

Table 3-14 Buildings with Known Asbestos MCAS EI Toro BCP								
Database Tracking	Building Number	Current Use	Year Built	Parcel	Total Area (sq. ft.)	ACM Identified	Friable	Source
BLD 443	443	Training Building	1959	1G	31,278	Transite panel 12" x 12" floor tile Roofing	No No No	B
BLD 445	445	Storage Building	1959	4A	2,715	9" x 9" floor tile Bag of asbestos	No Yes	B
BLD 449	449	Enlisted Personnel Quarters	1959	1G	29,109	Gasket material	Yes	B
BLD 450	450	Enlisted Personnel Quarters	1959	1G	29,109	Gasket material	Yes	B
BLD 451	451	Enlisted Personnel Quarters	1959	1G	29,109	Gasket material	Yes	B
BLD 452	452	Enlisted Personnel Quarters	1959	1G	29,109	Gasket material	Yes	B
BLD 453	453	Hanger	1960	3A	5,040	Caulking	No	A
BLD 454	454	Hanger	1960	3A	5,040	Pipe insulation Caulking	No No	A
BLD 456	456	Warehouse	1960	3A	70,163	12" x 12" floor tile Pipe fitting insulation Roofing	No Yes No	B
BLD 457	457	Group Headquarters	1960	3A	25,000	12" x 12" floor tile Pipe fitting insulation Roofing Damper gasket	Yes No No No	B
BLD 463	463	Hangar	1960	5A	15,519	Pipe insulation Floor tile	No No	A
BLD 464	464	Recreation	1959	3F	8,749	Acoustical insulation Pipe insulation	Yes Yes	A
BLD 529	529	Storage	1944	4A	3,040	Transite	No	A
BLD 555	555	Operations	1955	2D	800	Pipe insulation	Yes	A
BLD 556	556	Manifold Station	1955	2D	543	Roofing Floor tile	No No	B
BLD 578	578	Recreation	1957	1F	300	Transite	No	A
BLD 600	600	Storage	1961	1A	4,108	Floor tile Mastic Paint	No No No	A

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Database Tracking	Building Number	Current Use	Year Built	Parcel	Total Area (sq. ft.)	ACM Identified	Friable	Source
BLD 605	605	Group Headquarters	1965	5A	23,598	9" x 9" floor tile Carpet Roofing Pipe fitting insulation Damper gasket	No No No Yes No	B
BLD 606	606	Maintenance Hanger	1965	5A	23,598	9" x 9" floor tile Carpet Roofing Pipe fitting insulation Damper gasket	No No No Yes No	B
BLD 616	616	Vehicle Dispatch Office	1966	4A	792	12" x 12" floor tile Roofing	No No	B
BLD 619	619	Standby Generator Building	1966	3F	1,329	Pipe insulation Roofing	Yes No	B
BLD 624	624	Air Passenger Terminal	1967	5A	11,470	12" x 12" floor tile Roofing	No No	B
BLD 629	629	Instruction Building	1968	1C	4,260	12" x 12" floor tile Roofing	No No	B
BLD 634	634	Hanger	1969	2A	49,012	12" x 12" floor tile Roofing 9" x 9" floor tile Carpet Linoleum	No No No No No	B
BLD 636	636	Survival Equipment Shop	1969	3A	9,030	12" x 12" floor tile Pipe fitting insulation Boiler insulation Roofing	No Yes Yes No	B, C

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Database Tracking	Building Number	Current Use	Year Built	Parcel	Total Area (sq. ft.)	ACM Identified	Friable	Source
BLD 649	649	Exchange Retail Store	1970	1G	109,364	12" x 12" floor tile Acoustical insulation Pipe fitting insulation Carpet Roofing Transite panels Linoleum	No Yes Yes No No No No	B
BLD 650	650	Garden Shop	1970	1G	3,800	12" x 12" floor tile Roofing	No No	B
BLD 651	651	Auto Safety Service Center	1970	1G	12,182	12" x 12" floor tile Ceiling tile Carpet	No No No	B
BLD 655	655	Field Maintenance Shop	1970	4A	18,600	12" x 12" floor tile 9" x 9" floor tile Roofing	No No No	B
BLD 658	658	Engine Test Facility	1972	2A	9,592	12" x 12" floor tile Noise and fireproofing	No No	B
BLD 660	660	Dormitory	1973	1G	51,347	Acoustical insulation Transite	Yes No	A
BLD 661	661	Dormitory	1973	1G	51,347	Acoustical insulation Transite	Yes No	A
BLD 666	666	Enlisted Personnel Quarters	1973	1G	33,984	12" x 12" floor tile Acoustical insulation Roofing	No Yes No	B
BLD 667	667	Enlisted Personnel Quarters	1973	1G	33,984	12" x 12" floor tile Acoustical insulation Roofing	No Yes No	B
BLD 668	668	Enlisted Personnel Quarters	1973	1G	33,984	12" x 12" floor tile Acoustical insulation Roofing	No Yes No	B

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Database Tracking	Building Number	Current Use	Year Built	Parcel	Total Area (sq. ft.)	ACM Identified	Friable	Source
BLD 669	669	Enlisted Personnel Quarters	1973	1G	33,984	12" x 12" floor tile Acoustical insulation Roofing	No Yes No	B
BLD 671	671	Refueling Vehicle Administration Office	1973	4A	840	12" x 12" floor tile	No	B
BLD 673	673	Ground Support Equip. Facility	1974	3A	13,800	12" x 12" floor tile Roofing	No No	B
BLD 683	683	Storage Building	1974	1A	15,183	12" x 12" floor tile Roofing	No No	B
BLD 688	688	Receiver Building	1973	2F	144	Roofing	No	B
BLD 694	694	Commissary	1975	1G	47,120	12" x 12" floor tile Roofing	No No	B
BLD 695	695	Line Maintenance Shelter	1975	5A	900	12" x 12" floor tile Roofing	No No	B
BLD 696	696	Line Maintenance Shelter	1975	5A	900	12" x 12" floor tile Roofing	No No	B
BLD 697	697	Line Maintenance Shelter	1975	5A	900	12" x 12" floor tile Roofing	No No	B
BLD 698	698	Line Maintenance Shelter	1975	5A	900	12" x 12" floor tile Roofing	No No	B
BLD 714	714	Line Maintenance Shelter	1977	5A	1,000	12" x 12" floor tile Roofing	No No	B
BLD 715	715	Line Maintenance Shelter	1977	5A	1,000	12" x 12" floor tile Roofing	No No	B
BLD 716	716	Aircraft Acoustical Enclosure	1978	5A	8,888	12" x 12" floor tile Fireproofing panels	No No	B
BLD 717	717	Storage Shed	1978	5A	1,000	Roofing	No	B
BLD 718	718	EM/SNCO Club	1978	1B	44,000	12" x 12" floor tile Roofing Carpet	No No No	B

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Database Tracking	Building Number	Current Use	Year Built	Parcel	Total Area (sq. ft.)	ACM Identified	Friable	Source
BLD 722	722	General store	1980	2C	12,000	12" x 12" floor tile 9" x 9" floor tile Fire door Roofing Linoleum	No No No No No	B
BLD 726	726	Line Maintenance Shelter	1981	5A	1,000	9" x 9" floor tile Roofing	No No	B
BLD 727	727	Line Maintenance Shelter	1981	5A	1,000	Roofing Carpet	No No	B
BLD 728	728	Line Maintenance Shelter	1983	5A	1,000	Roofing	No	B
BLD 730	730	Communications Center	1980	1A	6,500	12" x 12" floor tile Carpet	No	B
BLD 731	731	Enlisted Personnel Quarters	1980	1G	41,157	12" x 12" floor tile Carpet Roofing	No No No	B
BLD 732	732	Enlisted Personnel Quarters	1980	1G	41,157	12" x 12" floor tile Carpet Roofing	No No No	B
BLD 733	733	Boiler Building	1980	1G	1,500	Roofing	No	B
BLD 734	734	Restroom	1980	2A	560	Roofing	No	B
	735	Generator Building	1980	NL	1,100	Roofing	No	B
BLD 740	740	Enlisted Personnel Quarters	1982	1G	41,157	12" x 12" floor tile Carpet Roofing	No No No	B
BLD 741	741	Enlisted Personnel Quarters	1982	1G	41,157	12" x 12" floor tile Carpet Roofing	No No No	B
BLD 743	743	Bank	1971	1G	3,304	Linoleum Roofing	No No	B

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Database Tracking	Building Number	Current Use	Year Built	Parcel	Total Area (sq. ft.)	ACM Identified	Friable	Source
BLD 745	745	Warehouse	1983	2A	23,693	12" x 12" floor tile Fire doors Roofing	No No No	B
BLD 746	746	Flight Simulator	1984	2A	22,516	Drywall Carpet 12" x 12" floor tile	No No No	B
BLD 748	748	Restrooms	1983	2A	560	12" x 12" floor tile Roofing	No No	B
BLD 749	749	Restrooms	1983	2A	560	12" x 12" floor tile Roofing	No No	B
BLD 752	752	Fuel Farm # 5 Office	1983	2A	348	Roofing	No	B
BLD 757	757	MARS Facility	1983	1F	1,716	12" x 12" floor tile Roofing	No No	B
BLD 783	783	Exchange Administration	1984	1G	21,720	12" x 12" floor tile Roofing Carpet	No No No	B
BLD 787	787	NBC Defense Training	1984	3A	4,000	12" x 12" floor tile Roofing	No No	B
BLD 1524	1,524	Storage Shed	1945	1C	180	Transite panels Roofing	No No	B
BLD 1595	1,595	Storage Building	1945	4A	1,722	Roofing	No	B
BLD 1601	1,601	Storage Building	1945	4A	1,522	Roofing	No	B
BLD 1703	1,703	Hazardous/Flammable Storage	1952	4B	480	Roofing	No	B
BLD 1721	1,721	Enlisted Personnel Quarters	1946	3A	960	12" x 12" floor tile	No	B
BLD 1804	1,804	NAESU Office	1966	2A	480	12" x 12" floor tile	No	B

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Database Tracking	Building Number	Current Use	Year Built	Parcel	Total Area (sq. ft.)	ACM Identified	Friable	Source
Note: (1) - Building has been demolished. NL - Building was not located on Station drawings Sources: A - IT Corporation, 1989 MCAS EI Toro, Asbestos Survey and Assessment. B - Ecology and Environment, Inc., 1991 MCAS Camp Pendleton, EI Toro and Tustin, Asbestos Survey and Assessment. C - Ecology and Environment, Inc., 1991 MCAS Camp Pendleton, EI Toro and Tustin, Asbestos Survey and Assessment.								

Table 3-15 Summary of SWMUs/AOCs MCAS EI Toro BCP							
Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
RFA 1	1	Former Scrap Metal Yard	Near Golf course		Source: NEESA Photograph	3F	1
RFA 2	2	Vegetation Piles	Near Golf Course		Source: NEESA photograph	3F	1
IRP 25	3	Marshburn Channel	Adjacent to NW boundary	X	To be addressed in RI/FS Site 25 (2)	1G	7
IRP 25	4	Bee Canyon Wash	Traverses Station in an EW direction	X	To be addressed in RI/FS Site 25 (2)	5A	7
IRP 25	5	Borrego Canyon Wash	Adjacent to SE boundary	X	To be addressed in RI/FS Site 25 (2)	5A	7
RFA 6	6	Landfarming site	NW of Bee Canyon Wash	X	RFA Recommended NFA	5A	3
RFA 7	7	Transformer storage area	East of Bee Canyon Wash	X	Additional investigation recommended by DTSC	4B	3
RFA 8	8	Abandoned Well 50-3285	West of Bldg 809	X	RFA Recommended NFA	2F	2
RFA 9	9	Fuel bladder	East of Agua Chinon Wash	X	Additional investigation recommended by DTSC	5A	7
	10	Abandoned Well 24-4274	East of Bldg 385		To be addressed in RI/FS Site 3/4 (2)	2A(4)	7
IRP 25	11	Agua Chinon Wash	Traverses Station in an EW direction	X	To be addressed in RI/FS Site 25 (2)	5A	7
RFA 12	12	Active Sanitary Sewer Lines	Station-wide		Sanitary Wastes	NA	7
RFA 13	13	Drop Tank Storage Area	SW of Bldgs 114 & 115	X	RFA Recommended NFA	2A	3
RFA 14	14	Drop Tank Fuel Storage Area	NW of Bldg 605	X	Repair Cracks in Pavement	5A	6
RFA 15	15	Wash Water Runoff Site	SW of fueling station 576	X	RFA Recommended NFA	5A	3
RFA 16	16	Wash Water Runoff Site	NW of fueling station 574	X	RFA Recommended NFA	5A	3
UST T5	17	Underground Storage Tank	Tank Farm 2		Spill Containment Tank	1A	7
UST T2	18	Underground Storage Tank	Tank Farm 4		Spill Containment Tank	5A	7
UST T3	19	Underground Storage Tank	Tank Farm 4		Spill Containment Tank	2A	7
UST 414C	20	Underground Storage Tank	414	X	RFA Recommended NFA	5A	7
UST T6	21	Underground Storage Tank	Tank Farm 5		Spill Containment Tank	2A	7
UST T8	22	Underground Storage Tank	Tank Farm 5, 6		Spill Containment Tank	2A	7
UST T1	23	Underground Storage Tank	Tank Farm 555		Spill Containment Tank	2D	7
UST T7	24	Underground Storage Tank	Tank Farm 6		Spill Containment Tank	5A	7

<p align="center">Table 3-15 Summary of SWMUs/AOCs MCAS El Toro BCP</p>							
Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
SAA 5A	25	Drum Storage Area	5		Located on Tarmac	5A	2
SAA 5B	26	Hazardous Waste Storage Area	5	X	Excavate Shallow Stained Soil	1A	6
SAA 10	27	Hazardous Waste Storage Area	10	X	RFA Recommended NFA	1A	2
RFA 28	28	Fuel Spill Site	AERO CLUB 10		Routine Fuel Spills in the Past (3)	5A(4)	NA
SAA 29A	30	Drum Storage Area	29	X	RFA Recommended NFA	1D	3
SAA 29B	31	Drum Storage Area	29		Located in RI/FS Site 15 (6)	1D	7
	32	Drum Storage Area	36		Source: 1989 RWQCB Letter (3)	1D(4)	NA
SAA 51	33	Hazardous Waste Storage Area	51	X	Excavate Shallow Stained Soil	1D	6
	35	Drum Storage Area	96		Location Not Known (3)	4A(4)	NA
SAA 114	38	Drum Storage Area	114		No Materials Present; No Surface Defects	5A	2
SAA 115	39	Hazardous Waste Storage Area	115	X	Additional investigation recommended by DTSC	5A	7
	40	Drum Storage Area	127		Location Not Known (3)	2A(4)	NA
RFA 41	41	Vehicle Wash Rack	127	X	RFA Recommended NFA	2A	3
SAA 130C	42	Drum Storage Area	130		Surface Free of Defects	2A	2
	43	Drum Storage Area	137		Source: DHS Photograph (3)	2A(4)	NA
	44	Drum Storage Area	143		Source: 1989 RWQCB Letter (3)	2A(4)	NA
SAA 155C	45	Drum Storage Area	155	X	RFA Recommended NFA	5A	3
RFA 46	46	Equipment Storage Yard	163	X	RFA recommended additional borings	3A	7
	47	Drum Storage Area	172		Location Not Known (3)	3F(4)	NA
UST 178	48	Underground Storage Tank	178	X	RFA Recommended NFA	1A	7
UST 179	49	Underground Storage Tank	179	X	RFA Recommended NFA	1A	7
	50	Drum Storage Area	179		Source: DHS Photograph (3)	1A(4)	NA
UST 180	51	Underground Storage Tank	180		Passed 1990 Tank Test	1A	7
UST 182	52	Underground Storage Tank	182		Passed 1990 Tank Test	1A	7
	55	Drum Storage Area	186		Source: DHS Photograph (3)	1D(4)	NA

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Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
	56	Drum Storage Area	187		Source: DHS Photograph (3)	1D(4)	NA
UST 189	57	Underground Storage Tank	189	X	RFA Recommended NFA	1A	7
UST T4	58	Underground Storage Tank	189		Spill Containment Tank	1A	7
UST 191	59	Underground Storage Tank	191	X	RFA Recommended NFA	1A	7
UST 204	60	Underground Storage Tank	204		Passed 1990 Tank Test	5A	7
UST 205	61	Underground Storage Tank	205		Passed 1990 Tank Test	5A	7
UST 206	62	Underground Storage Tank	206		Passed 1990 Tank Test	5A	7
UST 207	63	Underground Storage Tank	207		Passed 1990 Tank Test	5A	7
SAA 240	64	Hazardous Waste Storage Area	240		Newly Constructed; No Release Observed	1A	2
UST 240B	65	Underground Storage Tank	240	X	RFA Recommended NFA	1A	7
OWS 240C	66	Oil/Water Separator	240	X	Combined with SWMU/AOC 65	1A	7
SAA 242	67	Drum Storage Area	242		Located in RI/FS Site 13 (6)	1A	2
OWS 244	68	Oil/Water Separator	244		Location Not Known (3)	5A	7
	69	Drum Storage Area	262		Source: 1989 RWQCB Letter (3)	1B(4)	NA
SAA 289	70	Hazardous Waste Storage Area	289	X	RFA Recommended NFA	5A	3
IRP 8	71	Hazardous Waste Storage Area	295		To be To be addressed in RI/FS Site 7 (2)	5A	7
IRP 8	72	Hazardous Waste Storage Area	296		To be To be addressed in RI/FS Site 7 (2)	5A	7
SAA 297	73	Hazardous Waste Storage Area	297	X	RFA Recommended NFA	5A	3
RFA 74	74	Aircraft Wash Area	297		Located on Tarmac	5A	1
UST T11	75	Underground Storage Tank	297		Spill Containment Tank	4A	7
OWS 297B	76	Oil/Water Separator	297	X	RFA Recommended NFA	5A	7
UST 297C	77	Underground Storage Tank	297	X	Combined with SWMU/AOC 76	5A	7
	78	Drum Storage Area	297		Source: 1980 DHS Photo (3)	5A(4)	NA
	79	Drum Storage Area	297		Source: 1980 DHS Photo (3)	5A(4)	NA
	80	Drum Storage Area	297		Source: 1980 DHS Photo (3)	5A(4)	NA

