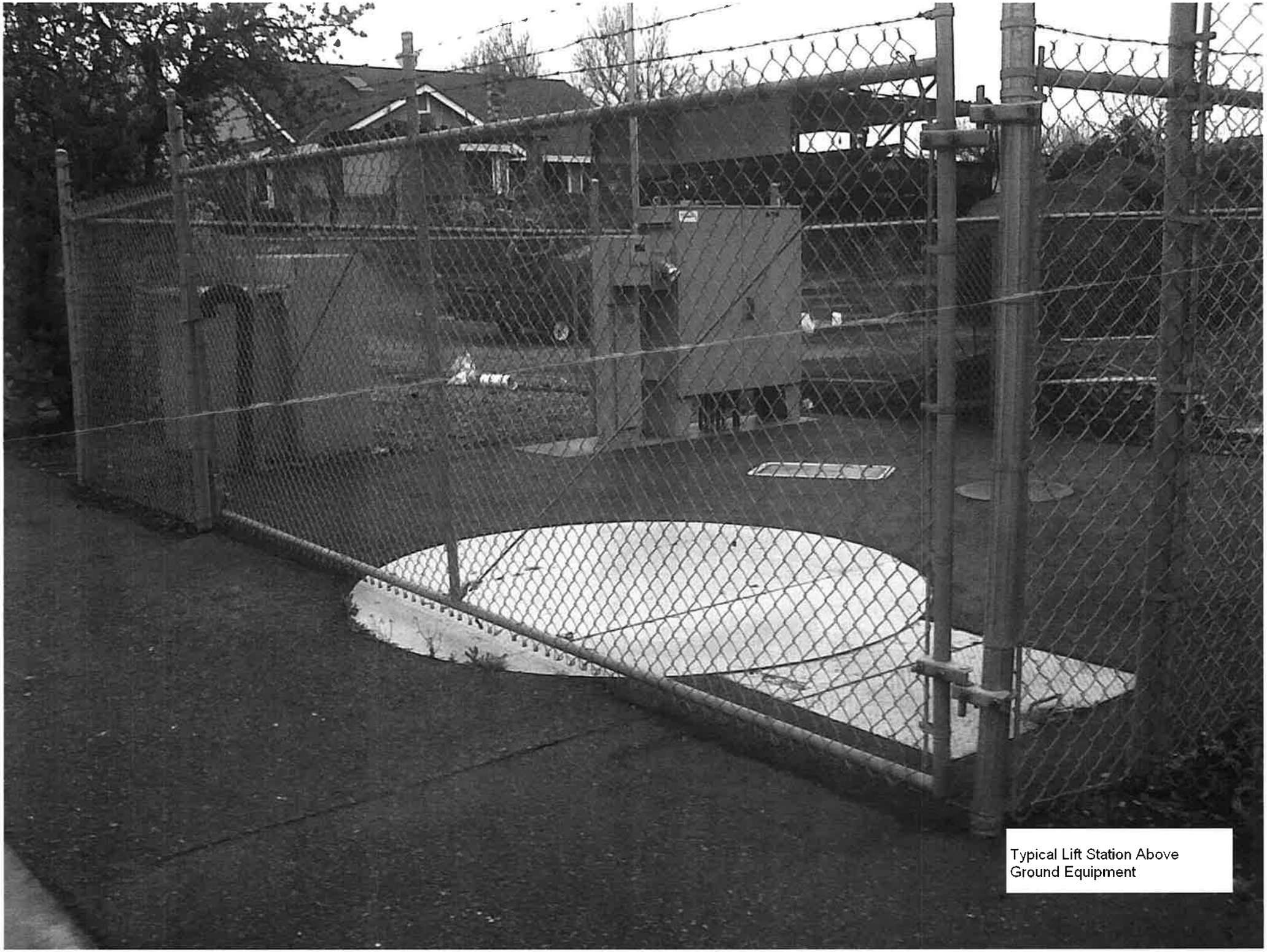
Appendix A
Typical Lift Station Above Ground Equipment



Typical Lift Station Above Ground Equipment

Typical Lift Station Above Ground Equipment

Appendix B
Air Quality

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> City of Roseville North Area Sewer Collection System In				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**CO2 (lbs/day)**
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	0.0	0.4	0.3	16.0	0.0	16.0	3.3	0.0	3.3	43.7
Drainage/Utilities/Sub-Grade	3.0	13.5	23.8	17.3	1.3	16.0	4.5	1.2	3.3	3,608.7
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	3.0	13.5	23.8	17.3	1.3	16.0	4.5	1.2	3.3	3,608.7
Total (tons/construction project)	0.1	0.4	0.7	0.4	0.0	0.4	0.1	0.0	0.1	99.5

Notes: Project Start Year -> 2012
Project Length (months) -> 3
Total Project Area (acres) -> 1
Maximum Area Disturbed/Day (acres) -> 1
Total Soil Imported/Exported (yd^3/day)-> 2

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> City of Roseville North Area Sewer Collection System In				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (Metric Units)	**ROG (kgs/day)**	**CO (kgs/day)**	**NOx (kgs/day)**	**PM10 (kgs/day)**	**PM10 (kgs/day)**	**PM10 (kgs/day)**	**PM2.5 (kgs/day)**	**PM2.5 (kgs/day)**	**PM2.5 (kgs/day)**	**CO2 (kgs/day)**
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	0.0	0.2	0.2	7.3	0.0	7.3	1.5	0.0	1.5	19.9
Drainage/Utilities/Sub-Grade	1.4	6.1	10.8	7.9	0.6	7.3	2.1	0.5	1.5	1,640.3
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	1.4	6.1	10.8	7.9	0.6	7.3	2.1	0.5	1.5	1,640.3
Total (megagrams/construction project)	0.1	0.3	0.6	0.4	0.0	0.4	0.1	0.0	0.1	90.2

Notes: Project Start Year -> 2012
Project Length (months) -> 3
Total Project Area (hectares) -> 0
Maximum Area Disturbed/Day (hectares) -> 0
Total Soil Imported/Exported ($meters^3$/day)-> 1

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Road Construction Emissions Model — Version 6.3.2

