4.7 HYDROLOGY AND WATER QUALITY

4.7.1 INTRODUCTION

This section presents an overview of the existing drainage characteristics of the site and discusses the potential impacts to on-site and off-site drainage as a result of project development and occupation. This section also examines the effects of the project on the quality of surface runoff leaving the property in the post-development condition. Where potential impacts are identified, mitigation measures are recommended to reduce such impacts to less than significant levels.

4.7.2 EXISTING CONDITIONS

a. City of San Dimas Surface Hydrology

There are four major surface drainage courses in the City; they include the:

- Wildwood Canyon wash;
- Sycamore Canyon wash;
- San Dimas Canyon wash; and
- Walnut Creek wash;

The Wildwood Canyon wash drains into the Big Dalton Wash located to the west of San Dimas in the City of Glendora. The Sycamore Canyon wash drains into the San Dimas Canyon wash which is diverted to the Puddingstone Diversion Dam and reservoir. The Walnut Creek wash is located at the northern base of the San Jose Hills and drains the central section of the City and the San Jose Hills. The Creek eventually drains into the Big Dalton Wash and ultimately into the San Gabriel River. All of these drainage courses are a part of the Los Angeles County Flood Control System and are maintained by the Los Angeles County Department of Public Works.

b. Local Drainage Conditions

The project site is located adjacent to Walnut Creek, which is an unimproved natural channel that begins upstream of the site at Puddingstone Reservoir within Bonelli Regional Park. Currently the 18-acre site is mostly vacant and does not contain an improved drainage network. Runoff generated during storm events sheet flows to the south where it enters Walnut Creek, which is tributary to a 7-square-

mile watershed. The majority of peak flows in the creek are generated by runoff from Bonelli Regional Park and periodic release of water from the Puddingstone Reservoir.

c. Flood Protection Standards

To mitigate flood hazards, the City participates in the National Flood Insurance Program (NFIP). The NFIP, which is administered by the Federal emergency Management Agency, has regulations requiring communities to adopt land use restrictions for their 100-year floodplain to qualify for federally subsidized flood insurance. These restrictions include a requirement that residential structures be elevated above the level of the 100-year flood and that other types of structures be flood-proofed.

San Dimas contains three flood zone designations: A9, B and C. Flood Zone A9, which is defined as areas subject to flooding in a hundred year storm, covers a small stretch of the San Dimas Canyon Wash south of Golden Hills Road. Areas included in Flood Zone B, which means they could be impacted in a 100-500 year storm, are located along the San Dimas Canyon Wash and just south and west of the Foothill Freeway north of Arrow Highway. The balance of the City, including the project site, are within a Flood C designation, which is defined as areas subject to minimal flooding.[1]

To ensure adequate flood protection, the County manages the water elevation in the Puddingstone reservoir at approximately 942 to 943 feet mean sea level (MSL). The reservoir's water level varies because of weather conditions, evaporation, and water resource management. The State Department of Water Resources, Division of Dam Safety, allows water to be impounded to an elevation of 945 feet MSL. For flood control purposes, water may be temporarily impounded to the capacity of the reservoir with the water level returned to elevation 945 feet MSL as soon as possible.

As part of current management practices of the Los Angeles County Flood Control District (LACFCD), the water level is lowered prior to the storm season (October 15 to April 15) to between 940 and 942 feet MSL. Water is released at a rate compatible with downstream spreading facilities. This rate is between 10 and 50 cubic feet per second (cfs). The time frame for this lowering of the water surface elevation is 2.5 to 38 days depending on release rates[2].

To determine the effects of operation on flooding conditions observed in Walnut Creek, the Department of Public Works completed a hydrology study of Walnut Creek dated April 12, 1994. This study utilized the Hydrologic Engineering Center-2 Analysis [HEC-2]; software program developed by the

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1 City of San Dimas *General Plan* Safety Element.

