As there will be a significant impact from PM10 generated during the construction activities, we believe that the developer as a mitigation measure be allowed to grade no more than 10 acres per day between both Development Areas A and B. The developer must devise more ways to mitigate the construction impacts to air pollution, noise, and all other areas that the development will impact our community. 149-52

Also, the impacts of vehicle trips on the surrounding local area (outside the project area) made by residents of the development after it is completed must be discussed. The air pollution generated by their activity may increase pollution levels to significant impact in the surrounding areas. This impact could not be mitigated and would remain significant to the community. 149-53

This section should include a discussion of the impact of the loss of trees to air quality. The loss of trees is significant and will probably have a significant impact on air quality. A discussion of the benefit of trees is found on the California Air Resources Board Website.

California Air Resources Board

HOME SEARCH SITE MAP SOFTWARE CONTACT US

Trees and Air Quality

This page updated July 17, 2001.

149-54

TREES & AIR QUALITY

The right tree can improve air quality as well as provide other benefits such as shade and beauty. However, some trees can have adverse effects on air quality and, because of their pollens, can even affect people's ability to breathe. This site provides an introduction to the effects of trees on air quality and identifies some websites that provide additional information.

BENEFITS OF TREES ON AIR QUALITY

Trees deliver air quality benefits by the cooling effect of their shade and by removing certain pollutants.

COOLING

By cooling, trees reduce evaporative emissions from vehicles and other fuel storage. By cooling homes and offices, trees reduce power generation emissions. General cooling also reduces the speed of chemical reactions that lead to the formation of ozone and particulate matter. By using models at ARB or at the Federal EPA, we can predict how well cooling by trees helps improve air quality.

Sacramento Shade *provides an excellent website to learn about the savings in energy and air quality, as well as the real estate enhancements that trees can provide. The site is located at: http://www.smud.org/sacshade/index.html*

POLLUTANT REMOVAL OR DEPOSITION

149-54

Leaves and needles have surface area that can allow for removal (deposition) of ozone, nitrogen dioxide, and to a lesser extent particulate matter. Several different factors affect pollutant removal. These factors include how long a parcel of air is in contact with the leaf, the amount of leaf area, as well as the specific pollutant of interest. Because deposition has an affect on air quality, the Air Resources Board (ARB) is interested in this phenomenon. For example, the ARB support a study to evaluate how well agricultural crops remove ozone. For more on the California Ozone Deposition Experiment (CODE) please refer to: http://blg.oce.orst.edu/code91/twinotter/description/synopsis.html

In addition, an excellent discussion of the impact of trees on ozone removal can be found for ***Blodgett Forest*** *at: http://www.cnr.berkeley.edu/forestry/bs_14.html*

The DEIR must include a more inclusive discussion of the impacts of air pollution that have been detailed in this response. 149-55

Section IV. C HYDROLOGY AND WATER QUALITY

149-56

The EIR should be discussing possible water flows due to a 100 year storm rather than a 50 year storm. Weather phenomena like El Nino have made the possibility of more severe storms.

The EIR also does not address floods or debris flows after wildfires. Please refer to our discussion in the geology and soils section. The EIR must discuss these impacts and the significance on the project and surrounding areas. This can be a real problem.

149-57

We have included an article from the Los Angeles Times November 4, 2003 edition of the paper titled "**Fires Bring Hazard of Landslides**".

Flood control experts fear that wildfires have created potentially

catastrophic landslide hazards in charred areas throughout Southern California *-- especially in San Bernardino County, where as many as 50 catch basins built to block falling boulders, mud and trees may not be adequate.*

Debris flows, as the deadliest form of the slides are known, can be ferocious, crashing down mountain slopes, overwhelming barricades and dropping tons of rubble on unsuspecting communities during heavy rains.

The San Gabriel and San Bernardino mountains are dotted with catch basins -- government's response to a long and violent history of sudden ***landslides.*** ***The basins are typically engineered to capture the muddy fallout from a 100-year flood -- a heavy rainstorm whose likelihood of happening in any given year is only 1%.***

But in areas damaged by wildfires, the volume and velocity of material washing down can be 10 times greater than usual -- and exceptionally heavy even four to five years after a blaze.