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Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
	81	Drum Storage Area	297		Source: 1980 DHS Photo (3)	5A(4)	NA
	82	Drum Storage Area	297		Source: 1980 DHS Photo (3)	5A(4)	NA
SAA 298	83	Hazardous Waste Storage Area	298	X	RFA Recommended NFA	4A	2
OWS 298C	84	Oil/Water Separator	298	X	RFA recommended leak test/Inspection of OWS	4A	7
UST 298D	85	Underground Storage Tank	298	X	Combined with SWMU/AOC 84	4A	7
SAA 306	88	Drum Storage Area	306	X	Additional investigation recommended by DTSC	4A	7
	89	Drum Storage Area	306		Source: 1980 DHS Photo (3)	4A(4)	NA
IRP 13	90	Former Sewage Treatment Plant	307	X	To be addressed in RI/FS Site 12 (2)	4B	7
UST 314A	91	Underground Storage Tank	314	X	RFA Recommended NFA	4A	7
UST 314B	92	Underground Storage Tank	314	X	RFA Recommended NFA	4A	7
SAA 317	93	Drum Storage Area	317		Detergent Only	4B	2
	94	Drum Storage Area	320		To be addressed in RI/FS Site 21 (2)	4B(4)	7
RFA 95	95	Engine Test Cell	324	X	RFA Recommended NFA	4A	3
	96	Drum Storage Area	343			5A(4)	7
SAA 357	97	Drum Storage Area	357		No Evidence of Releases Observed	4A	7
RFA 98	98	Vehicle Wash Rack	359	X	RFA Recommended NFA	4B	2
SAA 359B	99	Drum Storage Area	359	X	RFA Recommended NFA	4B	3
RFA 100	100	TCE Degreaser	359	X	RFA Recommended NFA	4B	3
OWS 359B	101	Oil/Water Separator	359	X	RFA Recommended NFA	4B	7
UST 359C	102	Underground Storage Tank	359	X	RFA Recommended NFA	4B	7
	103	Drum Storage Area	359		Source: 1980 DHS photo (3)	4B(4)	NA
	104	Drum Storage Area	360		To be To be addressed in RI/FS Site 8 (2)	5A(4)	7
	105	Drum Storage Area	360		To be To be addressed in RI/FS Site 8 (2)	5A(4)	7
	106	Drum Storage Area	360		To be To be addressed in RI/FS Site 8 (2)	5A(4)	7
SAA 371A	107	Hazardous Waste Storage Area	371	X	RFA Recommended NFA	5A	2

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MCAS EI Toro BCP

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UST T10	108	Underground Storage Tank	T-10		Spill Containment Tank	5A	7
	109	Drum Storage Area	379		Source: SPCC Map (no date)	4A(4)	NA
RFA 110	110	Vehicle Wash Rack	386	X	Repair Cracks in Pavement	4A	6
OWS 386B	112	Oil/Water Separator	386	X	RFA Recommended NFA	4A	7
UST 386C	113	Underground Storage Tank	386	X	Combined with SWMU/AOC 112	4A	7
SAA 386	114	Drum Storage Area	386		Source: 1980 DHS Photo; No Evidence of Release	4A	2
SAA 388A	116	Drum Storage Area	388	X	RFA Recommended NFA	4A	3
UST 388B	117	Underground Storage Tank	388		Fuel Tank, Not Waste	4A	7
OWS 388C	118	Oil/Water Separator	388		Location Not Known (3)	4A	7
SAA 389A	119	Drum Storage Area	389		No Evidence of Release	3A	7
RFA 120	120	Vehicle Wash Rack	390	X	RFA Recommended NFA	3A	3
	121	Drum Storage Area	390		Source: 1989 RWQCB Letter (3)	3A(4)	NA
SAA 390A	122	Drum Storage Area	390		Source: 1980 DHS Photo; No Evidence of Release	3A	2
SAA 392A	124	Hazardous Waste Storage Area	392	X	RFA Recommended NFA	2A	3
RFA 125	125	Hazardous Waste Storage Area	415	X	RFA Recommended NFA	2B	2
SAA 442	126	Hazardous Waste Storage Area	442		New Site; No Evidence of Release	3A	2
SAA 445	127	Drum Storage Area	445		No Evidence of Release	4A	2
RFA 128	128	Storage Area	445		Waste Stored Inside Building	4A	2
UST 445C	129	Underground Storage Tank	445	X	RFA Recommended NFA	4A	7
SAA 447	130	Drum Storage Area	447	X	RFA Recommended NFA	3A	3
RFA 131	131	Engine Test Cell	447	X	Additional investigation recommended by DTSC	3A	7
OWS 447C	132	Oil/Water Separator	447	X	RFA Recommended NFA	3A	7
	133	Drum Storage Area	453		Source: SPCC Map (no date)	3A(4)	NA
	134	Drum Storage Area	454		Source: SPCC Map (no date)	3A(4)	NA

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Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
SAA 456	135	Drum Storage Area	456		No Evidence of Release	3A	2
RFA 136	136	Aircraft Wash Area	461		Located on Tarmac	5A	1
UST 461	137	Underground Storage Tank	461	X	RFA Recommended NFA	5A	7
SAA 461	138	Drum Storage Area	461	X	RFA Recommended NFA	5A	2
UST 462	139	Underground Storage Tank	462	X	RFA Recommended NFA	5A	7
SAA 462	140	Hazardous Waste Storage Area	462		Located on Tarmac	5A	2
RFA 141	141	Aircraft Wash Area	463		Surface Free of Defects	5A	1
	142	Drum Storage Area	463		Source: 1989 RWQCB Letter (3)	5A(4)	NA
	143	Underground Storage Tank	493		Location Not Known (3)	NL	NA
SAA 529	144	Drum Storage Area	529	X	RFA Recommended NFA	4A	2
UST 529	145	Underground Storage Tank	529	X	RFA recommended additional borings	4A	7
SAA 534	146	Drum Storage Area	534		Stored Inside Building	4B	2
SAA 602	147	Drum Storage Area	602	X	RFA Recommended NFA	2A	3
OWS 602	148	Oil/Water Separator	602		Location Not Known (3)	2A	7
SAA 605	149	Drum Storage Area	605	X	RFA Recommended NFA	5A	3
RFA 150	150	Aircraft Wash Area	605		Located on Tarmac	5A	1
OWS 605C	151	Oil/Water Separator	605	X	RFA recommended leak test/inspection of OWS	5A	7
RFA 152	152	Aircraft Wash Area	606		Located on Tarmac	5A	1
UST 625	156	Underground Storage Tank	625		Located in RI/FS Site 20 (6)	1B	7
RFA 157	157	Vehicle Wash Rack	626		Located in RI/FS Site 20 (6)	1B(4)	7
SAA 626	158	Drum Storage Area	626		Located in RI/FS Site 20 (1)	1B	7
OWS 626-1	159	Oil/Water Separator	626		Located in RI/FS Site 20 (6)	1B	7
SAA 636	160	Hazardous Waste Storage Area	636	X	RFA Recommended NFA	3A	3
UST 643A	162	Underground Storage Tank	643	X	RFA Recommended NFA	5A	7
OWS 643B	163	Oil/Water Separator	643	X	Combined with SWMU/AOC 162	5A	7

Table 3-15
Summary of SWMUs/AOCs
MCAS EI Toro BCP

Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
RFA 164	164	Vehicle Wash Rack	651	X	RFA Recommended NFA	1G	3
SAA 651	165	Drum Storage Area	651		Located on Washrack (SWMU/AOC 164)	1G	3
UST 651-5	166	Underground Storage Tank	651		Product Oil; Passed 1990 Tank Test	1G	7
UST 651-6	167	Underground Storage Tank	651		Product Oil; Passed 1990 Tank Test	1G	7
UST 651-7	168	Underground Storage Tank	651		Passed 1990 Tank Test	1G	7
OWS 651-8	169	Underground Storage Tank	651	X	Combined with SWMU/AOC 164	1G	7
	170	Drum Storage Area	655		Source: 1989 RWQCB letter (3)	4A(4)	NA
SAA658	171	Hazardous Waste Storage Area	658	X	Additional investigation recommended by DTSC	2A	7
SAA 671	172	Hazardous Waste Storage Area	671	X	RFA Recommended NFA	4A	2
OWS 671	173	Oil/Water Separator	671	X	RFA recommended additional borings	4A	7
UST 672	174	Underground Storage Tank	672		Exact Location Not Known (3) EG&G Field Inspection Conducted in 1993	4A	7
OWS 672A	175	Oil/Water Separator	672	X	RFA recommended additional borings	4A	7
UST 672B	176	Underground Storage Tank	672	X	RFA recommended additional borings	4A	7
SAA 672	177	Drum Storage Area	672		Product Storage	4A	2
RFA 178	178	Vehicle Wash Rack	673		No Evidence of Release	3A	1
OWS 673A	179	Oil/Water Separator	673	X	RFA Recommended NFA	3A	7
UST 673B	180	Underground Storage Tank	673	X	Combined with SWMU/AOC 179	3A	7
RFA 181	181	Landfarming Area	673	X	RFA Recommended NFA	3B	3
	182	Drum Storage Area	673		Source: 1980 DHS Photo (3)	3B(4)	NA
	183	Drum Storage Area	673		Source: 1980 DHS Photo (3)	3B(4)	NA
	184	Drum Storage Area	673		Source: 1980 DHS Photo (3)	3B(4)	NA
	185	Drum Storage Area	673		Source: 1980 DHS Photo (3)	3B(4)	NA
SAA 673	186	Hazardous Waste Storage Area	673	X	RFA Recommended NFA	3A	2
UST 674A	187	Underground Storage Tank	674	X	RFA Recommended NFA	4B	7

<p align="center">Table 3-15 Summary of SWMUs/AOCs MCAS EI Toro BCP</p>							
Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
UST 675A	188	Underground Storage Tank	675	X	RFA Recommended NFA	4B	7
OWS 674	189	Oil/Water Separator	674	X	Combined with SWMU/AOC 187	4B	7
	191	Underground Storage Tank	706		Demolished in 1987 (3)	NL	NA
UST 716A	192	Underground Storage Tank	716		Passed 1990 Tank Test	5A	7
OWS 716B	193	Oil/Water Separator	716	X	RFA Recommended NFA	5A	7
IRP 3/4	194	Former Incinerator Site	746	X	To be addressed in RI/FS Site 3/4 (2)	2A	7
RFA 195	195	Vehicle Wash Rack	758	X	RFA Recommended NFA	4A	2
OWS 758A	196	Oil/Water Separator	758	X	RFA Recommended NFA	4A	7
UST 758B	197	Underground Storage Tank	758	X	Combined with SWMU/AOC 196	4A	7
RFA 198	198	Vehicle Wash Rack	759	X	Repair Cracks in Pavement	4A	6
OWS 759A	199	Oil/Water Separator	759	X	RFA recommended leak test/Inspection of OWS	4A	7
UST 759B	200	Underground Storage Tank	759	X	Combined with SWMU/AOC 199	4A	7
RFA 201	201	Vehicle Wash Rack	760	X	Repair Cracks in Pavement	4A	6
UST 760A	202	Underground Storage Tank	760	X	RFA Recommended NFA	4A	7
OWS 760B	203	Oil/Water Separator	760	X	Combined with SWMU/AOC 202	4A	7
RFA 204	204	Vehicle Wash Rack	761	X	Repair Cracks in Pavement	5A	6
OWS 761A	205	Oil/Water Separator	761	X	RFA Recommended NFA	5A	7
UST 761B	206	Underground Storage Tank	761	X	Combined with SWMU/AOC 205	5A	7
OWS 762A	208	Oil/Water Separator	762	X	RFA Recommended NFA	3A	7
UST 762B	209	Underground Storage Tank	762	X	Combined with SWMU/AOC 208	3A	7
RFA 210	210	Vehicle Wash Rack	763		Surface Free of Defects	5A	1
OWS 763A	211	Oil/Water Separator	763	X	RFA Recommended NFA	5A	7
UST 763B	212	Underground Storage Tank	763	X	Combined with SMWU/AOC 211	5A	7
RFA 213	213	Vehicle Wash Rack	764	X	Repair Cracks in Pavement	2A	6
UST 764A	214	Underground Storage Tank	764	X	RFA Recommended NFA	2A	7

Table 3-15
Summary of SWMUs/AOCs
MCAS EI Toro BCP

Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
OWS 764B	215	Oil/Water Separator	764	X	Combined with SWMU/AOC 214	2A	7
RFA 216	216	Vehicle Wash Rack	765		Surface Free of Defects	1A	1
UST 765A	217	Underground Storage Tank	765		Located in RI/FS Site 13 (6)	1A	7
OWS 765B	218	Oil/Water Separator	765		Located in RI/FS Site 13 (6)	1A	7
RFA 219	219	Vehicle Wash Rack	766		Surface Free of Defects	1A	1
OWS 766A	220	Oil/Water Separator	766	X	RFA Recommended NFA	1A	7
UST 766B	221	Underground Storage Tank	766	X	Combined with SWMU/AOC 220	1A	7
SAA 769	222	Hazardous Waste Storage Area	769	X	RFA Recommended NFA	4A	2
SAA 770	223	Hazardous Waste Storage Area	770	X	RFA Recommended NFA	4A	3
SAA 771	224	Hazardous Waste Storage Area	771	X	RFA Recommended NFA	1D	2
SAA 772	225	Hazardous Waste Storage Area	772	X	RFA Recommended NFA	3F	3
SAA 778	226	Hazardous Waste Storage Area	778	X	RFA Recommended NFA	5A	3
SAA 779	227	Hazardous Waste Storage Area	779	X	RFA Recommended NFA	5A	3
UST T9	228	Underground Storage Tank	779		Recently Installed Fuel Stop Tank	5A	7
SAA 800	229	Hazardous Waste Storage Area	800	X	RFA Recommended NFA	4B	2
UST 800D	230	Underground Storage Tank	800		Passed 1990 Tank Test	4B	7
UST 800E	231	Underground Storage Tank	800	X	RFA Recommended NFA	4B	7
OWS 800F	232	Oil/Water Separator	800	X	RFA Recommended NFA	4B	7
OWS 817	233	Oil/Water Separator	817	X	RFA Recommended NFA	3F	7
SAA 856	234	Hazardous Waste Storage Area	856	X	RFA Recommended NFA	3A	3
	236	Drum Storage Area	1663		Located in RI/FS Site 6 (6)	5A(4)	7
	237	Drum Storage Area	1700		Source: SPCC Map (no date)	NL	NA
	238	Drum Storage Area	1727		Source: SPCC Map (no date)	4A(4)	NA
	239	Drum Storage Area	1798		Source: 1989 RWQCB Letter (3)	2B(4)	NA
SAA 155A	240	Drum Storage Area	155		No Evidence of Release	5A	2