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C25.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type		
Project Name	orth Area Sewer Collection System Intertie Project	
Construction Start Year	2012	Enter a Year between 2005 and 2025 (inclusive)
Project Type	1	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	3.0	months
Predominant Soil/Site Type: Enter 1, 2, or 3	2	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
Project Length	0.7	miles
Total Project Area	0.8	acres
Maximum Area Disturbed/Day	0.8	acres
Water Trucks Used?	2	1. Yes 2. No
Soil Imported	1.7	yd^3/day
Soil Exported	0.0	yd^3/day
Average Truck Capacity	10.0	yd^3 (assume 20 if unknown)

Construction Periods	User Override of Construction Months	Program Calculated Months
Grubbing/Land Clearing	0.00	0.30
Grading/Excavation	0.50	1.35
Drainage/Utilities/Sub-Grade	2.50	0.90
Paving	0.00	0.45
Totals	3.00	3.00

Soil Hauling Emissions	User Override of Soil Hauling Defaults	Default Values
User Input		
Miles/round trip		30
Round trips/day		0
Vehicle miles traveled/day (calculated)		4.98

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values
Miles/ one-way trip		20
One-way trips/day		2
No. of employees: Grubbing/Land Clearing	0.00	4
No. of employees: Grading/Excavation	5.00	7
No. of employees: Drainage/Utilities/Sub-Grade	5.00	7
No. of employees: Paving	0.00	6

Water Truck Emissions	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Day	Default Values Miles Traveled/Day
Grubbing/Land Clearing - Exhaust		0		0
Grading/Excavation - Exhaust		0		0
Drainage/Utilities/Subgrade		0		0

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day
Fugitive Dust - Grubbing/Land Clearing		0
Fugitive Dust - Grading/Excavation		0.8
Fugitive Dust - Drainage/Utilities/Subgrade		0.8

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type
		Aerial Lifts
		Air Compressors
		Bore/Drill Rigs
		Cement and Mortar Mixers
		Concrete/Industrial Saws
		Cranes
		Crushing/Proc. Equipment
		Excavators
		Forklifts
		Generator Sets
		Graders
		Off-Highway Tractors
		Off-Highway Trucks
		Other Construction Equipment
		Other General Industrial Equipment
		Other Material Handling Equipment
		Pavers
		Paving Equipment
		Plate Compactors
		Pressure Washers
		Pumps
		Rollers
		Rough Terrain Forklifts
	1	Rubber Tired Dozers
		Rubber Tired Loaders
	1	Scrapers
	1	Signal Boards
		Skid Steer Loaders
		Surfacing Equipment
		Sweepers/Scrubbers
		Tractors/Loaders/Backhoes
		Trenchers

		Welders

Grading/Excavation

Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type
		Aerial Lifts
		Air Compressors
		Bore/Drill Rigs
		Cement and Mortar Mixers
		Concrete/Industrial Saws
	0	Cranes
		Crushing/Proc. Equipment
0.00	1	Excavators
		Forklifts
		Generator Sets
0.00	1	Graders
		Off-Highway Tractors
		Off-Highway Trucks
	0	Other Construction Equipment
		Other General Industrial Equipment
		Other Material Handling Equipment
		Pavers
		Paving Equipment
		Plate Compactors
		Pressure Washers
		Pumps
		Rollers
		Rough Terrain Forklifts
		Rubber Tired Dozers
0.00	1	Rubber Tired Loaders
0.00	1	Scrapers
0.00	1	Signal Boards
		Skid Steer Loaders
		Surfacing Equipment
		Sweepers/Scrubbers
		Tractors/Loaders/Backhoes
		Trenchers
		Welders

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	
		Aerial Lifts
		Air Compressors
1.00		Bore/Drill Rigs
1.00		Cement and Mortar Mixers
		Concrete/Industrial Saws
1.00		Cranes
		Crushing/Proc. Equipment
		Excavators
		Forklifts
		Generator Sets
0.00	1	Graders
		Off-Highway Tractors
		Off-Highway Trucks
2.00		Other Construction Equipment
		Other General Industrial Equipment
		Other Material Handling Equipment
		Pavers
1.00		Paving Equipment
0.00	1	Plate Compactors
		Pressure Washers
		Pumps
		Rollers
		Rough Terrain Forklifts
		Rubber Tired Dozers
		Rubber Tired Loaders
0.00	1	Scrapers
0.00	1	Signal Boards
		Skid Steer Loaders
		Surfacing Equipment
		Sweepers/Scrubbers
1.00		Tractors/Loaders/Backhoes
0.00	1	Trenchers
		Welders

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type
		Aerial Lifts
		Air Compressors
		Bore/Drill Rigs
		Cement and Mortar Mixers
		Concrete/Industrial Saws
		Cranes
		Crushing/Proc. Equipment
		Excavators
		Forklifts
		Generator Sets
		Graders
		Off-Highway Tractors
		Off-Highway Trucks
		Other Construction Equipment
		Other General Industrial Equipment
		Other Material Handling Equipment
	1	Pavers
	1	Paving Equipment
		Plate Compactors
		Pressure Washers
		Pumps
	1	Rollers
		Rough Terrain Forklifts
		Rubber Tired Dozers
		Rubber Tired Loaders
		Scrapers
	1	Signal Boards
		Skid Steer Loaders
		Surfacing Equipment
		Sweepers/Scrubbers
		Tractors/Loaders/Backhoes
		Trenchers
		Welders

Appendix C
Biology

WETLANDS AND BIOLOGICAL CONSTRAINTS ANALYSIS
FOR THE

± -3.8 ACRE NORTH AREA COLLECTION SYSTEM INTERTIE PROJECT STUDY AREA

CITY OF ROSEVILLE, PLACER COUNTY, CALIFORNIA

Prepared for:

City of Roseville, Environmental Utilities Dept.
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Prepared by:

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Auburn, California 95603
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MAY 23, 2012

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FIGURES

WETLANDS AND BIOLOGICAL CONSTRAINTS ANALYSIS FOR THE ±3.8-ACRE NORTH AREA COLLECTION SYSTEM INTERTIE PROJECT STUDY AREA

INTRODUCTION

Project Background and Location

The North Area Collection System Intertie Project Site (Project Site) is located in the northwestern portion of the City of Roseville, Placer County, California. The ±3.8-acre Project Site consists of two distinct study areas: the approximate 2.3-acre Northern Study Area and the approximate 1.5-acre Southern Study Area. The Northern and Southern study areas correspond to Sections 27 and 28, respectively, of Township 11 north and Range 6 east on the Roseville, California 7.5-minute USGS topographic quadrangles (Figure 1). Elevations of the Project Site range from approximately 120 to 140 feet above sea level.

