4.8 HYDROLOGY AND WATER QUALITY

This section describes the existing setting of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Villa Storia Planned Development (PD) Plan (proposed project). The following analysis is based upon two (2) technical studies: (1) the Priority Development Project Storm Water Mitigation Plan for Villa Storia (SWMP) that was prepared for the proposed project by Buccola Engineering, Inc. in November 2014 (Buccola 2014a) and (2) the Preliminary Drainage Report, Villa Storia (drainage report) that was prepare for the proposed project by Buccola Engineering, Inc in November 2014 (Buccola 2014b). Both the SWMP and the drainage reports are incorporated by reference herein. The SWMP and drainage report are included in Appendix H of this EIR.

4.8.1 Existing Conditions

Project Location

The proposed project is located in the north-central portion of the City of Oceanside within the Mission San Luis Rey Historic Area. The project site is bound by Mission Avenue and State Route 76 (SR-76) to the south, a mobile home community, other residential development, and the Alano Club to the north, additional residential development to the east, and Mission San Luis Rey and associated facilities to the west. Academy Road generally bisects the proposed project site in a north-south orientation. The land west of Academy Road is located within the Historic Area Core.

Project Site Characteristics

The 35.59-acre site is currently undeveloped with little vegetation other than seasonal grasses. The northern portion of the site drains generally towards the east/northeast into a 54 inch trunk storm drain that connects to the existing trunk 84 inch storm drain on the northern edge of the project site. The majority of existing Academy Road is elevated above the surrounding open land, therefore the northwestern two-thirds of the project site drains to a sump just west of Academy Road, where a culvert conveys flow under the roadway. From there, the northeastern one-third of project site sheet flows slowly north to the 54 inch culvert at Frazee Road. A southern portion of the site drains east near the project site edge along SR-76 into the 84 inch storm drain that runs along the eastern boundary of the project site. The site topography is gently sloping ~2% to ~10% grades generally from southwest to northeast. The site drops approximately 20 feet from 87 feet down to 67 feet at the northeast corner of the property.

The site drainage flow patterns are predominately sheet flow, with some drainage courses in low-lying areas as noted on Figure 4.8-1, Pre-Project Site Conditions and Drainage Pattern.

A small mostly paved area, approximately 1.4 acres, just northwest of the Frazee/Academy intersection (North County Alano Club), drains onto the property at the intersection, then turns north and drains off-site within the paved driveway entrance to the adjacent mobile home community (San Luis Rey Homes). The area just west of the site, the Mission San Luis Rey Parish and associated facilities, drains south/southwest toward Mission Avenue. The single-family tract east of the site (River Ranch Homes) drains west into the existing 84 inch cured-in-place pipe (CIPP) storm drain along the eastern boundary of the project site. In addition, approximately 46 acres of tributary area to the south drains into the 84 inch storm drain, which is a public facility owned and maintained by the City of Oceanside, therefore qualifies as an MS4 facility. From the northern edge of the project site, the 84 inch storm drain continues north to the Upper Pond (detention basin) adjacent to the San Luis Rey River. This outfall location is an improved detention basin facility constructed with the San Luis Rey levee system.

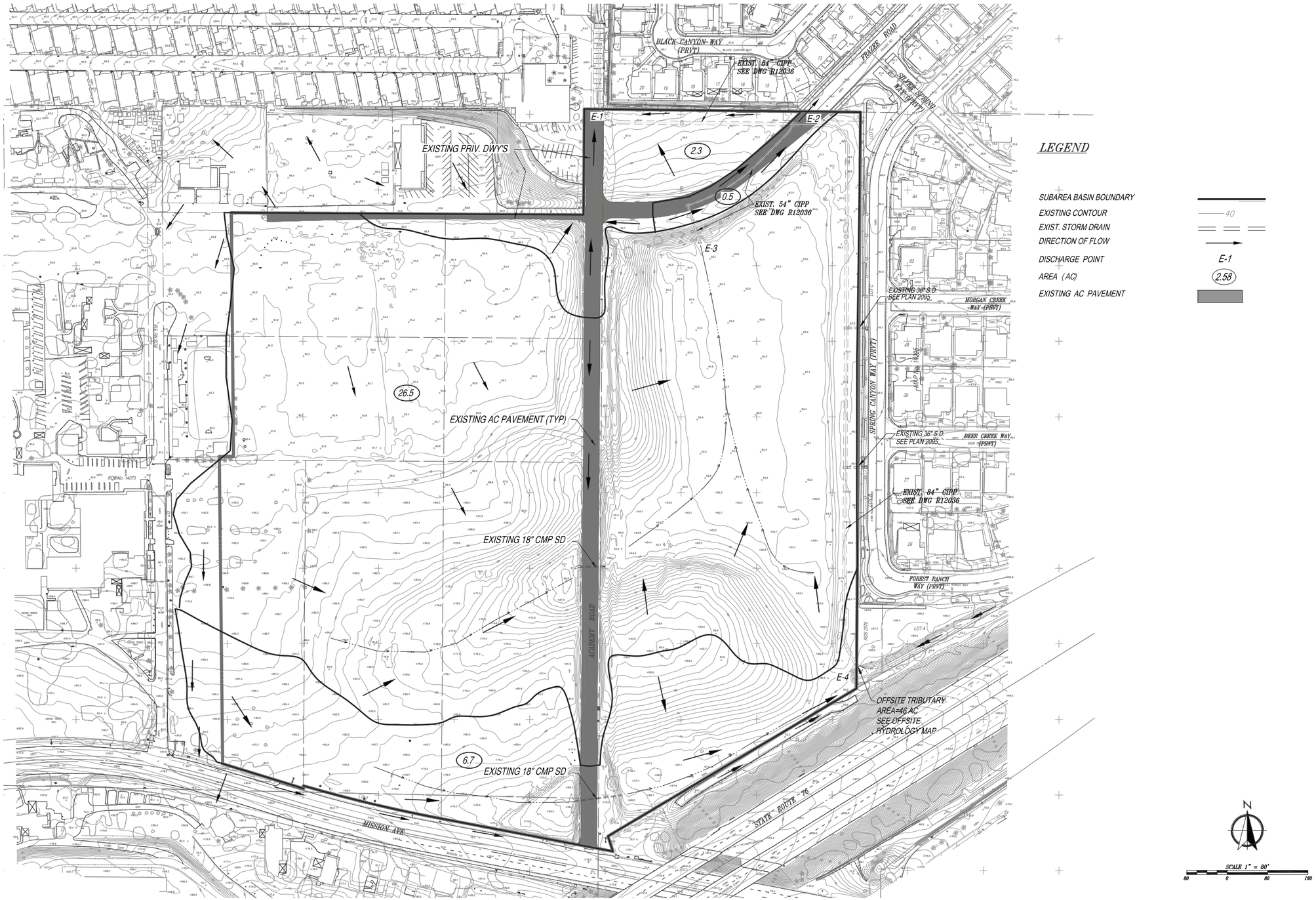
4.8.2 Relevant Plans, Policies, and Ordinances