As a result, many basins in ***fire****-ravaged San Bernardino County could now be strained by a major storm, putting thousands of homes, schools and other buildings in harm's way, according to county flood control officials and other hydrologists.*

"Most of these basins, if they get hit within a year or two of a good ***fire,*** *they will not be big enough," said Pat Mead, an assistant public works director for San Bernardino County.* 149-57

"In a normal ***fire*** *year, we get maybe one or two canyons with watersheds in them burning. By the looks of things, these* ***fires*** *have burned every watershed in the north part of our county."*

Last week, San Bernardino County officials said they would seek federal money to clear out and expand the basins, warn nearby residents about ***landslide*** *dangers and erect walls of sandbags to minimize the threat.*

Meanwhile, the U.S. Forest Service, which controls many of the wilderness areas hit hardest by the ***fires,*** *has begun assembling a team to determine damage and look for ways to diminish erosion.*

"We don't want to scare people because we don't think a disaster is about to happen, but they need to know that this is not normal," said Ted Golondzinier, another assistant county public works director. "We do think there are areas that are going to be getting some mud flows, and we're trying to figure out where those are most likely to happen."

Fire*-scarred parts of Los Angeles, Ventura and San Diego counties -- including areas not typically prone to* ***landslides*** *-- also may face an increased chance of* ***landslides*** *because of the scope of this year's* ***fires,*** *among the worst in modern California history.*

"Regionally, this is one of the worst potential flooding situations since this became a civilized place," said Douglas Hamilton, a flood control expert with Exponent Inc., an environmental consulting firm. *"Everybody knows the San Gabriel and San Bernardino mountains have problems with debris flows. But even in San Diego, where debris has not been as big of a problem, you could now have a problem because of these* ***fires.****"*

Debris flows have caused dozens of disasters in Southern California over the last century, including a 20-foot-high avalanche of rocks and mud that swept over La Crescenta and Montrose just after midnight on New Year's Day in 1934, killing 49 people. *A wildfire preceded the disaster. No debris dams were there at the time.*

The dangers of debris flows were highlighted in the 1989 book "The Control of Nature" by John McPhee. ***One passage recounts the horrifying experience of the Genofile family, which nearly perished when a 6-foot wall of muck suddenly struck their home in Shields Canyon above Glendale in 1978 after a particularly intense rain****.*

"The house became buried to the eaves. Boulders sat on the roof. Thirteen automobiles were packed around the building, including five in the pool. A din of rock kept banging against them. The stuck horn of a buried car was blaring," McPhee wrote. "The family in the darkness in their fixed tableaux watched one another by the light of a directional signal, endlessly blinking. The house had filled up in six minutes, and the mud stopped rising near the children's chins."

149-57

If wildfires precede heavy rains, the threat of debris flows is exponentially greater, experts say. The fires consume the vegetation that coats hillsides and binds soils together, greatly exposing the areas to erosion. That erosion can deposit huge amounts of sediment downstream from burned areas during rainstorms in a matter of minutes.

"Wildfires remove the canopy that intercepts rainfall, the leaves and needles that are on the ground. And once you've removed that, the water is just going to run downhill, taking a lot of other things with it," said Susan H. Cannon, a researcher with the U.S. Geological Survey's landslide hazards program, which has been studying the link between fire and debris flows for years.

Furthermore, in chaparral-coated Southern California, burning of the brush has been shown to harden surface soils, making the ground more water repellent than usual. That significantly increases the speed with which rainfall rushes down slopes, increasing its destructive power.

"It's an amazing amount of water that can come out of those mountains when it rains," said Chris Wills, a supervising geologist with the California Geological Survey, who vividly remembers his father taking him to see raging mountain waters that filled

the Los Angeles River during floods in 1969.

One potential flashpoint is Deer Creek near Rancho Cucamonga. There, the capacity of a large debris basin below mountains that rise to nearly 9,000 feet was the subject of bitter controversy, long before last week's wildfires. The stadium-sized basin lies in the mouth of a canyon at the foot of the San Gabriel Mountains in an alluvial fan molded over time by thousands of floods. Before the area was developed, the rushing mountain waters that spewed from the canyon during the short but strong seasonal rains traveled along a wide swath of the San Bernardino Valley and into the Santa Ana River.

