

SECTION F - ALTERNATIVE USES FOR SUTTER'S LANDING REGIONAL PARK

The Sutter's Landing Zoo Feasibility Study included a task to identify alternative uses for the site in the event that the Sacramento Zoological Society does not select Sutter's Landing Regional Park (SLRP) as the location for a future zoo. The City of Sacramento, Community Development Department provided the following background data suggesting alternative uses for SLRP.

SLRP is a prime piece of undeveloped property within downtown Sacramento and with direct access to the American River. The City's 2005 Park & Recreation Master Plan envisions a "Recreation Campus" at SLRP. Initial phase park improvements constructed on 28 acres on the west side of the site include the following:

- landscaping;
- an entrance to an existing asphalt pedestrian/bicycle trail;
- an interpretive kiosk/off-street trailhead at the entrance to the trail;
- a small stage(converted from an existing carport); and
- a portable skateboard facility located in the baler building. There is an existing parking lot adjacent to the baler building.

In 2009-2010, Community Reinvestment Capital Improvement Program (CRCIP) funds (\$1.7 million) are to be used to add the following interim improvements (20+ years): dog park, handball courts, basketball courts, bocce ball courts, restroom, improved River access, and parking lot renovation.

The City has already invested funds in the interim improvement of SLRP and it is appropriate to investigate whether a parks use is the highest and best use for the entire site, or if a combination of uses may be the best use of the former landfill. Because SLRP currently has limited access (28th Street), a lower intensity use, like the existing park, is likely the most appropriate use for the site. If the site access issues were resolved (i.e. Sutter's Landing Parkway were constructed), there may be other, more intensive, uses that could be located at SLRP. Also at this time, there is a large amount of vacant, undeveloped land in the City and County, so it is unlikely that a developer would incur the "penalty costs" of construction on a former landfill. But as the vacant land develops, the City owned land at SLRP, with its prime location, may become more valuable.

Reuse of Postclosure Landfills

There are many challenges to reusing a closed landfill site. Following closure, landfills require continued maintenance and monitoring as required by regulations. Typical maintenance activities include care of the vegetative layer, repairs to landfill caps, stormwater structures, and gas protection systems. Typical monitoring activities include groundwater and landfill gas monitoring, in addition to routine inspections. There are also liability considerations (i.e. toxics, etc.) and technical problems (settlement, methane gas, health and safety), but many landfill sites have been developed for high-value, productive land uses, including real estate development.

There are numerous examples of reuse of post-closure landfills throughout the United States. Some of the most common uses are for parks, golf courses and other sports fields. Increasingly, office buildings and industrial uses have been constructed on closed landfills. Landfills have been successfully developed as sites for a variety of land uses:

- Regional Malls and Big Box Retail
- Office and Light Industrial Parks
- Hotels and High Rise Commercial
- Government Centers, Jails, Animal Shelters, Maintenance Facilities, Greenhouses
- Parks, including Golf Courses, Ball Fields, Amphitheaters, Firing Ranges
- Single Family and Multifamily Residential