Federal

Clean Water Act

The U.S. Environmental Protection Agency (EPA) regulates water quality under the Clean Water Act (CWA) (also known as the Federal Water Pollution Control Act). Enacted in 1972 and significantly amended in subsequent years, the Clean Water Act is designed to restore and maintain the chemical, physical, and biological integrity of waters of the United States. The Clean Water Act provides the legal framework for several water quality regulations, including the National Pollutant Discharge Elimination System (NPDES). The NPDES program characterizes receiving water, identifies harmful constituents, targets potential sources of pollutants and implements a comprehensive stormwater management program. Construction and industrial activities are typically regulated under statewide general permits that are issued by the State Water Resources Control Board (SWRCB). The Regional Water Quality Control Board (RWQCB) also issues waste discharge requirements that serve as NPDES permits under the authority delegated to the RWQCBs under the CWA.

The Clean Water Act requires NPDES permits for the discharge of pollutants to waters of the United States from any point source. In 1987, the Clean Water Act was amended to require that the EPA establish regulations for permitting of municipal and industrial stormwater discharges under the NPDES permit program. In November 1990, under Phase I of the urban runoff management strategy, the EPA published NPDES permit applicant requirements for municipal, industrial and construction stormwater discharges. These requirements are implemented through permits issued by the SWRCB or the local RWQCB in which the project is located (California RWQCB San Diego Region, herein San Diego RWQCB) and/or the governing municipality where the project is located.



SOURCE: BUCCOLA ENGINERRING, INC. 2014

FIGURE 4.8-1

Pre-Project Site Conditions and Drainage Pattern

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Villa Storia PD Plan Draft Environmental Impact Report

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The EPA delegated its responsibility for administration of portions of the Clean Water Act to state and regional agencies. The Clean Water Act requires states to adopt water quality standards for receiving water bodies and to have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations or levels of constituents, such as lead, suspended sediment, and fecal coliform bacteria, or narrative statements that represent the quality of water that supports a particular use.

National and State Safe Drinking Water Acts

The federal Safe Drinking Water Act, established in 1974, is administered by the EPA and sets drinking water standards throughout the country. The drinking water standards established in the act, as set forth in the Code of Federal Regulations (CFR), are referred to as the National Primary Drinking Water Regulations (Primary Standards; 40 CFR 141), and the National Secondary Drinking Water Regulations (Secondary Standards; 40 CFR 143). According to the EPA, the Primary Standards are legally enforceable standards that apply to public water systems. The Secondary Standards are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water. The EPA recommends the Secondary Standards for water systems but does not require systems to comply. California passed its own Safe Drinking Water Act in 1986 that authorizes the state's Department of Health Services to protect the public from contaminants in drinking water by establishing maximum contaminant levels (as set forth in the California Code of Regulations (CCR), Title 22, Division 4, Chapter 15) that are at least as stringent as those developed by the EPA, as required by the federal Safe Drinking Water Act.

State

California Toxics Rule

Because of gaps in California's regulations, the EPA promulgated the California Toxics Rule (40 CFR 131.38), which established numeric water quality criteria for certain toxic substances in California surface waters. The California Toxics Rule establishes acute (i.e., short-term) and chronic (i.e., long-term) standards for water bodies that are designated by the San Diego Regional Water Quality Control Board (RWQCB) as having beneficial uses protective of aquatic life or human health. The California Toxics Rule criteria are applicable to the receiving waters from the project site (RWCQB 2011).

Section 402(p) – Construction General Permit (CGP)

Pursuant to the Porter-Cologne Act, Section 402(p), requiring regulations for permitting of stormwater runoff from construction activity that results in soil disturbances of at least one acre

of total land area (and projects that meet other specific criteria), the SWRCB has issued a statewide general NPDES permit and waste discharge requirements for stormwater discharges from construction sites (NPDES No. CAS000002 National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (CGP), effective July 1, 2010).

Local

Regional Municipal Separate Storm Sewer System Permit

On May 8, 2013, the RWQCB approved a regional municipal separate storm sewer system (MS4) permit for San Diego, southern Orange, and southwestern Riverside counties (Order No. R9-2013-0001). The region-wide National Pollutant Discharge Elimination System (NPDES) Permit (commonly referred to as the Regional MS4 Permit) sets the framework for municipalities, such as the City of Oceanside, to implement a collaborative watershed-based approach to restore and maintain the health of surface waters. The Regional MS4 Permit requires development of Water Quality Improvement Plans (WQIPs) that will allow the City Oceanside (and other watershed stakeholders) to prioritize and address pollutants through an appropriate suite of best management practices (BMPs) in each watershed.

The City of Oceanside lies within the San Luis Rey Watershed Management Area and is one of the responsible municipalities for the watershed's WQIP. The San Luis Rey Watershed WQIP is currently in development, with a regulatory requirement of final submission to the RWQCB in June of 2015.

Until the approval of the San Luis Rey Watershed WQIP, development is subject to the prior RWQCB Municipal Storm Water Permit, Order No. R9-2007-0001. Requirements of Order No. R9-2007-0001 include:

- **Low Impact Development (LID) BMP Requirements:** Project applicants with Priority Development Projects would be required to implement LID BMPs which would collectively minimize directly connected impervious areas and promote infiltration. The LID BMP requirements are described in Section D.1.d.(4) of Order No. R9-2007-0001.
- **Hydromodification:** Limitations on Increases of Runoff Discharge Rates and Durations: Under Section D.1.g of Order No. R9-2007-0001, the Co-permittees would be required to prepare a Hydromodification Management Plan (HMP) and incorporate its requirements into their SUSMPs. Hydromodification refers to changes in a watershed's runoff characteristics resulting from development, together with associated morphological changes to channels receiving the runoff, such as changes in sediment transport characteristics and the hydraulic geometry (width, depth, slope) of channels. These changes result in streambank erosion and sedimentation, leading to habitat degradation due to loss of overhead cover and loss of instream habitat structures.

