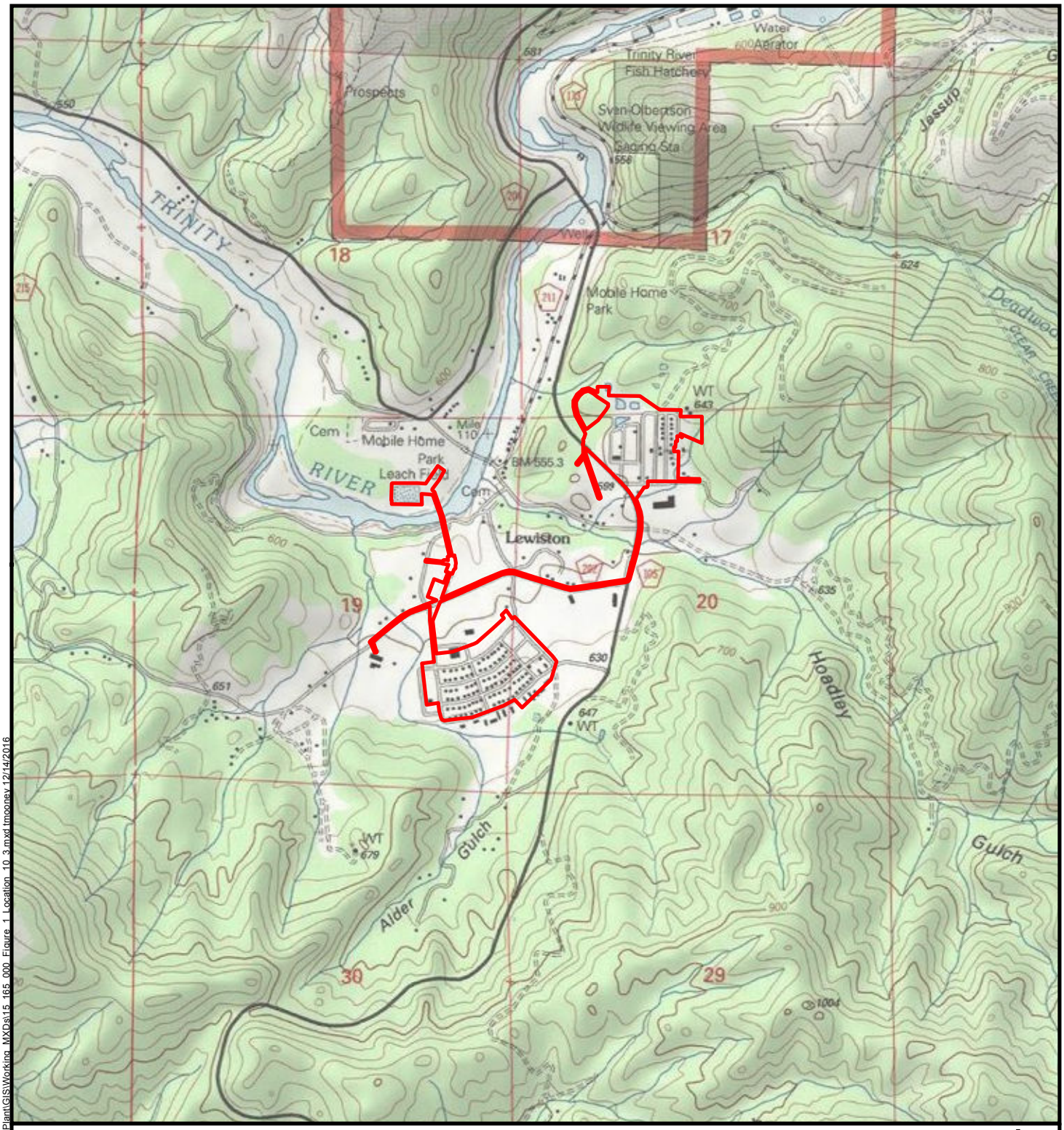
This Biological Resources Assessment report describes the biological resources present in the proposed Lewiston Community Services District (LCSD) Wastewater Collection, Treatment, and Disposal Project (project) study area and vicinity located in the community of Lewiston, Trinity County, California (Figure 1). The purpose of this report is to describe the existing site conditions and identify potentially occurring special-status plant and animal species, waters of the United States, and other sensitive biological resources in the study area. This report discusses potential impacts on biological resources that may occur with implementation of the proposed project and provides recommendations for reducing potential impacts to a less-than-significant level.

1.1 Project Location

The project is located in the community of Lewiston, Trinity County, California. Lewiston is located approximately 16-road miles southeast of Weaverville, Trinity County, California and approximately 35-road miles west of Redding, Shasta County, California. The project is shown on the *Lewiston, California* 7.5 minute U.S. Geological Survey quadrangle, Township 33N, Range 8W, Sections 17, 19, and 20 (Figure 1). The proposed project occurs on private properties, as well as local, state, and federally owned parcels. Figure 2 shows land ownerships in and adjacent to the study area. The Bureau of Land Management (BLM) is the river management agency in the Lewiston area. The proposed sewer service area (SSA) boundary includes those residences that currently receive wastewater collection, treatment and disposal from existing service providers. Figure 3 shows the proposed project layout and the affected SSAs for each of the three existing sewer collection and treatment facility providers within the project's area of potential effect.

1.2 Study Area

The 90.41-acre study area is mainly composed of residential neighborhoods and linear alignments along paved roads. It also contains existing wastewater treatment infrastructure including a small wastewater treatment plant, percolation beds, and sewage treatment ponds. A portion of the study area crosses the Trinity River and another portion crosses Hoadley Gulch (where the stream is in a culvert under Trinity Dam Boulevard). The land in the study area is largely disturbed with small areas of undisturbed habitat located at the river crossing and along the edges of the study area.



Study Area (90.41 acres)

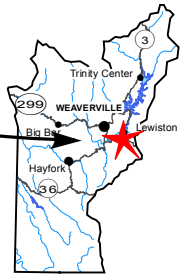
Public Land Survey:
Township 33N
Range 08W
Sections 17, 19, 20

USGS 7.5 Quad:
Lewiston, 1982

2,000 1,000 0 2,000
Feet

1:24,000

Project Location



Trinity County, California

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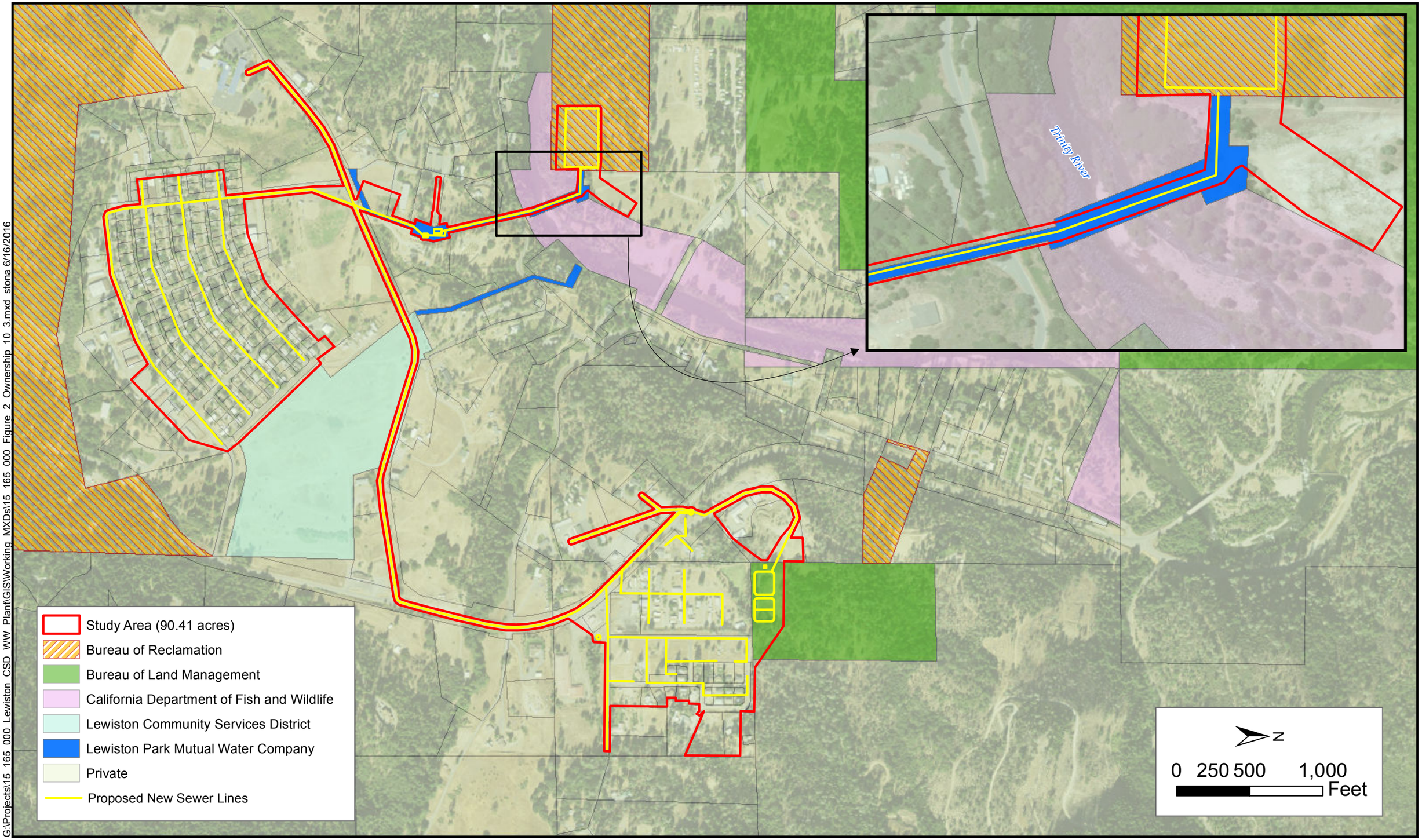
Lewiston Community Services District Wastewater Project

