

## **14.0 ADDITIONAL TECHNICAL INFORMATION**

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This section includes technical information on the proposed projects that was generated in preparation of the Final EIR. Specifically this section includes the following:

- 1) Schaaf & Wheeler Hydrology and Water Quality Response Memo
- 2) Terrasearch Review of Geologic and Survey Data for Tres Pinos Fault

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# SCHAAF & WHEELER HYDROLOGY AND WATER QUALITY RESPONSE TO PUBLIC COMMENTS MEMO

## ENVIRONMENTAL IMPACT ANALYSIS GAVILAN SAN BENITO CAMPUS

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### CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

#### Comments Regarding Runoff from Urban Development and Desired Conditions of Healthy Watersheds

##### Response

More detailed numeric responses follow more specific Water Board comments. In general, however, while Low Impact Development techniques and Best Management Practices can help minimize additional pollutant loading, projects cannot be expected to “match” pre-development hydrology. Projects can be expected to accommodate changed on-site hydrology safely and mitigate any potential adverse impacts to off-site hydrology and watercourse geomorphology. The DEIR and responses to comments herein explain impacts to offsite hydrology and geomorphology. As discussed subsequently, significant storage of rainfall runoff on site poses its own potential health hazards. Existing riparian and aquatic habitats will not be impacted by Gavilan San Benito Campus development since watershed hydrology within the San Benito and Santa Ana Creek tributaries will not substantially change.

#### Comments Regarding Low Impact Development (LID)

##### Response

Typical LID techniques, when applied at this site, are not numerically beneficial in terms of “matching” pre-development hydrologic conditions within the downstream tributary. However, those adverse impact may not be significant enough to discourage the use of LID for its water quality benefits.

The Water Board recommends eight common LID practices for consideration, which are similar in nature to the post-construction BMPs outlined in *MM HYD-2* in the DEIR. Each practice is described in terms of its potential application at the Gavilan San Benito site, along with its potential hydrologic impact. Quantitative analyses of potential impacts to various LID techniques follow in response to specific Water Board comments to the DEIR.

1. **Reduced and disconnected impervious surfaces.** A reduction in impervious surface should help mitigate increases in post-development runoff volumes and rates. Disconnecting the impervious surfaces tends to increase basin lag (also time of concentration) and thus decreases the rate at which stormwater runoff leaves the site relative to conventional development techniques. The changed timing of peak flows leaving the site and site runoff hydrograph attenuation may have a downstream impact (positive or negative) when site runoff combines with offsite runoff from

adjacent watersheds. Reduced and disconnected impervious surfaces also tend to improve the quality of runoff leaving the site (e.g. pollutant loads) relative to runoff from a more impervious site. Reducing impervious surfaces (as discussed in the seventh LID practice) and disconnecting those surfaces has been considered at the Gavilan San Benito Campus.

2. **Native vegetation preservation.** At this site “native” vegetation consists of open pasture. The plan to preserve open space and landscape buffers, which may actually improve the condition of site vegetation condition, is consistent with this LID practice.
3. **Bio-retention.** This LID technique dovetails with the first two listed, using soils and woody and herbaceous plants to remove stormwater pollutants from runoff. This technique can also be considered at the Gavilan site; but during final design, hydrologic analyses must conclude that the consequent increase in basin lag does not delay peak site runoff so that it adds to the adjacent (and larger) watershed’s later peak flows and results in increased discharges downstream of Airline Highway.
4. **Tree boxes to capture and infiltrate street runoff.** Similar to the first two techniques, tree boxes could help minimize the net increase in impervious area. It should be pointed out that any true infiltration (that is, a decrease in direct runoff from a given precipitation event) is limited by the underlying soil characteristics; which at Gavilan, include low permeability.
5. **Vegetated swales, buffers, and strips.** Vegetated swales and buffers also act to disconnect impervious surfaces, provide bio-retention, and infiltrate runoff. This technique has the same issues as previously listed, but dispersed vegetated swales have been considered for the residential and campus areas when modeling the LID post-project hydrology.
6. **Roof leaders directed to planter boxes and other vegetated areas.** This LID technique provides pollutant removal as described previously with disconnected impervious areas and bio-retention techniques, although this is not a type of retention per se. This technique should increase overall site basin lag, and could increase downstream discharges depending upon overall watershed hydrograph timing.
7. **Permeable pavement.** The use of permeable pavement reduces the net increase of impermeable surfaces due to development and can be used at the San Benito Campus. The rate of infiltration is limited by the underlying soil, as any direct runoff in excess of the soil’s saturated infiltration rate will run off through the permeable base course and need to be collected and directed to the storm drainage system.
8. **Soil amendments to increase infiltration rates.** In our opinion, it is not feasible to increase the infiltration capacity of the underlying soil in a meaningful way; that is, to decrease direct runoff from the site, all other conditions equal.