The project has elected to submit a Storm Water Mitigation Plan that is based upon the expired San Diego Regional Water Quality Control Board – Municipal Separate Storm Sewer System Permit – Order No. R9-2007-0001, and has done so with the intent to qualify as a "grandfathered" project under the current adopted MS4 Permit – Order No. R9-2013-0001. In order to qualify as a "grandfathered" project under Order No. R9-2013-0001; the project must both obtain project entitlement and commence grading operations prior to the close of business on December 24, 2015.

It is understood and acknowledged that if the project does not successfully qualify as a "grandfathered" project under Order No. R9-2013-0001, then the project is required to provide a storm water mitigation design that both substantially conforms to the project entitlement associated with this permit application and is consistent with Order No. R9-2013-0001.

Development of this project shall comply with all storm water construction requirements of the State Construction General Permit, Order No. 2009-0009-DWQ and the Municipal Storm Water Permit, Order No. R9-2007-0001, as amended by Municipal Stormwater Permit Order No. R9-2013-0001 to the extent legally applicable and to the extent the project does not qualify for an exemption thereto. In accordance with Order No. 2009-0009DWQ, a Risk Level Determination shall be calculated for the site and a Storm Water Pollution Prevention Plan (SWPPP) shall be implemented concurrently with the commencement of grading activities.

City of Oceanside General Plan

The City's General Plan Community Facilities Element contains plans, policies, objectives, and goals related to stormwater system management. The overall objective for managing the City's drainage and stormwater system is:

- **Objective:** To provide adequate stormwater management facilities and services for the entire community in a timely and cost effective manner, while mitigation the environmental impacts or construction of the storm drainage system as well as stormwater runoff.

The City works to achieve this objective through the following nine policies:

- **Policy 6.1:** The Master Drainage Plan for the City of Oceanside shall establish standards for citywide drainage. Within each major watercourse addressed by the Plan, the City and/or developers shall assure that adequate drainage improvements and facilities are provided to handle runoff when the drainage basin is fully developed to the intensity proposed by the Land Use Element of the General Plan.

- **Policy 6.2:** All new development in the City of Oceanside shall pay drainage impact fees to defray that development's proportionate share of drainage facilities serving the basin where the new development is located.
- **Policy 6.3:** The City shall continue to participate in the National Flood Insurance Program. Any development application for construction within the 100-year floodplain shall be reviewed to ensure that the project complies with flood protection measures required by the National Flood Insurance Program. For existing developed areas within the 100-year floodplain, these same measures and standards shall be applied if City approval of substantial improvements or upgrades is sought.
- **Policy 6.4:** To the degree that it is economically feasible and consistent with sound engineering practices and maintenance criteria, the City shall discourage disruption of the natural landform and encourage the maximum use of natural drainage ways in new development. Non-structural flood protection methods, which avoid major construction programs such as channels and favor vegetative measures to protect and stabilized land areas, should be considered as an alternative to constructing concrete channels where feasible.
- **Policy 6.5:** The City shall locate and/or design new critical facilities to minimize potential flood damage from the 100-year flood. Such facilities include those that provide emergency response (hospitals, fire stations, police stations, civil defense headquarters, utility lines, ambulance services, and sewage treatment plants). Such facilities also include those that do not provide emergency response but attract large numbers of people, such as schools, theaters, and other public assembly facilities.
- **Policy 6.6:** The City shall maintain public flood control channels and storm drains through dredging, repair, desilting, and clearing as needed to prevent any loss in effective use.
- **Policy 6.7:** The City shall require appropriate and sufficient screening, fencing, landscaping, open space setbacks, or other permanent mitigation or buffering measures between drainage way corridors and adjacent and surrounding land uses. The employed measures shall be of sufficient scope to minimize, to the maximum extent possible, negative impacts to adjacent surrounding land uses from the particular drainage way corridor.
- **Policy 6.8:** The City of Oceanside shall integrate required drainage planning efforts with linear open space amenities and trail corridors throughout the community, while addressing the issues of life safety, attractive nuisances, and long-term maintenance responsibility and costs.
- **Policy 6.9:** The City shall comply with the sections of the Federal Clean Water Act in regard to stormwater drainage.

City of Oceanside Municipal Code

Chapter 40 of the City of Oceanside Municipal Code is known as the Urban Runoff Management and Discharge Control Ordinance. The overall intent of this ordinance is to "protect the health, safety and general welfare of Oceanside residents; to protect water resources and to improve water quality; to cause the use of management practices by the city and its citizens that will reduce the adverse effects of polluted runoff discharges on waters of the state; to secure benefits from the use of storm water as a resource; and to ensure the city is compliant with applicable state and federal law" (City of Oceanside 2014). General provisions of the Urban Management and Discharge Control Ordinance include compliance with the current and applicable RWQCB discharge permits, requirements for discretionary approvals subject to discharge control, development of Urban Runoff Standards Manuals, and designations for permitted use of collected stormwater.

4.8.3 Proposed Drainage System and Improvements

The SWMP prepared by Buccola Engineering, Inc. proposes drainage patterns and facilities for the development of the proposed project and has been prepared in accordance with the City of Oceanside Standard Urban Storm Water Mitigation Plan (SUSMP) and the County of San Diego Hydrology Manual. The SWMP utilized the following project description as a basis for designing the proposed drainage system and associated improvements:

The project site is divided into four Planning Areas. Projected lot and street layouts are available for all Planning Areas except for Planning Area 2, the southeastern portion of the project. For Planning Area 2, no final development plans are available at this time; therefore the preliminary site layout for Tentative Map purposes indicates mass grading in that quadrant. Public streets Academy and Frazee Road would be reconstructed per proposed improvements as described in Chapter 3, Project Description, or this EIR. Such improvements include intermittent medians within Academy Road and a landscaped roundabout near the center of the project site. Additionally, Chapter Lane, a private roadway, would be partially improved by grading plus half-street pavement plus 12 feet. A cul-de-sac turnaround is proposed just west of the site on Chapter Lane. For the Mission Avenue frontage, the roadway would be upgraded to include meandering sidewalk and planting, all within the street right-of-way. Near the Community Park at the southwest corner of the project site, a bus stop is proposed on the Mission Avenue frontage.