Figure 1
Project Location and Vicinity Map



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Lewiston Community Services District Wastewater Project

Figure 2
Land Ownership

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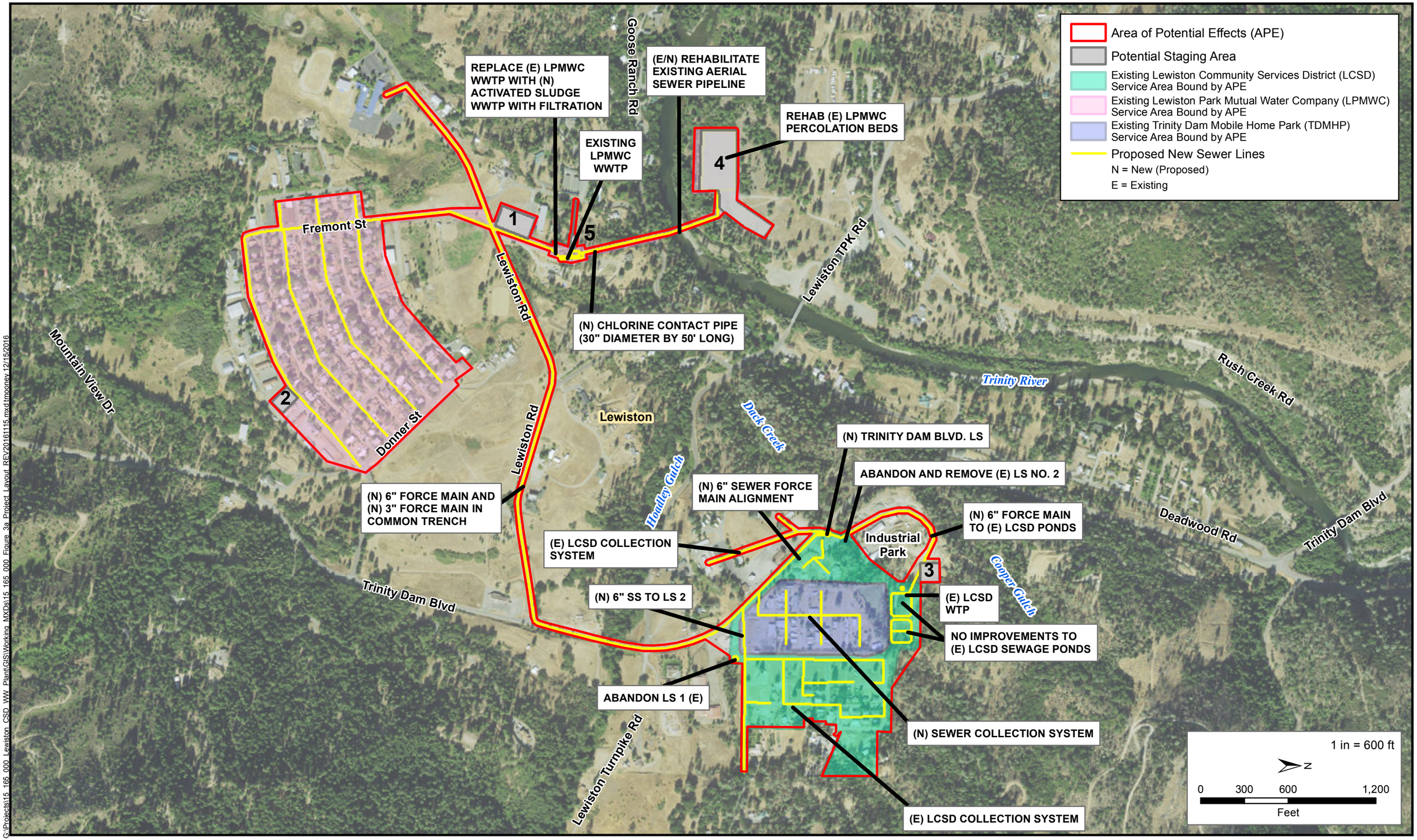

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Lewiston Community Services District Wastewater Project

Figure 3A
Project Layout

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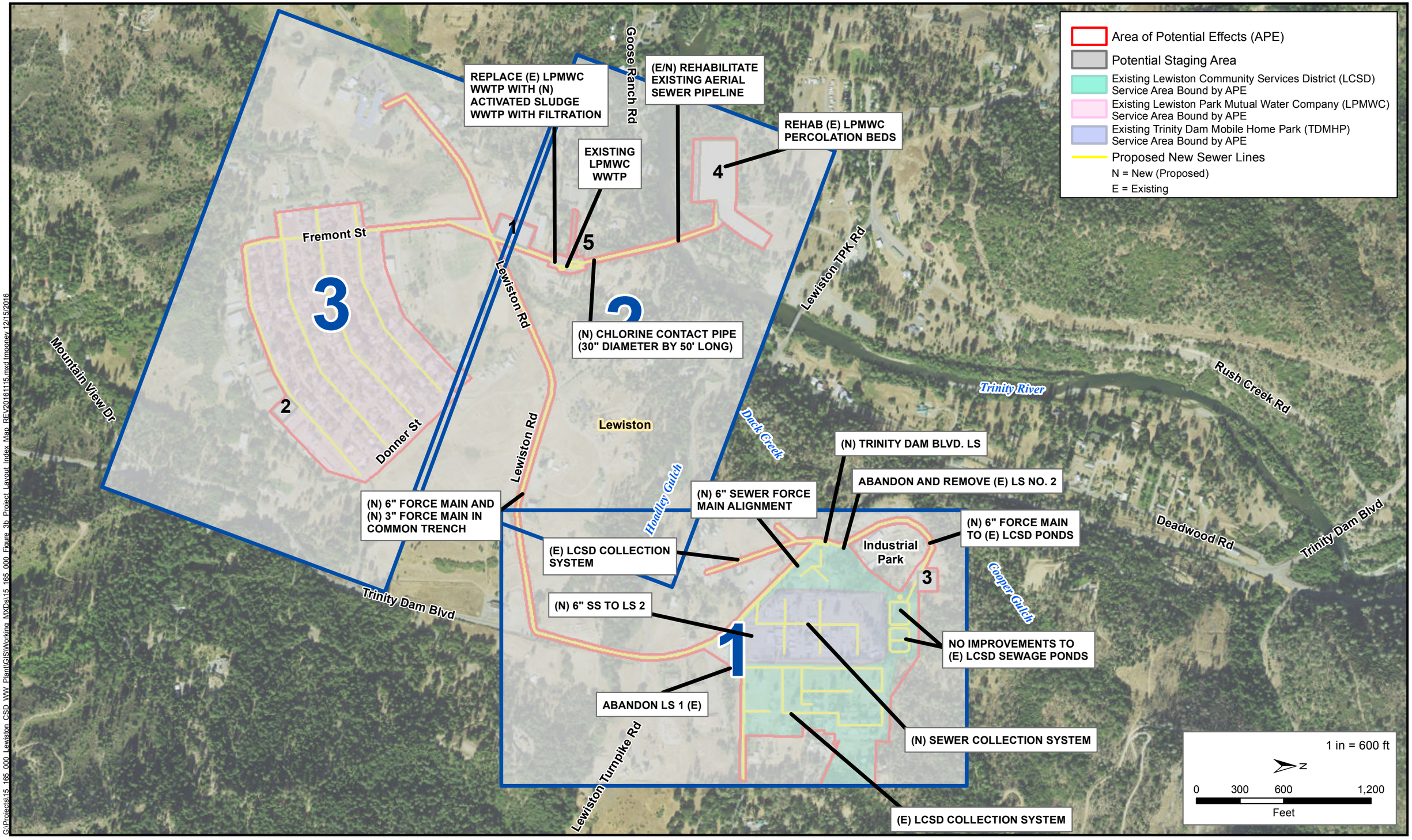