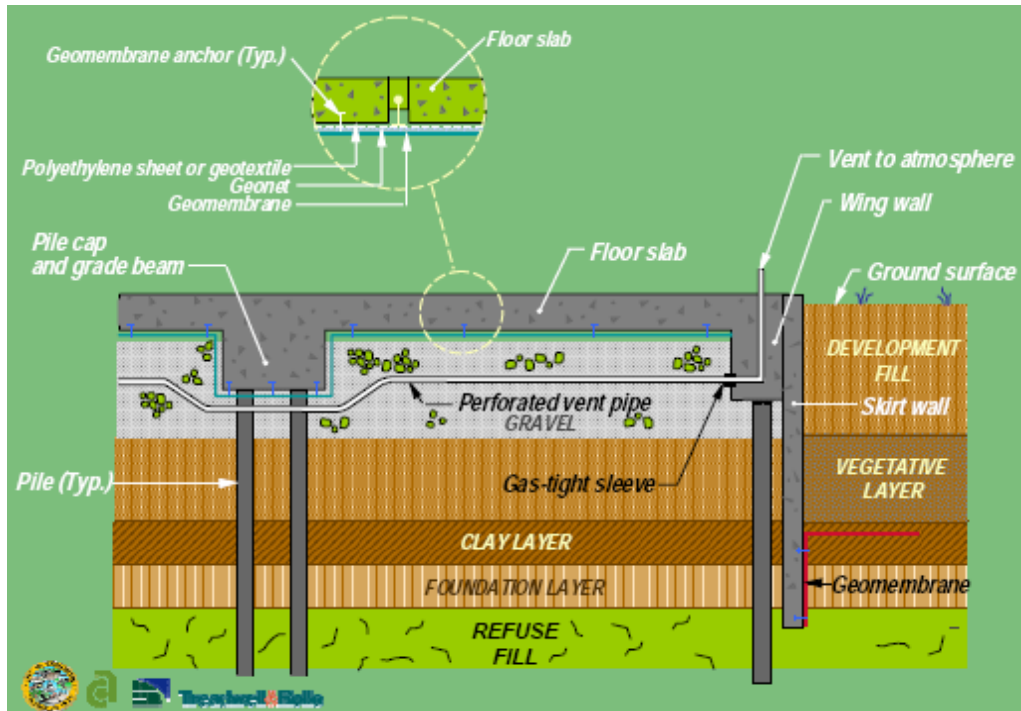
Postclosure landfills have a lower market value than a typical vacant piece of property. For development to occur on a postclosure landfill, extensive geotechnical studies are required which result in increased construction requirements and costs. In areas with high land values, if the postclosure landfill can be obtained for a low enough price, the increased construction costs can be absorbed by the high end price of the leased or purchased building.

Postclosure Landfill Construction

To develop a postclosure landfill, feasibility and design level geotechnical investigations must be performed. These investigations would include: drilling borings through the landfill, performing geotechnical and environmental laboratory tests, performing statics and seismic slope stability and seismic slope deformation analyses, evaluating geologic hazards, and evaluating vertical pile capacities and lateral behavior of piles. Although the type of required construction varies based on the results of the geotechnical investigations, the following is a list of typical construction requirements:

- Soil Compaction
- Foundation piles through refuse to the rock bed
- Foundation structures constructed of high-compression strength concrete
- Active exhaust fans in buildings with sub-grades
- Methane gas monitoring equipment in buildings
- Geomembrane between floor slab and subgrade
- Ground-water monitoring system
- Leachate collection and removal system
- Hinged slabs at access points to buildings and parking structures
- Utilities installed with flexible pipes

Postclosure Landfill Construction Detail



Source: California Department of Resources, Recycling and Recovery: Landfill Postclosure Land Use Symposium, Feb. 15th and 28th, 2006, *Sutter's Landing Post Closure Landfill Development Presentation*

Examples of Development on Postclosure Landfills

Many older landfills are located in growing urban or suburban population centers, where demand for real estate is high. Additionally, landfills are frequently located near major transportation routes, which can provide an additional incentive for reuse. For the purposes of this memo, only examples located in California have been included. In all the examples, with the exception of the 14th Avenue Landfill in Sacramento, the reuse of the landfills has occurred in metropolitan areas. In these areas, vacant land is at a premium. Incurring the additional “penalty costs” of constructing on a former landfill are more manageable due to the lack of inventory of available land and higher end product lease or sales price.

The Sutter’s Landing Background Report – Appendix A – briefly discussed the following parks on former landfills:

- Byxbee Park (Palo Alto)
- Dyer Boulevard Park (West Palm Beach)
- Flushing Meadows, New York
- Cesar Chavez Park (Berkeley)
- Stoney Run Park (Newport News, Virginia)
- Fresh Kills, New York
- Shoreline Park (Mountain View)

The following section highlights some additional projects on former landfills in California:

- Journey to Atlantis / SeaWorld (San Diego)
- *Metro Center (retail) (Colma)*
- Park and Mini-Storage (Long Beach)
- 14th Avenue Industrial Buildings (Sacramento)

