San Pablo Spine Monitoring Plan Update

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San Pablo Spine and Hacienda Avenue Project Sites

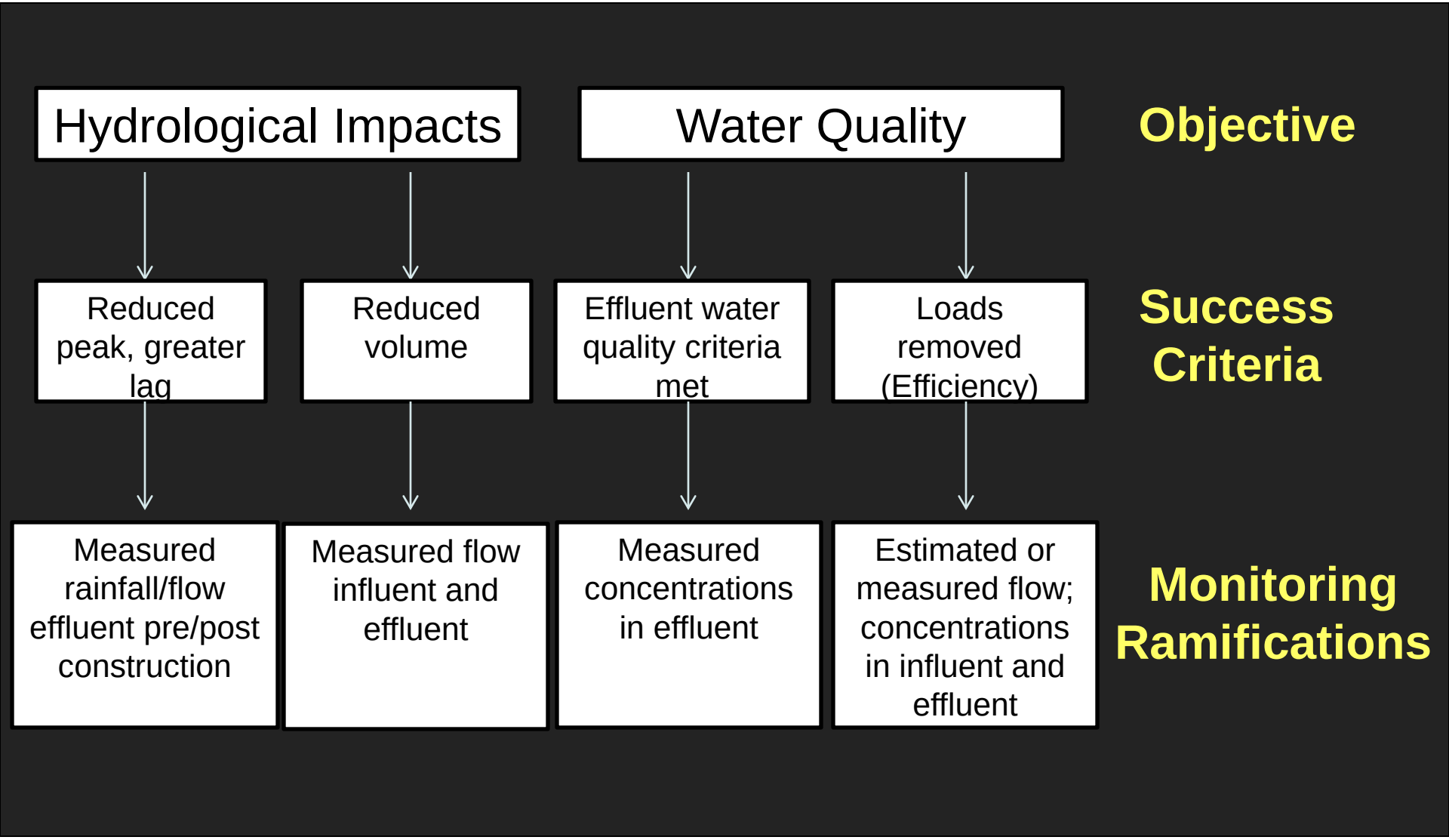
San Pablo Spine

- Water quality monitoring at 3 locations
- Hydrological monitoring at one location
  - Any designed for infiltration?
- Revisit El Cerrito rain garden?

Hacienda Avenue, Campbell

- LID designed for stormwater infiltration
- Determine water budget?

Project Objectives and Success Criteria



Spine Site Selection for Water Quality / Quantity Monitoring

	Land use			
	Heavy industrial	Light industrial	Commercial	Residential
LID type 1 Biofiltration	x	x	x	x
LID type 1 Biofiltration				
LID type 2 Bioinfiltration	x			
LID type 1 Biofiltration				
LID type 3 Bioswale	x			
Existing El Cerrito rain garden			x	