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Lewiston Community Services District Wastewater Project

Figure 3B
Project Layout Index Map

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(N) TRINITY DAM BLVD. LS

ABANDON AND REMOVE (E) LS NO. 2

(N) 6" FORCE MAIN TO (E) LCSD PONDS

Industrial Park

(E) LCSD COLLECTION SYSTEM

Lewiston Rd

(N) 6" FORCE MAIN AND (N) 3" FORCE MAIN IN COMMON TRENCH

Trinity Dam Blvd

(E) LCSD WTP

3

(N) 6" FORCE MAIN AND (N) 3" FORCE MAIN IN COMMON TRENCH

Lewiston Turnpike Rd

(N) 6" SS TO LS 2

NO IMPROVEMENTS TO (E) LCSD SEWAGE PONDS

(N) SEWER COLLECTION SYSTEM

ABANDON LS 1 (E)

(E) LCSD COLLECTION SYSTEM

Area of Potential Effects (APE)

Potential Staging Area

Existing Lewiston Community Services District (LCSD) Service Area Bound by APE

Existing Lewiston Park Mutual Water Company (LPMWC) Service Area Bound by APE

Existing Trinity Dam Mobile Home Park (TDMHP) Service Area Bound by APE

Proposed New Sewer Lines

N = New (Proposed)

E = Existing

1 in = 200 ft

N

0 100 200 400

Feet

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Lewiston Community Services District Wastewater Project

Figure 3C Project Layout
Page 1 of 3

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REHAB (E) LPMWC PERCOLATION BEDS

4

(E/N) REHABILITATE EXISTING AERIAL SEWER PIPELINE

Trinity River

Duck Creek

Lewiston Turnpike Rd

Lewiston School House Rd

Lewiston

Lewiston Rd

(N) CHLORINE CONTACT PIPE (30" DIAMETER BY 50' LONG)

EXISTING LPMWC WWTP

5

REPLACE (E) LPMWC WWTP WITH (N) ACTIVATED SLUDGE WWTP WITH FILTRATION

(N) 6" FORCE MAIN AND (N) 3" FORCE MAIN IN COMMON TRENCH

Area of Potential Effects (APE)

Potential Staging Area

Existing Lewiston Community Services District (LCSD) Service Area Bound by APE

Existing Lewiston Park Mutual Water Company (LPMWC) Service Area Bound by APE

Existing Trinity Dam Mobile Home Park (TDMHP) Service Area Bound by APE

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0 100 200 400

Feet

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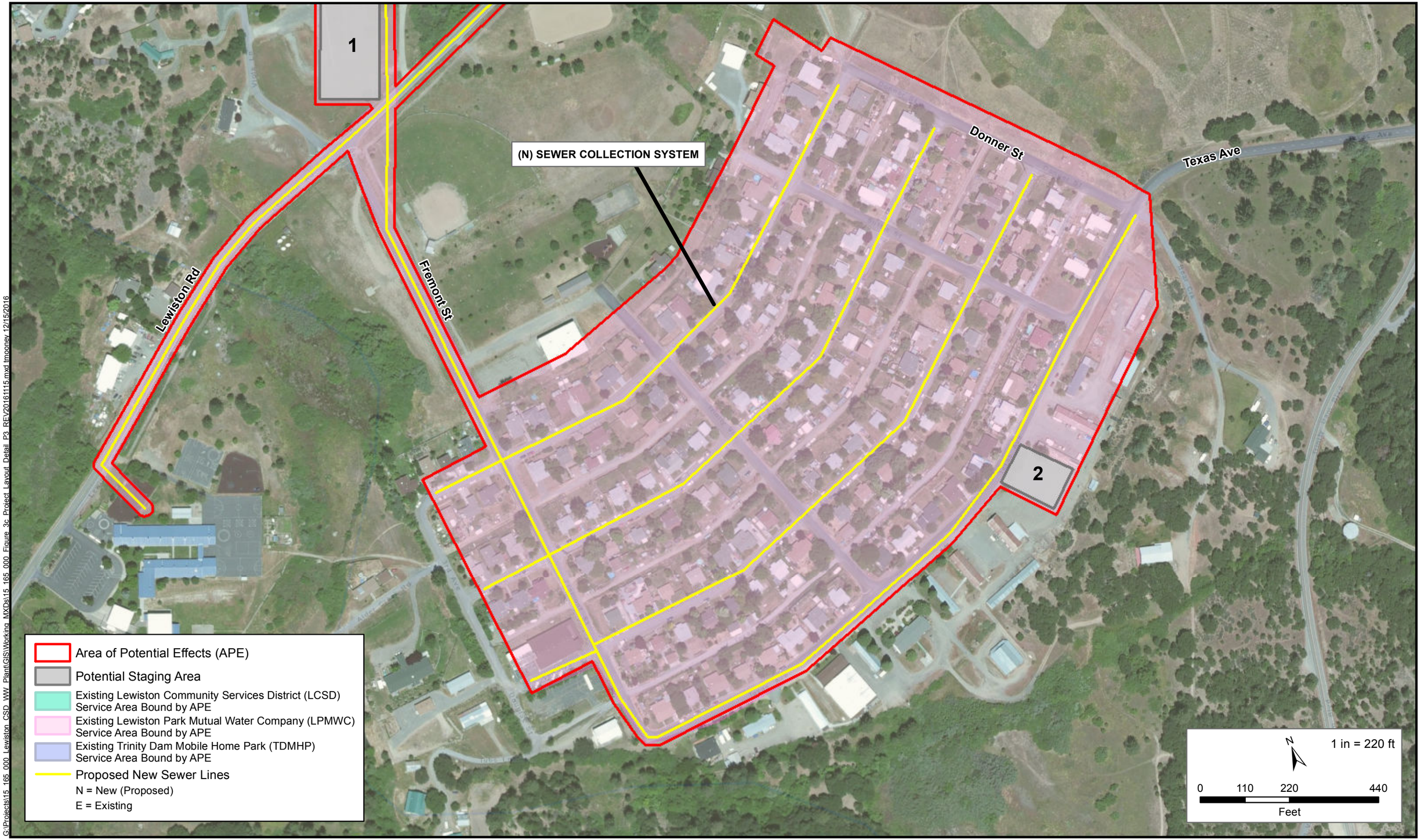

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North State Resources, Inc.

Lewiston Community Services District Wastewater Project

Figure 3C Project Layout
Page 3 of 3

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2. Project Description

2.1 Project Objectives that Qualify the Project for State Revolving Funds

2.1.1 Public Health Hazards Background

In order to resolve ongoing wastewater treatment and overflow problems, and alleviate public health concerns, the Lewiston Community Services District (LCSD) proposes to consolidate, and replace or upgrade three existing sewer collection, treatment and disposal facilities—Lewiston Park Mutual Water Company (LPMWC), Trinity Dam Mobile Home Park (TDMHP), and LCSD (formerly Lewiston Valley Water Company (LVWC))—that currently provide water and/or wastewater service to the majority of residences in Lewiston, Trinity County, California (project).