San Diego, CA – Journey to Atlantis/SeaWorld

The Mission Bay Landfill in San Diego was operated from 1952 to 1959. The landfill accepted residential, demolition, and industrial (i.e. metals, solvents, and industrial process residues) waste. Additionally, it received hydraulic fill from the dredging of Mission Bay from 1959 to 1969. The majority of the former Mission Bay Landfill is currently being utilized as a public park. SeaWorld Parkway runs through the southern end of the former Mission Bay Landfill and a portion of the SeaWorld parking lot has been constructed over the landfill. SeaWorld constructed the Journey to Atlantis (JTA) exhibit which is considered a postclosure land use project because it is within 800 feet of the landfill. JTA has methane gas detectors in all enclosed buildings and three landfill gas migration probes location within the project boundaries.

Colma, CA – Metro Center

The Junipero Serra Landfill was a solid waste disposal site in Colma. The landfill began operations in the year 1956 and accepted primarily commercial solid wastes. The landfill was closed in 1983 and ultimately developed with commercial land uses, known as the Metro Center. The original commercial use built on the closed landfill site was a Home Depot Inc. retail store and parking lot constructed over 1,348 piles. Each pile was driven approximately 160 ft (49 m) deep into the landfill. The depth of the piles was determined by the depth of the refuse. The site also required the engineering of a landfill gas control system. The Center still struggles with settlement issues and the costs associated with the repairs resulting from them settlement.

Long Beach, CA – Park and Mini-Storage

The Long Beach City Dump Landfill (aka Long Beach Dump #20 and #26) was closed in 1948 and contains residential, commercial, and industrial waste. The redevelopment of the former landfill includes the 55th Way Landfill Community Park, 4 My Storage (mini-storage), Friendly Village Mobile Home Park, and Cal Coast Packing Co.

Construction of the park cost \$2.5 million more that originally anticipated due to building industry cost increases and unanticipated mitigation measures resulting from the EIR process, including wall heights and material composition. The preliminary pricing was estimated at approximately \$5.5 million (originally budgeted at \$3 million). Additionally the process of conducting site investigations, receiving approval from five regulatory agencies on the landfill closure plan, and working extensively with the community to design a site plan that met the neighborhood needs took considerably more time than originally anticipated. It should be

noted that only some of these extra costs were related to construction on a former landfill and some of the additional costs can be attributed to the community outreach and site plan revisions in response to community concerns/needs.

Sacramento, CA -- 14th Avenue Industrial Buildings

The industrial development on 14th Avenue was constructed over the former 14th Avenue Landfill. The landfill contains paper, demolition, construction, and land clearance waste. The landfill ceased operations in 1976 and building construction occurred in the 1980's with several different landowners involved. The post-closure plan for the landfill was completed in 1994 after the industrial buildings had already been constructed. This approach resulted in piecemeal implementation of remedial actions (settlement and gas venting) on a parcel by parcel basis. Because of the after-construction remediation and multiple owners, there are significant settlement issues both inside and on the exterior of the buildings. There have also been issues with gas venting into buildings.

Park Uses on Postclosure Landfills

One of the most common uses of postclosure landfills is public parks. The acreage, settlement issues, and increased construction costs make a park a logical use of a postclosure landfill. The construction of the interim park improvements at Sutter's Landing Regional Park is one example of a park use on a former landfill.

The costs of constructing a park on a former landfill are higher than constructing a park on land not encumbered by a landfill. The City of Sacramento recently constructed 2 acre dog parks at SLRP and at North Natomas Regional Park (NNRP). The SLRP dog park construction costs totaled approximately \$1.2 million and the construction costs at NNRP totaled \$326,000. The construction costs for all surface improvements are generally the same at both dog parks, but the dog park at SLRP was much more costly due to the underground improvements. The table below provides examples of the differences in construction costs at both parks.

Park Improvement	SLRP Cost	NNRP Cost
Site Staking	\$26,572	\$5,000
Erosion and Sediment Control	\$9,755	\$3,500
Site Grading	\$100,312	\$20,735
Total Cost for Above Improvements	\$136,639	\$29,235

Source: Landscape Architecture Section, Sacramento Park and Recreation Dept.