2 Frank G. Bonelli Regional County Park Master Plan EIR.

U.S. Army Corps of Engineers.[3] The results of the study indicate that water releases from Puddingstone Reservoir do not significantly affect flood levels in downstream Walnut Creek. In a typical cross section of Walnut Creek, estimated average water surface elevation for a 10-year storm with no dam outflow is 552.1 feet. The estimated average water surface elevation for a 10-year storm with dam outflow at 770 CFS is 552.8 feet. In comparison, on-site topography ranges from a low of 625 feet in the southern portion (near the Walnut Creek Trail) to a high of 735 feet in the northern section near Valley Center Avenue. Consequently, the property is outside of water levels experienced in Walnut Creek and is not subject to flooding from normal dam operation.

d. Plans and Policies for Water Quality

1. Federal Pollution Control Act

The federal Clean Water Act established the national strategy for controlling water quality. The primary purpose of the Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" and to attain a level of water quality "which provides for the protection of and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water[.]" 33 USC §1251(a).

The federal Clean Water Act contains two strategies for managing water quality. One is a technology-based approach that sets requirements to maintain a minimum level of pollutant management using the best available control technology ("BACT"). The second relies on evaluating the condition of surface waters and setting limits on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. Section 303(d) of the federal Clean Water Act specifies that, once a water body is listed as "impaired," the states must establish total maximum daily loads ("TMDLs") for the pollutants causing the impairment (33 USC §1313(d)(c)). The states must then develop a "pollution budget" or pollutant load allocation for point and non-point sources that are contributing to the water quality impairment.[4] Once these allocations have been set, waste load allocations for point sources are implemented through National Pollutant Discharge Elimination System (NPDES) permits for individual dischargers, while non-point source discharges are subject to load allocations that can be specified in an individual NPDES permit or may be regulated or addressed in other ways.

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3 This work was independently reviewed by Dr. Raymond L. Jeng, P.E., Professor of Civil Engineering at California State University, Los Angeles, in a memorandum dated March 15, 1995. The results of these investigations are summarized in the Frank G. Bonelli Regional County Park Master Plan EIR.

4 Points sources are those that generate discharge from a discrete conveyance facility. Non-point sources represent all other sources.

2. *California Porter-Cologne Act*

At the state level, the Porter-Cologne Water Quality Control Act of 1970 established the State Water Resources Control Board ("SWRCB"), which regulates water quality. In this Act, the Legislature directed that state policy should provide principles and guidelines for water quality control and objectives for key geographic locations. To accomplish this objective, the state is subdivided into nine regions each containing a separate Regional Water Quality Control Board ("RWQCB"). This statute gives the state and regional water quality control boards broad powers to protect water quality by regulating waste disposal and requiring cleanup of hazardous conditions.

The SWRCB sets state policy for water quality control that must be followed by the regional water boards and by other state agencies and offices. Each RWQCB must formulate and adopt a plan for all areas within their region. The regional plans are to conform to the policies set forth in the Act and established by the SWRCB in its state water policy. The regional plans must: (a) identify beneficial uses of the waters that are to be protected, such as domestic, navigational, agricultural, industrial and recreational uses, as well as aesthetic enjoyment; (b) establish water quality objectives, limits or levels of constituents or characteristics established to protect beneficial uses and to prevent nuisances; and (c) present an implementation program necessary to achieve those water quality objectives.

3. *LARWQCB Water Quality Control Plan*

Discharges to both surface and groundwaters are regulated by the National Pollutant Discharge Elimination System (NPDES), which is administered by the Los Angeles RWQCB as part of its discharge permits program. Any proposed action that would result in a discharge into the waters of the Los Angeles region must describe the quantity and nature of the proposed discharge in a Report of Waste Discharge (ROWD) or an NPDES application. As part of the NPDES ROWD permit, the RWQCB will incorporate appropriate measures and limitations to protect public health and water quality.

NPDES permits are required for all construction projects impacting five acres or more, or smaller areas that are part of a larger common plan, including excavation, demolition, grading and clearing. Also, the NPDES permit requirement applies to all discharges of pollutants to "navigable waters" from a "point source."[5] A point source is defined broadly in the Clean Water Act as "any discernible, confined and discreet conveyance" such as a well, pipe, ditch, discreet fissure, container, or vessel.[6] Navigable

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5 McCutchen, Black, Verleger, and Shea, the Attorneys of:, *California Environmental Law Handbook, Second Edition*, Government Institutes, Inc. January 1988, p. 61.