The Northern Study Area is surrounded by commercial and industrial businesses and is located north of Pleasant Grove Boulevard, between Foothills Boulevard and Industrial Avenue. The Southern Pacific Railroad is located to the east of the Study Area and runs through the northern-most portion of the Northern Study Area.

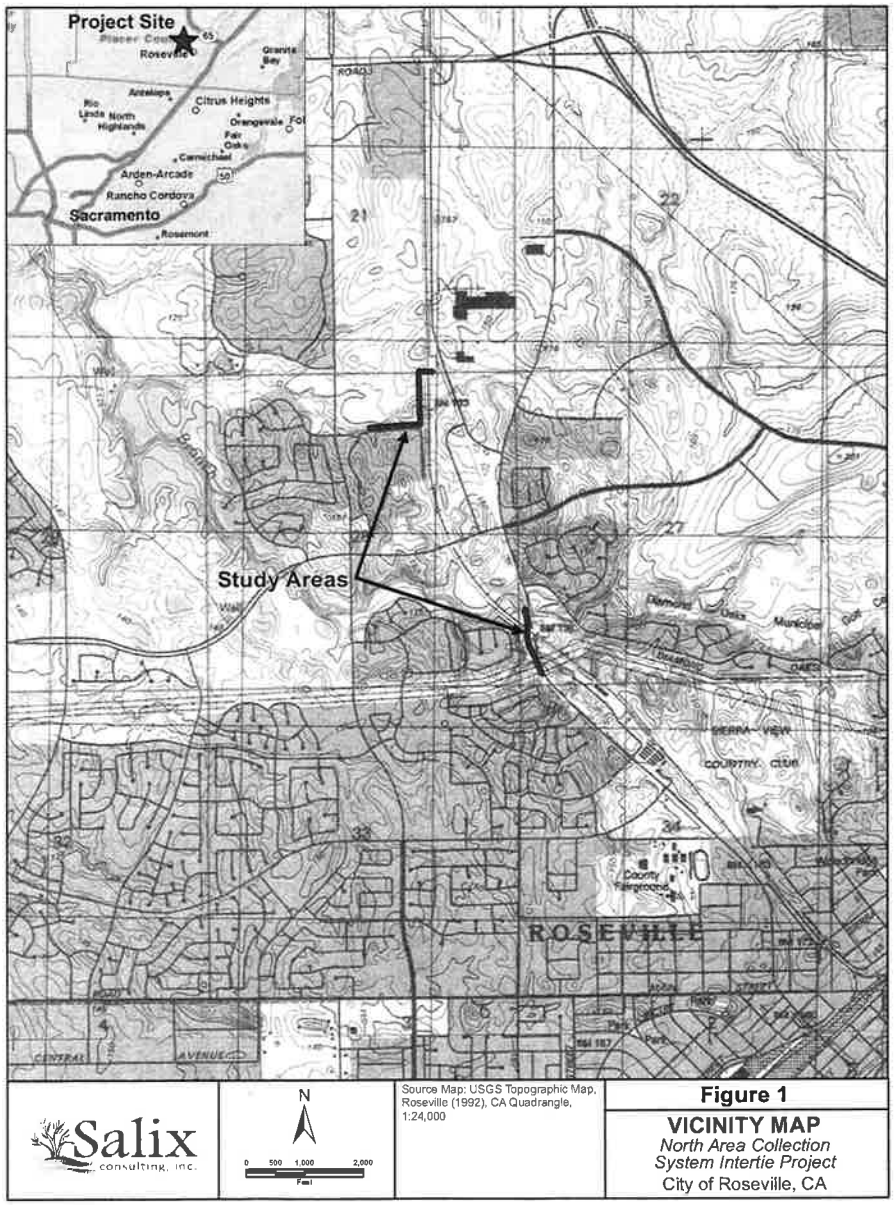
The Southern Study Area is located approximately 0.25-mile south of Pleasant Grove Boulevard and west of, and adjacent to, Washington Boulevard. The Southern Study Area is surrounded mostly by residential development with pockets of open space. Figure 2 shows the surrounding land uses of both the Northern and Southern Study Areas.

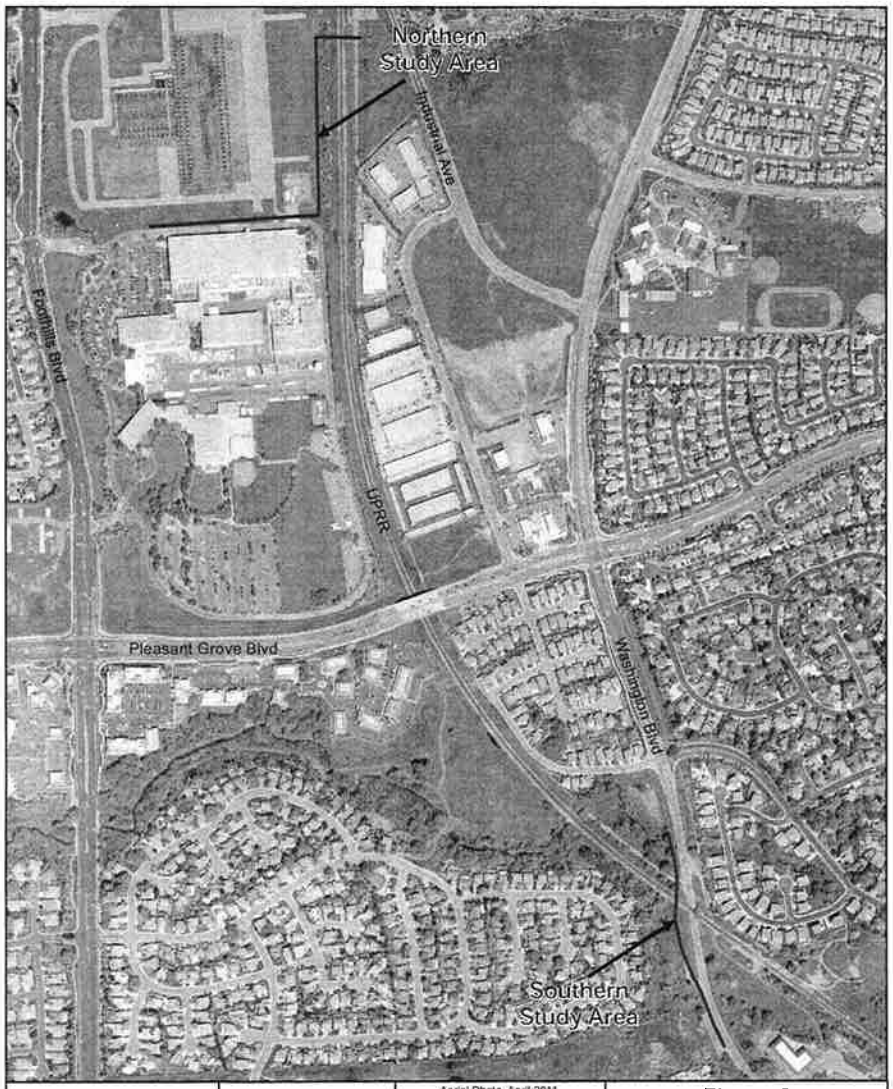
Objectives of Biological Resource Assessment