For the following discussion of the proposed drainage system, refer to Figures 4.8-2a and 4.8-b. As shown in Figure 4.8-2a and 4.8-2b, the SWMP proposes Integrated Management Practices (IMPs) in the form of bioretention basins. West of Academy – drainage management area B21 (Planning Areas 3 and 4) routes high flows to the east via a trunk storm drain to the existing trunk 84-inch storm drain at along the eastern project boundary. Low-flows are routed to the south via Academy Road in a separate low-flow storm drain which discharges into the southern

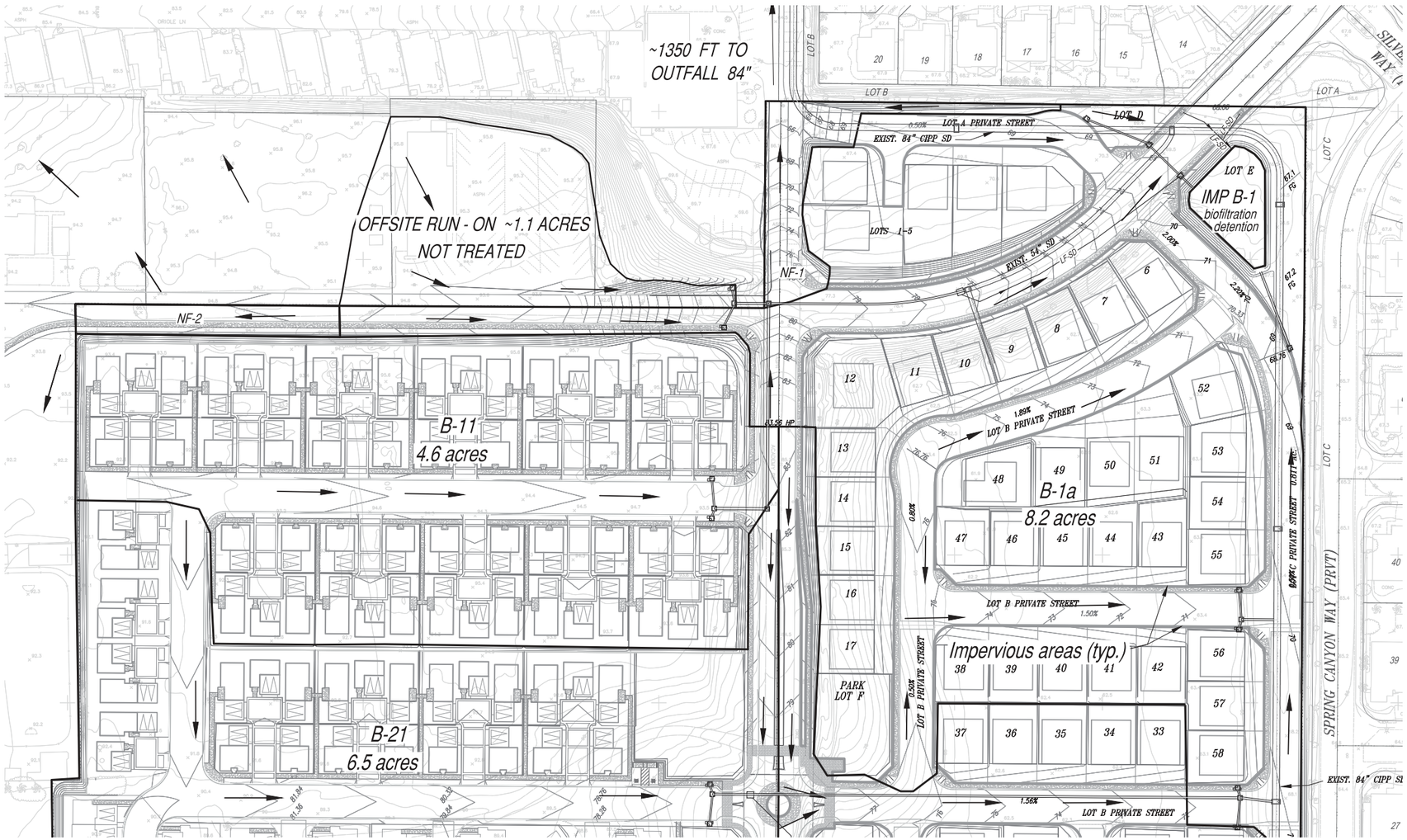
biofiltration basin IMP-B-2. IMP-B-2 also treats water quality/low flows from drainage management areas B-22 through B-24 (Planning Areas 2 and 4 and the Community Park). Runoff from the Academy Road and Frazee Road would flow to and be treated in biofiltration basins IMP B-1 and B-2.

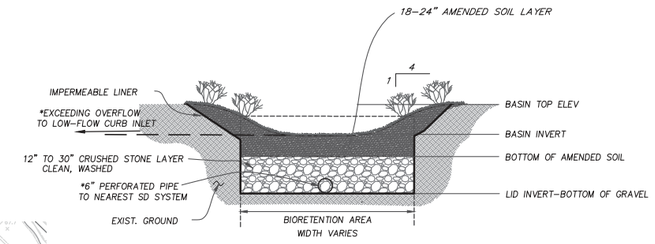
Desilting basins for Planning Area 2 are noted on the preliminary grading plan with the tentative map, placed at proposed sump locations. Preliminary sizing calculations and schematic details are provided in the SWMP. It is anticipated that at the final engineering stage for Planning Area 2, construction details and sizing for drainage within Planning Area 2 would occur.

As noted in Section 4.8.1 above, the existing 84 inch trunk storm drain is an MS4 facility, which is a public facility owned and maintained by the City of Oceanside. From the northern edge of the project site, the 84 inch storm drain continues north to the Upper Pond (detention basin) adjacent to the San Luis Rey River. This outfall location is an improved detention basin facility constructed with the San Luis Rey levee system.

There are six discharge points for the proposed project (see Figure 4.8-1). Four of the discharge locations are located where site runoff would be routed into the 84 inch trunk storm drain on the eastern edge of the project site. The two northern discharges, E-1 and E-2, surface drain onto existing paved surfaces off-site. E-1 contains 0.6 acres, about one-third paved, and runoff here matches the pre-project discharge location, but with less tributary area (reduced from 2.3 acres to 0.6 acres). Additional reduction of tributary acreage here is also provided as runoff from the off-site area at the Alano Club (1.4 acres) would be intercepted with new curb inlets in Frazee Road. At discharge location E-2, the pre-project tributary area is 0.5 acres, and post-project is 0.13 acres, as runoff from portions of Frazee Road would be intercepted at proposed curb inlets.

The project LID and storm water treatment would be provided through bioretention treatment of paved surfaces at Academy Road and Frazee Road, except for the northerly paved entrance to the adjacent mobile community (San Luis Rey Homes). This entrance is being reconstructed, with the overall tributary impervious area decreasing with the proposed project. Additional LID/stormwater treatment is provided with the bioretention basin B-1 (treats Planning Area 1 - northeast portion of site).