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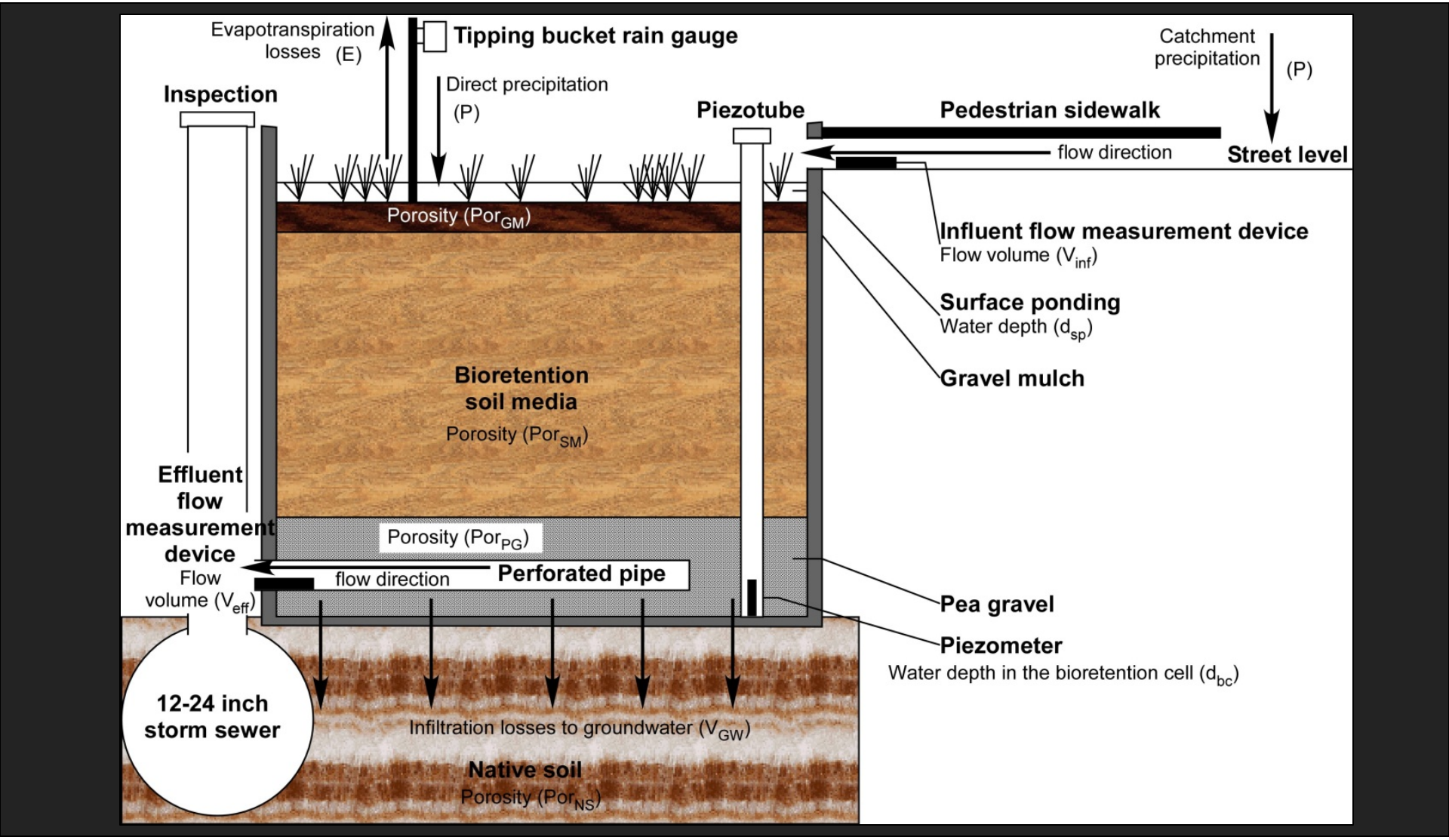
Existing El Cerrito rain garden			x	

Water Budget Conceptual Model



Monitoring Designs Options

Equipment	Location	Success Criteria				
		Reduced peak flow	Greater lag (slower runoff response)	Reduced volume	Effluent water quality criteria met	Loads removed (Efficiency)
Tipping bucket rain gauge	Preferably on site	x	x	x		x
Manual qualitative obs.	Influent		x			
	Effluent		x			
V-notch flume	Influent	x	x	x		x
	Effluent	x	x	x		x
Est. flow based on rainfall/runoff model	Influent					x
	Effluent					x
Flow probe	Influent	x	x	x		x
	Effluent	x	x	x		x
ISCO auto WQ sampler	Influent					EMC
	Effluent				EMC	EMC
Manual WQ sampling	Influent				Discrete	Discrete
	Effluent				Discrete	Discrete
Piezometer / depth sensor	-	X	X	X		X

Water Quality Parameter Decisions

	Example Analyte								
	Nitrate	**Phosphate**	**Organic C**	**PCB**	**Dioxin**	**Pyrethroid**	**Mercury**	**Methyl-Hg**	**Copper**
Relative Cost ($)	Low	Low	Low	High	V. High	V. High	High	High	Moderate
Pollution Source									
Landscaping	x	x	x			x			
Pest Control						x			x
Road							x		
Industrial				x	x		x		x
Atmospheric	x				x		x		x
LID unit	x	x	x					x	

Questions at 30% Design

- **For each LID site, under design conditions, what is the**
  - **Design objective (WQ improvement, flow reduction, both)?**
  - **LID class (biofiltration, bioinfiltration, bioswale)?**
  - **Mode of drainage (Perforated subdrain installed (Yes or No))?**
  - **% flow infiltrated (can be approximate [0, 10, 25, 50, 100%])?**
  - **Number of inlets to the LID?**
  - **Number of outlets from the LID?**
  - **Nature of outlet(s)**
    - Draining to subsurface storm sewer?
    - Draining to street level gutter?
    - Other?
  - **Depth between catchment surface and LID base (e.g. 18, 20, 24 inches)?**
  - **Catchment area (can be approximate)?**
  - **Catchment land use (industrial, commercial, residential, mix)?**

Questions for Broad Project Objectives

- **What information would be the most helpful for supporting the model LID municipal ordinance?**
  - **Would a knowledge of water quality improvement against Basin Plan guidelines be most useful for Local Governments to encourage adoption?**
  - **Would a knowledge of loads reduced in relation to PCB and Hg TMDLs (MRP C.8, C.11, and C.12 permit provisions) be most useful for Local Governments to encourage adoption?**
  - **Would a knowledge of hydromodification benefits in relation to C.3. MRP permit provisions be most useful for Local Governments to encourage adoption?**