<p align="center">Table 3-15 Summary of SWMUs/AOCs MCAS EI Toro BCP</p>							
Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
SAA 155B	241	Drum Storage Area	155	X	RFA Recommended NFA	5A	3
SAA 371B	242	Hazardous Waste Storage Area	371	X	RFA Recommended NFA	5A	3
RFA 243	243	Wash Rack	96	X	RFA Recommended NFA	4A	7
PCB T74	244	PCB Spill Area	457	X	Additional investigation recommended by DTSC	3A	7
RFA 245	245	Golf Course	464		Treated Sanitary Wastewater Applied	3F	1
RFA 246	246	Golf Course Irrigation Tank	459		Stored Treated Sanitary Wastewater	3F	1
	247	Irrigation Pipe Line	SW and SE quadrants		From Former Sewage Treatment Plant to Irrigation Tank at Golf Course	NA	1
OWS 845	248	Oil/Water Separator	463	X	RFA Recommended NFA	3A	7
UST 463	249	Underground Storage Tank	463	X	RFA Recommended NFA	5A	7
UST 655	250	Underground Storage Tank	655	X	RFA Recommended NFA	4A	7
SAA 388B	251	Drum Storage Area	388		No Evidence of Release/Surface Defects	4A	2
SAA 398	252	Hazardous Waste Storage Area	398	X	RFA Recommended NFA	5A	3
RFA 253	253	Wash Rack	317	X	RFA Recommended NFA	4B	2
SAA 359A	254	Drum Storage Area	359		No Evidence of Release	4B	2
SAA 606	255	Hazardous Waste Storage Area	606	X	RFA Recommended NFA	5A	2
SAA 441	256	Hazardous Waste Storage Area	441	X	RFA Recommended NFA	3A	3
RFA 257	257	Wash Water Runoff Site	575	X	RFA Recommended NFA	5A	2
RFA 258	258	Wash Water Runoff Site	577	X	RFA Recommended NFA	5A	2
SAA 389B	259	Drum Storage Area	389		Drum Storage Not Confirmed	3A	2
RFA 260	260	Above Ground Storage Tank	389	X	Repair Cracks in Pavement	3A	2
SAA 390B	261	Drum Storage Area	390	X	RFA Recommended NFA	3A	3
RFA 262	262	Fuel Storage Area	390	X	RFA Recommended NFA	3A	2
UST 374A	263	Underground Storage Tank	374	X	RFA Recommended NFA	3A	7
RFA 264	264	Equipment Storage Area	DRMO Lot #3	X	RFA Recommended NFA	3B	3

Table 3-15 Summary of SWMUs/AOCs MCAS EI Toro BCP							
Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
	265	Metal Plating Sewer Lines	SW quadrant of Station	X	RFA Recommended NFA	NA	7
SAA 765	266	Drum Storage Area	765		Surface Free of Defects	3F	2
RFA 267	267	Drop Tank Fuel Storage Area	605		Additional investigation recommended by DTSC	5A	2
RFA 268	268	Vehicle Wash Rack	240		Surface Free of Defects	1A	1
SAA 314	269	Hazardous Waste Storage Area	314	X	RFA Recommended NFA	4A	3
RFA 270	270	Wash Rack	817	X	RFA Recommended NFA	3F	2
SAA 392B	271	Hazardous Waste Storage Area	392	X	RFA Recommended NFA	2A	3
SAA 31A	272	Hazardous Waste Storage Area	31	X	RFA Recommended NFA	1D	3
RFA 273	273	Wash Rack	31	X	RFA Recommended NFA	1D	2
RFA 274	274	Stock Pile Soil	31		No Evidence of Release	1D	1
UST 186	275	Underground Storage Tank	Tank Farm #1	X	RFA Recommended NFA	1D	7
UST 187	276	Underground Storage Tank	Tank Farm #1	X	RFA Recommended NFA	1D	7
UST 188	277	Underground Storage Tank	Tank Farm #3	X	RFA Recommended NFA	1A	7
UST 190	278	Underground Storage Tank	Tank Farm #3	X	RFA Recommended NFA	1A	7
UST 193	279	Underground Storage Tank	Tank Farm #3	X	RFA Recommended NFA	1A	7
UST 195	280	Underground Storage Tank	Tank Farm #3	X	RFA recommended additional borings	1A	7
	281	Underground Storage Tank	252		Inactive (3)	NL	NA
UST 322B	282	Underground Storage Tank	322	X	RFA Recommended NFA	4B	7
UST 326B	283	Underground Storage Tank	326	X	RFA Recommended NFA	4A	7
UST 347D	284	Underground Storage Tank	347D		Inactive, Tank Filled with Sand (3)	1B	7
UST 399	285	Underground Storage Tank	399		Inactive (3)	5A	7
UST 733B	286	Underground Storage Tank	733	X	RFA Recommended NFA	1G	7
UST 733C	287	Underground Storage Tank	733	X	RFA Recommended NFA	1G	7
UST 850A	288	Underground Storage Tank	850A		Located in RI/FS Site 16 (6)	5A	7
UST 850B	289	Underground Storage Tank	850B		Located in RI/FS Site 16 (6)	5A	7

<p align="center">Table 3-15 Summary of SWMUs/AOCs MCAS EI Toro BCP</p>							
Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
UST 850C	290	Underground Storage Tank	850C		Located in RI/FS Site 16 (6)	5A	7
OWS 96	291	Oil/Water Separator	96	X	RFA Recommended NFA	4A	7
OWS 675B	292	Oil/Water Separator	675	X	Combined with SWMU/AOC 188	5A	7
RFA 293	293	Cleaning Tank	130		Surface Free of Defects	2A	2
SAA 130A	294	Drum Storage Area	130		Surface Free of Defects	2A	2
SAA 130B	295	Drum Storage Area	130		Surface Free of Defects	2A	2
OWS 357	296	Oil/Water Separator	357	X	RFA Recommended NFA	4A	7
RFA 297	297	Former Asphalt Pavement Plant	Northeast of Golf Course		No Remaining Evidence of Plant	5A	1
UST 392A	298	Underground Storage Tank	392	X	RFA recommended leak test/Inspection of UST	2A	7
RFA 299	299	Washrack	800		Surface Free of Defects	4B	1
IRP 3/4	300	Spill Area East of SWMU/AOC 194	746	X	To be addressed in RI/FS Site 3/4 (2)	2A	7
RFA 301	301	Mark Arrest System	East side of Runway 34R	X	RFA Recommended NFA	5A	2
RFA 302	302	Mark Arrest System	West side of Runway 34R	X	RFA Recommended NFA	5A	2
UST 359A	303	Underground Storage Tank	359	X	RFA Recommended NFA	4B	7
RFA 304	304	Trenches inside Building 359	359		Inside Bldg; No Evidence of Release	4B	1
RFA 305	305	Septic Tank	601		Sanitary Waste	5C	1
RFA 306	306	Septic Tank	687		Sanitary Waste	1F	1
RFA 307	307	Septic Tank	819		Sanitary Waste	1F	1

**Table 3-15
Summary of SWMUs/AOCs
MCAS EI Toro BCP**

Database Tracking	SWMU/AOC Number (1)	Type	Location, Building, or Number	Sampling Visit	Comments	Parcel	BCP Area Type (5)
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NOTES:

- (1) SWMU/AOCs identified as duplicate locations are not included in this table. Refer to Table 4-1 of the Final RFA Report dated 16 July 1993 for a complete list of SWMUs/AOCs.
- (2) SWMU/AOC is being addressed under the IRP.
- (3) SWMU/AOC was not able to be accurately located or identified from the records review information and the visits conducted as part of the RFA.
- (4) These sites were not plotted on the GIS map because they were not evaluated under the PR/VS. The parcels listed correspond to the nearest building location.
- (5) EPA has not approved the RFA. Therefore, the BCP Area Types are pending EPA concurrence.
- (6) SWMU is located within RI/FS site boundaries, however it will be addressed in a closure-related compliance program.

NA = Not applicable. The SWMU/AOC is a large unit that is located in several different parcels.

NL = Not located. Unable to locate building or device on historical plans for MCAS EI Toro.

NFA = No Further Action

NEESA = Naval Energy and Environmental Support Activity

Source:

JEG, 1993, MCAS EI Toro Final RCRA Facility Report

**Table 3-16
Oil/Water Separator Inventory
MCAS El Toro BCP**

Database Tracking	OWS No.	Parcel	Location/ Nearest Building No.	Year Installed	Capacity (gal)/ Tank Material	Status	Comments	Further Action	Location Status (1)	Closure/ Removal/ Abandon. Date	UST Associated with OWS	RFA Sampling (X)	Document Source	BCP Area Type
OWS 96	96	4A	96	Unknown	Unknown/ Unknown	Unknown	From RFA: SWMU 291-NFA. From LCR: Appears to be abandoned. Two vertical below grade pipes/ports observed in the wash rack. Unsure if OWS is located here.	No further action recommended in the RFA based on soil sample results. Termination of washing activities recommended in LCR.	LC	Unknown	Unknown	X	B,C,D	7
OWS 240C	240C	1A	240	1982	100/ Steel	Active	From RFA: SWMU 66 -(comb w/SWMU 65)-NFA. In the LCR, OWS adjacent to a UST was full of waste oil and did not appear to be used.	No further action recommended in the RFA based on soil sample results. If the wash rack and OWS are to be abandoned, the LCR recommendations were to remove the OWS and its contents, fill the excavation and pave the area to grade.	LC		Yes (UST 240B)	X	A,B,C,D	7
OWS 244	244	5A	244	1944	100/ Concrete	Active	From RFA: SWMU 68-not sampled; no evidence of a OWS was observed.		LC		Unknown		A,B,D	7
OWS 280A	280A	1B	280	Unknown	200/ Concrete	Active	The OWS appeared structurally sound.	Maintenance and repair work at the OWS was recommended in LCR.	LC		No		C	7
OWS 297B	297B	5A	297	1982	100/ Steel	Active	From RFA: SWMU 76-NFA. SWMU 77 (UST 297C) is the tank associated with the OWS.	No further action recommended in the RFA based on soil sample results.	S		Yes (UST 297C)	X	A,B,D	7
OWS 298C	298C	4A	298	1982	100/ Steel	Active	SWMU 84 - FA. From LCR: OWS appeared sound. ~ 5-20 gpm of waste produced. Electric butterfly valves at OWS which are not fully functional results in flows to storm drain.	Further investigation of the oil/water separator's current condition by leak testing and inspection is recommended in the RFA.	S		Yes (UST 298D)	X	A,B,C,D	7
	312	4A	312	Unknown	Unknown/ Unknown	Unknown	OWS was identified in a 1994 RWQCB letter as an OWS for a photo lab.		SB	Unknown	Unknown		E	7
OWS 314C	314C	4A	314	Unknown	2,200/ Concrete	Inactive	From LCR: OWS not in use; upstream drains cemented. Structural condition was sound.	LCR suggests oil/water separator could be removed and the excavation filled in, compacted and covered with asphalt.	LC	Unknown	No		C	7
OWS 324-1	324-1	4A	324	Unknown	Unknown/ Steel	Inactive	From LCR: OWS no longer used; internal drains cemented. Structural condition was rusty. Contents from OWS can be pumped through a threaded fitting to a port on parking lot. Appears to be no longer maintained.	LCR suggests oil/water separator could be removed and the excavation filled in, compacted and covered with asphalt. OWS slated for removal according to El Toro staff.	LC	Unknown	No		C	7
OWS 324-2	324-2	4A	324	Unknown	Unknown/ Steel	Inactive	From LCR: OWS no longer used; internal drains cemented. Structural condition was rusty. Contents from OWS can be pumped through a threaded fitting to a port on parking lot. Port appears to be no longer maintained.	LCR suggests oil/water separator could be removed and the excavation filled in, compacted and covered with asphalt. OWS slated for removal according to El Toro staff.	LC	Unknown	No		C	7
OWS 357	357	4A	357	Unknown	200/ Steel	Unknown	SWMU 296-NFA. From LCR: unknown if OWS still in use. OWS condition was rusty, disconnected at head pipes. OWS scheduled for repairs according to El Toro staff.	No further action recommended in the RFA based on soil sample results. The Law/Crandall recommendations were to either repair the OWS inlet lines or abandon the OWS, plug the floor drains with cement, and remove the external water source.	LC	Unknown	No	X	B,C,D	7

**Table 3-16
Oil/Water Separator Inventory
MCAS El Toro BCP**

Database Tracking	OWS No.	Parcel	Location/ Nearest Building No.	Year Installed	Capacity (gal)/ Tank Material	Status	Comments	Further Action	Location Status (1)	Closure/ Removal/ Abandon. Date	UST Associated with OWS	RFA Sampling (X)	Document Source	BCP Area Type
OWS 359B	359B	4B	359	1952	100/ Concrete	Active	From RFA: SWMU 101-NFA.	No further action recommended in the RFA based on soil sample results.	LC		Unknown	X	A,B,D	7
OWS 371	371	3A	371	Unknown	2,350/ Steel	Active	From LCR: OWS condition unknown. Waste oil level alarm in place (on during survey). OWS scheduled for maintenance/cleaning according to El Toro staff.	The OWS should be pumped out according to the LCR.	LC		No		C	7
OWS 386B	386B	4A	386	1982	100/ Steel	Active	From RFA: SWMU 112-NFA. From LCR: Vault full of sediment. OWS condition appeared sound. Steel UST adjacent to OWS. Butterfly valves not functioning properly-flows to storm drain. OWS under repair in 2/94 according to El Toro staff.	No further action recommended in the RFA based on soil sample results. The OWS should be cleaned and the electrical valves tested to determine what repairs are needed per the LCR.	LC		Yes (UST 386C)	X	A,B,C,D	7
OWS 388C	388C	4A	388	1955	100/ Steel	Active	From RFA: SWMU 118-not sampled; OWS not located on NW side of Bldg 388. From LCR: OWS buried with sediment - unable to access. Non-functioning butterfly valves causing discharge to storm drains. OWS under construction/repair according to El Toro staff.	The OWS should be cleaned and the electrical valves tested to determine what repairs are needed per the LCR.	S		Yes (UST 388B)		A,B,C,D	7
	439	1G	439	Unknown	Unknown/ Unknown	Unknown	OWS identified in a 1994 RWQCB letter as an OWS for a dental lab.		SB	Unknown	Unknown		E	7
OWS 445	445	4A	445	Unknown	Unknown/ Precast Concrete	Unknown	From LCR: OWS does not appear to be used; Building used for storage. During survey OWS covered by heavy box.	If hazardous materials exist in OWS, the materials should be removed and the OWS closed, per the LCR. OWS slated for removal according to El Toro staff.	LC	Unknown	No		C,F	7
OWS 447C	447C	5A	447	1959	800/ Precast Concrete	Active	From RFA: SWMU 132-NFA; covers which may belong to a OWS identified. Listed as a 100 gal steel OWS in Station database. From LCR: precast concrete, 800 gal; appears sound. Flow modification from OWS to sanitary sewer scheduled according to El Toro staff.	No further action recommended in the RFA based on soil sample results.	S		No	X	A,B,C,D,F	7
OWS 461A	461A	5A	461	Unknown	50/ Steel	Active	OWS scheduled for maintenance work according to El Toro staff.	The LCR suggests the OWS should be opened and inspected for sediment and sludge build up.	LC		Unknown		C,F	7
OWS 462	462A	5A	462	Unknown	50/ Steel	Active			LC		Unknown		C	7
OWS 602	602	2A	602	1964	Unknown/ CC	Inactive	From RFA: SWMU 148-not sampled; no OWS observed during visit; could be OWS at Bldg 764 located 100 ft west of Bldg 602.	OWS scheduled for removal per 1993 Station UST Inventory.	SB		Unknown		A,B,D,F	7

**Table 3-16
Oil/Water Separator Inventory
MCAS El Toro BCP**

Database Tracking	OWS No.	Parcel	Location/ Nearest Building No.	Year Installed	Capacity (gal)/ Tank Material	Status	Comments	Further Action	Location Status (1)	Closure/ Removal/ Abandon. Date	UST Associated with OWS	RFA Sampling (X)	Document Source	BCP Area Type
OWS 605C	605C	5A	605	1984	300/ Steel	Active	From RFA: SWMU 151-FA; concrete area around OWS appeared darkly stained. From LCR: 300 gal cap.; ~125 gal dry UST adjacent to OWS. OWS scheduled for repairs according to El Toro staff.	Further investigation of the OWS current condition by leak testing and inspection was recommended by the RFA. Sediments should be removed from the OWS, and electrical diversion valves installed. The waste oil pump should be replaced per the LCR.	LC		Unknown	X	A,B,C,D,F	7
OWS 606C	606C	5A	606	1965	100/ Concrete	Active	From RFA: SWMU 154-not sampled; OWS thought to be OWS 643B; drains leading to OWS 643B located 10 ft south of Bldg 606.		LC		Unknown		A,B,D	7
OWS 626-1	626-1	1B	625	1967	600/ Concrete	Active	SWMU 159-not sampled; located within RI/FS Site 20 boundaries. From LCR: 600 gal cap., precast concrete, fuel odor emitted; top portion of OWS and surrounding slab cracked. OWS scheduled for repairs according to El Toro staff.	Oil staining observed downgradient of catch basin indicating catch basin is releasing oil according to LCR. The LCR suggests increasing the capture efficiency of the catch basin.	LC		No		A,B,C,D,F	7
OWS 626-2	626-2	1B	625	Unknown	580/ Steel	Active	From LCR: OWS appears sound.		LC		No		C	7
OWS 626-3	626-3	1B	625	Unknown	835/ Concrete	Active	From LCR: heavy oil accumulation; OWS appears sound.		LC		No		C	7
OWS 626-4	626-4	1B	625	Unknown	560/ Concrete	Active	From LCR: OWS appears sound.		LC		No		C	7
OWS 643B	643B	5A	643	1982	100/ Steel	Active	From RFA: SWMU 163-not sampled - see comments for OWS 606C; drain to OWS 643B located 10 ft south of Bldg 606. From LCR: 100 gal, steel OWS; appears sound; adjacent to full UST.	The LCR suggests removing sediments and oils and cleaning OWS. OWS slated for removal according to El Toro staff.	LC		Yes (UST 643A)		A,B,C,D,F	7
OWS 651-8	651-8	1G	651	1971	280/ Concrete	Active	SWMU 169-not sampled; antifreeze observed in washrack drain. Listed as a 500 gal concrete OWS in Station database. From LCR: 280 gal precast concrete OWS; appears sound; listed as OWS # 650/651. OWS scheduled for maintenance according to El Toro staff.	The LCR suggests removing oils from OWS and cleaning OWS.	LC		No		A,B,C,D,F	7
OWS 658C	658C	2A	658	1972	400/ Concrete	Active	Listed as a 100 gal OWS in Station database. From LCR: 400 gal OWS in use; OWS appears sound.	OWS scheduled for design modifications and construction according to El Toro staff.	LC		No		A,B,C,F	7
OWS 671	671	4A	671	Unknown	Unknown/ Unknown	Unknown	From RFA: SWMU 173-FA.	RFA recommended additional borings.	LC		Unknown	X	B,D	7