6 Ibid.

waters are defined broadly as "waters of the United States," and the U.S. EPA has effectively asserted that these comprise most surface waters, including waters that are tributary to navigable waters, interstate waters, and interstate waters having some impact or involvement in interstate commerce.[7]

e. Surface Water Quality

Runoff from Walnut Creek is primarily fed by Puddingstone Reservoir. The watershed for Puddingstone Reservoir consists of 33.7 square miles, the majority of which is open space, recreational areas, and natural forest. Urbanization within the watershed increases the potential of stormwater runoff to transport contaminants from roadway surfaces, lawns, driveways, parking lots, and other developed areas. Typical urban runoff contaminants (*i.e.*, oil and grease, heavy metals, solvents, pesticides, nutrients, and fecal coliform bacteria) are found within runoff reaching the Puddingstone Reservoir.

A portion of the watershed area, including the project site, contains open space and limited agricultural uses. The primary pollutants of concern in rural/agricultural runoff include fine suspended solids and sediment, pesticides, herbicides, and nutrients. Erosion of land may also have a direct effect on the levels of dissolved salts and metals of the runoff and affect the pH of the water. Additionally, recreational boating on the reservoir contributes gasoline and oil products to the water.

The Regional Water Quality Control Board's (RWQCB) Water Quality Control Plan, Los Angeles Region (4): Los Angeles River Basin (4B), has identified several beneficial uses of the dam and reservoir, including agricultural supply, groundwater recharge, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, and wildlife habitat. The downstream Walnut Creek also supports these beneficial uses. According to water quality data published by the State Department of Water Resources and the RWQCB, the water in the reservoir is "impaired." Impaired water bodies are those that cannot be expected to attain or maintain applicable water quality standards. In the case of Puddingstone Reservoir, the impaired water quality does not support the recreational beneficial uses designated in the Water Quality Control Plan. Moreover, the Plan identifies Walnut Creek as being listed on the 1998 303(d) list for pH and toxicity, although it was not targeted as a site for which the state intends to develop a TDML within the next two years.

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7 Ibid., pp. 61-62.

4.7.3 IMPACT ANALYSIS

a. Thresholds of Significance

For purposes of this analysis, a project would normally have a significant impact on the environment if it:

- Substantially alters the existing drainage pattern or increases the rate of surface runoff such that it causes flooding or results in substantial sedimentation or erosion;
- Places housing in a 100-year flood hazard area;
- Violates a water quality standard or waste discharge requirement;
- Substantially degrade water quality.

b. Project Impacts

The impacts of project implementation are discussed below for each of the threshold criteria identified above. Wherever a significance threshold criterion is exceeded or wherever there is the potential for a criterion to be exceeded, mitigation is identified.

1. Impacts Associated with Flooding

Buildout of the tentative tract 52717 would result in the construction of additional impervious surfaces that would reduce water absorption and increase surface runoff and velocities. The project applicant is required to prepare a drainage concept plan designed to meet the requirements of the City of San Dimas and the Los Angeles County Department of Public Works. All surface runoff will be collected by a series of curb opening inlets and conveyed by the drainage network to a point of discharge at Walnut Creek. The system will be sized to attenuate peak runoff flows in the developed condition to levels at or below flows presently generated at the site, so no significant off-site downstream flooding will occur.

With regard to on-site flooding conditions, the average water surface elevation in Walnut Creek during a 10-year storm event with outflow from the Puddingstone Reservoir is below the elevations found on the project site. Moreover, the site is not located within a FEMA 100-year floodplain. Thus, the proposed project site lies outside the floodplain for Walnut Creek and is not in an area subject to inundation. Therefore, no significant impact associated with flooding will result from buildout of the proposed project.

2. *Short-Term Construction Impacts on Surface Water Quality*

Grading and excavation necessary for site preparation could result in wind and water driven erosion of soils that would increase sedimentation in the creek during storm events. Construction activities that disturb more than 5 acres require a NPDES permit to mitigate construction-related water quality impacts. The project applicant is required to prepare a SWPPP pursuant to the NPDES that would identify the various Best Management Practices (BMPs) that would be implemented on the site during construction. The project applicant is responsible for complying with the NPDES construction permit for the project from the RWQCBLAR, Wastewater Division. Compliance with NPDES permit requirements would reduce construction-related sedimentation and erosion to less than significant levels.