BIOFILTRATION BASIN
TYPICAL CROSS SECTION

NOT TO SCALE

NOTES:

1. **BIOFILTRATION AREA B-1 WILL HAVE NO IMPERMEABLE LINER. (INFILTRATION BELOW INTO ALLUVIUM/SOIL B)**

LEGEND

DMA BOUNDARY	
BIORETENTION BASIN	IMP-B2
LOW-FLOW STORM DRAIN	LF-SD
DESILT BASIN	
CURB INLET (W LOW-FLOW WEIR)	
DMA DESIGNATION	B-22
NOT-FEASIBLE-TO-TREAT AREA	NF-2
FLOW DIRECTION	
COMPOST ROLL BY FILTREXX	

N

SCALE 1" = 60'

50 0 50 100

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SOURCE: BUCCOLA ENGINERRING, INC. 2014

FIGURE 4.8-2a
Proposed Drainage Design

Villa Storia PD Plan Draft Environmental Impact Report

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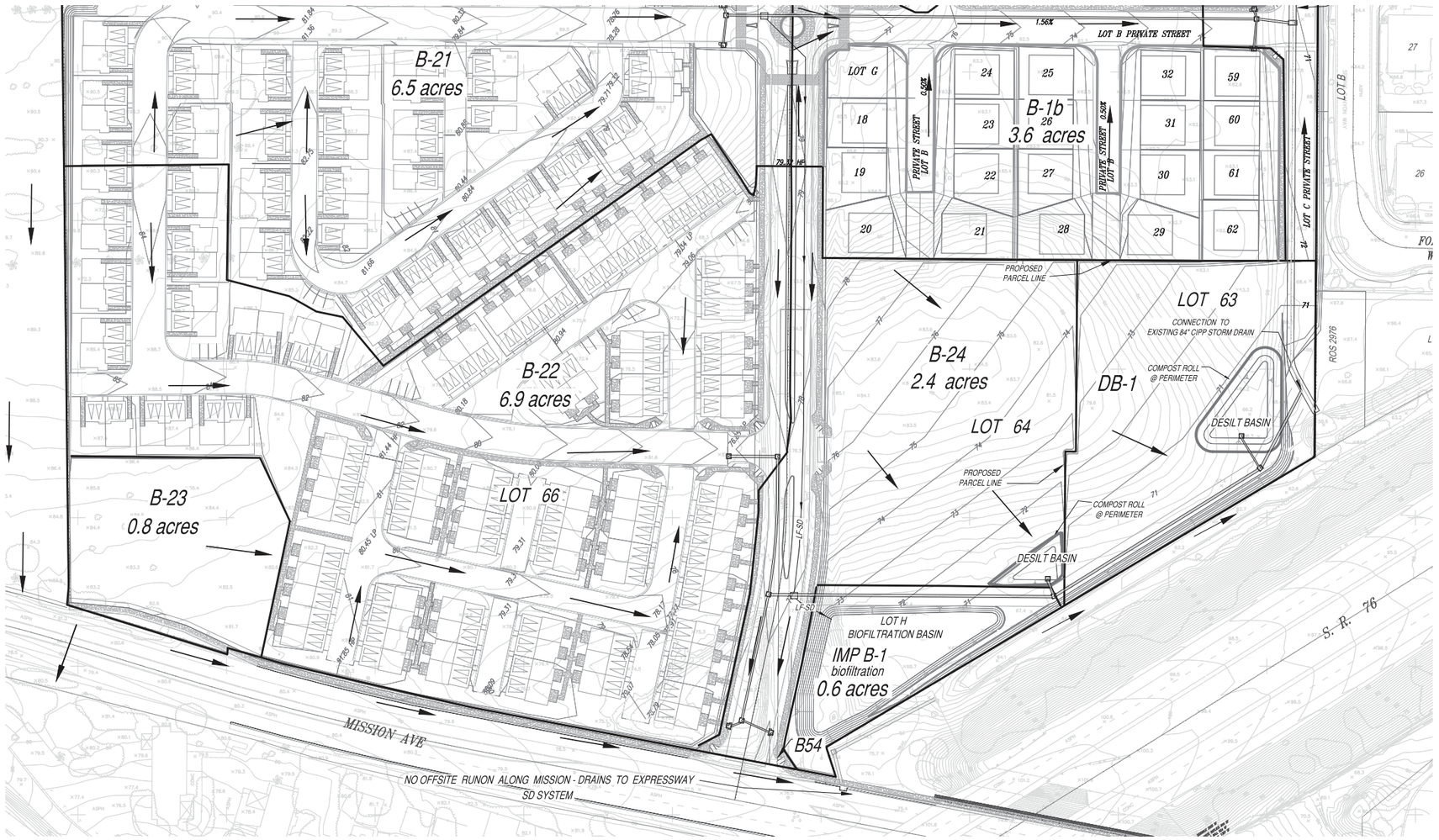

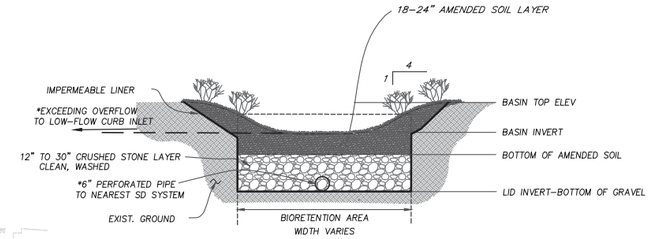

BIOFILTRATION BASIN TYPICAL CROSS SECTION

NOT TO SCALE

NOTES:

1. **BIOFILTRATION AREA B–1 WILL HAVE NO IMPERMEABLE LINER. (INFILTRATION BELOW INTO ALLUVIUM/SOIL B)**

LEGEND

DMA BOUNDARY	
BIORETENTION BASIN	IMP-B2
LOW-FLOW STORM DRAIN	LF-SD
DESILT BASIN	
CURB INLET (W LOW-FLOW WEIR)	
DMA DESIGNATION	B-22
NOT-FEASIBLE-TO-TREAT AREA	NF-2
FLOW DIRECTION	
COMPOST ROLL BY FILTREXX	

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SCALE 1" = 60'

50 0 50 100

SOURCE: BUCCOLA ENGINERRING, INC. 2014

FIGURE 4.8-2b
Proposed Drainage Design

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The IMP facilities, (bioretention basins) would consist of an 18 inch to 36 inch layer of crushed stone below an 18 inch to 24 inch layer of amended soil. The crushed stone layer would contain a perforated underdrain that would connect to a storm drain conveyance system. IMP B-1 and IMP B-2 along Academy Road are sized using method volume-based calculation, per requirements Order R9-2013-001. The larger bioretention basin, IMP B-1, which treats the developed Planning Area 1, has a similar cross section as the smaller bioretention basins except the thicker sections of amended soil and crushed stone. The footprint is much larger, and the basin doubles as a detention basin for attenuation of higher storm flows as well. The sizing for bioretention basin IMP B-1 is volume-based, per the new Order R9-2013-0001.