- Identify and describe the biological communities present in the study area
- Identify and describe any potential waters of the U.S. areas present in the study area
- Record characteristic plant and animal species observed in the study area
- Evaluate and identify sensitive resources and special-status plant and animal species that could be affected by project activities
- Provide conclusions and recommendations

Field Surveys

Field surveys of the Project Site were conducted by Salix Consulting biologists, Jeff Glazner (botany and wetlands) and Gaylene Tupen (Wildlife) on January 10, February 9, February 29, and March 12, 2012. The primary purpose of the surveys was to locate any sensitive habitats, including wetlands, within each Study Area and determine the potential for occurrence special status species known from the project region.





Salix consulting, inc.

Figure 2
AERIAL PHOTO
North Area Collection System Intertie Project
City of Roseville, CA

During the field surveys, plants and animals observed on site were recorded, habitat types were determined and the potential for each site to support special status species known from the region was assessed. Sensitive habitats located within each study area were also mapped during the field assessment.

Prior to conducting field surveys, we queried the California Natural Diversity Data Base (CNDDB) (CDFG 2012) and the California Native Plant Society Inventory (CNPS 2012) for reported occurrences of special status fish, wildlife, and plant species in the region surrounding the project site. A graphical representation of the CNDDB occurrence data is presented in Figure 3.

FINDINGS

Northern Study Area

Vegetation on the Northern Study Area consists primarily of disturbed annual grassland. Most of the plant species occurring in this habitat type are weedy and non-native. The location of the proposed sewerline through the grassland is primarily in a north/south direction, through a slightly sloped area to the east, toward railroad. Vegetation is almost entirely weedy grassland. Primary species include yellow star thistle (*Centaurea solstitialis*), rose clover (*Trifolium hirtum*), silver hairgrass (*Aira caryophyllea*), medusa head (*Elymus caput-medusae*), winter vetch (*Vicia villosa*), cranesbill geranium (*Geranium molle*), tarweed (*Holocarpha virgata*), willow herb (*Epilobium brachycarpum*), and stinkwort (*Dittrichia graveolens*). The corridor supports several ornamental trees along the toe of the railroad slope and just above the drainage swale. These include deodar cedar, London plane, and an ornamental pine (Figure 4).

Most of the Project Site provides somewhat limited habitat value for wildlife due primarily to existing levels of surrounding development. Existing levels of disturbance within the alignment and the close proximity to developed areas and high-traffic roadways, reduces the value of habitat available to wildlife (Figure 5). Many of the species observed or expected to occur within the Project Site are known to frequent woodland or grassland habitats in urban and suburban settings. The following bird species were observed or detected onsite during the February 9 and 29, 2012 site surveys: northern mockingbird, mourning dove, acorn woodpecker, northern flicker, black phoebe, red-tailed hawk, white-crowned sparrow, western scrub-jay, oak titmouse, savannah sparrow, and red-tailed hawk.

Special Status Species

Based on the findings from the CNDDB, one plant and four animals were determined to possibly occur in the Northern Study Area because the site has some areas of suitable habitat or they are known from nearby locations. These include the following:

Sanford's arrowhead (*Sagittaria sanfordii*) – known from the vicinity of the project site; potential habitat occurs in wetlands.

Study Areas
Salix consulting, Inc
Miles
0
2
5-mile Buffer of Study Area
Study Areas
Data: California Natural Diversity Database GIS California Department of Fish and Game, May 2012
Figure 3
CNDDB Species Occurrence Locations
North Area Collection System Intertie Project
City of Roseville, CA

Looking north over northern seasonal wetland.
Looking north along proposed alignment.
Looking south along proposed alignment and northern seasonal wetland.
Looking north over southern seasonal wetland.
Photo Date: January 10, 2012
Salix consulting, inc
Figure 4
SITE PHOTOS
NORTHERN STUDY AREA
North Area Collection System Intertie Project
City of Roseville, CA