**Comment – Post-Development Runoff Conditions**

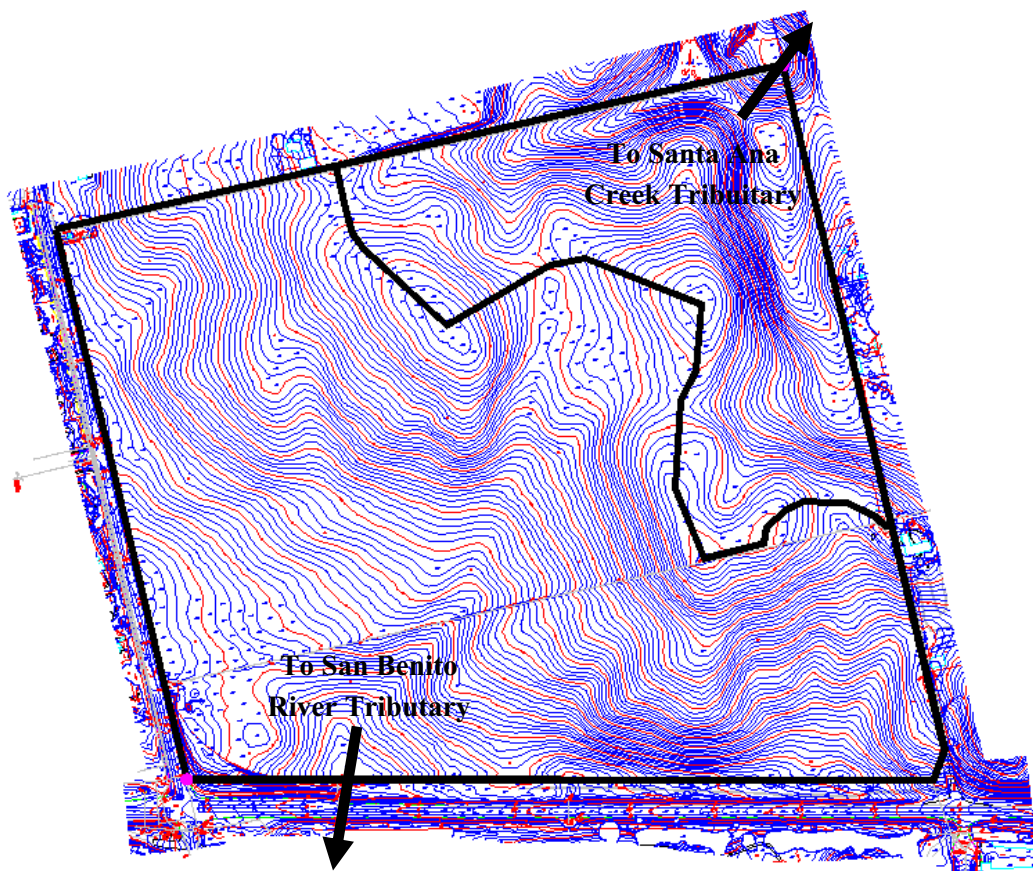
**Response**

As shown herein, our continuous simulation modeling (thus avoiding the confusion of a “one-year” annual return period event) demonstrates that a rapid release of runoff from the site is more beneficial to stormwater runoff impacts within the tributary than delaying the release of site runoff. However, it is recognized that the water quality benefits of treating (and possibly delaying) runoff on-site may outweigh the slight negative flooding impacts.

The only way to match post-development runoff volume to pre-development runoff volume – whether on-site or within the tributary – is to retain the difference in runoff volume due to proposed development. At the risk of repetition, relevant sections of the DEIR are excerpted below and provided with additional explanatory material for clarity.

***Existing vs. Proposed Drainage Conditions***

The existing site naturally splits drainage between two catchments as shown in Exhibit 1. Approximately 110 acres of the 138-acre site now drain to a tributary of San Benito River that runs along Airline Highway. The remaining 28 acres drain to an unnamed tributary of Santa Ana Creek.



**Exhibit 1: Existing Drainage Basins**

Due to property ownership issues, it is not possible to provide a safe outfall for newly generated storm water runoff to the Santa Ana Creek tributary; and as subsequently discussed, on-site retention is not considered to be feasible. Therefore grading and drainage plans for the proposed project call for all of the developed site's drainage to discharge into the San Benito River Tributary.

### ***NPDES Phase 2 Municipal Stormwater Permit Requirements***

The Water Board requires the use of Low Impact Development (LID) practices, with such techniques and devices dispersed uniformly across the site to minimize runoff. "LID methods provide temporary retention areas, increase infiltration, allow for pollutant removal, and control the release of stormwater into adjacent waterways." (July 10, 2008 response to NOP) Thus we have calculated retention volume requirements for site development based on Water Board standards for runoff volume and peak runoff rate control to ascertain their effectiveness at the San Benito Campus. The current project design proposes a combination of campus facilities and residential housing lots.

