

## 1.0 INTRODUCTION

### 1.1 PURPOSE OF STUDY

The purpose of this Watershed Assessment Report is to assess storm water runoff, flood control, and water quality impacts associated with the proposed Newport Banning Ranch development project. It also seeks to identify potential project design features and/or mitigation measures for inclusion into the Project Environmental Impact Report (EIR). Activities associated with the Project have the potential to alter the existing drainage courses, modify the impervious surface makeup, and create the possibility for new potential sources of runoff contamination. The runoff management components for the project are described in the following sections:

- **Section 1** identifies the **framework** and **objectives** for the Watershed Assessment Report.
- **Section 2** provides **background** regarding the Project watershed and associated drainage conditions.
- **Section 3** identifies the **existing versus proposed hydrologic conditions** with respect to the Project watershed along with the associated flood control and drainage impacts. It also investigates the existing channel hydraulics and stability with regards to the proposed development plan.
- **Section 4** provides **water budget** demands for preserved habitat in the arroyos to identify any potential changes to the existing water budgets of the existing arroyos on-site and validate that the proposed project will not significantly alter the existing hydrologic conditions.
- **Section 5** summarizes the existing and proposed **water quality features** with an emphasis on the implementation of low impact development (LID) features.

This report concentrates on sustainable design strategies for the hydrologic, hydraulic, and water quality issues associated with the proposed project. Project design features will be implemented to reduce the potential impacts to hydrology and surface water quality. The effect of the development on groundwater, geotechnical and biology are not included in the scope of this report; however their objectives have been considered in the design and water quality aspects of the Project.