The large mass-graded pads would be protected from erosion and stabilized through hydroseeding and other erosion control measures, and desilting basins are proposed at the low point. In addition, Filtrexx compost rolls (see Appendix H for details) are proposed at the upstream perimeter of each desilting basin. These compost rolls provide some level of biofiltration to supplement the desilting basins.

The drainage management facilities, BMPs, and LID practices proposed in the SWMP would be incorporated into the design of the proposed project.

4.8.4 Thresholds of Significance

The significance criteria used to evaluate the project impacts to hydrology and water quality are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to hydrology and water quality would occur if the project would:

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 level (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 in a manner which would result in substantial erosion or siltation on- or off-site.

D. Substantially alter the existing drainage patter 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 which would result in flooding on- or off-site.

E. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

F. Otherwise substantially degrade water quality?

G. Place housing within 100-year flood hazard areas as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

Delete

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. Inundation by seiche, tsunami, or mudflow?

4.8.5 Impacts Analysis

A. Would the project violate any water quality standards or waste discharge requirements?

As stated in the SWMP prepared by Buccola Engineering, Inc., all drainage facilities would be designed in accordance with the most current City of Oceanside SUSMP to prevent stormwater pollutant runoff. All runoff conveyed in the proposed storm drain systems would be treated in compliance with Regional Water Quality Control Board (RWQCB) regulations and National Pollutant Discharge Elimination System (NPDES) criteria prior to discharging to natural watercourses. California RWQCB Order No. R9-2007-0001 dated January 24, 2007, which the City of Oceanside SUSMP conforms, sets the waste discharge requirements for discharges of urban runoff from municipal storm separate drainage systems draining the watersheds of San Diego County. Prior to project-related construction, a site-specific Storm Water Pollution Prevention Plan (SWPPP) would be prepared in accordance with the SWRCB Order No. 2009-0009-DWQ NPDES General Permit No. CAS00002 (General Construction Permit) and the modifications to the General Construction Permit Order No. 2001- 046, adopted by the SWRCB. As such, the proposed project would be designed to comply with any water quality standards or waste discharge requirements. All drainage facilities and management areas as designed would conform to the requirements of the City of Oceanside SUSMP and the County of San Diego Hydrology Manual and therefore would also conform to the stormwater permit R9-2007-0001. Therefore, in accordance with the analysis, calculations, and proposed design found in the SWMP, impacts would be less than significant.

As discussed previously, it is understood and acknowledged that if the project does not successfully qualify as a "grandfathered" project under Order No. R9-2013-0001, then the project is required to provide a storm water mitigation design that both substantially conforms to the project entitlement associated with this permit application and is consistent with Order No.

R9-2013-0001. Any new or modified storm water mitigation design that may be required for substantial conformance with Order No. R9-2013-0001 would not result in any new significant impacts beyond compliance with the City of Oceanside SUSMP and conformance with the stormwater permit R9-2007-0001.

B. Would the project 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 level (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?

According to the Geotechnical Evaluation prepared for the proposed project by Geotek, Inc. (utilized for Section 4.5, Geology and Soils, and found in Appendix E), groundwater may exist beneath the project site, most likely in the eastern portion beneath the alluvial soils. None of the six exploratory boring sites encountered groundwater, including a 51.5 foot deep boring in the northeastern portion of the project site. The project site is not located on a known local source for groundwater. Various LID practices, which include minimizing impervious areas through incorporation of landscaping where feasible, as identified in the SWMP would aid in retaining permeability of portions of the project site. Additionally, bioretention basin IMP B-1, located in the northeastern portion of the project site, would not have an impervious bottom layer. Instead, captured stormwater would be allowed to permeate into the alluvial soils below. Therefore, impacts to groundwater recharge would be less than significant.

As discussed in Section 4.15, Utilities and Service Systems, the proposed project's 148 single family units would use an estimated 45.9 AF/year and the remaining 272 multi-family units would use an estimated 579.4 AF/year for a total of 625.3 AF/year for the entire project. Assuming full build out, the proposed project would then account for approximately 0.031% of total projected water use in 2015 and 0.032% of total water use in 2020. In addition, according to the Greenhouse Gas Emissions Analysis prepared by Dudek, the proposed project was estimated to use approximately 48 million gallons per year, which equates to approximately 138.1 AF/year (See Appendix F). Therefore, the percent contribution to the total water use within the City for the years 2015 and 2020 would likely be less than 0.031% and 0.032%, respectively. Further, the project does not meet the threshold which would require a water supply assessment. Impacts to water supply would be less than significant.

C. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site?

Proposed drainage on-site would largely follow the current drainage pattern. As discussed in Section 4.8.1 above and shown in Figure 4.8-1, the northern portion of the site generally drains

in a northeastern direction, the northwestern portion of the project site generally drains east towards Academy Road, and the southern portion of the project site generally drains east along the perimeter. As shown in Figures 4.8-2a and 4.8-2b, the northern portion would retain general drainage flow to the northeast, with the northwestern portion still draining towards Academy Road, and the southern portion of the site would retain the general flow towards the east along the perimeter of the project site. As discussed in Section 4.8.3 above, the SWMP proposes a drainage pattern to convey runoff to various bioretention basins (IMPs) throughout the project site or existing paved systems off-site (discharge points E-1 and E-2). These runoff collected in these basins would ultimately flow to the existing 84 inch storm drain that flows into the San Luis Rey River levee system and detention pond. In addition to bioretention basins, the SWMP proposes desilting basins at low points which are designed and calculated to ensure that no silt or sediment conveyed in runoff leave the site. The SWMP also proposes the use of a Filtrexx Sediment Control system which is a tubular sediment filtration control device that would be placed around the perimeter of the bioretention basins and desilting basins to capture additional sediment during construction. Additionally, the project would incorporate LID BMPs to ensure protection of constructed slopes. These BMPs include minimizing runoff into slopes, native drought tolerant landscaping to provide slope stability, irrigation shut off valves during rain events, and designing irrigation systems specific to each landscaped area . While only Planning Area 1 has individual lots and street planned at this stage, the SWMP indicates flexibility in size and area within each Planning Area for proposed bioretention and desilting basins. Therefore, with the proposed drainage management areas (basins) and LID practices (sediment filtration control devices), the proposed project would have less than significant impacts on erosion.