### ***Runoff Volume Control***

Retention BMPs required by the Water Board should retain the excess runoff (above pre-development project volumes) resulting from the development for the design storm event; defined in the NOP letter as the 2-, 10-, and 25-year 24-hour duration storms.

Calculations for required on-site stormwater retention are based on the volume of estimated runoff to the San Benito River tributary at Airline Highway. (Since the area draining to the Santa Ana Creek tributary decreases after development, there is no need for mitigating retention here.) The volume of 24-hour runoff for various storm frequencies is calculated before and after project completion; once using conventional development; once using LID practices.

The difference between post-project and pre-project runoff volume needs to be retained in dispersed basins on site according to the Water Board. The basic volume calculation is:

$$Volume = (C)(A)(P)$$

where C is a volumetric runoff coefficient (Table 1)

A is the tributary area

P is the 24-hour statistical rainfall depth (Table 2)

The volumetric runoff coefficient is based on runoff coefficients for the Rational Method, but modified to provide a better estimate of runoff volume since the Rational Method is intended for peak flow rate calculations, not for the calculation of runoff hydrographs or flow volumes. For weighted runoff coefficients less than 0.70, 0.15 is added to develop a coefficient for runoff volume computations. For weighted C values greater than 0.70, a C value for volume equal to (1.0 minus the weighted C value)

divided by two and added to the weighted C value for runoff is used.<sup>1</sup> Runoff coefficients for D-type soils from the Santa Clara County Drainage Manual (2008, Table 3-1) are used in the weighting process.

Existing conditions with grazed pasture land and occasional disking are considered to be equivalent to “agricultural”. The runoff coefficient for D-type soil is 0.40; adjusted to 0.55 as described above for volume calculations. Prior to development 110 acres drain toward the Airline Highway discharge point; after development 137 acres will drain to this catchment point.

Rainfall statistics prepared by the Santa Clara Valley Water District are used to establish the 24-hour rainfall depth using the formula:

$$P = A + B(MAP)$$

where A and B are statistically derived coefficients and MAP is the mean annual precipitation (13 inches at the project site). Table 3 summarizes the runoff volume control calculations.

**Table 1: Runoff Volume Coefficients for Post-Project Conditions**

Land Use	Acreage	Percent Total	Conventional Development			Low Impact Development		
			Runoff Coeff	C for Volume Calculation	Weighted C for Volume	Runoff Coeff	C for Volume Calculation	Weighted C for Volume
SF Residential	49.09	36	0.60	0.75	0.27	0.55	0.70	0.25
Campus	40.47	29	0.65	0.80	0.23	0.55	0.70	0.20
Open Space/Lndsp	19.10	14	0.45	0.60	0.08	0.45	0.60	0.08
Athletic Fields	18.25	13	0.85	0.93	0.12	0.45	0.60	0.08
Right of Way	10.71	8	0.85	0.93	0.07	0.60	0.75	0.06
		100			<b>0.77</b>			<b>0.67</b>

**Table 2: Precipitation Depth (inches)**

Return Period	A	B	P
2-year	0.314185	0.096343	1.57
10-year	0.567017	0.162550	2.68
25-year	0.675008	0.195496	3.22
100-Year	0.814046	0.243391	3.98

<sup>1</sup> Santa Clara County Drainage Manual (2008), page 64.

**Table 3: Aggregate Runoff Volume Calculations**

Return Period	Rainfall (inches)	Conventional Development			Low Impact Development		
		(E) Site Runoff (ac-ft)	Post-Project Runoff (ac-ft)	Retention Volume (ac-ft)	(E) Site Runoff (ac-ft)	Post-Project Runoff (ac-ft)	Retention Volume (ac-ft)
2-year	1.57	7.92	13.80	5.88	7.92	12.01	4.09
10-year	2.68	13.51	23.56	10.05	13.51	20.50	6.99
25-year	3.22	16.23	28.31	12.08	16.23	24.63	8.40
100-Year	3.98	20.07	34.99	14.92	20.07	30.44	10.37

The only means for water to leave each retention basin is through surface evaporation or subsurface infiltration. The assumed surface evaporation rate is 1.8 inches per month, or an average of 0.06 inch per day; reflecting the average pan evaporation rate for winter months (December through March) at the DWR San Benito station.<sup>2</sup> A soil infiltration rate of 0.048 inch per hour is used.<sup>3</sup> The total volume lost per day is 1.21 inches per surface area of retention.

To provide up to ten acre-feet of dispersed site retention and maintain five feet of maximum ponding depth, a total of two surface acres of retention would be sufficient. This area represents about 11 percent of the total open space/landscape buffer area, which would appear reasonable on its face. However, only 2.42 acre-inches (0.20 acre-foot) can be evaporated and infiltrated per day. As Table 4 demonstrates, retained water would remain on site for up to two months after a storm event. This would create unmanageable vector control and potential health problems and retention storage would not be available for a second significant storm event in the same season, potentially rendering any beneficial use of the retention basin(s) moot. San Francisco Regional Board guidelines suggest retaining standing water for no more than three to five days. Meeting the Water Board's stated requirement for runoff volume control, therefore, is not considered feasible at the Gavilan San Benito Campus.