**Table 3-16
Oil/Water Separator Inventory
MCAS El Toro BCP**

Database Tracking	OWS No.	Parcel	Location/ Nearest Building No.	Year Installed	Capacity (gal)/ Tank Material	Status	Comments	Further Action	Location Status (1)	Closure/ Removal/ Abandon. Date	UST Associated with OWS	RFA Sampling (X)	Document Source	BCP Area Type
OWS 672A	672A	4A	672	1982	400/ Steel	Active	SWMU 175-FA; listed as a 1,000 gal steel OWS; eroded asphalt around tank cover. From LCR: 400 gal metal/concrete OWS; appears sound; OWS backs up during heavy washing. El Toro staff list this OWS as under construction/repair.	RFA recommended additional borings. The LCR suggests sediments in OWS be removed, lines be cleaned and frequent inspection and maintenance be implemented.	S		Yes (UST 672B)	X	A,B,C,D,F	7
OWS 673A	673A	3A	673	1982	895/ Concrete	Active	From RFA: SWMU 179-NFA; stained asphalt noted nearby. Listed as a 100 gal steel OWS in Station database. From LCR: 895 gal concrete OWS; OWS appears sound. Float/alarm installation scheduled for this OWS, according to El Toro staff.	No further action recommended in the RFA based on soil sample results. The LCR recommends the OWS be cleaned.	S		No	X	A,B,C,D,F	7
OWS 674	674	4B	674	Unknown	1,400/ Steel	Active	From RFA: SWMU 189-NFA; aboveground OWS. From LCR: OWS appears sound; Adjacent to OWS is a 550 gal #7 gauge steel UST; OWS to Bee Canyon Wash. Bee Canyon Discharge Point #002 from NPDES permit issued by the RWQCB.	No further action recommended in the RFA based on soil sample results. Installation of a check dam to capture dry weather flows is recommended in the LCR. A new OWS is scheduled to be installed according to El Toro staff.	LC		Yes (UST 674)	X	A,B,C,D,F	7
OWS 675B	675B	4B	675	Unknown	1,400/ Steel	Active	From RFA: SWMU 292-comb w/SWMU 188-NFA; aboveground OWS. From LCR: OWS for Agua Chinon Wash; OWS appears sound; Adjacent to OWS is a 550 gal #7 gauge steel UST.	No further action recommended in the RFA based on soil sample results. Installation of a check dam to capture dry weather flows and clearing of the channel is recommended in the LCR. A new OWS is scheduled to be installed according to El Toro staff.	LC		Yes (UST 675A)	X	A,B,C,D,F	7
OWS 676	676		676	Unknown	Unknown Unknown	Unknown	OWS not observed in the area of Bldg 676. The LCR reported access could not be gained to a fenced-off area adjacent to the building. It is possible that an oil/water separator is hidden under trash cans stored in this area.	No further action recommended in the RFA based on soil sample results.	SB			X	B,C	7
OWS 696	696	5A	696	Unknown	Unknown/ Unknown	Unknown	From RFA: SWMU 163-not sampled; OWS 643B located between Bldg 643 and 696.		LC		Unknown		B,D	7
OWS 716B	716B	5A	716	1976	100/ Steel	Active	From RFA: SWMU 193-NFA. Concrete OWS listed in 1993 Station UST Inventory. From LCR: Steel OWS (cap. unknown); couldn't be accessed, cover was rusted shut; a 3000 gal fiberglass UST is located 75 feet from Bldg 716.	No further action recommended in the RFA based on soil sample results. Inspection and maintenance of the OWS is recommended in the LCR.	LC		Yes (716A)	X	A,B,C,D	7
OWS 744	744	1G	744	Unknown	500/ Concrete	Active	From LCR: OWS appears sound. OWS scheduled for repair & maintenance work according to El Toro staff. Flow from OWS will also be rerouted to the sanitary sewer.		LC		No		C,F	7

**Table 3-16
Oil/Water Separator Inventory
MCAS El Toro BCP**

Database Tracking	OWS No.	Parcel	Location/ Nearest Building No.	Year Installed	Capacity (gal)/ Tank Material	Status	Comments	Further Action	Location Status (1)	Closure/ Removal/ Abandon. Date	UST Associated with OWS	RFA Sampling (X)	Document Source	BCP Area Type
OWS 758A	758A	4A	758	1982	100/ Steel	Active	From RFA: SWMU 196-NFA. From LCR: OWS appears sound. OWS under repair/construction as of 2/94 according to El Toro staff.	No further action recommended in the RFA based on soil sample results.	S		Yes (UST 758B)	X	A,B,C,D,F	7
OWS 759A	759A	4A	759	1982	100/ Steel	Active	From RFA: SWMU 199-FA. From LCR: OWS appears sound; drain line clogged and waste flows from upgradient clean out. OWS under repair/construction as of 2/94 according to El Toro staff.	Further investigation of the oil/water separator current condition by leak testing and inspection is recommended in the RFA report. Cleaning the OWS and drain lines were recommended in the LCR.	S		Yes (UST 759B)	X	A,B,C,D,F	7
OWS 760B	760B	4A	760	1982	100/ Steel	Active	From RFA: SWMU 203-comb w/SWMU 202-NFA; discharges waste oil to UST 760A. OWS under repair/construction as of 2/94 according to El Toro staff.	No further action recommended in the RFA based on soil sample results.	S		Yes (UST 760A)	X	A,B,D,F	7
OWS 761A	761A	5A	761	1982	100/ Steel	Unknown	SWMU 205-NFA. Listed as active in the Station database. From LCR: OWS status not known, buildings appear abandoned; OWS inundated with water; adjacent UST 1/2 full of water; valve open at storm drain, all discharges to storm drain.	No further action recommended in the RFA based on soil sample results.	S		Yes (UST 761B)	X	A,B,C,D	7
OWS 762A	762A	3A	390	1982	100/ Steel	Active	From RFA: SWMU 208-NFA. From LCR: OWS ID# 390 in LCR; OWS appears sound; adjacent to empty waste oil UST; butterfly valve not functioning-flows to storm drain. OWS under repair/construction as of 2/94 according to El Toro staff.	No further action recommended in the RFA based on soil sample results. The OWS should be cleaned and electrical valves tested to determine what repairs are needed per LCR.	S		Yes (UST 762B)	X	A,B,C,D,F	7
OWS 763A	763A	5A	763	1982	100/ Steel	Active	From RFA: SWMU 211-NFA. From LCR: OWS east of Bldg 698; not in use during survey, new valves being installed; OWS appears sound; UST associated with OWS has 3' of water. OWS under repair/construction according to El Toro staff.	No further action recommended in the RFA based on soil sample results. Cleaning the OWS was recommended in the LCR.	LC		Yes (UST 763B)	X	A,B,C,D,F	7
OWS 764B	764B	2A	764	1982	100/ Steel	Active	From RFA: SWMU 215-comb w/SWMU214-NFA. From LCR: OWS ID# 392 in LCR; UST adjacent to OWS; wash rack slab has numerous cracks. OWS under repair /construction as of 2/94 according to El Toro staff.	No further action recommended in the RFA based on soil sample results. The OWS should be cleaned per LCR.	LC		Yes (UST 764B)	X	A,B,C,D,F	7
OWS 765B	765B	1A	765	1982	100/ Steel	Active	From RFA: SWMU 218-comb w/SWMU 217. From LCR: OWS appears sound but access covers need replacement; 100 gal UST adjacent to OWS.	Cleaning the lines to the OWS recommended in the LCR.	LC		Yes (UST 765A)		A,B,C,D	7
OWS 766A	766A	1A	766	1982	100/ Steel	Active	From RFA: SWMU 220-NFA. From LCR: Due to heavy rainfall vault box was flooded; UST adjacent to OWS full of oil.	No further action recommended in the RFA based on soil sample results. Water in vault needs to be pumped out and the OWS inspected and cleaned per LCR.	LC		Yes (UST 766B)	X	A,B,C,D	7

**Table 3-16
Oil/Water Separator Inventory
MCAS El Toro BCP**

Database Tracking	OWS No.	Parcel	Location/ Nearest Building No.	Year Installed	Capacity (gal)/ Tank Material	Status	Comments	Further Action	Location Status (1)	Closure/ Removal/ Abandon. Date	UST Associated with OWS	RFA Sampling (X)	Document Source	BCP Area Type
OWS 800F	800F	4B	800	1984	1,500/ Concrete	Active	From RFA: SWMU 232-NFA.	No further action recommended in the RFA based on soil sample results.	S		No	X	A,B,D	7
OWS 802	802	4B	802	Unknown	1,000/ Concrete	Active	From LCR: OWS appears sound; needs cleaning. This OWS scheduled for maintenance/cleaning as of 2/94 according to El Toro staff.	Cleaning the OWS recommended in the LCR.	LC		No		C,D,F	7
OWS 817	817	3F	817	Unknown	1,500/ Concrete	Unknown	From RFA: SWMU 233-NFA. From LCR: OWS does not appear to be used; appears sound. OWS scheduled for maintenance/repairs according to El Toro staff.	No further action recommended in RFA based on soil sample results. Cleaning the OWS recommended in the LCR.	S		No	X	B,C,D,F	7
OWS 845	845	5A	846	Unknown	2,000/ Steel	Inactive	From RFA: SWMU 248-NFA. From LCR: OWS not in use; bolted ports not accessible, steam cleaner not functional; structural condition unknown. Rain diversion valves & controls scheduled to be installed at this OWS according to El Toro staff.		LC		No	X	C,F	7
OWS 850	850	5A	850	Unknown	Unknown/ Unknown	Active	From LCR: OWS located south of burn pits; bolt ports not accessible; UST believed to be associated with and adjacent to OWS. Rain diversion valves & controls scheduled to be installed at this OWS according to El Toro staff.	Additional investigations recommended in the LCR since little information about OWS is available.	LC		Unknown		C,F	7
OWS 892	892	5A	892	Unknown	1,375/ Concrete	Active	From LCR: OWS appears sound; produces approx. 5-20 gpm; in use 4 days/week. Rain diversion valves & controls scheduled to be installed at this OWS according to El Toro staff.		LC		No		C,F	7
OWS 896	896	5A	896	1982	600/ Steel	Active	From LCR: OWS ports bolted; appears sound; may have been built in 1982; 150 gal fiberglass UST located west of OWS, UST and piping double-walled. Rain diversion valves & controls scheduled to be installed at this OWS according to El Toro staff.		LC		Unknown		C,F	7
OWS 897	897	5A	897	Unknown	Unknown/ Steel	Active	From LCR: Waste oil level alarm light on - facility personnel reported problems with level sensor switch. Rain diversion valves & controls scheduled to be installed at this OWS according to El Toro staff.		LC		No		C,F	7
OWS 1702	1702	1B	1702	Unknown	550/ Steel	Active	From LCR: No access to OWS ports; OWS appears sound; adjacent UST and its piping has secondary containment. OWS scheduled for general maintenance/cleaning according to El Toro staff.		LC		Unknown		C,F	7

**Table 3-16
Oil/Water Separator Inventory
MCAS El Toro BCP**

Database Tracking	OWS No.	Parcel	Location/ Nearest Building No.	Year Installed	Capacity (gal)/ Tank Material	Status	Comments	Further Action	Location Status (1)	Closure/ Removal/ Abandon. Date	UST Associated with OWS	RFA Sampling (X)	Document Source	BCP Area Type
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Document Source:

- A - MCAS El Toro, 1993. Management Overview of Storage Tanks.
- B - EG&G Idaho, Inc. 1990. Draft USMC MCAS El Toro Underground Storage Tank Survey Report.
- C - Law/Crandall, Inc., 1993. Oil/Water Separator Survey, El Toro Marine Corps Air Station.
- CE - Device under Conditional Exemption for Specified Wastestreams per a letter from DTSC dated 1/10/94.
- D - Jacobs Engineering Group, 1993. MCAS El Toro Final RCRA Facility Assessment Report.
- E - Letter from the Department of Toxic Substance Control (DTSC) to MCAS El Toro on Acknowledgement of Units Operating Under Conditional Authorization and/or Conditional Exemption.
- F - Personal communications with El Toro Staff in February 1994.

(1) Location Status

- LC - Location confirmed.
- S - OWS location identified on historical as-built plan. Location to be confirmed by field survey.
- SB - Location of building confirmed. OWS location to be determined by field survey.

LCR - Law/Crandall Report

NA - Not applicable

NFA - No further action

NT - Not tested

OWS - Oil/Water Separator

RFA - RCRA Facility Assessment

UST - Underground Storage Tank

Table 3-17	
Special-Status Wildlife Species at MCAS El Toro (1)	
MCAS El Toro BCP	
Species	Status
AMPHIBIANS/REPTILES	
Arroyo Toad	Federal Category 2 Candidate
Coast Patch-nosed Snake	Federal Category 2 Candidate
Coastal Rosy Boa	Federal Category 2 Candidate
Coastal Western Whiptail	Federal Category 2 Candidate
Northern Red-diamond Rattlesnake	Federal Category 2 Candidate
Orange-throated Whiptail	Federal Category 2 Candidate
Red-legged Frog	Federal Category 1 Candidate
San Diego Coast Horned Lizard	Federal Category 2 Candidate
San Diegon Ringneck Snake	Federal Category 2 Candidate
Southwestern Pond Turtle	Federal Category 1 Candidate
Two-striped Garter Snake	Federal Category 2 Candidate
Western Spadefoot Toad	California Species of Special Concern
BIRDS	
Bell's Sage Sparrow	Federal Category 2 Candidate
California Gnatcatcher	Federally Listed as Threatened
Cooper's Hawk	California Species of Special Concern
Ferruginous Hawk	Federal Category 2 Candidate
Loggerhead Shrike	Federal Category 2 Candidate
Osprey	California Species of Special Concern
Prairie Falcon	California Species of Special Concern
San Diego Cactus Wren	Federal Category 2 Candidate
Sharp-shinned Hawk	California Species of Special Concern
Southern California Rufous-Crowned Sparrow	Federal Category 2 Candidate
MAMMALS	
California Leaf-Nosed Bat	Federal Category 2 Candidate California Species of Special Concern
Greater Western Mastiff-Bat	Federal Category 2 Candidate California Species of Special Concern

Table 3-17	
Special-Status Wildlife Species at MCAS El Toro (1)	
MCAS El Toro BCP	
Species	Status
Los Angeles Little Pocket Mouse	Federal Category 2 Candidate California Species of Special Concern
Northwestern San Diego Pocket Mouse	Federal Category 2 Candidate
Pacific Little Pocket Mouse	Federal Category 2 Candidate California Species of Special Concern
San Diego Black-tailed Jackrabbit	Federal Category 2 Candidate
San Diego Desert Woodrat	Federal Category 2 Candidate
Southern Grasshopper Mouse	Federal Category 2 Candidate
Spotted Bat	Federal Category 2 Candidate California Species of Special Concern
Notes:	
(1) Sensitive species observed or expected to occur at MCAS El Toro.	
Source: USFWS, 1993.	