Based on the above table, the construction costs for underground improvements at SLRP are between three and five times the cost of the same improvements at NNRP. A detailed list of the costs at SLRP and NNRP are included as attachments A and B.

Park Use Examples

The following is a list of uses within parks constructed on postclosure landfills:

- Trails
 - Pedestrian
 - Horse
 - Off-road Bike Tracks
- Amphitheaters
- Lakes
 - Lakeside Beach
- Picnic Shelters/BBQs
- Playgrounds
- Volleyball Courts
- Ball Fields (multi-purpose turf areas)
- Natural Green Space
 - Nature Preserve
 - Ranger-led tours of off limits area (educational opportunities)
 - Sports and programs that are unusual in the city
 - horseback riding
 - mountain biking
 - nature trails
 - large-scale public art
- Public Art
- Relocated Historic Buildings
- Bathrooms
- Parking Lots
- BMX Track
- Off-leash Dog Park
- Golf Course
- Amphitheatre
- Benches and amenities constructed of recycled materials
- Nursery for City Facilities

Regulatory Agencies

Another hurdle to overcome when proposing construction on a postclosure landfill is the numerous regulatory agencies that must be consulted on the proposed project and ultimately grant approvals. The following regulatory agencies must be involved with the reuse of a former landfill in Sacramento:

- Central Valley Regional Water Quality Control Board
- Local Enforcement Agency (County Environmental Management Dept., Hazardous Materials Division)
- California Dept. of Toxic Substance Control
- Sacramento Metropolitan Air Quality Management District

- California Department of Resources, Recycling and Recovery
- California Department of Water Resources

The following regulatory agencies must be involved with any future planning efforts due to SLRP's proximity to the American River:

- American River Flood Control District
- Army Corps of Engineers
- California Dept. of Fish and Game
- U.S. Fish and Wildlife
- Sacramento Area Flood Control Agency
- County of Sacramento Regional Parks Dept.
- County of Sacramento Planning Dept.

Attachment A – Construction Costs for Dog Park at Sutter’s Landing Regional Park

CITY OF SACRAMENTO
 Department of Parks and Recreation
 Landscape Architecture Section

Bid Proposal
 Page 1 of 8

SCHEDULE OF VALUES
Sutter’s Landing Park - Phase 1 (PN:LS12, LS13)
8/19/2008

The Work is to be done in strict conformity with the Contract Documents now on file in the Office of the City Clerk, for the following sum:

Item No.	Item	Estimated Quantity	Unit	Unit Price	Total
1	Clearing and Grubbing	1	LS	\$ 2,350.00	\$ 2,350.00
2	Site Staking	1	LS	\$ 26,572.00	\$ 26,572.00
3	Temporary Construction Fence to Install	1	LS	\$ 4,466.00	\$ 4,466.00
4	Demolition	1	LS	\$ 131,994.00	\$ 131,994.00
5	Erosion and Sediment Control	1	LS	\$ 9,755.00	\$ 9,755.00
6	Site Grading	1	LS	\$ 100,312.00	\$ 100,312.00
7	Place City Supplied Fill soil	6,246	yard	\$ 5.10	\$ 31,854.60
8	Import Topsoil	2,018	yard	\$ 18.00	\$ 36,324.00
9	Catch Basin to Construct	11	ea	\$ 1,871.00	\$ 20,581.00
10	Area Drain to Install	20	ea	\$ 580.00	\$ 11,600.00
11	Trench Drain	750	foot	\$ 29.00	\$ 21,750.00
12	4" Perforated Drain Line	2,400	foot	\$ 11.00	\$ 26,400.00
13	4" PVC Drain Pipe to Place	320	foot	\$ 22.50	\$ 7,200.00
14	6" PVC Drain Pipe to Place	1,020	foot	\$ 23.00	\$ 23,460.00
15	8" PVC Drain Pipe to Place	780	foot	\$ 24.00	\$ 18,720.00