**Table 4: Retention Duration Calculations**

Return Period	Conventional Development			Low Impact Development		
	Retention Volume (ac-ft)	Volume Evaporated and infiltrated (ac-ft/day)	Duration of Pondered Water (days)	Retention Volume (ac-ft)	Volume Evaporated and infiltrated (ac-ft/day)	Duration of Pondered Water (days)
2-year	5.88	0.20	29	4.09	0.20	20
10-year	10.05	0.20	50	6.99	0.20	35
25-year	12.08	0.20	60	8.40	0.20	42
100-Year	14.92	0.20	75	10.37	0.20	52

<sup>2</sup> California Irrigation Management Information System (CIMIS), <http://www.cimis.water.ca.gov/cimis/monthlyETtoReport.do>

<sup>3</sup> Santa Clara Valley Urban Runoff Pollution Prevention Program, March 2005 HMP Report (Table C-3)

### ***Runoff Rate Control***

The Water Board also requires peak runoff rate control, suggesting that LID practices will maintain the pre-development peak runoff discharge rate by maintaining the pre-development time of concentration and using retention and/or detention BMPs distributed throughout the site to control runoff.

While this may be theoretically possible when looking only at runoff from a single site, our continuous runoff simulations indicate that this is not the case for the Gavilan San Benito project when the total watershed at the San Benito River tributary is examined. It is assumed that the project can be designed and engineered with a safe and stable drainage system. Since stream stability (erosion potential) and flooding could be impacted within the tributary downstream of the site's outfall, an analysis has been performed to determine the effect of the proposed project, whether developed conventionally or with LID methods, on estimated peak flows within the tributary. The drainage areas in the model include all upstream watersheds for the tributary at the location of the project outlet, including contributing post-project areas; as shown in Exhibit 2, which has been excerpted from the DEIR. As explained in detail within the DEIR, HEC-HMS (hydrologic watershed modeling software designed to simulate precipitation-runoff processes) is used to estimate pre- and post-development runoff rates and flow-frequency/duration curves for the catchment point of interest for the tributary.

Discrete and continuous simulation computation techniques are used to evaluate runoff rate control techniques including LID practices. LID methods potentially impact hydrologic calculations in two ways: 1) a reduction in the site's impervious surfaces after development; and 2) a change in the site's basin lag, or time of concentration, including changes induced by site detention in lieu of retention.

With conventional development it is estimated that newly created impervious area would cover 65% of the residential portion of the site (a typical estimate for medium density residential development) and 47% of the college campus; assuming that all walkways, parking and recreation areas (since it is possible that these would be constructed with lined Astroturf) will be impervious. By weighting the different types of proposed land uses on site, it is estimated that the site would be 55% impervious in total. With low impact development we estimate that the net site imperviousness could be reduced to 34 percent.

In our continuous simulation model, the equation for basin lag (in hours) is:<sup>4</sup>

$$t_{lag} = (0.862) 24 N \left( \frac{L L_c}{\sqrt{S}} \right)^{0.38}$$

where L is the basin length (miles)