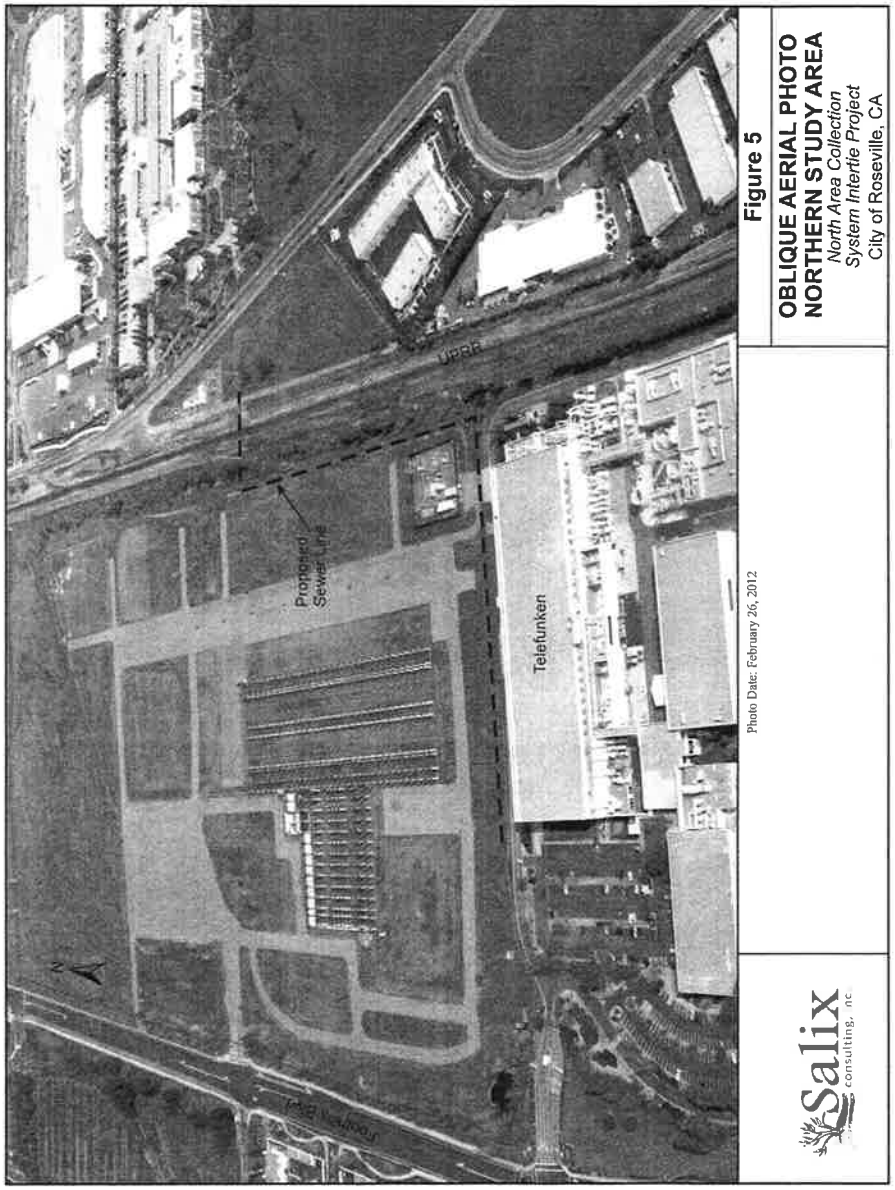


Figure 5
OBLIQUE AERIAL PHOTO
NORTHERN STUDY AREA
North Area Collection System Intertie Project
City of Roseville, CA

Western spadefoot toad *(Scaphiopus hammondii)* – potential breeding habitat in seasonal wetlands of project site; known occurrences in project region .

Grasshopper sparrow *(Ammodramus savannarum)* - marginal quality nesting habitat located throughout annual grassland of the site

Swainson's hawk (nesting) *(Buteo swainsoni)* - marginal quality foraging habitat in annual grassland. No nesting habitat in Northern Study Area.

White-tailed kite (nesting) *(Elanus leucurus)* - Suitable foraging habitat located throughout project site.

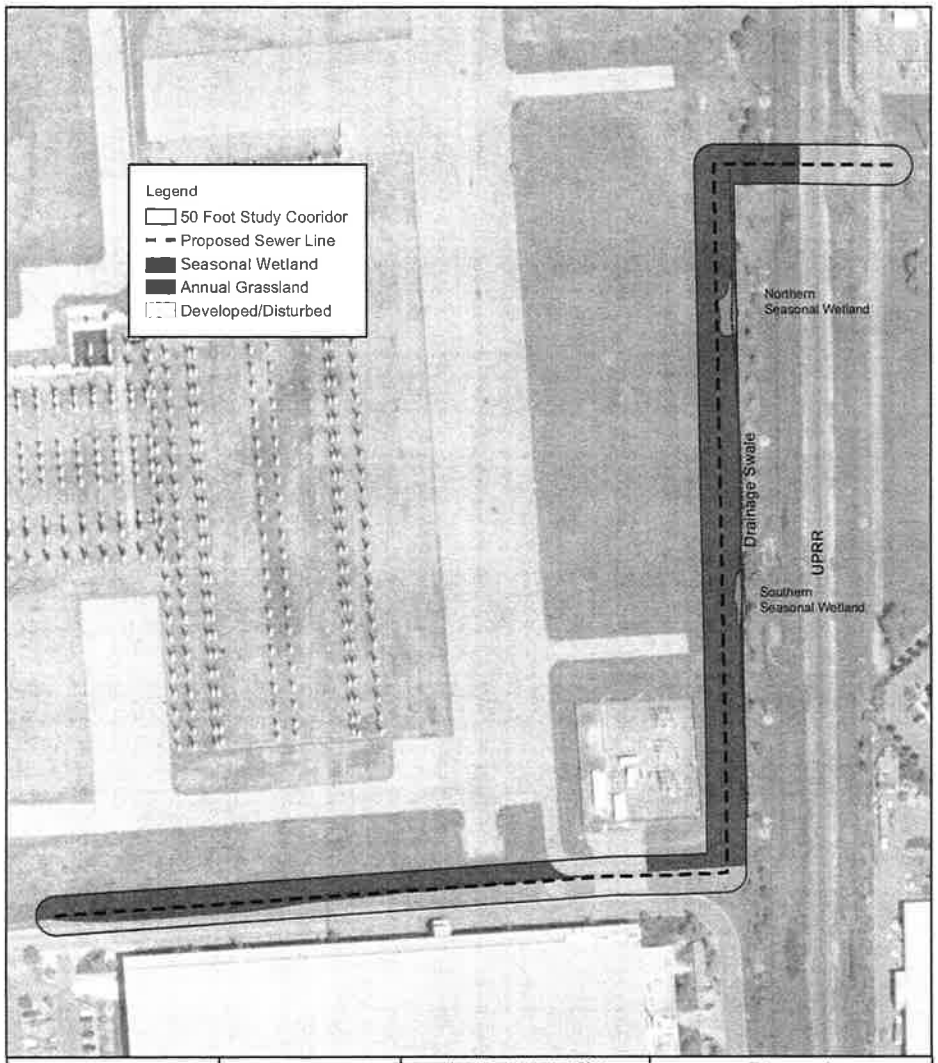
The CNDDB documents numerous occurrences of vernal pool fairy shrimp in the project region, with several occurrences in the vicinities of the Northern and Southern study areas (Figure 3). According to CNDDB records, vernal pool fairy shrimp have previously been detected in both vernal pools and seasonal wetlands in the general vicinity of the project site. Seasonal wetlands, however, located within and adjacent to the Northern Study Area are not expected to support vernal pool fairy shrimp due to the marginal quality of habitat available. These wetland habitats do not contain plant species associations considered typical of vernal pools and areas occupied by vernal pool crustaceans (UWFWS 2005). Dominant plant species present within the on-site seasonal wetlands include including tall flatsedge (*Cyperus eragrostis*), rabbitsfoot grass (*Polypogon monspeliensis*), ciliate willow herb (*Epilobium ciliatum*), and cattail (*Typha* sp). Although numerous occurrences of vernal pool fairy shrimp are documented within the project area, the potential for occurrence of this species within seasonal wetlands of the project site is considered unlikely.