Item No.	Item	Estimated Quantity	Unit	Unit Price	Total
16	Drain Rock to Place	2,300	ton	\$ 40.00	\$ 92,000.00
17	4" PVC Sanitary Sewer Pipe to Place	200	foot	\$ 67.00	\$ 13,400.00
18	Sanitary Sewer Cleanout	3	ea	\$ 481.00	\$ 1,443.00
19	Domestic Water Line and Gate Valve	200	foot	\$ 34.00	\$ 6,800.00
20	Drinking Fountain with Pet Fountain	2	ea	\$ 5,100.00	\$ 10,200.00
21	Aggregate Base to Place	438	ton	\$ 42.00	\$ 18,396.00
22	Concrete Pavement to Construct	1,992	sf	\$ 9.00	\$ 17,928.00
23	Thermoplastic Pavement Markings to Place (Striping)	3,587	foot	\$ 2.15	\$ 7,712.05
24	Asphaltic Concrete to Place	250	ton	\$ 129.00	\$ 32,250.00
25	Asphalt Concrete Overlay to Place	321	ton	\$ 129.00	\$ 41,409.00
26	Geotextile Reflective Cracking Preventative Fabric	15,760	sf	\$ 0.35	\$ 5,516.00
27	Filter Fabric	36,000	sf	\$ 0.20	\$ 7,200.00
28	Geocomposite Clay Liner	149,981	sf	\$ 1.25	\$ 187,476.25
29	Cement Stabilized Decomposed Granite Pavement to Place	500	yard	\$ 100.00	\$ 50,000.00
30	Concrete Curb to Construct	56	foot	\$ 32.00	\$ 1,792.00
31	Wood Retaining Wall to Install	1	LS	\$ 3,040.00	\$ 3,040.00
32	4'-0" Chain link Fence with Concrete Mowband to Install	190	foot	\$ 115.00	\$ 21,850.00
33	6'-0" Chain link Fence to Install	1,330	foot	\$ 58.00	\$ 77,140.00
34	4'-0" Chain link Fence to Install	200	foot	\$ 48.00	\$ 9,600.00
35	AC Dike to Construct	3,078	foot	\$ 5.85	\$ 18,006.30
36	Dog Park Shade Shelters to Construct	2	ea	\$ 12,000.00	\$ 24,000.00

Item No.	Item	Estimated Quantity	Unit	Unit Price	Total
37	Benches to Install	6	ea	\$ 1,445.00	\$ 8,670.00
38	Trash Receptacles to Install	4	ea	\$ 1,100.00	\$ 4,400.00
39	Recycling Receptacles to Install	3	ea	\$ 1,200.00	\$ 3,600.00
40	Fold-Down Bollards	12	ea	\$ 400.00	\$ 4,800.00
41	Bike Rack	2	ea	\$ 800.00	\$ 1,600.00
42	DogIPot Junior Bag Dispenser	4	ea	\$ 320.00	\$ 1,280.00
43	Dog iPot Valet	1	ea	\$ 650.00	\$ 650.00
44	Automatic Irrigation	1	LS	\$ 22,508.00	\$ 22,508.00
45	Trees to Plant (15 Gal)	31	ea	\$ 115.00	\$ 3,565.00
46	Shrub and Groundcover to Plant, 5 Gallon	15	ea	\$ 25.00	\$ 375.00
47	Shrub and Groundcover to Plant, 1 Gallon	250	ea	\$ 8.00	\$ 2,000.00
48	Bark Mulch Only Area to Install	910	yard	\$ 12.00	\$ 10,920.00
49	Native Hydroseed to Place	15,680	sf	\$ 0.10	\$ 1,568.00
50	Plant Establishment (90 Days)	1	LS	\$ 6,500.00	\$ 6,500.00
51	Trellis Reconstruction	1	LS		\$ -
Total Base Bid					<u>\$ 1,192,933.20</u>

Attachment B - Construction Costs for Dog Park at North Natomas Regional Park

Item 10:

CITY OF SACRAMENTO
 Department of Parks and Recreation
 Park Planning, Design & Development Services