D. Would the project 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 which would result in flooding on- or off-site?

Drainage on-site would largely follow the existing drainage pattern that ultimately flows into the 84 inch trunk storm drain along the eastern edge of the project site. According the SWMP, various BMPs and LID practices are proposed to reduce runoff flow. Efficient landscape irrigation systems would provide for water conservation to reduce irrigation runoff during storm events. Impervious areas would be minimized through incorporation of landscaping buffers between sidewalks, streets, and other areas. Additionally, bioretention basin IMP B-1 is designed to be larger in size when compared to the other bioretention basins. Due to its size, this basin can also act as a detention basin to provide peak storm water runoff flow attenuation. The drainage patterns and facilities as proposed in the SWMP is designed to ensure adequate detention and flow to prevent flooding. Therefore, impacts would be less than significant.

E. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

During construction, compliance with the RWQCB General Construction Permit and development of a SWPPP would minimize polluted runoff from the project site. The proposed project would increase the amount of impervious area within the project site when compared to existing conditions. As described in response (d) above, the SWMP proposed drainage facilities that incorporate BMPs and LID practices to that would not exceed the capacities of the 54 inch storm drain or 84 inch trunk storm drain. The project would introduce new or increase the occurrence of pollutants including, but not limited to, sediment, nutrients, oil, grease, pesticides, trash, organic compounds, and heavy metals. The SWMP identifies various BMPs (including source control) and LID practices to reduce the conveyance of pollutants into the storm drain system. Storm drain inlets would be labeled to deter prohibited dumping. Integrated Pest Management practices including pest-resistant or adaptive plant species, designing landscaping to discourage pests, and other practices to reduce the use of pesticides would be employed by the project. Drought tolerant plant species and rain shutoff devices for landscape irrigation systems would reduce runoff and erosion from landscaped areas. Constructed slopes would also be protected and planted to minimize erosion potential. Proposed desilting basins would be surrounded by an initial sediment control device and, as proposed, would ensure that no sediment would leave the project site. Finally, the proposed bioretention basins would treat runoff prior to conveyance into the 84 inch trunk storm drain. All drainage facilities and management areas as designed would conform to the requirements of the City of Oceanside SUSMP and the County of San Diego Hydrology Manual and therefore would also conform to the stormwater permit R9-2007-0001. Therefore, impacts would be less than significant.

F. Would the project otherwise substantially degrade water quality?

See above responses (c), (d), and (e). While the proposed project would increase the amount of impervious area on the project site and introduce new sources of pollutants, the provision of source control BMPs. LID practices, desilting basins, and bioretention basins would ensure that the project would not substantially degrade water quality. Therefore, impacts would be less than significant.

G. Would the project place housing within 100-year flood hazard areas as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

Delete

The 100-year flood hazard zone is shown on Figure 4.8-3. The project site is found on two Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps: Map Numbers 06073C0752H and 06073C0756H. According to these maps, and as shown in Figure 4.8-3, portions of the eastern project site (Planning Areas 1 and 2) would be located within a 100-year

flood hazard zone. The drainage management facilities proposed in the SWMP are designed for conveyance of peak storm flows. The proposed project would develop housing on land within a 100-year flood hazard zone. However, the proposed fill of the project site would effectively raise the structures out of the 100-year flood hazard zone, five feet above base flood elevations (Buccola 2014b). Therefore, the 100-year flood zone would no longer present a hazard to the proposed project. Impacts would be less than significant.

H. Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows.

See response (g) above.

I. Would the project 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.

The dam inundation zone is shown on Figure 4.8-4. According to the Draft Dam Failure Map developed for County of San Diego Hazard Mitigation Planning, eastern portions of the project site (Planning Areas 1 and 2) would be located in a Dam Inundation Area (County of San Diego 2009). Therefore, the proposed project would place housing in a Dam Inundation Area.

However, as stated in response (g) above, proposed fill of the project site would effectively raise structures to an elevation out of the 100-year flood hazard zone; this raise would also account for other forms of flooding, including the dam inundation zone. Therefore, structures that are proposed to be developed within the Dam Inundation Area would no longer be exposed to potential flooding hazards. Impacts would be less than significant.

