

Supplemental Calculations
Relating to
Oceano Nursery

Prepared by

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Included in this package:

- Apportionment of Responsibility
- Calculation of contribution of County paved roads to runoff at storm drain inlet
- Recalculation of OCSD improved property's contribution to runoff at storm drain inlet (adds Railroad Depot property to contribution)

Apportionment of Responsibility

This calculation shows my opinion of the apportionment of responsibility for the flooding at the Ocean Nursery. The method used to apportion the responsibility is to give equal weight to each of the six causes of the flooding. Then, each defendant's responsibility for that cause of flooding is assigned. In all cases, except one, equal responsibility is given to each responsible defendant. The one exception is the increases in runoff due to improvement or property with impervious surfaces. In this case the contribution by Cal Trans and OCSD is based on the fraction of the total runoff from their improved property reaching the culvert entrance. The remaining responsibility is assigned to the County of San Luis Obispo because they are the permitting agency that allowed development by the numerous other private parties.

The responsibility is apportioned as follows:

- Union Pacific Railroad 28.3%
- OCSD 24.4%
- County of San Luis Obispo 21.7%
- Pismo-Oceano Vegetable Exchange 15.8%
- Cal Trans 8.7%

The calculation of the responsibility is included on the following page.

| | Fraction of Total Problem | Share by Deficiency | | | | |
|--|---------------------------|---------------------|-----------|--------|-------|--------|
| | | Cal Trans | Co of SLO | OCSD | POVE | UP |
| Blocking the natural drainage way with a pipe too small for the conditions | 16.7% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |
| OCSD Well Pipe adding silt and debris during normal well operation | 16.7% | 0.0% | 0.0% | 100.0% | 0.0% | 0.0% |
| Pipe capacity compromised by poorly designed extension | 16.7% | 0.0% | 0.0% | 0.0% | 75.0% | 25.0% |
| Upstream watershed conditions worsened | 16.7% | 7.3% | 85.3% | 7.4% | 0.0% | 0.0% |
| Decrease in storage volume at inlet | 16.7% | 25.0% | 25.0% | 25.0% | 0.0% | 25.0% |
| Lack of maintenance | 16.7% | 20.0% | 20.0% | 20.0% | 20.0% | 20.0% |
| | 100.0% | | | | | |

| | Share by Responsibility | | | | |
|--|-------------------------|--------------|--------------|--------------|--------------|
| | Cal Trans | Co of SLO | OCSD | POVE | UP |
| Blocking the natural drainage way with a pipe too small for the conditions | 0.0% | 0.0% | 0.0% | 0.0% | 16.7% |
| OCSD Well Pipe adding silt and debris during normal well operation | 0.0% | 0.0% | 16.7% | 0.0% | 0.0% |
| Pipe capacity compromised by poorly designed extension | 0.0% | 0.0% | 0.0% | 12.5% | 4.2% |
| Upstream watershed conditions worsened | 1.2% | 14.2% | 1.2% | 0.0% | 0.0% |
| Decrease in storage volume at inlet | 4.2% | 4.2% | 4.2% | 0.0% | 4.2% |
| Lack of maintenance | 3.3% | 3.3% | 3.3% | 3.3% | 3.3% |
| Total Responsibility | 8.7% | 21.7% | 25.4% | 15.8% | 28.3% |

Estimation of the impact of County's paved roads on runoff at entrance to storm drain

| | Length | Width | Area | |
|------------|--------|-------|--------------|----------------------|
| Belridge | 270 | 38 | 10260 | |
| 13th | 985 | 46 | 45310 | |
| 14th | 860 | 20 | 17200 | |
| 15th A | 1029 | 28 | 28812 | |
| 15th B | 340 | 20 | 6800 | |
| 16th | 845 | 42 | 35490 | 1/2 at 55, 1/2 at 30 |
| 17th | 1025 | 46 | 47150 | 1/2 at 55, 1/2 at 42 |
| Wilmar | 985 | 50 | 49250 | |
| Rice A | 200 | 22 | 4400 | |
| Rice B | 200 | 22 | 4400 | |
| Warner A | 200 | 22 | 4400 | |
| Warner B | 200 | 22 | 4400 | |
| Warner C | 200 | 22 | 4400 | |
| Warner D | 200 | 22 | 4400 | |
| Paso Roble | 880 | 30 | 26400 | 1/2 at 35, 1/2 at 25 |
| Ocean | 70 | 20 | 1400 | |
| | sum | | 294472 sq ft | |
| | | | 6.8 ac | |

| County Road Contribution | | |
|--------------------------|----------------|------------|
| Area | 6.8 acres | see figure |
| | 0.85 C | |
| I10 | 2.25 in/hr | |
| I100 | 3.2 in/hr | |
| Q 10 | 13.0 cfs | |
| Q100 | 18.5 cfs | |
| | 43.9 cfs total | |
| | 62.5 cfs total | |
| 10-yr | 29.6% | |
| 100-yr | 29.6% | |



Include Oceano Depot in OCSD owned and improved property.

| OCSD Contribution | | |
|-------------------|----------------|-------------------------------------|
| Area | 1.417 acres | district office/sheriff/fire |
| | 0.283 acres | railroad depot |
| | 0.85 C | |
| I10 | 2.25 in/hr | |
| I100 | 3.2 in/hr | |
| Q 10 | 3.3 cfs | OCSD Office/Fire/Sheriff & RR Depot |
| Q100 | 4.6 cfs | |
| | 43.9 cfs total | Entire Watershed |
| | 62.5 cfs total | |
| 10-yr | 7.4% | OCSD Contribution |
| 100-yr | 7.4% | |



Including the Railroad Depot property increases the OCSD contribution to the total flow at the pipe inlet from 6.2% to 7.4%.