SCHEDULE OF UNIT PRICES

Department of Parks and Recreation
 Park Planning, Design & Development Services
 915 I Street, 5th Floor
 Sacramento, CA 95814

PROJECT NAME: NORTH NATOMAS REGIONAL PARK - PHASE III

CITY PROJ. NO: L19140000

CONTRACTOR: Hemington Landscape Services

Payment No. _____

FUNDING: 2608,3201,3204-60000 - L1814000 - 472011

ADDRESS:

Work Performed Thru _____

Date Payment Submitted _____

Days Expended on Contract _____

PHONE NO:

Item No.	Item Description	Estimated Quantity	Unit	Unit Price	Authorized Amount	This Estimate		Total Work Completed		Quantity Remaining
						Quantity	\$ Amount	Quantity	\$ Amount	
1	Site Clearing and Grubbing	166,667	SF	\$ 0.03/SF	\$5,000.00					
2	Temporary Construction Fence to Install	2,167	LF	\$3.00/ft	\$6,500.00					
3	Erosion and Sediment Control	2188	LF	\$1.60/ft	\$3,500.00					
4	Site Staking	1	LS	\$5000.00 ea	\$5,000.00					
5	Site Grading	166,667	SF	\$ 0.12/SF	\$20,735.00					
6	Man Hole to Install	1	EA	\$4500.00ea	\$4,500.00					
7	Catch Basin to Install	1	EA	\$2,050.00 ea	\$2,050.00					
8	Area Drain to Install	6	EA	\$880.00 ea	\$5,280.00					
9	Trench Drain to Install	8	LF	\$660.00/ ft	\$5,280.00					
10	4" Storm Drain Line	380	LF	\$4.40/ft	\$1,672.00					
11	6" Storm Drain Line	260	LF	\$6.60/ft	\$1,716.00					
12	12" Storm Drain Line	80	LF	\$27.50/ft	\$2,200.00					
13	Domestic Water Point of Connection with Appurtenances	1	LS	\$9,331.00 ea	\$9,331.00					
14	Concrete Pavement to Construct	786	SF	\$9.48/SF	\$7,451.00					
15	Polypavement to Install	23965	SF	\$1.6/SF	\$38,344.00					
16	Aggregate Base to Place	10	CY	\$95.00/yard	\$950.00					
17	Trex Header Board to Install	1399	LF	\$3.00/ft	\$4,198.00					

Item No.	Item Description	Estimated Quantity	Unit	Unit Price	Authorized Amount	This Estimate		Total Work Completed		Quantity Remaining
						Quantity	\$ Amount	Quantity	\$ Amount	
18	Drinking Fountain with Sump	2	EA	\$6,176.50 ea	\$12,353.00					
19	Chainlink Fence with Mowband and Gates	1635	LF	\$46.02/ft	\$75,251.00					
20	Bench to Install	5	EA	\$1,226.4/ea	\$6,132.00					
21	Trash/Recycling Receptacles to Install	3	EA	\$2,481.67/ ea	\$7,445.00					
22	Dog Park Rules Sign to Install	9	EA	\$281.11 ea	\$2,530.00					
23	Pet Waste Bag Dispenser	3	EA	\$308.33 ea	\$925.00					
24	Automatic Irrigation System	1	LS	23608	\$23,608.00					
25	Trees to Plant (15 gallon)	55	EA	\$100.00 ea	\$5,500.00					
26	Native Hydroseeding	72000	SF	\$ 0.10/SF	\$7,200.00					
27	Shrubs, Groundcover to Plant	6195	SF	\$3.95/SF	\$24,472.00					
28	Turf Hydroseeding	61,941	SF	\$ 0.185/SF	\$11,500.00					
29	Plant Establishment (90 days)	1	LS	\$4,100 ea	\$4,100.00					
SUBTOTAL BASE BID										
Additive Alternates										
1A	Turf from Sod (to replace Item 28)	1	LS	21455	\$21,455.00					
TOTAL (Base minus Item 28 plus Item 1A)										
\$328,178.00										