The original wastewater collection and treatment systems that compose the proposed project were constructed circa 1957 along with the Lewiston and Trinity dams and have met their useful service lives. In 1998, Trinity County (County) obtained a Planning and Technical Assistance Grant from the California State Department of Housing and Community Development (HCD) to study consolidation of existing water and wastewater systems in the Lewiston area. A Preliminary Engineering Report (PACE Engineering 1999) documented conditions of the existing water and wastewater systems and recommended a project to consolidate systems and replace aging infrastructure within the Lewiston area. On July 13, 1999, the community of Lewiston voted not to pursue the project at that time.

2.2 Notices of Violation and Waste Discharge Requirements

The proposed project is needed to resolve outstanding violations incurred as a result of the existing state of failures associated with each of the three existing service systems. All of these systems continue to operate the facilities for which they were cited. The following notices of violation and appurtenant Waste Discharge Requirements orders are described in detail in appendices A-C in the Clean Water State Revolving Fund (CWSRF) Planning Grant Project Report (PACE Engineering 2016) (Project Report), which is available for public viewing at the LCSD office:

- LCSD has acquired and now operates the former LVWC, securing funding through State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) for substantial upgrades to the water system. However, the former LVWC wastewater system, which remains in operation under LCSD, is under a SWRCB Cleanup and Abatement Order (No. R1-2003-0061) issued on May 12, 2003 for system failures, including sewage overflows and spills, and leaky oxidation/percolation ponds. Waste Discharge Requirements for LVWC Order No. 97-11 (ID No. 1A770420TR1) and the Monitoring and Reporting Program (No. 97-11) are provided in Appendix A of the Project Report (PACE Engineering 2016).

- LPMWC WWTP System (CIWQS Place ID 236941) was issued an SWRCB Notice of Violation on November 19, 2014. This Notice of Violation cited LPMWCs noncompliance with its Waste Discharge Requirements Order (No. 83-52). In addition, the Monitoring and Reporting Program (No. 83-52) and Contingency Plan and Notification Requirements for

Accidental Spills and Discharges Order (No. 74-151) are provided in Appendix B of the Project Report (PACE Engineering 2016).

- Trinity Dam Mobile Home Park is currently under SWRCB Administrative Civil Liability Order (No. R1-2014-0005) issued on January 30, 2014 for an inadequate waste disposal system and the hazard it poses to human health and safety, and the environment. The Administrative Civil Liability Complaint R1-2013-0035 for Violations of Cleanup and Abatement Order (No. R1-2011-0045), as well as the Abatement Order itself, are provided in Appendix C in the Project Report (PACE Engineering 2016).

2.3 Project Objectives

The purpose of the proposed project is to improve the reliability and quality of the consolidated sewage treatment system and ensure public health and safety in the context of its operation. In 1998 and again in 2015, field reviews of the LPMWC, LCSD, and TDMHP wastewater systems were conducted that found that the circa 58 year old collection, treatment, and disposal systems have serious inflow and infiltration problems that overload the downstream treatment and disposal processes resulting in multiple failures to meet discharge requirements and/or offsite discharge of untreated sewage. These marginal to failed wastewater collection, treatment, and disposal systems have in large part met their useful service lives and present potential serious health and safety threats to groundwater and surface water supplies. In addition, stricter effluent discharge limits are now in place to protect the environment, which makes the existing treatment technology out of date when treating for removal of contaminants, such as nitrate.

The proposed project design was based on the consolidation of the three community wastewater collection, treatment, and disposal systems into one up-to-date system that would meet the North Coast Regional Water Quality Control Board's (NCRWCB) Basin Plan, Water Quality-Based Assessment Thresholds (see Appendix I in the Project Report [PACE Engineering 2016]) and federal regulatory requirements. In particular, the proposed project must meet the NCRWQCB Resolution No. R1-2015-0018, Section 3, Water Quality Control Plan for the North Coast, wherein Water Code §13241 provides that the NCRWQCB is responsible for establishing water quality objectives which, in its judgment, are necessary for the reasonable protection of the beneficial uses[1] of groundwater in the Lewiston area and for the prevention of nuisance water. Project objectives include meeting Basin Plan and California Water Code requirements.

Project objectives considered actions that would be taken to correct the numerous health, safety, and environmental violations associated with the existing LPMWC, LCSD, and TDMHP systems.

[1] Designated beneficial uses for groundwater in the Lewiston area include municipal and domestic (MUN), agricultural (AGR) and industrial (IND). These beneficial uses are explained as follows:
- Municipal and Domestic Supply (MUN) – Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- Agricultural Uses (AGR) of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
- Industrial Uses (IND) of water for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.

Concerns about public health and safety, and the environment would be addressed by achieving the following project objectives:

- Address sanitary sewer overflow violations by replacing collection systems greater than 50 years old in LPMWC, LCSD, and TDMHP.
- Substantially reduce inflow and infiltration, which would allow the new wastewater treatment plant (WWTP) to function during wet weather and not have to be oversized.
- Achieve new, stricter discharge limits by removing higher levels of organic and inorganic contaminants and reducing disinfection byproducts through better removal of organic precursors and by flow-paced dosing of sodium hypochlorite.
- Comply with the goals of California Governmental Code Section 65041.1, which addresses state planning priorities and sustainable water resources management priorities.
- Increase energy efficiency of operations by using more efficient pumps and blowers to process wastes.
- Equip the new WWTP with supervisory control and data acquisition to properly monitor and control the system and alert operators when parameters, such as dissolved oxygen or chlorine residual, fall out of specified parameters.
- Increase process reliability and, thus substantially reduce, if not hopefully eliminate, discharge violations except under unusual circumstance.

2.4 Existing Facilities

2.4.1 Existing Wastewater Connections

The number of connections to the existing systems operated by the three entities that provide wastewater collection, treatment, and disposal have remained, and are predicted to remain, static with only minor increases over time as residential infilling occurs. There are no major subdivisions, commercial and/or industrial uses currently planned in the community. The proposed consolidated SSA include those connections that are presently receiving water and/or sewer service from one of the three providers. However, the consolidated SSA, as shown on Figure 3a, could add another estimated 45 connections primarily from existing residential and light commercial land uses. Table 1 provides a summary of the existing wastewater connections and household equivalents serviced by the three service providers within the proposed project area.

Table 1. Existing Wastewater Connections and Household Equivalents

Sewer Service Provider	Connections	Household Equivalents
Lewiston Park Mutual Water Company		
Residential	161	161
Church	1	1
Apartment	1	14
Commercial	1	1
Vet Clinic	1	1
Museum/Library	1	0.5
School	1	14.8
Subtotal	**167**	**193.3**
Lewiston Community Services District		
Residential	35	35
Pass N Gas	1	1
Lewiston Mini-Mart	1	1
Lewiston Valley Motel	1	7
Mountain Valley Grill	1	2
Business	1	1
Business	1	1
Business	1	1
Business	1	1
Trinity River Business Center	3	3
Trinity County Road Department	1	1
Subtotal	**47**	**54**
Trinity Dam Mobile Home Park		
Mobile Home Park (Only 21 active connections in 2015)	45	36
Subtotal	**45**	**36**
Total	**259**	**283**

Source: PACE Engineering 2016

2.4.2 Existing Wastewater Systems

Lewiston Park Mutual Water Company

The LPMWC currently provides sewage collection, treatment, and disposal for approximately 167 connections (Figure 3). This collection system consists of approximately 8,230 linear feet of 6-inch

and 7,330 linear feet of 8-inch diameter concrete sewer pipe installed circa 1956. Studies of the system condition described in the proposed project's Project Report (PACE Engineering 2016) determined that peak daily flows far exceed the system's capacity resulting in extreme inflow and infiltration problems. Vegetation rooting and the aging pipeline further compound system failures or potential for failure.