The CNDDB documents only a few occurrences of vernal pool tadpole shrimp in the project region. As indicated in the previous discussion, seasonal wetlands located within and adjacent to the Northern Study Area are not expected to support vernal pool crustaceans due to the marginal presence of summer water. These wetland habitats do not contain plant species associations considered typical of vernal pools and those occupied by vernal pool crustaceans (USFWS 2005). Although vernal pool tadpole shrimp is documented near the project area, the potential for occurrence of this species within seasonal wetlands of the project site is considered unlikely.

Waters of the U.S.

A wetland delineation of the Project Site was not conducted as part of this assessment. However, we assessed the site closely for potential waters of the U.S.

The Northern Study Area is associated with the Telefunken facility. The proposed sewerline is adjacent to the railroad and a shallow drainage swale located at the toe of the railroad slope. Two distinct portions of the toe drain are seasonal wetlands and are located within the study area (Figure 6).



Salix consulting, inc.

N

0 75 150
Feet

Aerial Photo Date: April 2011

Figure 6

BIOLOGICAL & WETLANDS CONSTRAINTS MAP
NORTHERN STUDY AREA
North Area Collection System Intertie Project
City of Roseville, CA

The "northern seasonal wetland" in the Northern Study Area has an irregular shape and is approximately 114 feet long (at maximum length) and approximately 24 feet wide at the widest point. The overall length of this feature includes a narrow length at the southern end, which is approximately 35 feet long and three feet wide. This wetland feature supports a weedy wetland flora including common rush (*Juncus effuses*), willow herb (*Epilobium cilliatum*), broomsedge bluestem (*Andropogon virginicus*), and pennyroyal (*Mentha pulgium*). Part of this wetland is within the 50' study corridor, but the proposed alignment of the sewerline does not intercept the wetland

The second, "southern seasonal wetland" in the Northern Study area (Figure 6) is approximately 70 feet long and averages approximately 12 feet in width. It supports common rush (*Juncus effusus*), pennyroyal (*Mentha pulgium*), broomsedge bluestem (*Andropogon virginicus*), rabbitsfootgrass, and ciliate willow herb. This wetland is located just outside the 50' study corridor.

These wetlands appear to be wet during winter as a result of rainfall and are augmented during summer by the irrigation used for the ornamental trees just above the wetlands on the slope to the east. Both of these wetlands support species adapted to marshy conditions. They are not vernal pools. The proposed sewerline does not directly intercept either of these wetlands.

Southern Study Area

South Branch Pleasant Grove Creek (SBPGC) is the primary hydrologic feature that occurs within the Project Site. This intermittent stream flows in a westerly direction through the northern portion of the Southern Study Area. SBPGC then flows in a northwesterly direction beneath Washington Boulevard until converging with the mainstem of Pleasant Grove Creek approximately 3 to 4 miles northwest of the Southern Study Area (Figures 7 and 8). At the time of the field surveys, flow within SBPGC was approximately 1 to 3 cubic feet per second and the depth was less than 1 foot in the general vicinity of the Study Area. Some pooled areas were present in areas located upstream of the Study Area. It is anticipated that only scattered portions of SBPGC retain surface water throughout the dry season.

Other hydrologic features within and adjacent to the Southern Study Area include one additional small, unnamed intermittent stream and a drainage swale. The unnamed, intermittent stream crosses the southern end of the Southern Study Area and flows into SBPGC just west of the study area. (Figure 9) This intermittent drainage contained only a small amount of standing water at the time of the field survey. The drainage swale crosses the middle section of the Southern Study Area, just north of the Railroad. This swale was dry at the time of the field survey and is expected to only convey surface flow during and immediately following rain events.

Vegetation on the Southern Study Area consists of Oak Woodland (oak trees) and Annual Grassland (Figure 10), consisting almost entirely of annual grassland, with patches of ruderal vegetation interspersed. This community also occurs in openings within and between patches of oak woodland to the west of the proposed alignment in the Southern Study Area. Characteristic species observed within annual grassland of the Southern Study area included wild oats (*Avena fatua*), ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Italian thistle (*Carduus pycnocephalus*), and rose clover (*Trifolium hirtum*). Developed/disturbed habitats are generally associated with areas located adjacent to roadways and buildings and other structures and support sparse and ruderal vegetation. Ruderal and Disturbed habitats are dominated by annual grasses and weedy annual forbs such as yellow star thistle (*Centaurea solstitialis*), wild mustard (*Hirschfeldia incana*), filaree (*Erodium botrys*), and ripgut brome (*Bromus diandrus*).

Very little oak woodland habitat occurs within the proposed alignment but several individual or small groupings of oak trees are present in the alignment (Figure 9). Oak woodland also occurs adjacent to the portion of SBPGC located in the vicinity of the Study Area.

Most of the Project Site provides somewhat limited habitat value for wildlife due primarily to existing levels of surrounding development. Scattered oak trees located within the Southern Study Area provide some cover and potential nesting and roosting habitat for a variety of resident and migratory birds.