Now that thousands of people live on the valley floor, the waters are corralled by a network of flood channels, and urbanization has been creeping ever closer to the foot of the mountains. The basin, built in 1983, was augmented by a levee that had long existed in the area, but a developer secured approval several years ago to breach the levee to build more homes above it, despite neighbors' concerns that the debris basin alone could not withstand the torrent of muck the creek was capable of discharging.

John Cassidy, an engineering expert working for nearby Ontario International Airport, and Hamilton, of Exponent, who was hired by a citizens group, concluded that the basin, built by the U.S. Army Corps of Engineers, was too small to handle a 100-year flood.

"As constructed, the Army Corps' debris basin would hold only a fraction of the debris that would come out of the watershed during a 100-year flood," Cassidy, a former engineer for Bechtel Corp., said in a deposition. "Required storage would be deficient by 500 acre-feet or more. Five hundred acre-feet would be equivalent ... to some 20,000 truckloads of debris."

149-57

Despite the experts' criticisms, the Corps of Engineers has stood by the Deer Creek basin, and public elementary and high schools have since been built below it.

Joseph Evelyn, the supervisory hydraulic engineer for the corps' Southern California office, said the basin had been built to withstand the largest debris flows the corps expects, and took into account that the flows could be made much worse by ***fires.***

But last week, he stopped short of saying it could withstand anything rainwater could wash down. The reality of such structures, he said, is that they are built to reasonably minimize the risk of damage, within economic and even aesthetic constraints.

"It can happen, and has happened," he said when asked if similar debris basins have been known to fail. "But the degree of damage has been within acceptable tolerance. We haven't had an outcry from people asking for fewer teachers and police officers to build bigger debris basins.

"If you are going to assume the worst -- a huge storm situation after a huge fire -- you would have to build huge structures that would cost a tremendous

amount and would not be very good to look at."

Malissa McKeith, an attorney who lives just below the old levee and has spent tens of thousands of dollars of her own money in fighting to shore up the protections at Deer Creek, said she hoped the ***fires*** *would lead local officials to reassess the flooding dangers.* 149-57

"Everyone has known there was a problem; they just hoped it did not occur on their watch," McKeith said. "Well, now the problem's here. At this point, I'm just hoping that someone will take a look at these schools. It's not too late to do something to protect them."

The flood control planning on the project is for a 50 year storm. These have a 2% chance of occurring in any year. These are more common and less in severity than a 100 year storm that has only a 1% chance of occurring in any year. Yet, the Los Angeles Times article indicates that even drainage systems designed to handle the flows of a normal 100 year storm will not be able to handle the flows of a 100 year storm with fire damage to the area. As the article indicates this debris flow danger could exist several years after the wildfire. **The 50 or 100 year storm does not have to immediately succeed the wildfire.** 149-58

So, even with the project designed to handle flows of a 50 year storm, the design is inadequate and represents an unmitigable significant impact if the drains and culverts are not designed to handle debris flow after a fire devastates the area in a 50 year or 100 year storm. Either the project will have to be redesigned to incorporate changes to handle such a situation or the EIR must state the unmitigable significant impact that the development poses to the area.

The debris flow problem after a fire and heavy storm is not an isolated event that happens rarely in Southern California. If you search local news papers for records of floods or debris flow problems after wildfires, you will have a large number of documented occurrences that have occurred in Southern California in the last century, even after flood control measures have been implemented. The storm that creates a debris flow problem does not even have to be a 50 year or worse storm. The San Bernardino flooding on December 25, 2003 was precipitated by a heavy localized rainfall. This was not unusual or uncommon during the winter in Southern California.

When Interstate 210 was designed, it was probably not foreseen that a development would someday be above and below it. As such, the drains that go under the Interstate Freeway may not have been designed to handle the debris flow of a developed area that has been graded and denuded of its natural vegetation. 149-59

The drains may not have been especially designed for the situation where the area was developed and surrounding areas were additionally denuded from wildfires. The EIR must discuss these scenarios because it is not a question that these events will happen, it is a question when a catastrophe will occur. As we have previously discussed in the geology and soils section, flooding after a wildfire can be worse than would normally be expected because resins in the

burned vegetation melt into the soil, forming a waxy layer that impedes water absorption. 149-59

Also, not enough discussion on the adequacy of catch basins was discussed in the EIR. With the great potential for flooding in this area, especially after a major wildfire, catch basins must also be designed to handle the runoff from the burned areas and the developed areas where the water will no longer be absorbed into the soil. The location and size of these basins must be discussed in the EIR. 149-60

All drains, channels or other modifications made for the project area drainage must be non-erosive. They must not create new problems of soil erosion and other issues that might impact the stability of the project soil or lands. 149-61

There is a great potential for severe water flow in the project area with the presence of 8 blue-line streams and 23 drainage courses as reported in the EIR.