### 1.2 PROJECT AND SITE DESCRIPTION

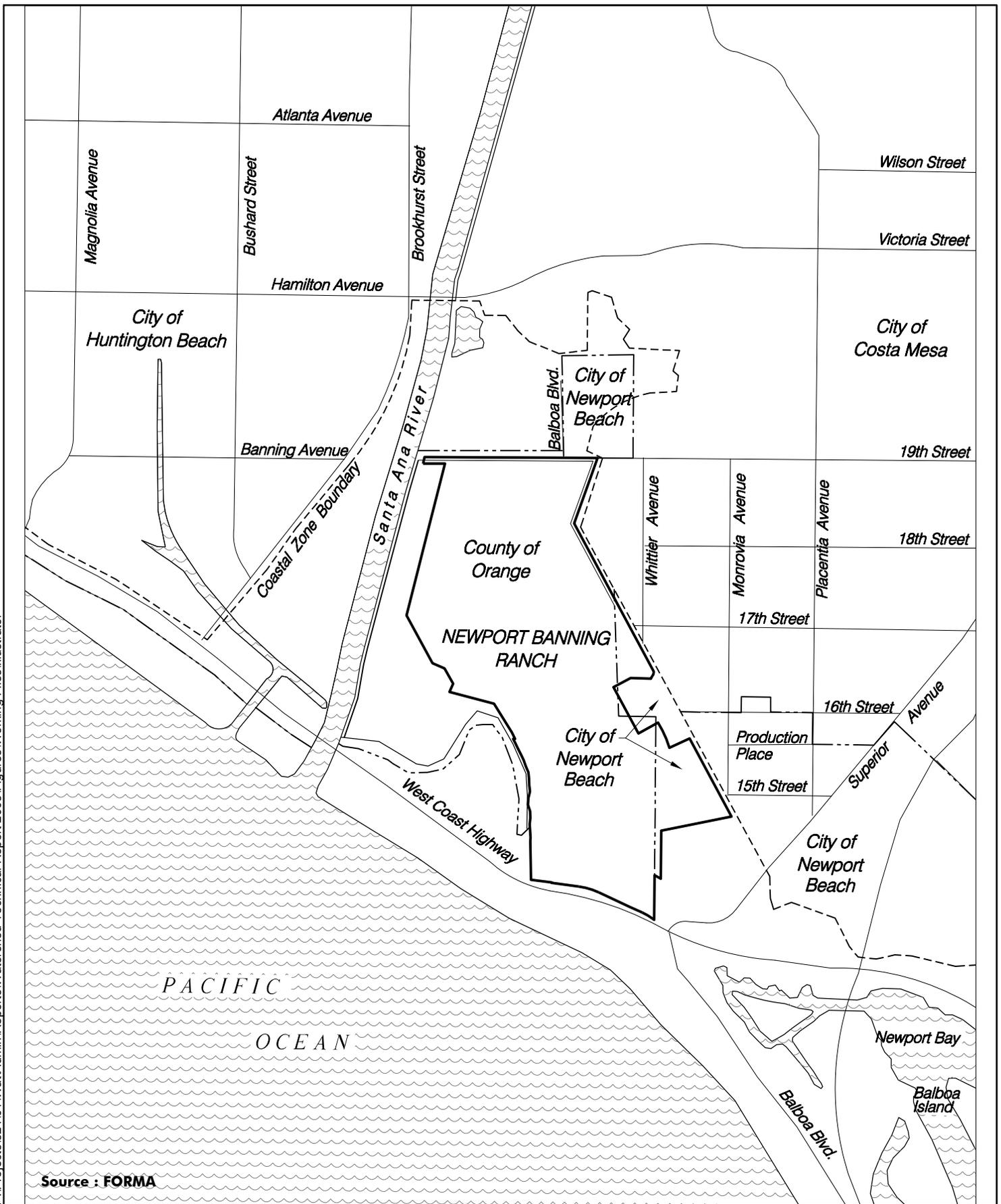
#### 1.2.1 LOCATION

The Newport Banning Ranch property encompasses approximately 402 acres within unincorporated County of Orange and portions of the City of Newport Beach, California. The property is bounded on the south by the West Coast Highway (WCH), to the west by the Santa Ana River channel, and by existing residential and commercial developments to the

north and east (see Figure 1). The entire property is situated within the Coastal Zone Jurisdictional Boundary as established by the California Coastal Act, and is therefore also subject to the planning and regulatory jurisdiction of the California Coastal Commission. The southwestern border of the property is less than one half mile from the Pacific Ocean and adjoining beaches. The City of Costa Mesa, including Talbert Regional Park, is adjacent to the northern and a portion of the eastern project boundaries. Wetland areas restored by the US Army Corp of Engineers (USACOE) extend up the site's western boundary and separate the site from the Santa Ana River channel. The City of Huntington Beach is located west of the Santa Ana River, adjacent to the site's western boundary. Figure 1 is the Project's Vicinity Map.

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### NEWPORT BANNING RANCH

### FIGURE 1: Project Vicinity Map

August 1, 2008





### 1.2.2 EXISTING SITE FEATURES

Within the project boundary, there are several primary landforms of concern that are referenced throughout this report:

- **Lowland Area** – located north and northeast of the project site. The Lowland area currently consists of degraded wetland and ruderal vegetation, as well as roads, pipelines, and other facilities associated with oil operations. In addition, the Lowland area consists of several narrow channels and shallow depressions that occasionally pond water.
- **Upland Mesa** – located in the eastern portion of the property. Similar to the Lowland areas, the Upland Mesa currently consists of existing pipelines, roads, buildings, and other equipment related to oil extraction activities.
- **Bluffs** – located adjacent to the Lowlands, and include west and southwest facing slopes of varying steepness. The bluffs have suffered from erosion in localized areas, resulting in sloughing and sediment contributions to the Oxbow Loop.
- **Arroyos** – there are several existing drainage courses (generally referred to as “arroyos”) that fall gradually from the eastern project boundary across the mesa and bluffs towards the Oxbow Loop in the western portion of the site. The two largest Arroyos, designated as the Northern and Southern Arroyo, are considered significant drainage features and convey runoff from upstream areas (primarily off-site contributions) through the project site. The tributaries of these Arroyos, in particular the Southern Arroyo, have been subject to significant erosion and sloughing of sediment into the main arroyo channels, and these sediments are delivered downstream during storm events. The Southern Arroyo conveys the largest amount of flow and sediment to the downstream receiving water body (Oxbow Loop) and as part of the development plan, these eroding tributaries will be stabilized to remove the source of sediment to the Oxbow Loop.
- **Oxbow Loop** – also known as the Semeniuk Slough, consists of a meandering drainage course that flanks the southern portion of the site. The Oxbow Loop receives runoff from both on-site and off-site areas, and drains generally west and north towards the Lowlands area. However, a small dike separates the Lowlands area from the Oxbow Loop channel, and there are several culverts that allow for tidal exchange between the areas.

Figure 2 highlights these primary landforms and features of the site.

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**Legend**

- - - Arroyo
- - - Project Boundary

**NEWPORT BANNING RANCH**

**FIGURE 2: Existing Site Features**

August 1, 2008





### 1.2.3 EXISTING OIL OPERATIONS

For more than 50 years, the site has been used as an operating oil field and, today, remnants of old wells and pipelines coexist with currently operating pump and processing facilities. Most of the active oil facilities are located in the central portion of the Upland Mesa and adjoining Lowland area. Currently, there are over 460 producing, potentially producing, and abandoned wells along with related roads, pipelines, and associated facilities located throughout the Newport Banning Ranch property.