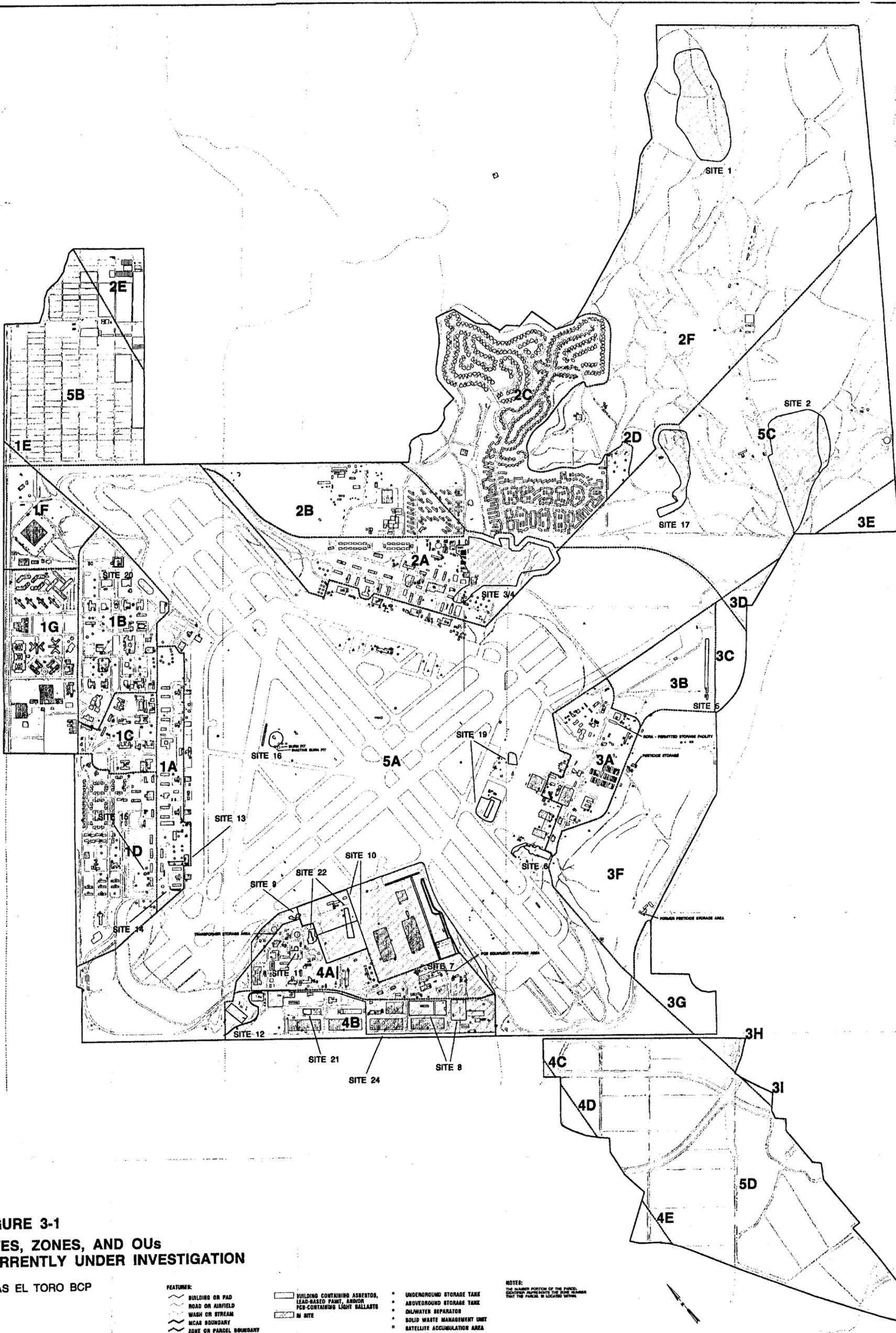


FIGURE 3-1
SITES, ZONES, AND OUs
CURRENTLY UNDER INVESTIGATION

MCAS EL TORO BCP

FEATURES:

- BUILDING OR PAD
- ROAD OR AIRFIELD
- WASH OR STREAM
- MCAS BOUNDARY
- ZONE OR PARCEL BOUNDARY
- BUILDING CONTAINING ASBESTOS, LEAD-BASED PAINT, OR PCB-CONTAINING LIGHT BALLASTS
- IN SITE
- UNDERGROUND STORAGE TANK
- ABOVEGROUND STORAGE TANK
- OIL/WATER SEPARATOR
- SOLID WASTE MANAGEMENT UNIT
- SATELLITE ACCUMULATION AREA
- PCB LOCATION

NOTE:
 THE NUMBER PORTION OF THE PARCEL IDENTIFIER INDICATES THE ZONE NUMBER THAT THE PARCEL IS LOCATED WITHIN.



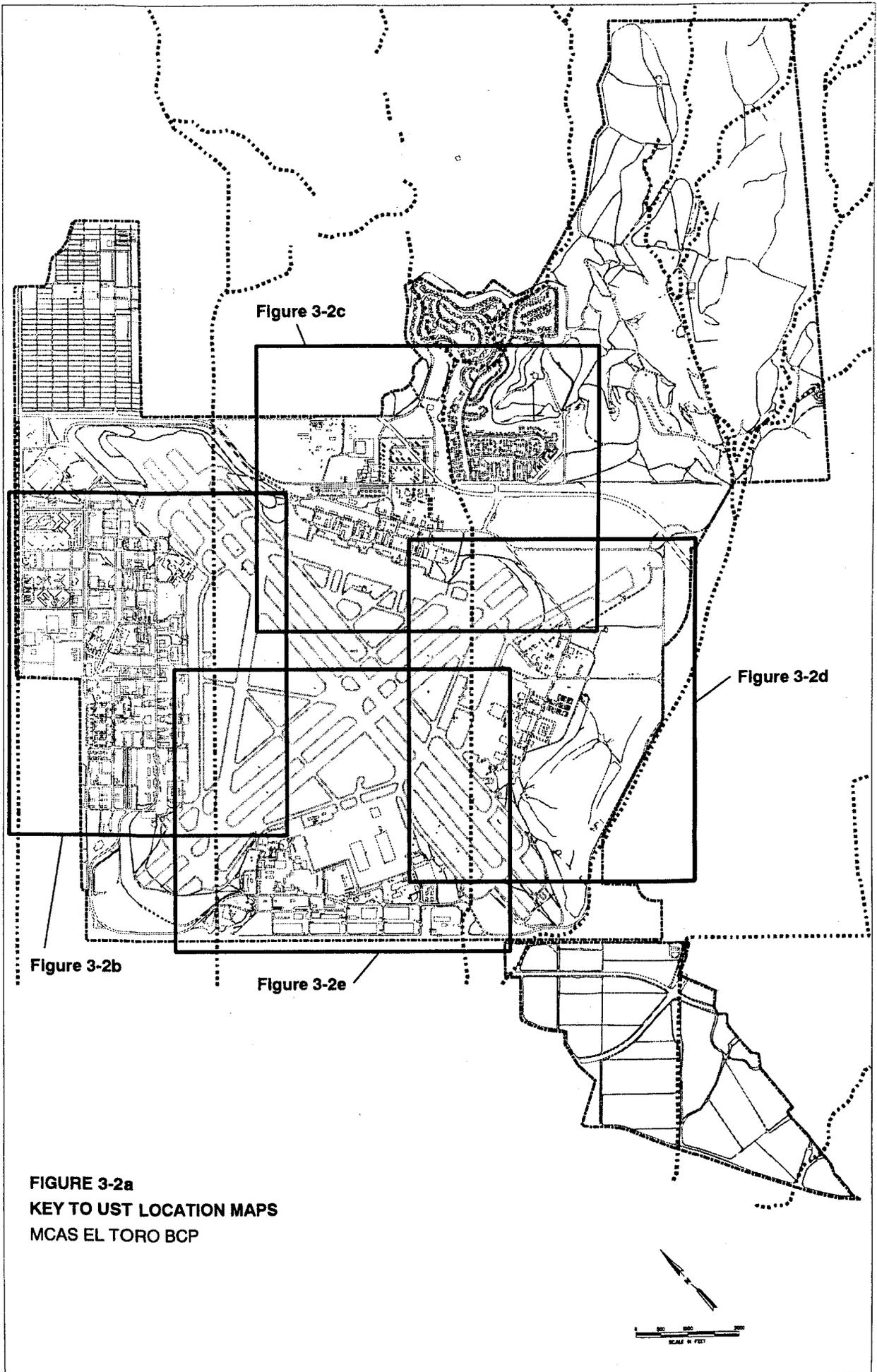


FIGURE 3-2a
KEY TO UST LOCATION MAPS
MCAS EL TORO BCP

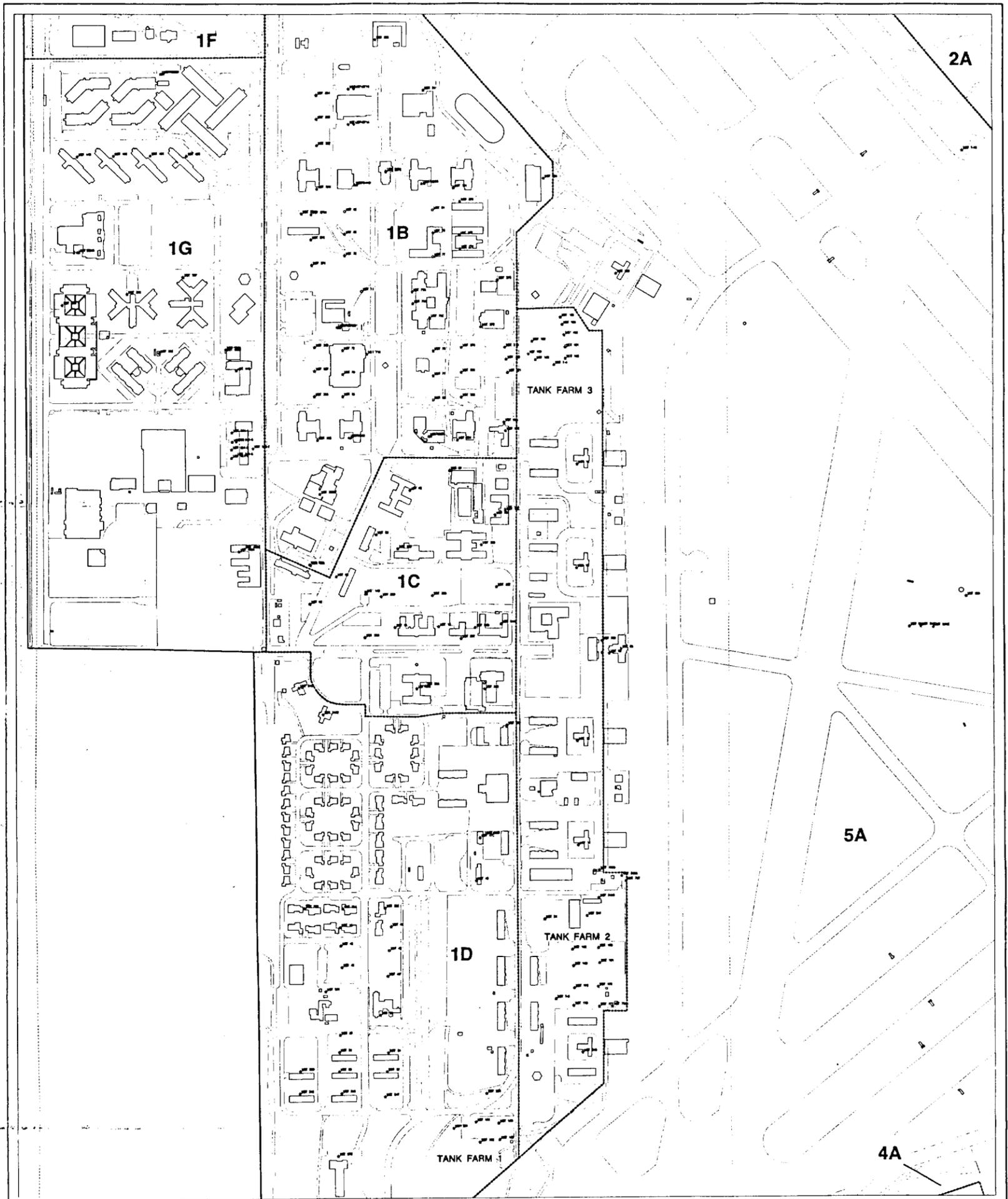
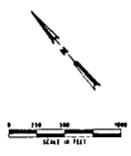


FIGURE 3-2b
UST LOCATIONS
 MCAS EL TORO BCP

- FEATURES:**
- ▭ BUILDING OR PAD
 - ROAD OR AIRFIELD
 - ~ WASH OR STREAM
 - ~ FUEL LINE
 - ~ MCAS BOUNDARY
 - ~ ZONE OR PARCEL BOUNDARY

- CONTAMINATED UST LOCATION
- CLEAN UST LOCATION
- UNEVALUATED UST LOCATION

NOTE:
 THE HAZARD PORTION OF THE PARCEL IDENTIFIED NUMBERS, THE ZONE NUMBER THAT THE PARCEL IS LOCATED WITHIN.



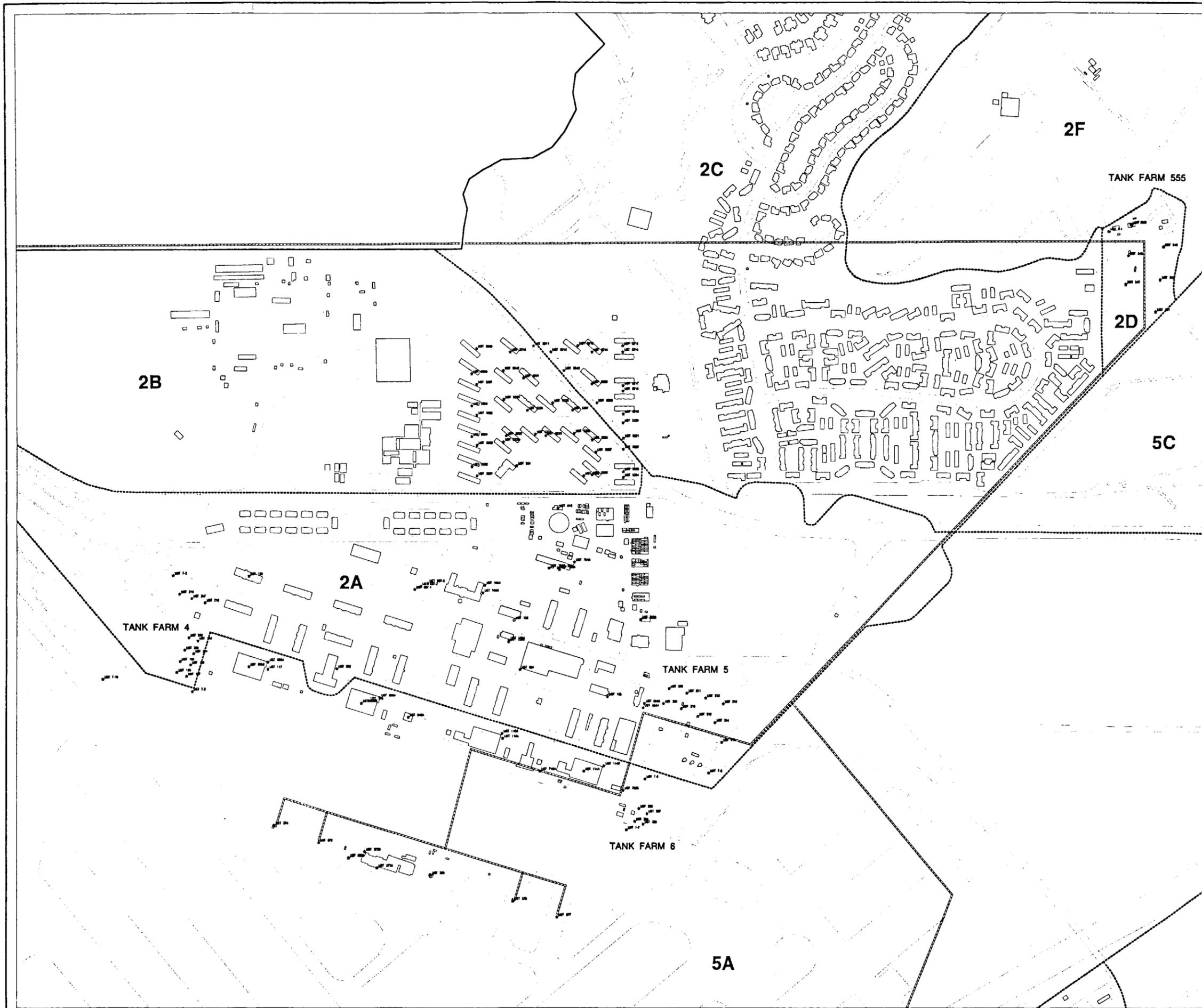


FIGURE 3-2c
UST LOCATIONS
 MCAS EL TORO BCP

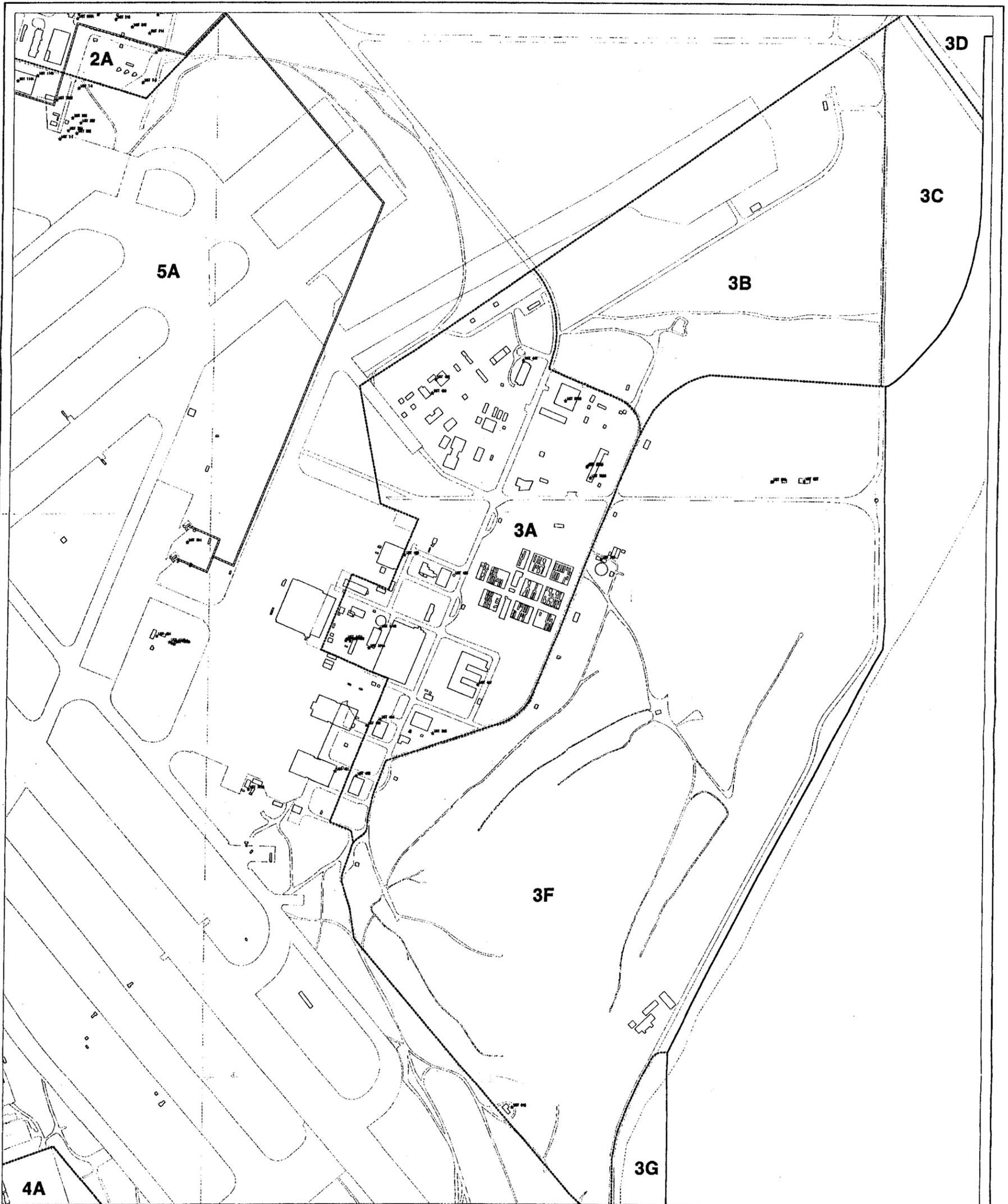


FIGURE 3-2d
UST LOCATIONS

MCAS EL TORO BCP

FEATURES:

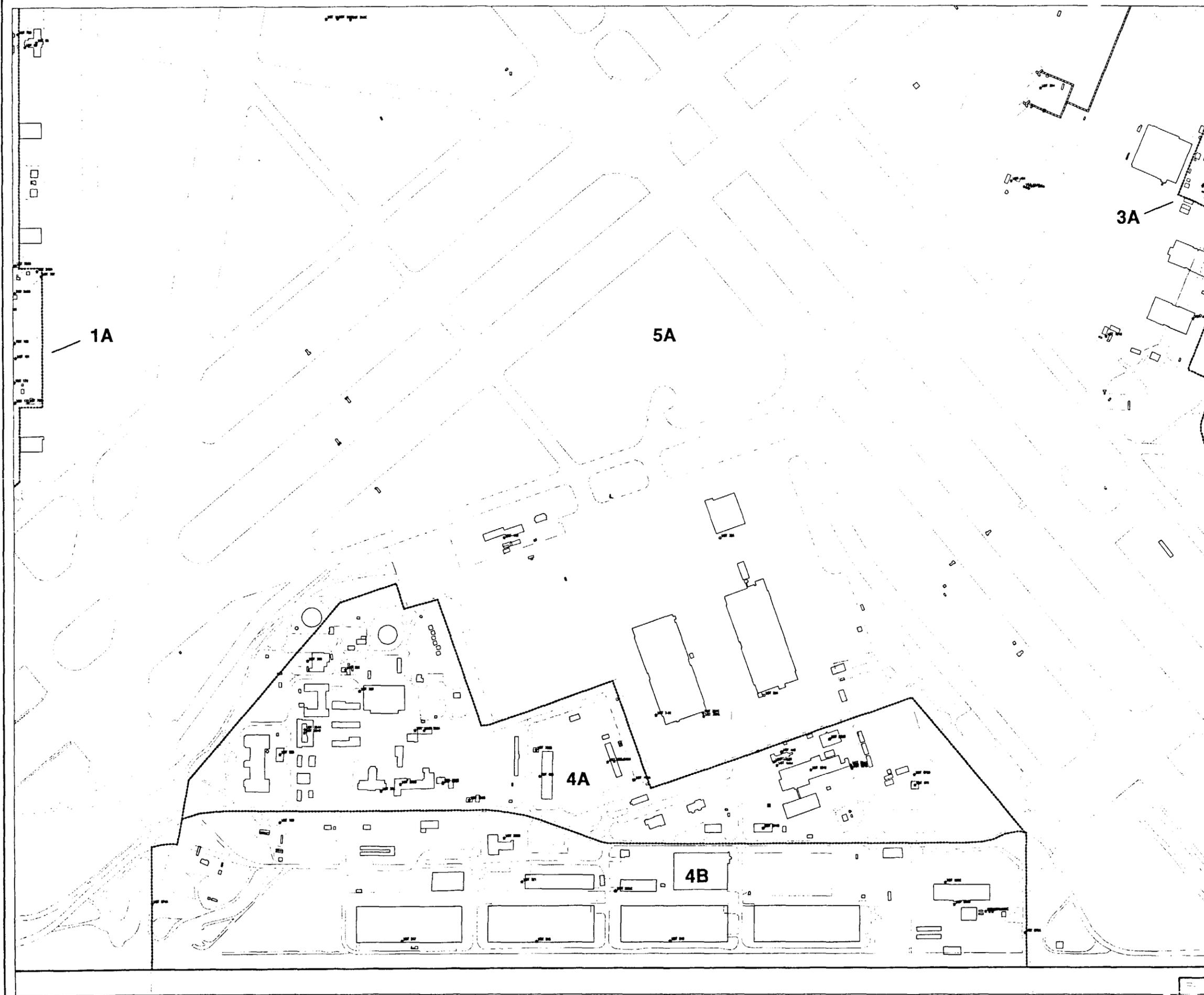
- BUILDING OR PAD
- ROAD OR AIRFIELD
- WASH OR STREAM
- FUEL LINE
- MCAS BOUNDARY
- ZONE OR PARCEL BOUNDARY

- CONTAMINATED UST LOCATION
- CLEAN UST LOCATION
- UNEVALUATED UST LOCATION

NOTES:

THE NUMBER PORTION OF THE PARCEL IDENTIFIER REPRESENTS THE ZONE NUMBER THAT THE PARCEL IS LOCATED WITHIN.





- FEATURES:**
- BUILDING OR PAD
 - - - ROAD OR AIRFIELD
 - ~ ~ ~ WASH OR STREAM
 - ~ ~ ~ FUEL LINE
 - - - MCAS BOUNDARY
 - - - ZONE OR PARCEL BOUNDARY
- CONTAMINATED UST LOCATION
 - CLEAN UST LOCATION
 - ◐ UNEVALUATED UST LOCATION

NOTES:
 THE NUMBER PORTION OF THE PARCEL IDENTIFIER REPRESENTS THE EDGE NUMBER THAT THE PARCEL IS LOCATED WITHIN.

FIGURE 3-2e
UST LOCATIONS
 MCAS EL TORO BCP

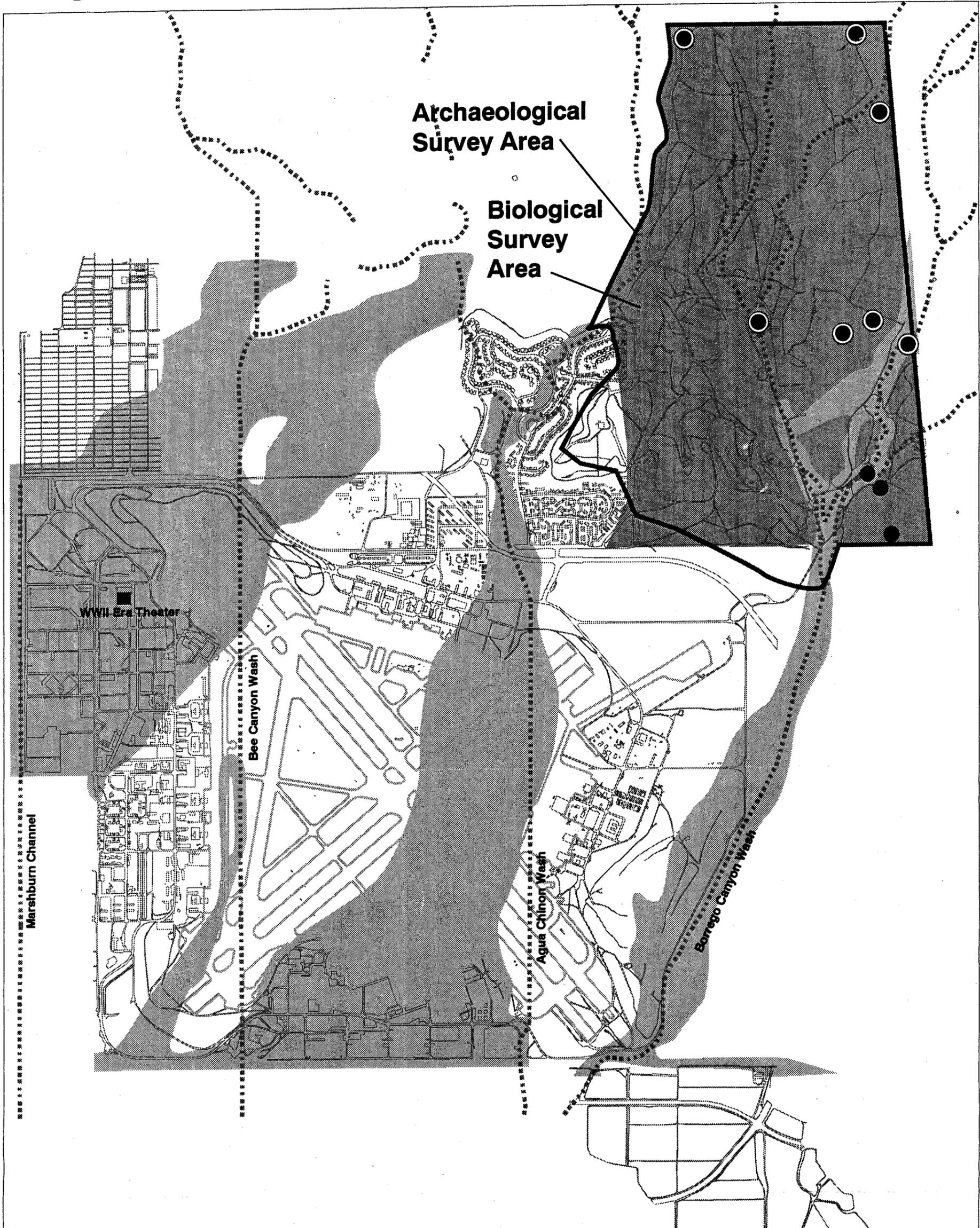
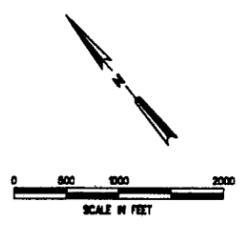


FIGURE 3-3
NATURAL AND CULTURAL
RESOURCES FEATURES
MCAS EL TORO BCP

Legend

- Archaeological Sites
- Archaeological Sites Recommended for Further Evaluation for Eligibility for Nomination to the National Register of Historic Places
- ▨ 100-Year Floodplain



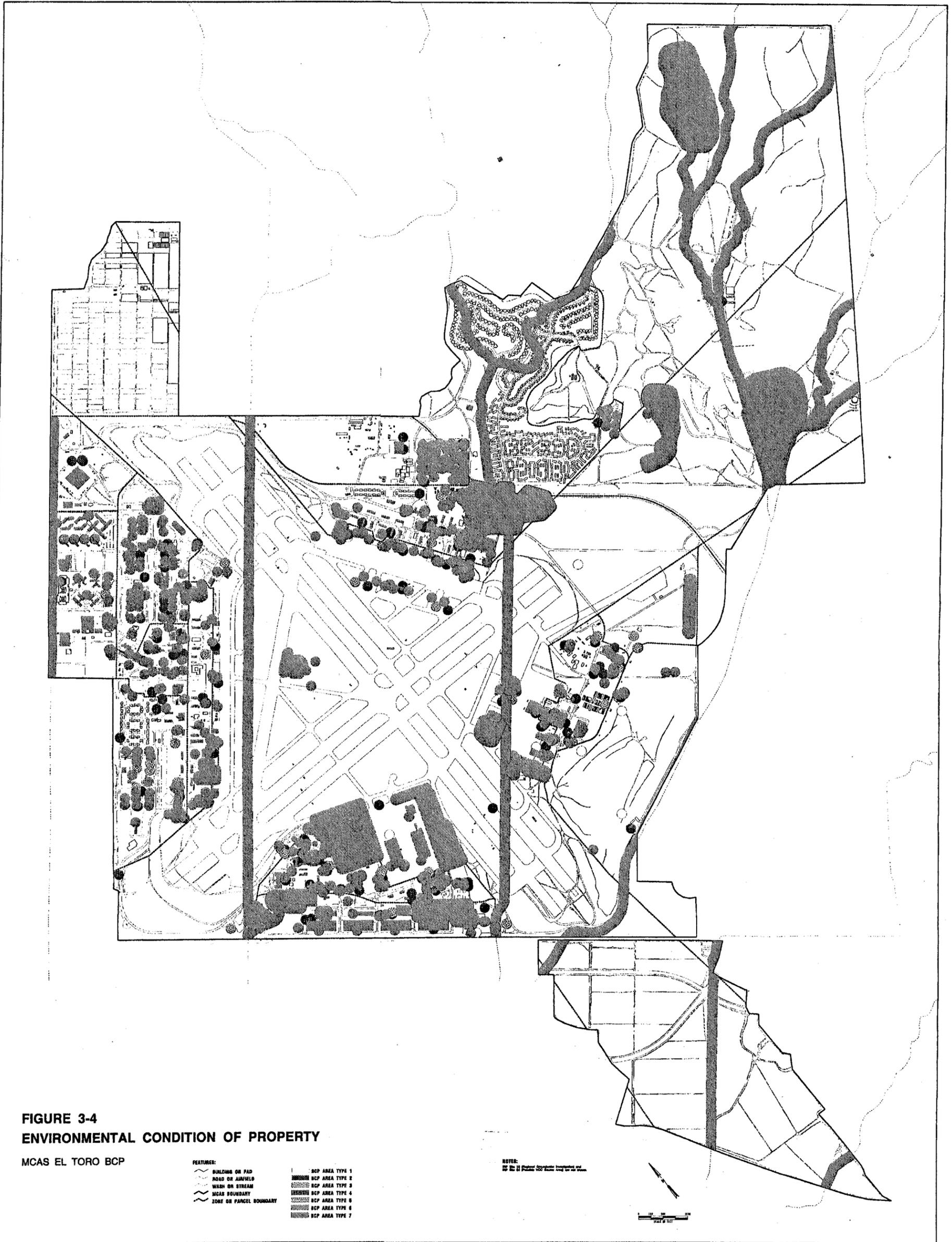


FIGURE 3-4
ENVIRONMENTAL CONDITION OF PROPERTY

MCAS EL TORO BCP

- | | |
|---------------------------|-----------------|
| FEATURES: | |
| — BUILDING OR PAD | BCP AREA TYPE 1 |
| — ROAD OR AIRFIELD | BCP AREA TYPE 2 |
| — WASH OR STREAM | BCP AREA TYPE 3 |
| — MCAS BOUNDARY | BCP AREA TYPE 4 |
| — ZONE OR PARCEL BOUNDARY | BCP AREA TYPE 5 |
| | BCP AREA TYPE 6 |
| | BCP AREA TYPE 7 |

NOTE:
 See the 10' Profile for details on the wetland area.



Chapter 4

Installation-Wide Strategy For Environmental Restoration

This section summarizes the strategies for environmental restoration and compliance programs at MCAS El Toro based on the currently available information. Closure of the Station is scheduled for mid-1999 and, therefore, environmental restoration and compliance strategies will shift from supporting an active Component mission to preparing for disposal and reuse of MCAS El Toro property.

4.1 ZONE/OPERABLE UNIT DESIGNATION AND STRATEGY

The following sections discuss zones identified for the BCP and existing IRP OUs and sites. According to the BCP guidance, zones may be identified to create geographically contiguous areas that are amenable to management as single investigative units. The zones for MCAS El Toro have been created by the BCT and Project Team based on geographic considerations, mission activities, and parcel disposal considerations. Current IRP OUs have been defined primarily by the type of IRP sites (such as potential source areas for the VOC contamination) rather than by geographic locations. The current zone designations, therefore, do not have a significant correlation with the IRP OUs. However, BCP zones have been defined to reduce or eliminate splitting of individual IRP sites.