J. Would the project result in inundation by seiche, tsunami, or mudflow?

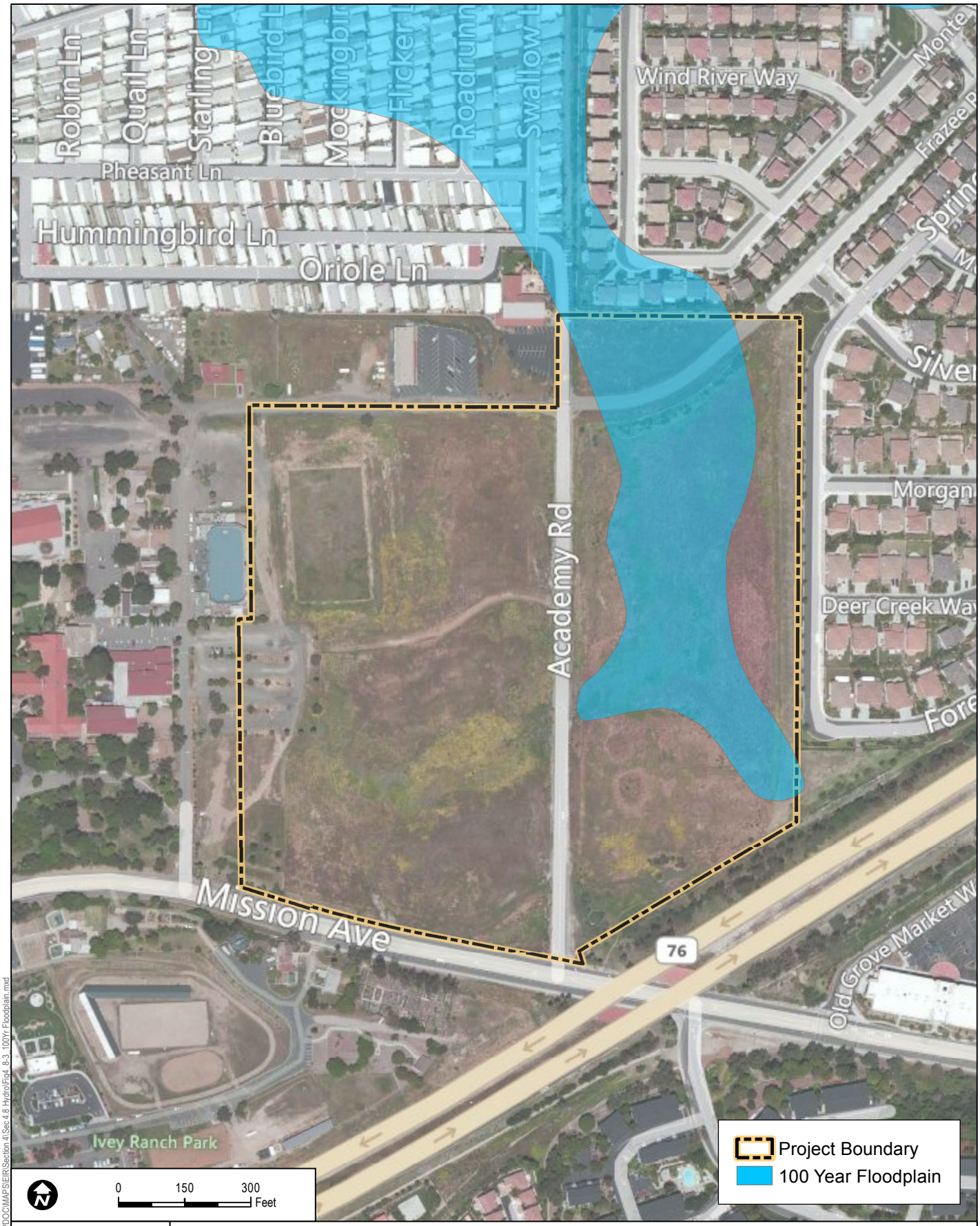
The project site is approximately 4.7 miles inland from the Pacific Ocean and does not fall within the tsunami inundation zone as defined by California Emergency Management Agency's Tsunami Inundation Map for Emergency Planning (California Emergency Management Agency 2009). Given that the project site is not located near a large standing body of water, inundation by seiche (or standing wave) is considered negligible. As discussed in Section 4.5, Geology and Soils, the project site has negligible potential for landslide occurrence and according to the Department of Conservation Landslide Hazard Identification Map No. 35, landslides are considered rare. Therefore, impacts would be less than significant.

4.8.6 Mitigation Measures

Impacts would be less than significant and no mitigation measures are required.

4.8.7 Level of Significance After Mitigation

No mitigation is required. All impacts would be less than significant.



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SOURCE: Bing 2012; FEMA

FIGURE 4.8-3

100-Year Flood Hazard Zone

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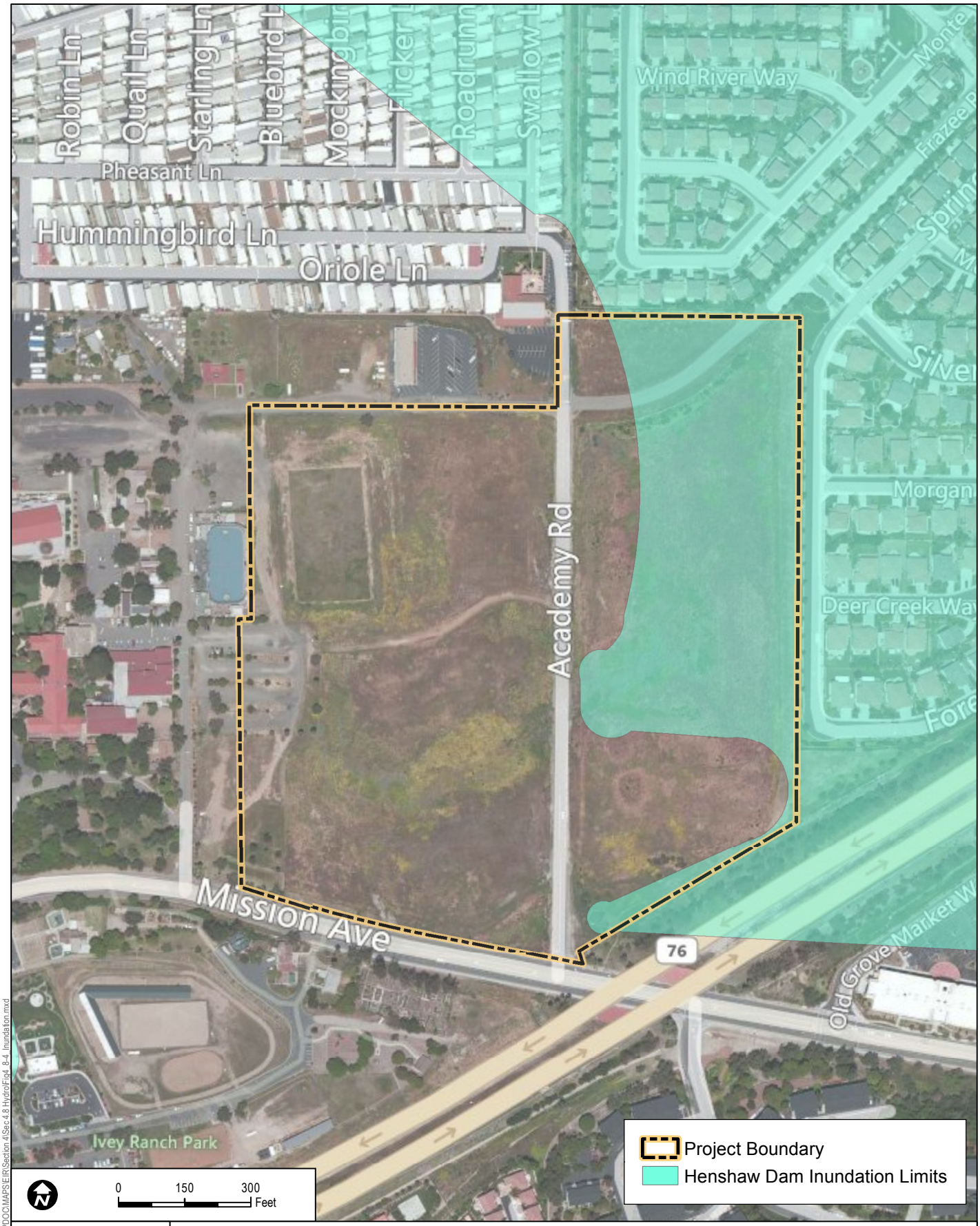

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SOURCE: Bing 2012; SANGIS

FIGURE 4.8-4

Dam Failure Inundation Zone

Villa Storia PD Plan Draft Environmental Impact Report

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