Examples of BMPs that may be implemented during site grading and construction as part of the SWPPP could include the following:

- Covering excavated and graded areas where loose, bare soil might otherwise be subject to wind and water erosion.
- Disallowing the placement of any soils materials in the path of known drainage areas.
- Providing temporary de-silting basins to ensure that surface water flow do not carry significant amounts of on-site soils and contaminants downstream.
- Requiring that any construction vehicle maintenance be conducted in staging areas where appropriate controls have been established to ensure that fuels, motor oil, coolant, and other hazardous materials are not deposited into areas where they may enter surface water and groundwater.
- Restricting the use of chemicals that may be transferred to surface waters by storm water flows or leach to groundwater basins through water percolation into the soil.
- Requiring that permanent slopes and embankments be vegetated as soon as possible following final grading.

3. *Post-Construction Water Quality Impacts*

Common concerns related to surface water quality include the potential deposition of pollutants generated by motor vehicles and the maintenance and operation of landscape areas. Urban runoff contains almost every type of water pollutant, including suspended solids, bacteria, heavy metals, oxygen-demanding substances, nutrients, and oil and grease. Primary sources of urban runoff pollutants include animal droppings, atmospheric fallout, land erosion, lawn runoff (pesticides, herbicides,

fertilizers), and pavement runoff.[8] The pollutants of concern and their anticipated form in runoff, both stormwater and dry weather are presented below in **Table 4.7-1.**

Table 4.7-1
Typical Constituents of Urban Runoff

Pollutants of Concern	Stormwater Runoff	Dry Weather Runoff
Oil and Grease	Manifested as an oil slick during the first storm event.	Less noticeable unless there has been a spill or release which comes in contact with dry weather runoff.
Brake Lining Dust	Manifested as TSS particularly during the first storm event. The copper is in its metallic form and most likely imbedded in the fibrous backing material.	Less evident because dry weather runoff is usually confined to the street curbs and gutters and does not wash the traveled way.
Fuel Components (BTEX)	Dissolved and in highest concentrations during the first storm event of each year.	Less evident because dry weather runoff is usually confined to the street curbs and gutters and does not wash the traveled way.
PAH's	Carried with carbon particulates (diesel soot) or suspended solids concentration during the first storm event of each year.	Carried with carbon particulates (diesel soot) or suspended solids. Concentration dependent upon areas subject to dry weather runoff.
Coliform	Bacteria carried with the runoff. First storm event could potentially carry with it solid fecal matter	Bacteria carried with runoff. Dry weather runoff could potentially have the highest bacteria concentrations owing to overwatering of grassed areas.
Lawn and Garden Pesticides and Herbicides	Dissolved with concentrations dependent upon the timing of the last application and the first storm event of each year.	Dissolved constituents, and expected at highest concentrations in dry weather discharge due to excess application and potential over watering.
Lawn and Garden Fertilizers (Nitrogen and Phosphorus Nutrients)	Dissolved and/or suspended solids with concentrations dependent upon the timing of the last application and the first storm even of each year.	Dissolved constituents at highest concentrations due to excess application and overwatering.
Suspended Solids/TSS	Carried with the runoff and in high concentration during the first storm event of each year.	Carried with the runoff in varying concentrations depending on the path of the runoff and its volume.
Debris and Trash	Litter, yard waste, etc., carried with the runoff.	Amount varies depending upon the path of the runoff and its volume.

Development of TTM 52717 would be guided by Section 402 of the Clean Water Act, as amended, which includes the NPDES program. The law requires NPDES permits for storm water discharges from storm

8 Robert A. Corbitt, *Standard Handbook of Environmental Engineering*, (New York City: McGraw-Hill Publishing Company, 1989), p. 753.

drain systems[9] to waters of the United States.[10] In 1992, the SWQCB issued two statewide NPDES General Permits: one for stormwater from industrial sites (NPDES No. CAS000001) and the other for storm water from construction sites (CAS000002).