The LPMWC WWTP consists of a 19,000-gallon Imhoff tank[2], installed in 1956, and a 50,000-gallon extended aeration, activated sludge package plant installed in 1975. Waste activated sludge is pumped to either of two sludge holding/stabilization lagoons. Effluent from the package plant is disinfected using 12.5 percent sodium hypochlorite and flows through an 11,000-gallon chlorine contact basin also installed in 1956. Treated effluent is then discharged via a combination of underground and above-ground piping to one of three percolation beds installed in 1956, adjacent to the Trinity River (on the north side of the river). A three-cable suspension bridge supports the above-ground segment of 6-inch galvanized effluent pipe over the river. The percolation beds are located on land managed by the Bureau of Reclamation (BOR).

The WWTP is not hydraulically or organically overloaded during average dry weather flows (ADWF), but is substantially hydraulically overloaded during peak wet weather flows (PWWF) (PACE Engineering 2016). Extreme inflow and infiltration events can disrupt the activated sludge treatment process for months by hydraulically flushing away the mixed liquor suspended solids.

Effluent limits, typically total coliform, were exceeded 10 times between 2014 and 2015. In addition, allowable nitrate levels are sometimes exceeded. Although many of the deficiencies cited in the SWRCB Notice of Violation issued on November 19, 2014, have since been addressed, in particular with day-to-day operations, the overall age of the facilities and inflow and infiltration limitations continues to place the LPMWC in a likely position to incur waste discharge violations especially during PWWF events.

In June 2015, the original aerobic digester was turned into an aerobic selector to aid in filamentous control. This modification along with implementation of a reasonable solids wasting program and operator attention to detail has allowed the aging plant to more consistently meet discharge limits (PACE Engineering 2016). However, while the facilities currently are able to produce a well-oxidized effluent, the aging facilities have met their useful service lives and need to be replaced in order to ensure consistency with effluent limits proposed by NCRWQCB.

The LPMWC extended aeration process was modified in 2015 by redirecting sewage and return activated sludge to the original sludge digester. This aerated selector compartmentalizes the process to increase the ratio of initial food to microorganisms and "selects" a biology that has better settling characteristics. Unfortunately, the aerobic/anoxic selector does not allow for nitrate removal because it is mixed with air; consequently, the biology relies upon dissolved oxygen as opposed to nitrate for its metabolic processes.

Included in the existing LPMWC WWTP system is an 11,000-gallon chlorine contact basin that in its current state has a relatively poor length to width ratio resulting in subsequent short circuiting. The chlorine contact basin captures a substantial amount of suspended solids and needs to be pumped out

[2] A tank designed for solid/liquid separation and digestion of settled sludge.

on a bi-weekly basis. Sodium hypochlorite (12.5%) is constantly fed neat to effluent leaving the clarifier. There is also a backup calcium hypochlorite feeder, but it is normally used only in an emergency basis because of flow control problems.

The Old Lewiston Bridge was last rebuilt in 1901, and serves as a geographic landmark for road and water travelers alike. Approximately 1,640 feet downstream is another landmark – the 350-linear foot aerial pipeline that crosses Trinity River and conveys LPMWC effluent to the percolation beds on river right (north bank). The aerial crossing was constructed circa 1956 at the same time as the LPMWC WWTP system and consists of 6-inch galvanized steel pipe suspended via three steel cables. The cables are supported via an I-beam truss and ballasted using four concrete anchors. The pipe, supports, and cables appear to be in good condition except for the stainless steel flexible transition joints. It is known that the inside of the galvanized steel pipe is corroded and in need of slip lining.

Berms at elevation 1,812 feet surround the percolation beds protecting them from the 100-year mapped flood elevation of 1,808 feet (Federal Emergency Management Agency 2014). The asbestos cement distribution pipe in the percolation beds has fallen into disrepair so that effluent is discharged at one central location. This discharge point does not meet current design standards to reasonably distribute effluent over the percolation beds. Instead, the single discharge point focuses effluent disposal, which increases potential connectivity between effluent and shallow groundwater, thereby reducing the chance for removal of contaminants by filtration through the soil column.

Lewiston Community Services District

The existing LCSD system (Figure 3c) services approximately 35 residential connections and 12 small commercial enterprises for a total of 47 connections or 54 household equivalents (Table 1). Sewage from these connections flow through two effluent pump stations, and force mains to two oxidation/percolation ponds located on land managed by BLM. The LCSD sewage collection, treatment, and disposal system continues to operate under the old LVWC Waste Discharge Requirements Order No. 97-11 (ID No. 1A770420TRI) (described in Appendix A in the Project Report [PACE Engineering 2016]).

Lift Station (LS) 1 includes a two-chambered, 47,900-gallon tank. Although Pump Station (PS) 1 has only one pump, it does have approximately 24 hours of freeboard and an alarm system. The tank was partially pumped out in 2013, with approximately 10 percent solids remaining. Pump Station 1 dates back to the beginning of the subdivision and does not have an easement.

Lift Station 2 has a 3,000-gallon, single-chamber tank with two alternating pumps. Pump Station 2 tank provides about 24 hours of storage. There is an emergency power connection at PS 2 with an emergency generator stored at the LCSD Fire Station off Texas Avenue.

Prior to being assumed by LCSD, a Cleanup and Abatement Order (No. R-1-2003-0061) was issued to LVWC by NCRWQCB citing illegal discharges from the collection system and oxidation-percolation ponds. Reportedly, there still remains 300 linear feet of 57-year-old Orangeburg (asphalt impregnated cardboard) pipe that causes serious inflow and infiltration problems for LS1 (PACE Engineering 2016).

Lift Station 2 captures flow from Dack Creek and pumps it to the oxidation ponds. A portion of the creek flow is considered to originate as leakage from the ponds, which are located upslope of LS2. When flows become too large, the overflow must be removed from LS2 to avoid excessive inundation.

The LCSD oxidation-percolation ponds each measure approximately 150 feet by 130 feet (0.45 acres) and are in an overgrown condition (cattail and other plants) with documented seepages into Hoadley Gulch via Dack Creek that flow into the Trinity River upstream of LPMWC and the Bud Fine raw water intake structures. (The Bud Fine water system is a small private water system on the north side of the Trinity River, outside of the proposed project area.) The oxidation-percolation ponds receive septic tank effluent only. The ponds act more like percolation beds during the summer when evaporation and percolation capacity exceeds that amount of sewage added leaving a marsh of cattails. Seasonal rainfall adds a significant amount of liquid resulting in ponds with a large free water surface.

Backwash sludge is discharged from the new LCSD water treatment plant (WTP) (constructed in 2015) to the west pond. The WTP system is designed to recycle backwash supernatant on a regular basis. LCSD staff periodically drains the tank to the west pond to remove solids accumulation.

Trinity Dam Mobile Home Park

The current wastewater treatment system at TDMHP (Figure 3c) consists of 21 active connections (45 total spaces available) and a 43,000-gallon, grouted cinder block oxidation tank constructed circa 1957. This oxidation tank was later turned into a septic tank with a 0.7-acre effluent evaporation/percolation pond. Overland discharges from the TDMHP facilities forced NCRWQCB to issue Cleanup and Abatement Order No. R1-2011-0045, Administrative Civil Liability Complaint No. R1-2013-0035, and Administrative Civil Liability Order No. R1-2014-0005 (see Appendix C in the Project Report [PACE Engineering 2016] for further discussion). Discharges have overflowed on to adjacent private property, into roadside ditches which flow into Dack Creek and LS2, and on into the Trinity River upstream of the LPMWC and Bud Fine river water intake structures. This resulted in press releases advising downstream homeowners who take water from the Trinity River to boil their drinking water.

2.5 New Facilities

The project would involve consolidating and improving the three existing systems (LCSD, LPMWC, and TDMHP), which occupy a total area of approximately 90.41 acres (Figure 3a). The proposed project would consist of collection system replacement followed by treatment using activated sludge, filtration, disinfection with sodium hypochlorite, and continuous discharge to leach fields within the rehabilitated percolation beds on the north side of the river, along with an emergency bypass to the existing LCSD oxidation ponds as shown in Figure 3.

The project was designed for efficiency, utilizing land already occupied by existing LPMWC and LCSD facilities, which are built adjacent to developed areas zoned for rural residential growth. These facilities would serve areas within the proposed SSA (Figure 3a). The project design considered potential impacts on environmental resources, including wildlife habitat and recreational activities, particularly in relationship to the Trinity River—a federally designated Wild and Scenic River.