Greenwood Circle
UPRR
Washington Blvd
Tributary to South Branch
Pleasant Grove Creek
Drainage Swale
South Branch
Pleasant Grove Creek
Hawthorne Loop
Legend
50 Foot Study Cooridor
Proposed Sewer Line
BorePits
Manhole Covers
Annual Grassland
Creek OHWM
Developed/Disturbed
Oak Trees
N
Salix
Aerial Photo Date: April 2011
Figure 9
BIOLOGICAL & WETLANDS
CONSTRAINTS MAP
SOUTHERN STUDY AREA
North Area Collection
System Intertie Project
City of Roseville, CA

Salix
Photo Date: February 26, 2012
Figure 8
OBLIQUE AERIAL PHOTO SOUTH
BRANCH PLEASANT GROVE CREEK
North Area Collection
System Intertie Project
City of Roseville, CA
N
Washington Blvd.
South Branch
Pleasant Grove Creek
Proposed
Sewer Line
Interior
Live Oak
Existing Sewer Line
to Remain in Place
Interior
Live Oak
Flow

South Branch of Pleasant Grove Creek looking east toward Washington Blvd (Photo date: 2-9-12).

South area looking over South Branch of Pleasant Grove Creek from Washington Blvd. (Photo date: 2-9-12).

South area looking west down southern stream (Photo date: 1-10-12).

Salix consulting, inc

Figure 10

SITE PHOTOS
SOUTHERN STUDY AREA
North Area Collection System Intertie Project
City of Roseville, CA

A flock of wood ducks was also observed during the February 29th site visit in the intermittent drainage in the Southern Study Area. Numerous burrows for small mammals, such Botta's pocket gopher, were observed throughout the site. While no nesting activity was evident at the time of the field assessment, potential nesting habitat for various hawks and owls known from the region occurs in association with taller oaks and willows located within and to the west of the Southern Study Area.

During the field surveys, the portion of SBPGC within and near the Southern Study Area contained moderate flow and depths generally less than 1 foot. The mainstem of Pleasant Grove Creek and its tributaries, including SBPGC, are not known to support anadromous fish species such as salmon or steelhead (NMFS 2008; DWR 2005). Pleasant Grove Creek and portions of SBPGC are therefore expected to support only resident cold- and warm-water fish species. Pleasant Grove Creek drains into the northern part of the Natomas East Main Drainage Canal (NEMDC), which flows into the Sacramento River. Although there is a connection to the Sacramento River, the Natomas East Main Drainage Canal is an "impaired" waterway and has significant water quality issues. At the time of the field surveys, only a few bullfrogs and mosquitofish were observed in portions of SBPGC adjacent to the Southern Study Area, and the intermittent drainage to the south.

Special Status Species

From the CNDDB and the CNPS Inventory, one plant and five animals were determined to possibly occur because the site has some areas of suitable habitat or they are known from nearby locations. These include the following:

Brandegee's clarkia (*Clarkia biloba* subsp *brandegeeae*) - potential habitat occurs in woodland and grassland habitats in Southern Study Area.

Western pond turtle *(Actinemys marmorata)* – marginal quality habitat present along portions of SBPGC; may periodically occur in Study Area.

Grasshopper sparrow *(Ammodramus savannarum)* - marginal quality nesting habitat located throughout annual grassland of the site

Burrowing owl (burrow sites) *(Athene cunicularia)* - suitable burrowing habitat very limited within Study Area. No evidence of occurrence observed during field surveys. Known occurrences to the west.

White-tailed kite (nesting) *(Elanus leucurus)* - Suitable foraging habitat located throughout project site.

Purple martin *(Progne subis)* - potential nesting habitat associated with larger oak trees in Southern Study Area.

Waters of the U.S.

A wetland delineation of the Project Site was not conducted as part of this assessment. However, we assessed the site closely for potential waters of the U.S.

South Branch Pleasant Grove Creek (SBPGC), an intermittent stream, crosses the northern portion of the Southern Study Area. An unnamed intermittent stream, which is a small tributary to SBPGC crosses the southern portion of the Southern Study Area (Figure 9). Both of these drainages in the Southern Study Area support patches of oak woodlands, willows and some emergent vegetation including cattails (*Typha sp.*). In addition, a drainage swale is located north and adjacent to the railroad tracks that cross the Study Area.

RECOMMENDATIONS

Waters of the United States

1. The study area contains areas that qualify as waters of the United States. Seasonal wetlands occur associated with a railroad slope toe drain in the northern area and stream channels occur in the southern area. Activities that directly affect these areas would require a permit from the U.S. Army Corps of Engineers pursuant to Section 404 of the federal Clean Water Act. The project would also need to obtain a water quality certification from the Regional Water Quality Control Board pursuant to Section 401 of the federal Clean Water Act. Direct impact to any portion of the area regulated by the Corps of Engineers would trigger the need for a Department of the Army permit. If no direct impacts are proposed, a Corps permit is not required.

Streams, Pond, and Riparian Habitat

1. Impacts to the bed, bank, or channel of the streams crossing the study area would require a Streambed Alteration Agreement (1602) with the California Department of Fish and Game (CDFG). Crossing of the stream channels even if there is no impact to waters of the U.S may require a 1602.

Oak Tree Impacts

1. All native oak trees in the City of Roseville are protected by City ordinance. The City will require that the contractor comply with requirements of the ordinance, including avoidance, minimization, or compensation for the removal or disturbance of native oak trees greater than 6 inches dbh during construction. If native oak trees will be affected by the project, the contractor will be required to prepare a tree mitigation plan that identifies trees that qualify for protection and specifies mitigation for impacts. For any oak trees that would be removed, the City will mitigate the impact through either on-site planting or use of the City's in-lieu fee

program. It s recommended that the City Arborist be consulted to assist and properly document tree-related activities and prescribe mitigation, if necessary.

Special-Status Plants

1. Floristic surveys were not conducted as part of this study. Two special-status plants were determined to have some potential to occur in the study area based on the presence of suitable habitat, including Brandegees' clarkia and Sanford's arrowhead. Brandegee's clarkia occurs in association with woodland and grassland habitats throughout the project site. Sanford's arrowhead occurs in slow-moving water in the bottoms of streams and ditches similar to those in the Southern Study Area. Disturbance of wetlands and streams of the site and the potential habitat for Sanford's arrowhead should be avoided to the extent feasible through project design. Measures recommended for avoidance and minimization of impacts to Brandagee's clarkia, if it occurs on site, include replacement of the topsoil after the pipeline is installed. Brandagee's clarkia establishes on disturbed soils, thus it is recommended that the topsoil be stockpiled and placed back near its original location to preserve the seed bank. If the seedbank is preserved, it is highly likely that Brandagee's clarkia, if present, would reestablish, and special-status species surveys would not be necessary.