A NPDES Municipal Permit No. CAS614001 was issued to Los Angeles County and co-permitees (including the City of San Dimas) within its jurisdiction on July 31, 1996, and expired on July 30, 2001, but is still active until a new permit is adopted by RWQCBLAR. The existing NPDES Municipal Permit No. CAS614001 incorporates 12 of the 13 baseline BMPs which have been approved by the RWQCB. Several additional water quality permits and plans are required (*e.g.*, Municipal Permit No. CAS614001, a Countywide Storm Water Management Plan (CSWMP), a Watershed Management Area Plan (WMAP)).

Applicants for development projects in the County of Los Angeles, including the City of San Dimas, have two major responsibilities under the NPDES Municipal Permit No. CAS614001. The first is to submit and then implement a Standard Urban Storm Water Mitigation Plan ("SUSMP") containing design features and BMPs appropriate and applicable to the project.[11] The purpose of the SUSMP is to reduce post-construction pollutants in storm water discharges. Prior to issuance of any grading or building permit, the City must approve the SUSMP.

The second responsibility is to prepare a Storm Water Pollution Prevention Plan (SWPPP) for all construction projects with disturbed areas of 2 to 5 acres. Alternatively, the applicant may conform to the State Construction Activity Storm Water Permit for projects greater than 5 acres. The applicant must ensure that a SWPPP is approved, or file a Notice of Intent to comply with the State Permit prior to issuance of a grading permit.

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9 Storm drain systems are described as Municipal Separate Storm Sewer Systems (MS4s) and include streets, gutters, conduits, natural or artificial drains, channels and water courses or other facilities that are owned, operated, maintained or controlled by any Permittee (cities and counties) and used for the purpose of collecting, storing, transporting or disposing of storm water.

10 Section 402(p)(3)(B) requires that permits for storm drain systems "(i) may be issued on a system- or jurisdiction-wide basis; (ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and (iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."

11 The RWQCB, Los Angeles Region, approved the SUSMP that requires new construction and development projects to implement BMPs on March 8, 2000. The SUSMP requires that new developments and re-development projects employ a variety of general and land use specification measures to reduce the post-project discharge of pollutants from stormwater conveyance systems to the "maximum extent practicable." In May 2000, the County of Los Angeles finalized its "Manual for the Standard Urban Storm Water Mitigation Plan," which details the requirements of the SUSMP. Projects that fall into any of the seven SUSMP development categories (including home subdivisions with 10 to 99 housing units such as the proposed project) are required to incorporate appropriate SUSMP requirements into project plans as part of the development plan approval process for building and grading permits.

Specific mitigation measures have been incorporated into the SUSMPs and the SWPPPs for development projects under NPDES Municipal Permit No. CAS614001. Implementation of these measures will ensure that the quality of stormwater runoff leaving the project site will meet all regulatory standards and will maintain the beneficial uses of the surface water for public and commerce. The City of San Dimas as part of normal project approval and construction practice monitors compliance with these requirements. Based on the above, no significant impact is anticipated.

4. *Impacts Associated with Horse Keeping*

Horse waste is a solid waste excluded from federal regulation because it neither contains significant amounts of listed hazardous components, nor exhibits hazardous properties. The primary chemical constituents of horse manure are about the same as household and agricultural fertilizer. In fact, animal manure is a valuable agricultural amendment and has been used for millennia to help grow food supplies. For example, current mushroom cultivation techniques rely heavily on horse manure, while other crops have been developed with human sewage sludges in order to recycle our own wastes. Thus, based on its chemical constituents, horse manure is not to be considered toxic.

The two major environmental issues with manure in water are: (1) ammonia and nutrients and/or (2) pathogens (Giardia, Cryptosporidium, E. coli). As little as 0.025 ppm ammonia can kill salmonoid fish fry. However, simply because livestock or horses may be kept in confined areas beside a stream does not necessarily lead to pollution of that stream. Clean Water Act 319(h) grants have been executed looking at horse keeping throughout the Bay Area. For example, one ranch in Pillarcitos Creek was the site of San Mateo County's project share of these grant funds. As observed at a Resource Conservation District (RCD) sponsored site visit, horses there were literally padlocked on the edge of the stream. However, water quality sampling was Non Detect (ND) for ammonia, nitrates, and salts. The water quality analysis conclusion was: "Overall, the sampling and analysis results indicate lack of measurable impact on the creek water quality cause by the ... operations." Similarly, multiple sampling of water quality over extensive time on both San Francisquito Creek and San Vicente Creek (lots of horses on both) have produced many data points, but not shown contamination due to horses from ammonia, nitrates or salts.[12]