Replacement of the existing collection systems would reduce inflow and infiltration, thus minimizing the footprint of the consolidated system and reducing the potential for adverse effects such as spills. In addition, system upgrades, including changing to a state of the art activated sludge process and an improved filtration process would allow for the removal of trace organics particulates and nitrates, which currently exceed maximum contamination levels. Water conservation measures would be incorporated into the wastewater treatment system, including the use of recycled effluent for process sprays and wash down water.

2.5.1 System Flow Description

Waste from the Lewiston Park subdivision would gravity flow to the headworks of the WWTP located at the existing LPMWC WWTP. Waste from the LCSD collection system would gravity flow to the Trinity Dam Boulevard Lift Station (TDBLS). Waste from TDBLS would be pumped to the headworks of the WWTP using a 3-inch force main (FM), where it would pass through the activated sludge filtration process. Final effluent would gravity flow from the WWTP through new and existing gravity sewer lines to leach fields.

The new WWTP would be located at the site of the existing LPMWC WWTP. If found to be in good condition, the Imhoff tank may be left in place and used at the head works of the new WWTP, otherwise an automatic bar screen and washer would be used at the headworks. Force mains would be sized to handle appropriate peak wet weather or max month flows; pump design parameters and capacities are described in Table 2. Wet wells at each LS would occupy an area approximately 20 feet in length by 20 feet in width with entry and exit piping attached.

Table 2. Proposed Project Pump Design Parameters

Pump[A]	Number of Pumps[B]	Flow (GPM)[C]	TDH[D] (feet)	Wet Well Depth (feet)
WWTP Lift Station (ADWF)	2	50	40	20
WWTP Lift Station (PWWF)	2	250	150	20
TBD Lift Station	2	75	100	20

Notes:
[A] Submersible centrifugal solids handling pumps
[B] One active and one standby pump
[C] U.S. gallons per minute
[D] Total dynamic head (TDH) is the total equivalent height that a fluid is to be pumped, taking into account friction losses in the pipe. TDH considers static head, headloss due to friction, headloss due to velocity, and discharge pressure.
Percent efficiency will be calculated following final pump selection.

2.5.2 Sewage Collection System

Under the proposed project, the existing failed LPMWC and TDMHP collection systems and laterals would be replaced as well as an approximately 300 linear foot section of the LCSD collection system and all LCSD laterals. All new sewer lines associated with the proposed project would be aligned within existing roadways at depths ranging from 3-8 feet (LPMWC and LCSD) and from 3-5 feet within the TDMHP system. Currently, many of the existing sewer lines within the Lewiston Park subdivision are aligned across private parcels. Several new manholes and laterals would be added to

the LPMWC system to connect all homes that would be served by the project. A double layer of chip seal would be used to overlay project-related work within existing roadways. In addition, the sewer collection system within the TDMHP and all failed laterals on private property would be replaced throughout the sewer service area.

A new 50-foot section of 30-inch diameter pipe will be installed with open trench excavation directly north of the existing WWTP parcel prior to demolition of the existing chlorination basin. The new 30-inch pipe would act as a temporary chlorine contact pipe to provide adequate contact time for WWTP effluent and would be left in place after the new WWTP is constructed. Beyond the new chlorine contact pipe, a new 8-inch pipe would be installed from the north end of the WWTP downslope to the south side of the river crossing where the suspended pipeline begins. The new pipeline would be installed by either pipe bursting or using open-trench construction within the existing pipeline alignment. If an open trench method is used, the trench would be backfilled upon completion of construction. The existing manholes located adjacent to Goose Ranch Road would be replaced with new manholes.

The existing suspended 6-inch pipeline used to convey effluent across the Trinity River would be retained and would receive maintenance or replacement under the proposed project. Inspection of the pipeline found the interior to have minimal corrosion, thus slip lining may be used to extend the useful service life of the existing pipeline; however, total replacement using existing aerial cables may be necessary. Slip lining is preferred due to cost and ease of installation compared to a new pipe. It is planned to sandblast and recoat the suspended pipeline support structures. Existing paint would be tested for lead prior to any sandblasting actions. If found to contain lead-based paint, sandblasting would not be used; rather, the support structures would be manually primed and repainted. The effluent pipe on the north side of the river leading to the effluent percolation beds would be replaced using pipe burst technology so as to eliminate the need for an open trench. Any excavations associated with pipeline maintenance would be limited to underground pipe connections at the existing headwalls, if necessary. Maintenance and rehabilitation activities on the suspended pipeline and infrastructure would be above the ordinary high water mark of the Trinity River. Similarly, if replacement is used, construction methods preclude the encroachment of equipment below the ordinary high water mark of the Trinity River.

The existing LPMWC WWTP would be replaced at its present location with an Aero-Mod activated sludge plant capable of reducing biological oxygen demand (BOD), total suspended solids (TSS), and total nitrogen (TN) to less than 10 mg/L when the plant is operated at an ADWF rate of 35,000 gallons per day (GPD). New ancillary process components would include an automatic bar screen and washer or modifications to the existing Imhoff tank; filtration using a cloth media or disc filter; disinfection using flow-paced sodium hypochlorite dosing pumps; an aerated chlorine contact basin; a WWTP LS; a control building with emergency generator, lab, and motor control center; and conversion of the existing aeration basin into an aerobic digester if it is in a salvageable condition. The proposed interim chlorine contact basin would consist of a 30-inch by 50-foot long pipe that would be located immediately north of the WWTP, within the existing pipeline alignment. Open trenching would be used to lay the pipe, which would then be backfilled. The permanent, concrete chlorine contact basin and effluent monitoring weir would be installed at the north end of the new Aero-Mod unit. An area of approximately 20 feet by 20 feet would be excavated to a depth of up to

20 feet to allow for construction of improvements to the WWTP LS. Improvements would require demolition and removal of the existing effluent weir building and removal of two trees.

Lift Station 1

The septic tank at LS1 would be decommissioned in accordance with Trinity County regulations. Sludge from the existing 50,000 gallon tank would be removed and disposed of by a licensed septic hauler in compliance with all State and Federal regulations, and the tank would be filled with sand and left in place. The source of sewage (i.e., the pipeline leading to LS1) would be permanently disabled.

Lift Station 2

The existing LS2, which is located in the Dack Creek drainage immediately downslope of the LCSD percolation ponds and the TDMHP sewage pond, would be abandoned and relocated to uplands approximately 150 feet to the southwest (Figure 3c). A new lift station, TDBLS, would replace the existing LS2, and would consist of a wet well, submersible pumps, and an emergency generator. An approximately 20 foot by 20 foot area would be excavated to accommodate the new TDBLS.

Oxidation Ponds and Percolation Beds

Lewiston Community Service District Ponds (Existing)

The two existing LCSD oxidation ponds, each occupying approximately 0.5 acre, would be left in their current condition. A 6-inch FM would be routed along the existing access road through the industrial park and the LCSD WTP parcel to the west oxidation pond. The existing oxidation ponds would be suitable for the storage of tertiary effluent if and when separation to groundwater at the percolation beds is less than 3 feet. At a 6-foot water depth, the oxidation ponds would contain approximately 6 acre feet, which equates to 25 days of storage at the design ADWF of 35,000 GPD, 12.5 days at maximum monthly flow (MMF), and 5.5 days at PWWF, assuming one previously empty pond.

Lewiston Park Mutual Water Company Percolation Beds (Existing)

The existing LPMWC percolation beds on the north side of the Trinity River (right side) (Figure 3c) would be reconstructed with eight leach field banks as illustrated in Attachment A. Debris within the beds would be removed, internal berms would be removed, and the side slopes would be reshaped. Granular fill material would be imported and used to add approximately 2 feet to the existing elevation to ensure that there is at least three feet of separation between the leach pipe and groundwater. Pipe replacement from the WWTP to the aerial crossing, and from the aerial crossing to the leach field would either be done by temporarily creating an approximately 1-foot wide open trench in uplands or by using a pipe burst[3]. Leach fields are a low maintenance disposal system option.