4.1.1 Zone Designations

For the purposes of this BCP, MCAS El Toro was divided into five geographically contiguous zones. Each of the five zones was subdivided into parcels with a varying number of parcels per zone. These parcels correspond to the possible reuse parcels discussed in Subsection 2.1. In

Chapter 4 **Installation-Wide Strategy For Environmental Restoration**

the absence of a reuse plan, parcelization was based on current land use at MCAS El Toro. Zone and parcel divisions for the Station are shown in Figure 3-1. A description of each zone is provided below.

- o Zone 1 consists of the northwest quadrant of the Station and contains administrative services, the Station headquarters, family and bachelor housing, and community support services. IRP Sites 13, 14, 15, and 20 are located in Zone 1.

- o Zone 2 consists of the northeast quadrant of the Station. Zone 2 houses activities of the Marine Aircraft Group (including training, maintenance, supply and storage, and airfield operations), additional family housing and community services, as well as an open area surrounding and including the EOD range. IRP Sites 1, 3, and 4 are located in Zone 2.

- o Zone 3 comprises the southeast section of the Station where additional administrative and maintenance services are located. The Station Golf Course is also located in this zone. IRP Site 5 is located in Zone 3.

- o Zone 4 is the southwest area of the Station. This Zone primarily houses maintenance, supply, storage services, and small portions of the southern flight corridor. IRP Sites 8, 11, 12, 21, and portions of 24 are located in Zone 4.

- o Zone 5 incorporates all areas necessary to maintain airport operations. This includes active runways and taxiways, the entire aircraft parking apron, and all takeoff and approach flight

Chapter 4 **Installation-Wide Strategy For Environmental Restoration**

corridors. IRP Sites 2, 6, 7, 9, 10, 16, 17, 19, 22 and portions of 24 are located within Zone 5.

Parcels within each zone were delineated according to current land use at the Station. Also, the boundaries for each parcel were drawn such that division of IRP sites between parcels was minimized. Site 24 (Possible VOC Source Area) encompasses most of the southwest quadrant of the Station and, therefore, was divided between parcels 5A, 4A, and 4B. Site 25 (Station Washes) consists of the four drainage channels that traverse or border the Station and, therefore, was divided between numerous parcels. In addition, parcel boundaries were established so as to minimize the division of LOCs. LOCs are defined as locations of environmental concern (e.g., IRP sites, USTs, RFA SWMUs/AOCs, etc.).

4.1.2 Operable Unit Designations

The zones and parcels identified in Subsection 4.1.1 do not correspond to the OUs established for the IRP sites. The relationship between IRP sites, OUs, and parcels is shown in Table 4-1a (Relationship Between IRP Sites, OUs, and Parcels). The current OU designations, defined prior to announcement of base closure, are as follows:

- o OU-1 is the Regional Groundwater Investigation

- o OU-2 includes the sites that are considered to be the potential VOC source areas for the Station.

- o OU-3 includes all the remaining IRP sites.

As new data become available, the OU definitions may be re-evaluated and refined to better suit restoration strategies that expedite base reuse and disposal. The OU definitions can be modified at any time by agreement among the parties to the FFA.

4.1.3 Sequence of Operable Units

To date, only a general OU strategy has been developed for MCAS El Toro. OU-1 (Regional Groundwater Investigation) is currently in the FS stage and an interim ROD is expected to be completed in the first part of 1995. OU-2 (potential VOC source areas) and OU-3 (the remaining RI/FS sites) have undergone a Phase I RI and are currently awaiting the start of a Phase II RI effort. As additional information on OU sequencing becomes available, the BCP will be updated.

4.1.4 Early Actions Strategy

A list of planned early actions related to the IRP at MCAS El Toro is presented in Table 4-2 (Environmental Restoration Planned Early Action). The table presents the site number, the parcel in which the site is located, and a description of the action and stratum involved in the early action. The early actions are prioritized from highest (A) to lowest (C), with the action at A priority sites planned for implementation in 1994. The implementation dates for sites with B and C priorities have not yet been determined.

In addition to the list of early actions presented in Table 4-2, a soil gas survey effort for the Station is planned prior to the start of Phase II field work for OUs 2 and 3.

Chapter 4 Installation-Wide Strategy For Environmental Restoration

4.1.5 Remedy Selection Approach

Remedies will be selected in accordance with statutory and NCP criteria. The MCAS EL Toro Project Team will involve all parties who have an impact on the remedies selected at the Station in the remedy selection process. During the evaluation of alternatives, particular attention will be given to the following issues:

- o Applicable or Relevant and Appropriate Requirements (ARARs)
- o Land use/risk assessment
- o Base-wide treatment facilities
- o Applicable remedies
- o Petroleum, oils, and lubricants (POLs)
- o Future land use
- o Reduction of risk for human and ecological receptors
- o Cost effectiveness
- o Use of presumptive remedies as applicable

4.1.6 Installation-Wide Source Discovery and Assessment Strategy

An EBS is currently being prepared for MCAS El Toro. As additional features of potential environmental concern are identified by the EBS, the BCP will be revised to include these features as LOCs. Subsequent revisions will track the status and strategies for evaluating and taking action at the LOCs, as appropriate.

Various features/anomalies were identified in the 1993 aerial photograph assessment prepared by SAIC. A meeting of the BCT/Project Team will

be held to evaluate these features/anomalies identified in the aerial photograph assessment.

Station records indicate that aircraft refurbishing operations occurred in the southwest quadrant of the Station during the 1940s. A soil gas survey will be conducted in this area to identify possible VOC sources. The BCT/Project Team will also conduct interviews with former MCAS El Toro personnel to obtain additional information on the refurbishing operations.

4.2 COMPLIANCE STRATEGY

This section presents a discussion of strategies for compliance programs at the Station. Table 4-3 (Environmental Compliance Planned Early Action) presents a list of potential early actions related to compliance programs. The LOCs for early action include USTs, OWSs, and some SWMUs/ACCs that were recommended for further action in the RFA for the Station.

4.2.1 Storage Tanks

Underground Storage Tanks (USTs). A total of 408 USTs have been identified at the Station. Of these, 85 are currently active, 175 are inactive, and 148 have been removed or closed in place, potentially in accordance with OCHCA requirements. The status of these 148 removed or closed in place USTs needs to be verified against records held by OCHCA.

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It is assumed that all of the USTs will eventually need to be removed from the Station for the following reasons:

- o Most reuse scenarios (with the possible exception of reuse as an airport) would not require the USTs.

- o If USTs are needed in the future by a reuse scenario for the property, new double-walled USTs would need to be installed.

Prior to base closure and eventual removal of all USTs, various USTs that are essential to Station operations will need to remain active and will, therefore, need to be monitored according to requirements of OCHCA.

Development of a Tank Management Plan (TMP).

A comprehensive Tank Management Plan (TMP) will be developed for MCAS El Toro as part of base closure. The TMP will combine data from multiple existing sources to identify a thoroughly-checked and verified list of USTs at the Station, and will identify, to a high degree of confidence, the location and orientation of each UST via records reviews combined with field survey verification. The TMP will be an important source of information in assessing the environmental condition of property, and evaluating strategies for UST management with respect to base closure. The TMP is planned to be prepared in 1994/1995.

The TMP will verify the number of USTs on-Station, basic data associated with each UST (e.g., capacity, material of construction, date of installation, material stored, etc.), the current status of each UST, and the exact location and orientation of each UST. In Chapter 3 of the BCP,

Table 3-7 presents a relatively complete list of USTs and associated data that will be used as a starting point in developing the TMP for MCAS El Toro.

In addition to providing comprehensive data for each UST, the TMP will also present plans for the future management of USTs at the Station, including evaluations of strategies and prioritizations for UST removals, compliance monitoring for USTs that will remain active up through the base closure date of July 1999, and plans for eventual removal/replacement and closure of all USTs.

Some of the items required in the TMP will include the following:

- o **Comprehensive List of USTs and Their Location.** A comprehensive list of "all" USTs at the Station needs to be developed. The location of each UST also needs to be identified and verified via field surveys. The following activities will need to be performed:
 - Review past reports (by EG&G, Jacobs Team, etc.)
 - Review past lists of USTs generated by the Station
 - Review available drawings to preliminarily identify the location of each UST
 - Review available fuel delivery records
 - Review available waste pickup records for USTs

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- Conduct interviews of active and retired Station personnel
 - Conduct site visits
 - Conduct geophysical testing to identify/verify each of the UST locations in the field
 - Resolve discrepancies between lists and conflicting UST data
- o **Current Status of Each UST.** The current status of each UST needs to be identified and verified. Each UST will be identified as active (i.e., essential to Station operations), inactive (nonessential to Station operations), or properly removed/closed. The following activities will need to be performed:
- Verify active nature of USTs via fuel delivery records, dispensing records, interviews, etc. Also, determine whether these active USTs are in or out of compliance with OCHCA requirements. (Since these USTs will stay active until base closure in 1999, any that are out of compliance will need to be brought into compliance with current UST regulations.)
 - For inactive USTs, verify under which of the following categories each inactive UST falls:

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- Filled with sand (improper abandonment by today's standards)
- Idle (UST is empty or filled with liquid that was previously stored in it)
- For those USTs removed according to OCHCA requirements, identify those requiring no further action and those requiring further action.
- o **Evaluation of Available UST Capacity Versus Station Needs.** The storage requirements for the Station need to be evaluated versus the capacity of the active/essential USTs. This evaluation will allow the Station to minimize the number of USTs that will be required to remain active through 1999. Minimization of the number of active USTs could be realized through the following:
 - **Consolidation of storage.** By evaluating the total available storage capacity for a fuel or waste at the Station against the required volume to support operations, a minimum number of USTs can be identified as being capable of meeting the Station's needs. USTs beyond this minimum number could be placed on the inactive list of USTs scheduled for removal prior to 1999. For example, if three USTs for diesel fuel adequately provide the Station's required diesel fuel storage volume, then diesel should be considered for storage only in three USTs, allowing retirement of other diesel USTs from the active list.

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- **Alternative fuel delivery and waste pickup methods.**
By increasing the frequency of fuel deliveries and waste pickups for the Station, a smaller storage capacity for each fuel or waste would be needed, and additional USTs could be retired from the active list.

- o **Prioritization of UST Removals.** The TMP will evaluate the inactive and active USTs at the Station and present a schedule for the effective removals of these USTs with respect to base closure.

Interim Strategy for UST Management

Until the TMP is completed and a more formalized approach for UST management is developed, the following interim strategy will be used for planning work associated with USTs at this time:

- o **Active USTs.** All currently active USTs are assumed to be essential to base operations, and as such, are assumed to remain active until July 1999.
 - Prior to 1999, these USTs will need to be properly monitored per the requirements of OCHCA. Nonintrusive testing may also be conducted at active USTs to assess the possibility of a release at these USTs. Testing, such as soil gas surveys and/or tank integrity tests, may be considered at these USTs. The TMP will provide recommendations for the compliance

monitoring and any non-intrusive testing that may be done at USTs planned for continued use until 1999.

- After 1999, the active USTs will need to be removed.

- o **Inactive USTs.** All inactive USTs, including those previously abandoned in place with sand, will need to be removed prior to July 1999.

Assumptions on UST Leakage

Until all of the USTs are actually removed, the Station will not know how many have leaked, and how many USTs will need to have some sort of remedial action for cleanup of contamination.

Based on knowledge of similar facilities, it is anticipated that remediation will be required at a substantial number of USTs with past (or current) leakage from the tank and/or its associated piping. Since the actual percentage of leaking USTs and the actual extent of the leakage will not be known until after the removals have occurred, some initial assumptions have been made by the BCT:

- o **Percent of USTs with Leakage.** It is assumed that 60 percent of the existing USTs requiring removal will have leaked and contaminated the subsurface soil. These USTs will require some form of remedial action.

- o **Percent of USTs with Shallow and Deep Soil Contamination.** For the 60 percent of USTs that have leaked, it is assumed that half

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of these will have resulted in shallow contamination (i.e., less than 20 feet deep) that can be remediated by excavation and offsite treatment/disposal, and half will have resulted in deep contamination (greater than 15 feet deep) that will require in-situ remediation. Thus, 30 percent of the USTs awaiting removal are assumed to have shallow contamination, and 30 percent are assumed to have deep contamination.

- o **Remedial Action Assumed for USTs with Deep Contamination.** Of the USTs with deep contamination, it is assumed that SVE and in-situ bioremediation will be used to clean up contaminated soil. It is assumed that these USTs (30 percent of the total) split to 15 percent - SVE and 15 percent bioremediation.

- o **Percent of USTs with Potential Groundwater Contamination.** It is assumed that 5 percent of the USTs have leaked sufficient quantities of hydrocarbons to have impacted groundwater at the Station. For these, a groundwater remediation program is assumed to be required.

Schedule Assumptions

A closure date of 1999 (or sooner) is targeted for the Station. Since significant remedial actions will be associated with the leaking USTs, the schedule for the overall UST work at the Station must include significant time for both the removal of USTs, as well as for the remediation effort required for the leaking USTs.

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Inactive USTs. There are 180 inactive USTs at the Station that are planned for removal prior to the closure date of 1999. To allow time for completion of necessary remedial actions at those inactive USTs where leakage has occurred, the following split of the remaining time to 1999 is assumed:

- o Half of the remaining time will be required for UST removals. This corresponds to about 2.5 years, or completion of the removals of inactive USTs in 1997.

- o Half of the time will be required to conduct the additional site investigation and remedial action associated with the inactive USTs that have leaked. This corresponds to completion of required remediation in 1999.

UST removal contracts at the Station in the past have been awarded for clusters of 30 to 50 USTs. It is anticipated that this method of awarding clusters of tanks for removal will be continued for the base closure.

Based on 175 removals required for inactive USTs, a cluster size of 40, a time frame of 2.5 years (130 weeks) to complete the removals, and no schedule gaps between UST clusters except for Navy contracting time to award the work, the table below presents the required time for removal of all USTs in a cluster as a function of the subcontracting time required by the Navy to award the contracts for the work:

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Number of Weeks to Award Contract	Number of Weeks to Remove USTs in Cluster	Number of UST Removals Per Week
2	27.7	1.4
4	25.7	1.6
8	21.7	1.8
12	17.7	2.3

The award of contracts could be expedited significantly by initiating the bidding and selection process for each successive UST cluster prior to the completion date for the removals being performed for the previous cluster.

Active USTs. There are 85 active USTs at the Station that are considered essential for base operations through the closure date of 1999. The TMP will provide a plan with a schedule for the removals of these USTs as well as a plan for monitoring these USTs while they are still active up to 1999. To assess the possibility of a release from these USTs prior to 1999, some non-intrusive testing (soil gas survey and/or tank integrity testing) may be performed.

Prioritizing/Scheduling of USTs for Early Removal

The UST removals at the Station will be performed in clusters as has been done in the past. To perform the work in the most effective way, USTs will need to be prioritized to assess which ones should be done first and which can potentially wait toward the end of the scheduled removals. The TMP will provide a plan prioritizing USTs for removal.

Some of the factors to be considered in selecting USTs for early removal are the following:

- o USTs with evidence of a release
- o USTs at the Tank Farms (i.e., large capacity, extremely old tanks, many as much as 50 years old) have a high likelihood of leakage, and should be given priority for early evaluation in the sequencing of the work. Since these are likely to be essential for Station operations and would not necessarily be candidates for early removal, early evaluation of these USTs for leakage by nonintrusive testing (soil gas survey and/or tank integrity tests) may need to be considered. Other large, old USTs should also be identified for potential early removal or evaluation.
- o As a key part of the base closure, sequencing of USTs for removal must also be evaluated with respect to parcels that could potentially be transferred to lease or deed quickly.

Aboveground Storage Tanks (ASTs). A total of 15 ASTs have been identified at the Station. As part of the TMP for MCAS El Toro, an inventory of the ASTs should be performed along with an assessment of the current and anticipated future need for these ASTs. The TMP will provide a recommendation for management of ASTs with regard to current regulations and base closure requirements.

Fuel Supply Pipelines. A system of underground fuel supply pipelines transfers fuel from large-capacity JP-5 USTs in Tank Farm 555 to various refueling points within the Station, primarily at Tank Farm 5. These

pipelines are considered essential to Station operations and are planned to be removed after 1999. In the interim, some nonintrusive testing (such as a soil gas survey) may be considered to evaluate the pipeline network prior to its planned removal. The TMP to be developed for the Station will include strategies for the fuel supply lines.

4.2.2 Hazardous Materials/Waste Management

Until the Station is closed in 1999, it is anticipated that hazardous materials and hazardous waste will still require management. An RCRA-permitted hazardous waste storage area (Building 673-T3) will need to be operational up to July 1999, and will then need to be closed.

Until this permitted facility is closed, hazardous materials and waste management activities will continue to be performed in accordance with the Station's current management plan. After the permitted facility is closed, onsite storage of hazardous waste will be limited to less than 90 days.

The Station's paved and bermed SAAs will be phased out as the current tenants begin to leave the Station. It will be important to keep a few of these operational until hazardous waste is no longer generated.

4.2.3 Solid Waste Management

Current solid waste management practices (i.e., offsite disposal of Station's solid waste) will continue until final base closure. No landfills on the Station are currently active. Some consolidation of waste may occur in the future as part of base closure. Remedial action for the

existing landfills on-Station will be addressed in the IRP. Soil from IRP sites may be used as a cover for a landfill as part of closure.