This is not to say that the horsekeeping areas proposed by the project do not represent a potential impact to surface water quality. Improper disposal and containment of horse manure may increase levels of nitrogen and ammonia presently experienced in Walnut Creek. This is considered a

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12 *Livestock and Healthy Streams*, published in the Half Moon Bay Review on March, 3, 2001.

potentially significant impact given that Walnut Creek is listed as an impaired water body. Suburban horse owners should plan housing and manure management carefully to avoid difficulties with neighbors and health officials. A number of Best Management Practices have been identified for use in animal husbandry. These include the following:

- Successful management requires daily clean out and removal of wet or soiled bedding to a fly-tight container or storage facility, or for field spreading.
- Fresh bedding should be added after removing manure and soiled bedding to ensure clean, dry conditions.
- Regular cleanup reduces odors and insect breeding. In individual horse stalls, manual cleaning with a fork or shovel and wheelbarrow, tractor loader, or trailer is common. Simply adding fresh bedding and allowing manure and soiled bedding to accumulate in the stall results in dirty animals, an excellent fly-breeding environment, and generally unhealthy conditions for horses.
- Store manure in a fly-tight area during warm months. Protect the manure storage from rainfall and surface runoff. The type and size of manure storage depend on the amount of manure to be stored. A horse produces about 0.75 cubic feet of manure per day per 1,000 pounds of body weight, plus bedding. Storage shall be covered boxes, fly-tight concrete or pressure-preservative-treated lumber sheds, covered piles, or covered garbage cans.

While proper management and disposal of manure can avoid contamination of nearby watercourses, it is difficult and impractical for the City or project applicant to implement and enforce BMPs to ensure that homeowners are providing adequate containment and disposal of manure waste. No mechanism presently exists in the form of a permit, agreement, or other legally binding instrument upon which to enforce the implementation of such BMPs. Consequently, consistent with CEQA *Guidelines* Section 15126.4(D)(2), the BMPs listed above are not used as mitigation measures for the proposed project. Rather, the City has elected to remove horsekeeping as an allowed use within Planning Area II of Specific Plan No. 4. Implementation of this measure would reduce potential impacts to surface water quality caused by horsekeeping to less than significant levels.

4.7.4 CUMULATIVE PROJECT IMPACTS

a. Drainage

Buildout of tentative tract No. 52717 would result in the construction of additional impervious surfaces that would reduce water absorption and increase surface runoff and velocities. Each future project in the City is required to provide adequate capacity to convey drainage to a safe point of discharge. In this manner, the existing drainage system would be upgraded as necessary to accommodate runoff created by the development of future uses. Given the above, no significant cumulative impacts are expected.

b. Water Quality

All uses within the City of San Dimas and the County of Los Angeles are subject to the requirements of the NPDES program for municipal storm water discharge. Assuming each new development project implements the SUSMP requirements, then each project would minimize the potential for cumulative degradation of surface water quality.

4.7.5 MITIGATION MEASURES

a. Legal/Regulatory Requirements

4.7-1 Final drainage and grading plans shall be prepared to ensure that no significant erosion, sedimentation, or flooding would occur during or after site development. These plans shall be prepared to the satisfaction of the City of San Dimas Public Works Department.

4.7-2 The applicant shall satisfy all applicable requirements of the National Pollutant Discharge Elimination System (NPDES) Program in effect at the time of project construction to the satisfaction of the City of San Dimas Public Works Department. These requirements include preparation of a Standard Urban Stormwater Mitigation Plan containing structural treatment and source control measures appropriate and applicable to the project.

b. Measures Recommended by this EIR

4.7-3 Horsekeeping shall be a use prohibited on land located within Planning Area II of Specific Plan No. 4.

4.7.6 UNAVOIDABLE SIGNIFICANT IMPACTS

With construction of the proposed storm water drainage system, implementation of recommended mitigation, and compliance with NPDES and SUSMP requirements, the project would not result in any unavoidable significant impacts related to storm water drainage, horse-keeping, flooding, or surface water quality.