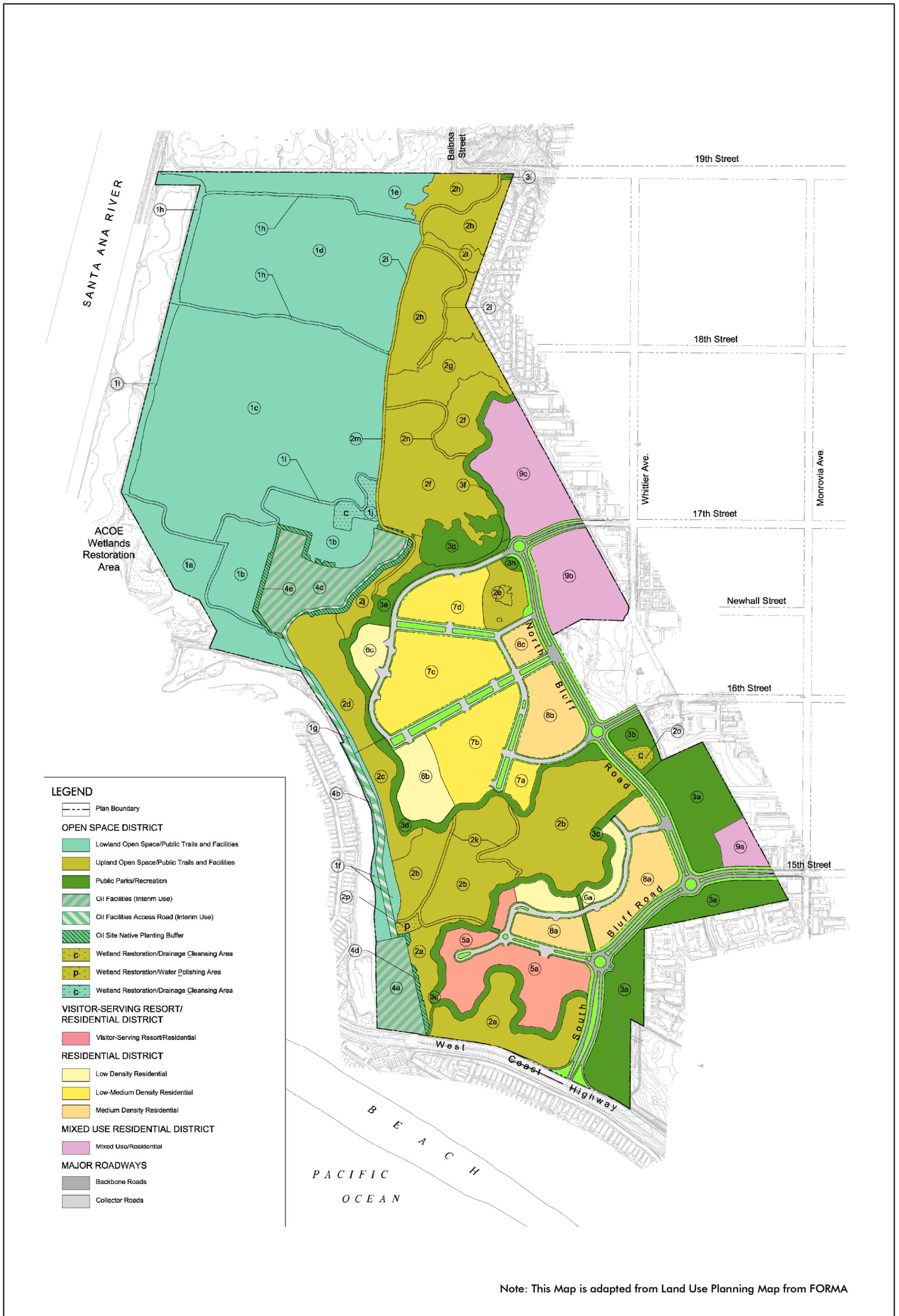
### 1.2.4 PROPOSED DEVELOPMENT

The proposed Newport Banning Ranch Project includes the development of roughly 175 acres of the larger 402-acre project site for residential, commercial, and recreational land uses. Over fifty percent of the property will be retained as open space, with restored wetland and habitat areas located throughout the Lowland and Upland areas. The locations of the development areas have been selected and will be designed to minimize impacts on adjacent habitats and open space areas (see Figure 3). Below is a summary of the proposed development:

- **Residential Areas** – A maximum of 1,375 residential units are proposed on 88 acres of the project site, generally divided into the following districts:
  - Resort Oriented Residential Units – A maximum of 175 resort-oriented residential units are planned as part of the resort area.
  - Low Density Residential – Approximately 12 acres of low density residential are planned that may include custom homes or larger individual lots.
  - Low-Medium Density Residential – Approximately 32 acres of low-medium residential are planned that may include single family detached and attached homes.
  - Medium Density Residential – Approximately 20 acres of medium density residential is designated for single-family detached and multi-family residential projects.
  - Mixed Use / Residential – A 21-acre area along the eastern side of North Bluff Road is envisioned for residential and neighborhood commercial uses.
- **Visitor-Serving Resort** – a 75-room inn is proposed, located above West Coast Highway. The inn will feature restaurants, spa, fitness center and other associated commercial amenities.
- **Parks and Recreational Areas** – both active and passive public parks will be located throughout the project site. Multiple trails will be located throughout the site and adjacent areas to connect to the regional recreational facilities. In addition, smaller greenways and neighborhood focal points will be placed within the residential areas.
- **Open Space Areas** – various open space uses are proposed throughout the Lowland, Upland, Bluff, and Arroyo areas, including trails, habitat, wetlands, and arroyos.

- **Green Streets** – many of the larger streets and arterials throughout the project site will be designed with “green street” and other low impact development (LID) features. Green Streets are carefully designed roadways that incorporate sustainable design elements that may include narrower pavement widths, canopy street trees, traffic calming features, and alternative lightning systems. In addition, landscaping along the street edges and within the medians provide additional opportunities for treatment of storm water runoff from the streets and adjacent development areas.
- **Oil Consolidation Sites** – Since on-site oil operations are expected to continue, the Project will include a phased abandonment and consolidation of facilities to specific areas of the site to continue operations after development. Well abandonment and remediation processes will be conducted in accordance with all relevant Federal, State, and local laws and regulations.

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### 1.3 STUDY OBJECTIVES

This report concentrates on the on-site hydrologic, erosion, and water quality impacts associated with the proposed Newport Banning Ranch Project, with the following objectives:

- **Hydrology Analysis:** The objectives of this hydrology study are to evaluate the expected discharges for a sequence of storm events to evaluate the hydrologic impacts on the Project watershed for the existing and proposed conditions (including relevant project design features). The analysis also includes estimating the 100-year storm peak discharge rates and volumes before and after the project using design hydrology methodologies to assess impacts to the existing and proposed drainage facilities, and determine the level of significance of the impacts due to the project. Particular attention is focused on the potential downstream impacts related to the Oxbow Loop and the existing neighborhoods downstream of the project along the Oxbow. Mitigation measures will be discussed if necessary to address any identified significant impacts.
- **Floodplain Inundation Analysis:** The purpose of the channel hydraulics analysis is to establish the flow depths, velocities, and water surface profiles (i.e. flood plain boundaries) for a series of design storm events under the existing and proposed conditions for the Northern and Southern Arroyos. The analysis utilize agency-accepted US Army Corps of Engineers (USACOE) models to define the proposed floodplain boundary of the Arroyos and demonstrate that the proposed flood protection measures meet the flood protection and drainage guidelines. Relevant project design features will be included in the assessment and mitigation measures will be included to address any identified significant impacts.
- **Habitat Analysis:** The purpose of the hydrologic objectives for habitat is to maintain an appropriate water budget for all preserved habitat on-site and utilize treated storm water runoff to supplement areas of enhancement and/or creation of habitat. The analysis will focus on smaller scale more frequent storm events to determine potential water budget changes to the existing arroyos on-site and validate that the proposed project will not substantially alter the existing hydrologic conditions.
- **Water Quality Analysis:** The Newport Banning Ranch project offers opportunities for storm water management that balance Project flood control requirements with preservation of natural drainage ways for improved water quality. The objective is to maximize use of low impact development (LID) features and best management practices (BMPs) to control post development runoff as well as promote sustainability strategies such as water conservation and re-use on-site. The purpose of the water quality assurance plan is to provide a framework for the implementation of LID BMPs. LID BMPs will help achieve an appropriate level of treatment for development runoff while regional water quality facilities will provide ways to improve the quality of off-site runoff for regional benefit. At the site design level, the primary LID objective is to minimize the amount of directly connected impervious areas and promote treatment of runoff through the soil profile. This will be further achieved by conserving natural drainage features, minimizing the impervious footprint of the project and avoiding soil

compaction. LID BMPs will be applied primarily to the core interior development areas and the transitional areas.

#### 1.4 CEQA THRESHOLDS OF SIGNIFICANCE

California Environmental Quality Act (CEQA) significance criteria are used to evaluate the degree of impact caused by a development project on environmental resources such as hydrology and water quality. According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would impact any of the items listed below.

Would the Project:

- A. Violate any water quality standards or waste discharge requirements?
- B. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table? (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)
- C. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or in a manner which would result in a substantial erosion or siltation on- or off-site?
- D. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?
- E. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?
- F. Otherwise substantially degrade water quality?
- G. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
- H. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?
- I. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?
- J. Be subject to inundation by seiche, tsunami, or mudflow?