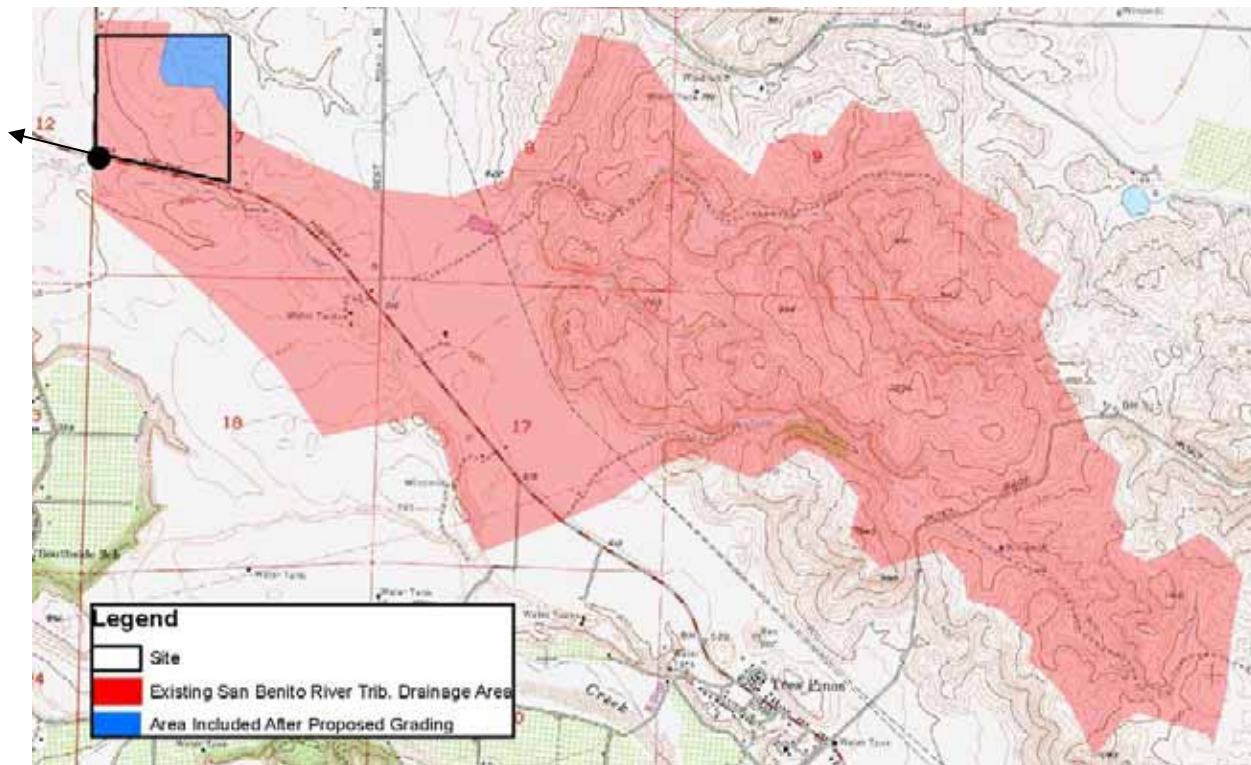
L<sub>c</sub> is the length to basin centroid (miles)

S is the effective basin slope (feet per mile)

N is a basin parameter related to basin roughness

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<sup>4</sup> Santa Clara County Drainage Manual (2008)



**Exhibit 2: Contributing Watershed at Outfall**

LID development would primarily impact the selection of N; which while subjective, is related to the storm drain system density. Full basin urbanization with complete storm drain systems use  $N = 0.025$ ; a basin two-thirds urbanized (Gavilan San Benito with conventional development) uses  $N = 0.035$ ; and urban areas with natural swales and channels (Gavilan San Benito with low impact development techniques) should use  $N = 0.050$ . With little or no development (existing conditions),  $N = 0.080$ . Table 5 summarizes hydrologic parameters for the site and Table 6 summarizes the analyses.

**Table 5: Hydrologic Parameters for Gavilan San Benito Site**

<i>Development Condition</i>	<i>L (mile)</i>	<i>L<sub>c</sub> (mile)</i>	<i>N</i>	<i>S (ft/mile)</i>	<i>Basin Lag (hour)</i>
Pre-developed	0.38	0.21	0.08	160	0.24
Post-project with conventional development	0.91	0.64	0.035	160	0.29
Post-project with Low Impact Development	0.91	0.64	0.050	160	0.41

**Table 6: Project Impacts to San Benito River Tributary**

Frequency	Discharge at Airline Highway (cfs)			
	Pre-Developed	Post-Developed		
		Conventional	Low Impact	Low Impact with Detention
2-year	528	533	535	542
10-year	696	703	706	717
25-year	792	800	803	816
50-year	865	873	877	891
100-year	938	947	950	966

Table 6 demonstrates that while beneficial from a water quality standpoint, using LID methodologies has no beneficial impact to downstream flood discharges, although there is relatively little additional adverse impact (on the order of 0.3 percent change for a 100-year frequency). Providing on-site detention as discouraged in the DEIR does adversely impact the downstream tributary, and there does not appear to be a concomitant benefit or reason to provide on-site detention. Without detention, it is our opinion that the increases in off-site runoff (less than one percent for the 100-year frequency with or without LID) are not significant with respect to the potential for additional downstream flooding, and specific mitigation is not required. Furthermore, traditional mitigation in the form of site detention would actually worsen downstream impacts rather than mitigate them.