System operators would rotate flow between active banks depending upon the loading rates required during ADWF, MMF, and PWWF. It is anticipated that approximately 35,000 GPD would be

[3] A method used to break apart existing pipe while pulling a new pipe through the same alignment.

distributed across the percolation beds under ADWF. Existing piezometers within the existing percolation beds allow for groundwater depth monitoring; sample ports placed along each leach field leg would also be used to check for ponding. Additional piezometers would be installed to further enhance monitoring. If the required groundwater separation criteria[4] cannot be met, then tertiary effluent would be stored in the emergency retention basins. While leach fields can remove 90-98 percent of influent BOD, 10-40 percent TN, and 99–99.99% Fecal Coliform (Environmental Protection Agency 2002), only minor additional removal of BOD, TSS, nitrate, and pathogens would be anticipated with the new leach fields. The biggest benefit of including leach fields in the project design would be the even distribution of effluent across a much larger area compared to current concentrated loading.

Trinity Dam Mobile Home Park Sewage Pond (Existing)

Septic tank effluent would no longer be sent to the existing TDMHP sewage pond. Instead, all sewage would gravity flow to TDBLS and be pumped to the new WWTP for processing. The existing pond would remain on private property and not be included in this project.

2.5.3 Electrical Improvements

The proposed project would use National Electrical Manufacturers Association Premium motors and generators, thereby optimizing systems and reducing electrical consumption associated with system operation. In addition, programmable logic controllers would be incorporated into the upgraded WWTP to control the aeration process, so when dissolved oxygen levels are met, aeration would either be reduced or disabled to save on power costs.

2.5.4 Site Improvements

It is anticipated that surface restoration of roadways, including driveways (when applicable) would be required following localized pipeline installation.

2.6 Design Criteria

2.6.1 Wild and Scenic River System

The Trinity River system is a federally designated Wild and Scenic River. The mainstem Trinity River—from 100 yards below Lewiston Dam to the Cedar Flat confluence (a distance of approximately 97.5 miles)—is classified as a "Recreational River" by the State of California and through a cooperative agreement between BLM and the U.S. Forest Service Shasta-Trinity National Forest. Compliance with both state and federal guidelines for Wild and Scenic Rivers requires that the proposed project activities be designed and constructed to preserve the free-flowing condition and other Outstandingly Remarkable Values associated with the river. These Outstandingly Remarkable Values include the free-flowing condition, anadromous and resident fisheries, outstanding geologic resource values, scenic values, recreational values, cultural and historic values, and the values associated with water quality.

[4] Generally, a minimum of 3 feet of separation between groundwater and leach field leg has been the accepted separation distance; however, the exact minimum is to be determined by the NCRWQCB.

Proposed refurbishment or pipe only replacement of the existing 350-foot long aerial pipeline used to convey effluent from the sewer treatment systems located on the south side (left bank) of the river to percolation ponds on the north side (right bank) would not permanently alter the scenic or recreational values for which the Trinity River has been designated as Wild and Scenic. LPMWC has previously replaced one flexible joint to allow for inspection and pipe wall thickness measurement. Slip-lining or replacement with a similar pipeline is proposed as a means of rehabilitating the existing aerial crossing without affecting the existing aesthetic associated with the crossing, which has been in place since 1956. Improvements to the existing pipeline and headwall structures would be constructed in a manner consistent with the existing aesthetic and would be painted using a neutral earthtone color to further minimize its appearance on the landscape.

In accordance with Section 7 of the Wild and Scenic Rivers Act, formal consultation will be required with BLM to ensure that the proposed project complies with the requirements of the act.

2.7 Construction Criteria and Methods

2.7.1 Contractor Staging Areas/Construction Access Routes

Five potential contractor staging areas were identified for the proposed project (Figure 3c): 1) the open field in front of the Lewiston Community Church at the intersection of Lewiston Road and Viola Lane; 2) the parking lot at the Lewiston Volunteer Fire Department on Texas Avenue; 3) the open, disturbed area adjacent to the LCSD WTP; 4) within the existing LPMWC percolation beds and along the graveled access road that leads to the percolation beds; and 5) access and staging at the LPMWC WWTP from Viola Lane. Use of any of these areas would be subject to contractor negotiations with the property owner(s) if not owned by one of the three service providers included in the consolidation. Construction access would make use of existing roads.

2.7.2 Air Pollution and Dust Control

Air pollution control would conform to all applicable air pollution control rules, regulations, ordinances, and statutes. Dust would be controlled during construction activities and subsequent operation of the project. Dust controls may include, but would not be limited to the following elements, as appropriate:

- Pursuant to California Vehicle Code (Section 23114) (California Legislative Information 2016), all trucks hauling soil and other loose material to and from the construction site shall be covered or shall maintain at least 6 inches of freeboard (i.e., minimum vertical distance between top of load and the trailer).

- Any soils that are removed during construction shall be stored onsite in piles not to exceed 4 feet in height. These spoil piles shall be clearly marked and flagged. Spoil piles that will not be immediately returned to use shall be revegetated with a non-persistent erosion control mixture.

- Equipment and manual watering shall be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust.

- LCSD or its contractor shall designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person shall also respond to any citizen complaints.

2.7.3 Trench Stabilization and Backfill

The draft Geotechnical Report (CGI Technical Services 2011) prepared for the recent LCSD water project identified soils that could be unstable at shallow depths (less than 10 feet deep), particularly near the Trinity River. Therefore, trench construction may include, but not be limited to, the following stabilization measures:

- Excavations greater than 5 feet deep would be braced or shored, or the slopes inclined at a safe angle, in accordance with good construction practices and all applicable safety ordinances.

- Heavy construction equipment, building materials, excavated soil, and vehicular traffic would not be allowed within a 1:1 (horizontal to vertical) projection from the toe of the trench excavation to the ground surface..

- Shoring, bracing, or underpinning may be required to provide structural stability and to protect personnel working within excavated trenches.

2.7.4 Water Pollution Prevention

The proposed project has been designed to avoid impacts on U.S. Army Corps of Engineers (Corps) jurisdictional features (waters of the United States) to the extent possible. The following measures have been incorporated into the proposed project to avoid and minimize the potential for adverse direct and indirect effects to water quality if project implementation would impact.

- Type D erosion control measures (i.e., hydroseeding) or hand seeding and mulching methods shall be implemented during construction of the proposed project in non-riparian upland areas. Erosion control work shall consist of one application of erosion control materials to embankment slopes, excavation slopes, and other areas with non-riparian uplands designated by the project engineer. These materials shall consist of fiber, seed, mulch, commercial fertilizer, stabilizing emulsion, and water.

- Activities that increase the erosion potential within the project area shall be restricted to the relatively dry summer and early fall period (approximately May 15 to October 15) to the maximum extent practicable to minimize the potential for rainfall events to transport sediment to the Trinity River and other surface water features. If construction activities must take place during the late fall, winter, or spring, then temporary erosion and sediment control structures must be in place and operational at the end of each construction day and maintained until permanent erosion control measures are in place (e.g., successful revegetation).

- Areas where vegetation needs to be removed shall be identified in advance of ground disturbance and limited to only those areas that have been approved by LCSD and the

respective land owner. The limits of ground disturbance will be staked and flagged or fenced in the field.

- Within 10 days of completion of construction, weed-free mulch shall be applied to disturbed areas in order to reduce the potential for short-term erosion. Prior to a rain event or when there is greater than 50 percent possibility of rain forecasted by the National Weather Service during the next 24 hours, weed-free mulch, tarps, or geotextile fabrics shall be applied to all exposed areas upon completion of the day's activities. Soils shall not be left exposed during the rainy season.

- Suitable best management practices (BMPs), such as silt fences, straw wattles, or catch basins, shall be placed below all construction activities at the edge of surface water features to intercept sediment before it reaches the waterway. These structures shall be installed prior to any clearing or grading activities.

- If spoil sites are used, they shall be located such that they do not drain directly into a surface water feature, if possible. If a spoil site drains into a surface water feature, catch basins shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and vegetated to reduce the potential for erosion.

- Sediment control measures shall be in place prior to the onset of the rainy season (or no later than October 15) and will be monitored and maintained in good working condition until vegetation becomes established within the disturbed areas.

- Fueling construction equipment shall be done at a fixed fueling station to reduce the area exposed to the potential for fuel spills.

- Secondary containment, such as a drain pan or drop cloth, shall be used to catch spills or leaks when removing or changing fluids.

- Spill containment materials shall be kept onsite at all times to contain any accidental spill..