Both Development Areas A & B as parts of the 8 blue-line streams and 23 drainage courses transect these areas help in the recharge of a substantial amount groundwater. The development will result in a substantial amount of the area that may collect and rainwater and recharge it in natural watercourses. The development would result in diverting some of the rain water and other ground water into concrete drains which will no longer flow into any fresh water aquifers. The city of Los Angeles receives an important amount of its water supplies from San Fernando Valley aquifers. 149-62

The EIR does not even discuss the impact of the development on the San Fernando Valley aquifers. The EIR must discuss this and indicate whether there is a significant unmitigable impact on the watershed of this area. Also, as there are many projects in the region that also may impact the area watershed in this way, the cumulative impacts of this project and the others must be discussed for levels of significance. Otherwise, we might conclude that there is a significant impact. 149-63

The report does not discuss that amount of groundwater that may be found in the project area. The seeps and springs that exist on the project site were not found by the consultants or even looked for in fieldwork. The consultant must discuss groundwater recharge potential. The impact on ground water recharge remains a significant impact. 149-64

Additionally, this section of the EIR must discuss how this project meets or does not meet the goals and objectives set forth in the City of Los Angeles General Plan regarding Stormwater. We have including these goals and objectives of the City of Los Angeles General Plan and a discussion of the issue from it. 149-65

Stormwater

The 1994 Los Angeles Regional Water Quality Control Board's Basin Plan is the document that outlines the regulatory process for the protection of the beneficial uses of all regional waters. According to the Basin Plan, the City is located within three of the four major watersheds that

make up the Los Angeles-San Gabriel Hydrologic Unit: the Ballona Creek, Dominguez Channel and the Los Angeles River. The revised Basin Plan also recognized the Santa Monica Bay Watershed Management Area which is comprised of the Ballona Creek and Malibu Creek watersheds (consistent with the Santa Monica Bay Restoration Project boundary). Storm drains within the City are constructed by both the City and the Los Angeles County Flood Control District (LACFCD), managed by the Los Angeles County Department of Public Works. The LACFCD constructs the major storm drains and open flood control channels, and the City constructs local interconnecting tributary drains. The City designs the storm drain system so that flows from a 10-year event will not exceed the curb height, and flows from a 50-year event will be within the street right-of-way, while the County designs for a 50-year storm event and the Federal government (Army Corps of Engineers) designs for a 100-year event.

While a comprehensive list of local storm drain deficiencies has not been compiled for the Framework Element, the current list of capital improvements provides some understanding as to where problems exist. Most significantly, two large district-proposed drainage projects would reduce existing flood hazard areas. The Army Corps of Engineers/County "LACDA" project would provide flood reduction benefits along the Los Angeles River, largely outside of the City limits. The County's Hollyhills drain project would reduce/eliminate existing flood hazards in the West Los Angeles area from the Ballona Creek northwards into West Los Angeles and the City of Beverly Hills. The County's Project 9250 would reduce the large 100-year flood plain area that lies north of Wentworth Street and south of Foothill Boulevard.

149-65

Stormwater Management Options

Onsite capture of stormwater runoff through improved management of the urban forest offers still another source reduction within one infrastructure system (stormwater) that results in a transfer of a usable volume of material to another infrastructure system (water supply).

In urban areas barren of trees, rainfall runoff builds up more quickly, requiring more expensive drainage systems, to prevent local flooding and soil erosion. In neighborhoods where trees are well established, this process can be slowed, thereby allowing the stormwater a greater chance to soak into the soil, replenishing both surface moisture levels and underground water tables, and potentially reducing the flood hazard caused by the rapid flow of runoff into the stormwater catch basins and channels.

STORMWATER

GOAL 9B

A stormwater management program that minimizes flood hazards and protects water quality by employing watershed-based approaches that balance environmental, economic and engineering considerations.

Objective 9.5