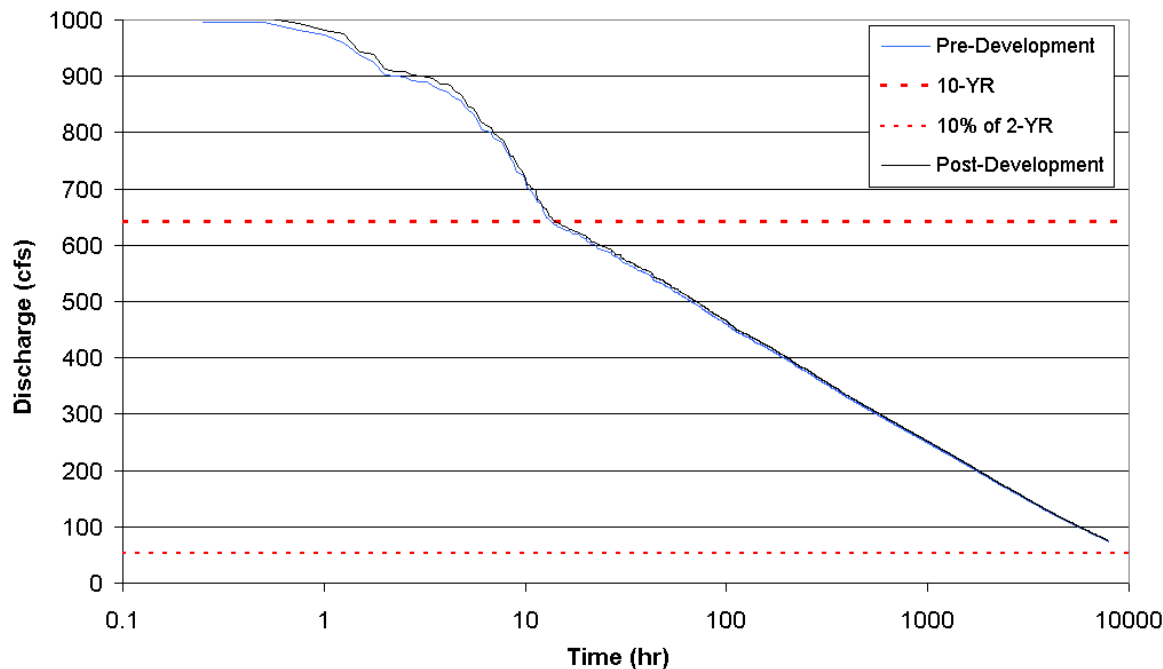
#### **Comment – Small Storm Events**

Research has shown that smaller events (particularly the one- and two-year return storms) have the greatest impact on stream channel formation and stability due to their frequency. These small storm events also carry the majority of the pollutants in urban stormwater runoff. In order to achieve the Water Board's desired conditions of healthy watersheds, the project should maintain watercourse geomorphic regimes within natural ranges. Therefore we recommend the project area's post-development hydrograph match the pre-development hydrograph for a range of storm events with return periods from one year to ten years. This can be achieved by reducing impervious area, disconnecting impervious area, maximizing retention and recharge and retaining the pre-development topography and drainage patterns as much as possible.

#### **Response**

We used the Bay Area Hydrologic Model (BAHM) to address this question of hydromodification; that is, smaller runoff events that could impact stream channel formation and stability. The appropriate location for this examination is at the project site's proposed outfall to the San Benito Creek tributary (as illustrated in Exhibit 2). Exhibit 3 compares flow-duration hydromodification curves at the San Benito Creek tributary, showing a full range of flow frequencies based on continuous rainfall-runoff simulation.