- Absorbent materials shall be used on small spills rather than hosing down or burying the spill. The absorbent material shall be promptly removed and disposed of properly.

- Onsite vehicles and equipment shall be regularly inspected for leaks and repaired immediately.

- If vehicle and equipment maintenance must occur onsite, it shall be done in designated areas, located away from drainage courses, to prevent the run-on of storm water and the run-off of spills.

- Equipment and materials shall be stored at least 50 feet away from surface water features, including the Trinity River.

- LCSD is responsible for compliance with applicable federal, state, or local laws or ordinances and shall obtain authorization from all applicable regulatory agencies.

2.8 Project Approvals

2.8.1 Funding Sources

The proposed project planning efforts, funded in part through a CWSRF, Small Community Wastewater Planning Grant (Project No. C-06-8048-110, Agreement No. 14-824-110), considers consolidation of the LPMWC and TDMHP wastewater collection, treatment, and disposal systems under the LCSD. Construction funding for the project will be through CWSRF and other SWRCB funding opportunities, including the Groundwater Sustainability Program and the Site Cleanup Subaccount Program are currently being explored; Integrated Regional Water Management program administered jointly by the Department of Water Resources and the North Coast Resource Partnership; and Community Development Block Grants. Additional funding might also come from the U.S. Department of Agriculture's Rural Development's Rural Utility Services Program, Housing and Urban Development's Choice Neighborhoods Planning Grants Program, and the U.S. Endowment for Forestry and Communities 2016 Healthy Watersheds Consortium Grant Program.

2.8.2 Regulatory Approvals

California Environmental Quality Act/National Environmental Policy Act

Permits required for the proposed project will be fully determined during preparation of the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) documents. Following is a list of authorizations and permits anticipated for project compliance under CEQA/NEPA. Additional permits and/or authorizations may be determined as a result of technical studies that would be conducted in support of project compliance.

- Wild and Scenic Rivers Section 7 Consultation with BLM
- Magnuson-Stevens Fishery Conservation and Management Act Consultation (National Marine Fisheries Services)
- Clean Water Act Section 404 Permit (Corps)
- Clean Water Act Section 401 Water Quality Certification (NCRWQCB)
- Fish and Game Code Section 1600 Lake and Streambed Alteration Agreement with California Department of Fish and Wildlife (CDFW)
- Sludge Management Plan Approval (NCRWQCB)
- Antidegradation Analysis Approval (NCRWQCB)
- Storm Water Pollution Prevention Plan Approval (NCRWQCB)
- Local Area Formation Commission Approval

- CEQA Notice Of Determination to adopt either a Mitigated Negative Declaration or Environmental Impact Report (Local Agency) following the CEQA-Plus State Revolving Funds Guidelines

- NEPA adoption of either a Finding of No Significant Impact or Record of Decision (Federal Lead Agency) (the form that NEPA would take would be determined by the federal Lead Agency, expected to be either BLM or BOR)

North Coast Regional Water Quality Control Board

In addition to the authorizations listed above, the proposed project must also meet the NCRWQCB Resolution No. R1-2015-0018, Section 3, Water Quality Control Plan for the North Coast, wherein Water Code §13241 provides that the Regional Water Quality Control Board (RWQCB) is responsible for establishing water quality objectives that, in the Regional Water Board's judgment, are necessary for the reasonable protection of the beneficial uses and for the prevention of nuisance. It is understood that the NCRWQCB plans to regulate this discharge under an individual permit pursuant to §13260, et seq., of the California Water Code.

2.9 Tentative Project Construction Schedule

Construction of the proposed project would begin upon receipt of all necessary preconstruction authorizations, including completion of CEQA/NEPA documentation; consultation with appurtenant agencies (e.g., BOR, State Historic Preservation Officer); and receipt of regulatory permits, including authorizations from the Corps, NCRWQCB, and the CDFW. In addition, funding source requirements will need to be met before and during project construction, as applicable. Construction is anticipated to begin in 2019 with completion in 2020.

3. Study Methodology

3.1 Informational Review

For the purpose of this evaluation, special-status plant species include plants that are (1) listed as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA); (2) designated as rare by CDFW; (3) identified as state or federal candidate or proposed species for listing as threatened or endangered; (4) have a California Rare Plant Rank

of 1A, 1B, 2A, or 2B; and/or (5) identified by BLM as a Sensitive Species or a Survey and Manage Species (U.S. Bureau of Land Management 2015; U.S. Department of the Interior and U.S. Department of Agriculture 2001).

Special-status animal species include species that are (1) listed as threatened or endangered under the ESA or CESA; (2) identified as state or federal candidate or proposed species for listing as threatened or endangered; (3) identified by CDFW as Species of Special Concern or California Fully Protected Species; and/or (4) identified by BLM as a Sensitive Species or Survey and Manage Species (U.S. Bureau of Land Management 2010; U.S. Department of the Interior and U.S. Department of Agriculture 2001).

Special-status species potentially occurring in the study area were determined through database searches, including the California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife 2016a), California Wildlife Habitat Relationships (California Department of Fish and Game 2008), the U.S. Fish and Wildlife Service (USFWS) database of federally protected species, and the California Native Plant Society's (CNPS) *Electronic Inventory* (California Native Plant Society 2016). The list of species potentially occurring in the study area was also determined through consultation with resource agency personnel; reconnaissance surveys of floral, faunal, and wetland resources; and review of pertinent environmental documents and technical studies.

Using the CNDDB, a search of published accounts of special-status species was conducted for the *Lewiston, California* U.S. Geological Survey 7.5-minute quadrangle (California Department of Fish and Wildlife 2016a) (Appendix A). The CNDDB is a database consisting of historical observations of special-status plant species, wildlife species, and natural plant communities. Because the CNDDB is limited to reported sightings, it is not a comprehensive list of species that may occur in a particular area; however, it is useful in refining the list of special-status species with potential to occur.

The USFWS maintains a database that lists federally protected species for projects located within the jurisdiction of the Yreka USFWS office. The USFWS list of endangered and threatened species that may occur in the vicinity of the project was reviewed (Appendix B; Consultation Code 08EYRE00-2016-SLI-0078).

A database search was also performed using CNPS *Electronic Inventory*, which allows users to query the *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2016) using a set of search criteria (e.g., quad name, habitat type) (Appendix C).

North State Resources, Inc. (NSR) determined BLM Sensitive Species and Survey and Manage species with potential to occur on BLM lands in the study area by reviewing BLM Sensitive Species lists and current guidance regarding Survey and Manage Species (U.S. Bureau of Land Management 2010 and 2015; U.S. Department of the Interior and U.S. Department of Agriculture 2001). Additionally, an ecologist with the BLM Redding Field Office was consulted regarding sensitive plant species with potential to occur in the study area (Kendra Fallon, personal communication, February 29, 2016).

3.2 Field Investigations

NSR conducted a reconnaissance-level biological survey, preliminary wetland assessment, habitat assessment, and botanical and invasive plant survey in the study area on June 9, 2016.

The botanical survey generally followed guidelines provided in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Game 2009) and *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (U.S. Bureau of Land Management 2009). Plant taxonomy followed *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012). A list of species observed in the study area is provided in Appendix D. The invasive plant survey identified all plants in the *California Invasive Plant Inventory* (California Invasive Plant Council 2006), all plants listed as noxious by the California Department of Food and Agriculture (California Department of Food and Agriculture 2010), and all plants listed as noxious by the BLM Redding Field Office (U.S. Bureau of Land Management 2007).

A formal delineation of waters of the United States including wetlands in the study area was conducted by NSR on June 21 and November 29, 2016. The methods for determining potential wetlands was based on field observations for indicators of hydrophytic vegetation, hydrology, and hydric soils consistent with the approach outlined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers 2010). The assessment for potential "other waters" was based on the presence of an ordinary high water mark as defined in the Corps regulations (33 CFR 328.3 and 33 CFR 328.4).

North State Resources, Inc. also conducted a habitat and impact assessment for northern spotted owl (NSO) on June 21, 2016 (Appendix E). The assessment followed USFWS guidance provided in *Estimating Effects of Auditory and Visual Disturbance to Marbled Murrelet and Northern Spotted Owl* (U.S. Fish and Wildlife Service 2006).