Special-Status Wildlife

1. Seasonal wetlands of the project site do not exhibit the characteristics of habitats that typically support vernal pool crustaceans. Nonetheless, it would be prudent to avoid direct impacts to the seasonal wetlands.

2. The project site provides very marginal habitat for western spadefoot toad. Avoidance of all wetlands would minimize any impacts to this species.

3. Within the project site, potential habitat for western pond turtle occurs along deeper sections of SBPGC and the intermittent drainage to the south. Depending on the time of year, individual pond turtles could occur within portions of the southern drainages located within proposed work areas. Avoidance of the area below the top of bank for each stream would minimize any impacts to this species.

4. No evidence of burrowing owl occurrence was observed within the project site during field surveys. However, it is expected that this species has some limited potential to occur within open areas of the project site, based on the site's close proximity to other known occurrences. Limited areas of suitable habitat occur in open grassland in the Northern Study Area. Prior to any future work activities or ground disturbance on site, a pre-construction burrowing-owl survey is recommended to determine presence/absence of the species within and directly adjacent to proposed work areas.

5. Based on the close proximity to other documented nesting sites (within a 5-mile radius) Swainson's hawk is known to forage in the area, and the more open locations of the study area provide limited foraging potential. The City should consider

consultation with the CDFG to determine if the project constitutes a Swainson's hawk foraging habitat impact.

Potential nesting habitat for Swainsons' hawk primarily occurs in a few taller trees located in the Southern Study Area, although the potential for nesting activity is considered low due to existing levels of surrounding development. A preconstruction nest survey is recommended prior to disturbance if disturbance occurs between February and September.

6. Taller trees and woodland areas in and near the Southern Study Area provide suitable nesting habitat for various other raptors known from the region, including a variety of hawks and owls. If tree removal activities take place during the associated breeding/nesting season for raptors (typically March 1 through August 31), disturbance of nesting activities could occur. Pre-construction nesting surveys are required no more than 30 days prior to initiation of proposed development activities.

6. Based on the presence of suitable habitat and the occurrence of other documented nesting activity within the region, purple martin has some limited potential for nesting in tree cavities within the project site. If construction activities take place at any time during the associated breeding/nesting season for this species (approximately April through August), disturbance of nesting activities could occur. A pre-construction survey should be conducted if ground disturbance activities will take place during the identified nesting season.

General Construction Practices

1. It is recommended that before any work occurs in the Project Area, a qualified biologist conduct mandatory contractor/construction personnel training to instruct them on the need to avoid impacts on biological resources and the penalties for not complying with biological mitigation requirements. It is further recommended that new personnel receive this training if/when they are added to the project, and before starting work.

2. It is recommended that the City require the contractor to install construction barrier fencing to identify environmentally sensitive areas (ESAs), such as mixed riparian forest, native oak trees greater than 6 inches dbh, wetland drainages, and any trees that support migratory bird or raptor nests.

APPENDIX D: MITIGATION MONITORING PLAN

MITIGATION NUMBER	DESCRIPTION	TIMING/ACTION	MONITORING DEPARTMENT	DATE COMPLETE
Bio-1	**Replace Top Soil** To preserve the seed bank, topsoil excavated along the pipeline alignment shall stockpiled and replaced near it's original location after the pipeline is installed. With preservation of the seedbank it is highly likely that Brandagee's clarkia, if present, would reestablish, and special-status plant species surveys would not be necessary.	Include note on project plans and monitor during construction.	Environmental Utilities	
Bio-2	**Install Construction Barrier Fencing to Protect Environmentally Sensitive Areas** Orange construction barrier fencing shall be installed to identify environmentally sensitive areas (ESAs). ESAs in and adjacent to the construction area comprise stream corridors from top of bank to top of bank, mixed riparian forest, native oak trees greater than 6 inches dbh, wetland drainages, and any trees that support migratory bird or raptor nests. Before construction, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the ESAs to indicate these locations. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. No entry to ESA areas by the contractor for any purpose will be allowed unless specifically authorized in writing by the City. The contractor will take measures to ensure that contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors. Temporary fences around the ESAs will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent).	Identify ESA areas to be protected on project plans and field verify installation of ESA fencing prior to construction.	Environmental Utilities	

Bio-3	**Construct Outside the Bird Nesting Season or Conduct Pre-Construction Nesting Surveys** To avoid disturbance of raptor breeding and nesting activity, including nesting of sensitive raptors and burrowing owl, project activities should be avoided during the typical breeding season (generally February through September) to the extent feasible. If construction must take place during the typical nesting season, preconstruction surveys will be conducted by a qualified biologist no more than 30 days prior to initiation of proposed construction activities. Surveys will be conducted to determine if active nesting is occurring on or directly adjacent to the study area. If active nests are found on or immediately adjacent to the site, survey results will be submitted to CDFG and consultation will be initiated with CDFG to determine appropriate avoidance measures. If no nesting is found to occur, necessary tree removal and other project activities could then proceed.	Complete nesting survey no greater than 30-days prior to construction/tree removal.	Environmental Utilities	
Bio-4	**Conduct Environmental Awareness Training for Construction Personnel** Before any work occurs in the project area, including grading, a qualified biologist will conduct mandatory contractor/worker awareness training for construction personnel. The awareness training will be provided to all construction personnel to brief them on the need to avoid impacts on biological resources and the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the project, the contractor will ensure that the personnel receive the mandatory training from the biologist before starting work.	Prior to construction	Environmental Utilities	
CR-1	**Stop Construction if Signs of an Archeological Site or Human Remains are Discovered During Construction** The construction contractor shall stop construction and notify the Roseville City Manager's Office if signs of an archeological site are discovered during construction of the project. The City will then notify a qualified archeologist to assess the find and additional mitigation may be required. If remains of Native American origin are discovered during project constriction it will be necessary to comply with state laws concerning the disposition of Native American burials, which fall within the NAHC's jurisdiction (PRC 5097).	During Construction	Environmental Utilities	