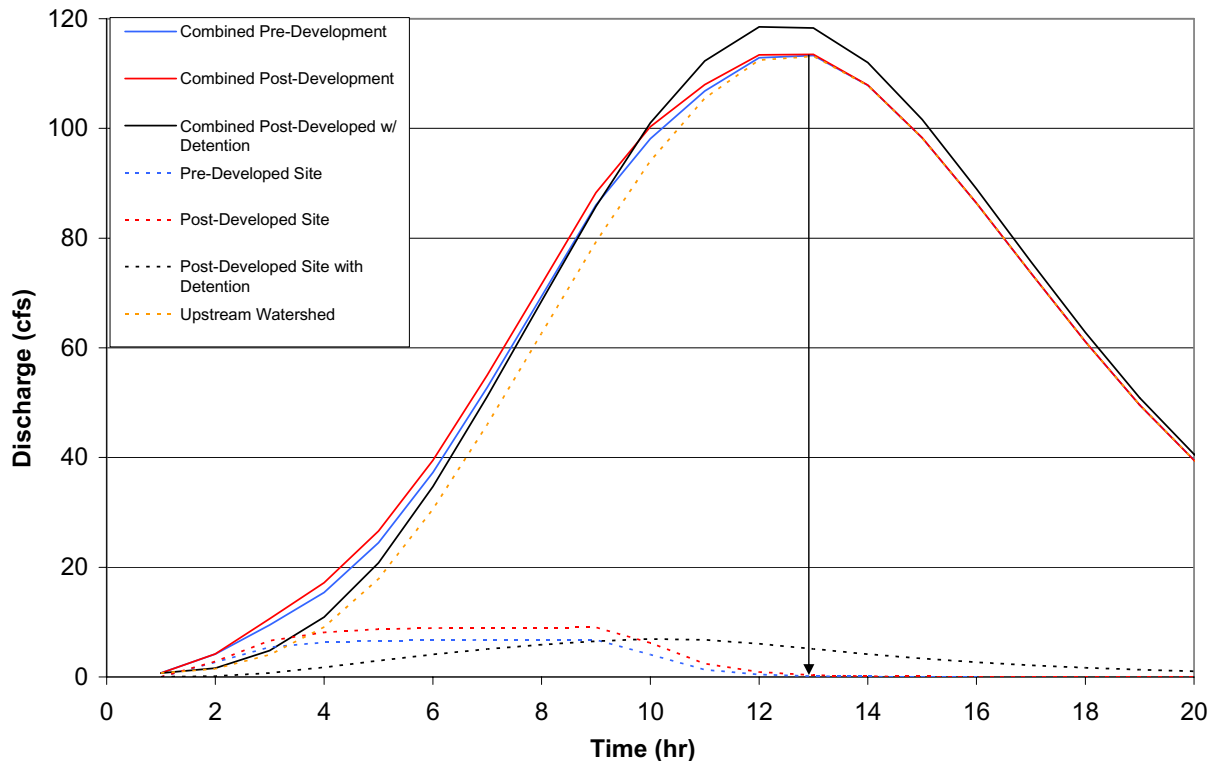
### San Benito Rainfall-Runoff Curves



**Exhibit 3: Flow-Duration Curves for the San Benito River Tributary**

As to the potential for hydromodification and increased downstream erosion, differences in the pre-developed and post-developed flow-duration curves plotted in Exhibit 3 are barely discernable graphically. In neighboring Santa Clara County, hydrologists are interested in the portion of the curves for discharges between ten percent of the two-year event and the ten-year event. For conventional development the flow-duration curve is about one percent higher than the pre-developed condition; for low impact development the curve is two percent higher; and for LID with detention the curve is about three percent higher. Hydromodification is not considered to be a significant impact, but it may be noted that LID techniques do not necessarily improve the situation numerically.

Exhibit 4 presents modeled hydrographs from a typical small storm event with a peak discharge equivalent to about 25 percent of the 2-year event. This exhibit demonstrates the problematic nature of LID and on-site detention at the Gavilan San Benito Campus, even for small storm events. Project development with an increase in impervious surfaces and quicker time of concentration results in a more peaked runoff hydrograph relative to the site in its existing condition. However, when added to the upstream tributary hydrograph, the increase in the combined peak of the hydrograph downstream of the Airline Highway confluence is very small because the tail recession limb of the site hydrograph is coincident with the upstream peak. Detaining runoff on-site attenuates the site’s hydrograph, flattening the peak and lengthening the recession limb. Therefore the rate of site runoff coincident to the upstream peak is higher than without LID or detention, and the combined flow is also higher.



**Exhibit 4: Modeled Runoff Hydrographs for Low Flow Event**

### Comment – Water Quality

In an effort to mitigate impacts to water quality, the DEIR proposes to use vortex separators as a primary means for removing pollutants from stormwater. We believe that this mitigation measure fails to provide adequate mitigation for water quality impacts. Stormwater pollutants must be reduced to the maximum extent practicable (MEP). We request the Final EIR include adequate measures to mitigate the project's impact on receiving water quality. We recommend that this be accomplished through the use of LID practices described above.

### Response

While it is acknowledged that the use of LID techniques such as those described under *MM HYDRO-2* in the DEIR appears to slightly exacerbate off-site impacts with respect to the rate of runoff and hydromodification potential, this exacerbation does not appear to be significant and does not warrant discontinuing the use of LID practices for the benefit to receiving water quality. Therefore, LID should be implemented at Gavilan San Benito, except significant on-site detention or retention facilities for reasons described previously. If the Water Board does not prefer the use of vortex separators, they can be eliminated from the ultimate project design. However, we do not understand how the addition of vortex separators to other BMPs rendered the proposed mitigation inadequate.

**Comment – Bacteria and Sediment**

As sited in the DEIR, the San Benito River is included on the 303(d) list of impaired waters for sediment and fecal coliform. Stormwater discharges into the San Benito River must meet water quality objectives and TMDLs established by the Water Board for these pollutants.

**Response**

This comment is noted. We do not anticipate any change to TMDLs in the San Benito River and as noted in the DEIR, the site will convert from agricultural use to a developed site with a sanitary sewer system. Hydromodification from site development (which could change erosive potential and sediment transport within receiving waters) is not significant at the San Benito Creek tributary and will be even less significant when added to the much larger San Benito River watershed. Sediment loading from a developed site with impervious areas and established and maintained vegetation is also not expected to be greater than from a site in agricultural use.

**Comment – San Benito River Tributary**

The project's drainage plan proposes releasing project runoff into the San Benito River tributary as rapidly as possible so that the project's runoff does not increase the peak flow rate in the tributary or downstream flooding in the tributary. However, the DEIR does not examine the impact of this rapid runoff on the tributary itself at the project outfall. Directly connecting impervious areas and shortening storm drain travel times as much as possible will deliver the project's runoff to the tributary at higher than pre-development volume and velocity, mobilizing sediment at the outfall. Protecting the tributary from erosion at the outfall using rip rap or concrete can lead to further impacts (such as head cutting) upstream and downstream of the project outfall. We recommend that the Final EIR mitigate for these impacts by matching the project area's post-construction discharge rate and volume to the project area's pre-construction rate and volume.

**Response**

Problems with excessive durations of stormwater retained on-site attempting to mitigate changes in site runoff volume have been previously quantified and discussed. We assume that stormwater runoff can be safely delivered to the project outfall without mobilizing sediment. Additional sediment would be mobilized within the tributary itself in response to an increase in combined tributary discharge, not site discharge. As previously demonstrated, shortening storm drain travel times is actually of benefit in this regard, both to peak tributary discharge and downstream flooding, and to lessening the potential for hydromodification. It is also our experience that existing creek will need to be protected from local scour to prevent head cutting and potential damage at the outfall. While detailed design details remain for others, this protection is not likely to influence geomorphic channel stability within the tributary itself.



Project No. 11699.G  
29 August, 2008

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Subject: Fairview Corners/Gavilan San Benito Campus  
Fairview Road and Airline Highway  
Hollister, California  
**REVIEW OF GEOLOGIC AND SURVEY DATA FOR TRES  
PINOS FAULT**

- References:
- 1) Combined Geotechnical and Fault Investigation Report  
Fairview Road Property  
By, Terratech, Inc.  
Dated November, 1989
  - 2) A.L.T.A Survey Map  
Sheet 1 of 1  
By, Ruth and Going Inc.  
Dated 9-27-89, Revised 1-23-90

Dear Mr. Oliver:

At your request, **TERRASEARCH, Inc.**, has reviewed the above references with regard to the mapped location of the Pinos Fault.

A fault investigation was performed as part of reference 1 to evaluate the presence of the fault. On page 8 of reference 1 under the heading "Building Set Back Distance", it indicates that *"We recommend a 50-foot-wide building setback on each side of the fault zone, which results in a building exclusion zone 118 to 140 feet wide. The location of the fault encountered in our trenches has been staked on the field for surveying by Ruth and Going, Inc. Ruth and Going, Inc. will prepare a map showing the surveyed locations of the fault trace and exploration trenches."* The approximate location of the fault and building exclusion zone is presented on Figure 2 of Reference 1.

Ruth and Going Inc. prepared a survey map (Reference 2) showing the surveyed location of the fault from the stakes placed in the field by Terratech Inc. personnel. The surveyed location for the fault on Reference 2 appears consistent with the approximately mapped location presented on Figure 2 of Reference 1. This survey information will be used to plot out a building exclusion zone for development planning purposes.

Should you have any questions relating to the contents of this report or should you require additional information, please do not hesitate to contact our office at your convenience.



Very truly yours,  
**TERRASEARCH, Inc.,**

A handwritten signature in blue ink, appearing to read "S. Makdessi".

Simon Makdessi, P.E., G.E.  
Vice President/Senior Engineer

Copies: 3 to Fairview Corners, LLC



Environmental • Geotechnical • Special Inspections • Materials Testing

**TERRASEARCH** INC.

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Project No. 11699.G

5 November 2008

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**Subject:** Fairview Corners/Gavilan San Benito Campus  
Fairview Road and Airline Highway  
Hollister, California  
**REVIEW OF GEOLOGIC AND SURVEY DATA  
FOR TRES PINOS FAULT**

- References:**
- 1) Geotechnical Investigation Report  
Proposed Hollister College Campus/Residential Development  
Northeast Corner of Airline Hwy and Fairview Road  
Prepared By *TERRASEARCH, Inc.*  
Dated 24 January 2008
  - 2) Combined Geotechnical and Fault Investigation Report  
Fairview Road Property  
Prepared by Terratech, Inc.  
Dated November, 1989
  - 3) A.L.T.A. Survey Map  
Sheet 1 of 1  
Prepared By, Ruth and Going Inc.  
Dated 9-27-89, Revised 1-23-90

Dear Mr. Oliver:

As you are aware, *Terrasearch, Inc.* performed a geotechnical investigation for the subject project, Reference 1. As part of the report we reviewed published geologic literature and found that the Tres Pinos Fault passes through the eastern portion of the site. As a result we recommended that a site specific geologic investigation with trenching be performed to evaluate the presence of any faulting in this zone.


Since the time our geotechnical investigation report was prepared, we were supplied with a copy of a combined geotechnical and fault investigation report (reference 2). This fault investigation report performed trenching activities and located the fault trace. The trace of the fault was surveyed and plotted on a map (reference 3).

Accordingly, our recommendation for a site specific investigation is no longer applicable, since such an investigation has been performed (reference 2) and the fault was located and surveyed.

Should you have any questions relating to the contents of this report or should you require additional information, please do not hesitate to contact our office at your convenience.



Very truly yours,  
*TERRASEARCH, inc.*

  
Simon Makdessi, P.E., G.E.  
Vice President/Senior Engineer

Copies: 3 to Fairview Corners, LLC