4.2.4 Polychlorinated Biphenyls (PCBs)

It is believed that currently all of the PCB-containing transformers have been removed from the Station. Some PCB-containing equipment may still be present at the Station, and will be removed prior to completion of base closure.

Some PCB storage areas identified at the Station that have been or may need to be evaluated include:

- o SWMU/AOC 7 (transformer storage area) was evaluated in the RFA and recommended for no further action based on data from a sampling visit. This is currently under review by DTSC.
- o Site 11 (Transformer Storage Area) is a PCB release site that is currently being evaluated in the IRP.
- o A storage area adjacent to Tank 175 currently stores non-PCB-containing transformers. One PCB transformer was identified by Station personnel as having been stored in this area. No release of PCBs from this single transformer is believed to have occurred. A site inspection of this area may be performed to survey the area for evidence of releases.
- o A storage area for PCB-equipment was recently identified at Building 324. This area was not inspected or evaluated as part

of the RFA. At a minimum, this storage area may need to be inspected. The inspection will dictate whether further investigation is needed.

Some light fixtures in buildings at the Station may contain ballasts containing PCBs. Action for buildings with PCB-containing light fixtures will depend on whether a building is planned for reuse or for demolition. If a building with such fixtures is scheduled to be demolished, proper demolition and disposal activities for the PCB-ballasts will need to be performed. If a building is scheduled to be reused, an evaluation will be made for appropriate replacement or management in-place.

4.2.5 Asbestos

Asbestos abatement action will depend on whether a building is planned for reuse or for demolition. If a building with ACM is scheduled to be demolished, proper demolition and disposal activities for the ACM will need to be performed. If a building with ACM is scheduled to be reused, the ACM will be appropriately managed in-place prior to reuse.

The BCT recommends that a survey for ACMs should be conducted prior to a major remodeling effort or demolition of any building at MCAS El Toro regardless of whether it is currently known to contain ACM.

4.2.6 Radon

A radon survey was conducted for the Station hospital, child care center, and housing units in 1991. The results of the survey indicated that none of these facilities or housing units exceeded the radon threshold value of

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4 pCi/l. Thus, no mitigative action or further testing is recommended for these areas of the Station. In addition, it is anticipated that the radon levels in other buildings at the Station should not be significantly different from those that were surveyed.

It should be noted that radium paint has been used in the past in Building 296. Waste associated with radium paint use in this building may have been disposed of in one of the Station's landfills. The radon survey did not include Building 296.

4.2.7 RCRA Facilities (SWMUs)

Further action was identified for various SWMUs/AOCs in the RFA. Current Navy policy is not to conduct RFIs. SWMUs/AOCs recommended for further action in the RFA were placed in the following categories:

- o Some SWMUs/AOCs were incorporated into IRP sites by expansion of the IRP site boundaries.

- o Some SWMUs/AOCs were recommended for further investigation in a state program. Most or all of these may require remedial action.

- o Several washracks were recommended for repair of cracks. This repair effort should either be implemented soon, or a decision made to close these washracks first as base closure activities begin.

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- o In the RFA, four OWSs were recommended for a leak test, or inspection or removal. These OWSs are planned for removal (See Subsection 4.2.1).

- o Shallow stained soil at two SWMUs/AOCs was recommended as a BMP. This action, if not yet completed, should be implemented soon.

4.2.8 NPDES Permits

The Station will comply with the conditions established in the NPDES Permit while base closure is in progress and Station activities still contribute to the discharge points in the permit. When transfer of Station property is complete, the permit will be transferred or terminated.

4.2.9 Oil/Water Separators

OWSs will be addressed in a similar manner as USTs (See Subsection 4.2.1). Current plans for OWSs at the Station include the following:

- o **Active OWSs.** All currently active OWSs are assumed to be essential to base operations, and as such, are assumed to be required until July 1999 for the Station to retain its discharge permit with the RWQCB. After 1999, these OWSs will need to be removed.

- o **Inactive OWSs.** All inactive OWSs will be removed prior to July 1999.

4.2.10 Lead-Based Paint

Action for buildings with LBP will depend on whether a building is planned for reuse or for demolition. If a building with LBP is scheduled to be demolished, proper demolition and disposal activities for the LBP will need to be performed. If a building with LBP is scheduled to be reused, the LBP will be evaluated for appropriate management in-place.

A LBP survey is scheduled for the housing units at the Station in 1994.

4.2.11 Air Emissions

The Station will comply with current air quality standards during base closure activities. The Station is currently preparing a RECLAIM permit application for submittal to the SCAQMD. It is anticipated that this application will be approved and take effect in June 1994. At that time, air emission permits for individual units will expire and be regulated under the Station's RECLAIM permit. Also, at that time, the Station will be regulated as a whole under a RECLAIM Permit.

It should be noted that remedial actions taken at the Station will comply with appropriate rules from SCAQMD regarding emissions.

4.3 NATURAL AND CULTURAL RESOURCES STRATEGY(IES)

Various surveys are planned for MCAS El Toro relating to natural and cultural resources:

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- o **Archaeological resources.** A survey for archaeological resources is planned to be done in 1998/1999. Previously, a list of archaeological resources was identified for the Station. A testing for determination of eligibility for listing on the National Historic Register will be required only if proposed reuse will directly impact the known site. The testing may be necessary depending on the planned reuse of the affected property.
- o **Historic structures and resources.** A survey of historic structures and resources is planned for 1995. A previous survey at the Station identified only the theater as possibly being eligible for listing on the National Historic Register. A determination of eligibility for this building will need to be completed as part of the closure EIS.
- o **Threatened and endangered species.** An ongoing survey of threatened and endangered species will need to be done up to the point of base closure in 1999 since the list of threatened and endangered species changes with time and the species residing within the Station may also change with time. At this time, two threatened and endangered species (the California Gnatcatcher and the Cactus Wren) are known to occur in significant numbers on-Station. In 1994, a Gnatcatcher Conservation Plan will be developed for the Station.
- o **Surface water and wetlands.** A survey of surface water and wetlands is planned for 1995.

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- o **Native American Indian resources.** A survey of Native American Indian resources is planned for 1995.

- o **Prehistoric and paleontological resources.** A survey of prehistoric and paleontological resources is planned for 1995. The area surrounding MCAS El Toro is known for its rich paleontological resources, so it is anticipated that reuse construction within the Station may need a preservation plan.

4.4 COMMUNITY INVOLVEMENT/STRATEGY

A CRP for MCAS El Toro, dated 28 February 1991, has been implemented to provide information to the public and media on a timely basis and encourage public involvement. The community relations program outlined in the CRP is designed to be flexible so that, as community information needs evolve and change, the community relations program can be revised. The CRP will be revised and reissued in April 1994.

MCAS El Toro has adopted the following approach to its community relations program based on key community concerns and applicable federal, state, and local regulations:

- o Implement President Clinton's five-point plan in an expeditious manner

- o Enlist the support and full participation of local officials in coordinating community relations activities.

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- o Provide a full-time Public Affairs Officer from the BRAC Office.

- o Provide timely, concise, and easily-understood information to the public and media. The schedule of technical activities, purpose of the activities, and the results will be readily available to interested citizens and groups. Inquiries will be handled quickly, courteously, and consistently by the IRPM for MCAS El Toro. If information cannot be released to the public for national security reasons, a clear and simple explanation will be provided as to why the information must be withheld.

- o Educate interested citizens and local officials about the procedures, policies, and requirements of the IRP. Basic information about the IRP process will be made available to help the community better understand the regulatory process.

- o Let the public set the pace of the community relations program. A successful and effective community relations program is tailored around the special requirements of the community. At MCAS El Toro, the structure, format, and schedule for community relations activities will remain flexible, to meet the changing needs of the local community.

This approach to communication ensures that all parties involved or interested are provided accurate, consistent information in a timely manner concerning related cleanup activities, contaminants, and possible effects of an contamination. It provides mechanisms for all parties to provide input into the decisionmaking process of the IRP.

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The MCAS El Toro BCT has adopted the following strategy to support a proactive community relations program in accordance with CERCLA and DTSC requirements:

- o Update and reissue the CRP as necessary.
- o Establish a RAB and hold regular meetings that are open to the public.
- o Issue fact sheets announcing the proposed plans and 30-day public comments periods on these plans and issue public notices 2 weeks prior to the comment period in The Orange County Register, The Los Angeles Times - Orange County Edition, Irvine World News, Saddleback Valley News, and the MCAS El Toro newspaper, The Flight Jacket. Additional fact sheets may be issued at significant milestones during the clean-up process.
- o Prepare a Responsiveness Summary to respond to significant community comments, criticism, and new data submitted on the proposed plan.
- o Hold informal and formal public meetings as required during the IRP process.
- o Maintain information repositories at Heritage Park Public Library and the MCAS El Toro Library, Building 280.

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- o Circulate an Environmental Programs portable display to local community facilities that graphically depicts IRP progress and opportunities for community involvement.

- o Maintain a mailing list of interested citizens, local officials, media representatives, and environmental groups and provide published materials as necessary.

- o Survey participants in the community relations activities to assess their level of satisfaction with information received and adjust future community relations activities accordingly.

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Table 4-1a Relationship Between IRP Sites, OUs, and Parcels MCAS EI Toro BCP		
Operable Unit	Parcel	IRP Site
OU-1	Not Applicable (1)	18
OU-2	5C	2
	2A	3/4
	3B	5
	5A	10
	5C	17
	4A/4B/5A	24
	Not Applicable (2)	25
OU-3	2F	1
	5A	6
	5A	7
	4B	8
	5A	9
	4A	11
	4B	12
	1A	13
	1A	14
	1D	15
	5A	16
	5A	19
	1B	20
	4B	21
	5A	22
Notes: (1) Site 18 (Regional Groundwater Investigation) is limited to groundwater and, therefore, is not assigned a parcel number. (2) Site 25 consists of the Station Washes which border or traverse the Station and, therefore, is not assigned a parcel number. Source: JEG, MCAS EI Toro Draft Phase II RI Work Plan, November 1993.		

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**Table 4-2
Environmental Restoration Planned Early Actions
MCAS El Toro BCP**

Site (Database Tracking [1])	Description	Action	Objective	Time Frame	Priority	Parcel
IRP 3/4	Original Landfill	Removal action at drainage ditch (Stratum 2)	Prevent infiltration of contaminants from storm water flows	TBD	B	2B
		Potential capping	Prevent exposure of surface soil contaminants/infiltration of water	TBD	C	
		Field screening at former incinerator (SWMU/AOC 194)	Further evaluate site for possible expedition of remediation.	TBD	C	
IRP 5	Perimeter Road Landfill	Potential capping	Prevent exposure of surface soil contaminants/infiltration of water	TBD	C	3B
IRP 7	Drop Tank Drainage Area	Removal action at north edge of pavement (Stratum 1)	Prevent exposure to/migration of surface soil contaminants	TBD	B	4B
IRP 8	DRMO Storage Yard	Field screening	Further evaluate site for possible expedition of remediation	TBD	C	4B
IRP 11	Transformer Storage Area	Remove soil around concrete pad (Stratum 1) and in drainage ditch (Stratum 2)	Prevent exposure to/migration of surface soil contaminants	TBD	B	4C
IRP 13	Oil Change Area	Field screening	Further evaluate site for possible expedition of remediation	TBD	C	1A
IRP 14	Battery Acid Disposal Area	Remove soil at edge of pavement (Stratum 1) and in drainage ditch (Stratum 2)	Prevent exposure to/migration of surface soil contaminants	TBD	B	1C
IRP 17	Communication Station Landfill	Install fence around landfill	Limit access to reduce exposure to physical hazard (located adjacent to	1994	A	5C
		Potential Capping	Prevent exposure of surface soil contaminants/infiltration of water	TBD	C	
IRP 19	ACER Site	Fill-in excavated area (Stratum 2) with clean soil	Prevent water ponding and physical hazard associated with excavation	TBD	B	3A
IRP 20	Hobby Shop	Removal actions at south drainage ditch (Stratum 2) and stained area (Stratum 3)	Prevent exposure to/migration of surface soil contaminants	TBD	B	1D
		Field screening at courtyard and front slope (Stratum 4)	Further evaluate site for possible expedition of remediation	TBD	C	1B

**Table 4-2
Environmental Restoration Planned Early Actions
MCAS EI Toro BCP**

Site (Database Tracking [1])	Description	Action	Objective	Time Frame	Priority	Parcel
IRP 22	Tactical Air Fuel Dispensing System	Field screening at western area (Stratum 1) and eastern area (Stratum 2)	Further evaluate site for possible expedition of remediation	TBD	C	5A
IRP 24	Possible VOC Source Area	Soil gas survey in southwest quadrant of Station	Identify areas with VOCs in soil (possible sources of groundwater contamination)	1994	A	4A/4B/5A
IRP 25	Agua Chinon Wash	Remove sediment/soil with high levels of fuels (2)	Prevent infiltration of contaminants from storm water flows	1994	A	(3)
	Agua Chinon Wash and Bee Canyon Wash	Soil gas survey	Further evaluate site for possible expedition of remediation.	1994	B	
	Bee Canyon Wash	Construction project - line wash	Prevent infiltration of contaminants from storm water flows	TBD	C	

Notes:

- (1) This column refers to alpha-numeric database designation (refer to Table 3-1)
- (2) US EPA and Cal. EPA required removal action in a letter dated 01 November 1993.
- (3) The Station washes (IRP Site 25) traverse or border the Station and are included in numerous parcels.

TBD - to be determined

The second column shown in the BCP Guidance table is not included.

Table 4-3
Environmental Compliance Planned Early Actions
MCAS EI Toro BCP

Site (Database Tracking [1])	UST No.	Description	Action	Objective	Time Frame	Priority	Parcel
UST 240A	240A	Tank at Aero Club (replaced by UST 797)	Investigate and remediate release	Remove possible source of groundwater contamination	1994	A (2)	1C
UST 398	398	JP-5 Tank Piping Leak	Removals for free product, vapor, and groundwater	Remediate vadose and groundwater contamination	1994	A	2C
UST 529	529	SWMU/AOC 145 (inactive waste oil tank)	Remove tank	Remove possible sources of groundwater contamination	1994	A	4C
UST 672B	672B	SWMU/AOC 176 (inactive waste oil tank)	Remove tank/conduct soil venting treatment pilot project	Remove possible sources of groundwater contamination	1994/TBD	B	4B
Tank Farm 2	176, 177, 178, 179, 180, 181, 182, 183	8 inactive tanks	Remove 8 tanks	Remove possible sources of groundwater contamination	1994	A (2)	1C
Tank Farm 3	188, 190, 192, 193, 194, 195	2 active/6 inactive tanks	Remove 6 inactive tanks	Remove possible sources of groundwater contamination	1994	A	1B
Tank Farm 555	550	Release of petroleum hydrocarbons at one tank indicated by vadose zone monitoring	Stop leak(s)/investigate and remediate release	Remove possible sources of groundwater contamination	1994	A	2D
Tank Farms 5 & 6	(TF 5) 210, 212, 214; (TF 6) 204, 205	5 active/3 inactive tanks at TF 5 2 active/2 inactive tanks at TF 6	Remove 5 inactive tanks	Remove possible sources of groundwater contamination	1994	A (2)	2B
OWS 671		SWMU/AOC 173	Conduct soil venting treatment pilot project	Remove possible sources of groundwater contamination	TBD	C	4B
OWS 672A		SWMU/AOC 175 (inactive OWS)	Remove OWS/conduct soil venting treatment pilot project	Remove possible sources of groundwater contamination	1994/TBD	B	4B

Notes:

(1) This column refers to alpha-numeric database designation (refer to Table 3-1) or, if more than one LOC is included, a general descriptor is provided (e.g., for Tank Farms).

(2) High priority due to benzene plume in area.

TBD - to be determined

Chapter 5

Environmental Master Schedules

This chapter presents the Master Schedule of anticipated activities for MCAS El Toro's environmental programs and a summary of anticipated BCT and BRAC Project Team meetings. Many of these schedules have not been approved by the entire cleanup team. The Master Schedule is summarized in four distinct schedules as follows:

- o Environmental Restoration Program
- o Mission/Operational-Related Compliance Programs
- o Closure-Related Compliance Programs
- o Natural/Cultural Resources Activities

The Master Schedule is based on a July 1999 closure date for the Station, and includes general activities for each program.

Appendix A provides a summary of costs for each of the four environmental programs mentioned above on a year-by-year basis through Station closure. For the Station's IRP and compliance programs, unconstrained and constrained cost estimates are provided. Unconstrained cost estimates are based on program requirements expedited in a logical progression without limitations on funding or resource allocations. The estimates take into account all reasonable means to environmentally prepare MCAS El Toro property for final disposal. Constrained cost estimates are based on President Clinton's budget for 1994 and 1995, and on the DON's expected BRAC III program funding. For the mission-related compliance program, as well as the natural and cultural resources program, a single cost estimate is provided.

Some limitations associated with the cost estimates include the following:

- o The cost estimates for each program are preliminary estimates intended for planning purposes only.
- o The costs do not represent actual approved budget amounts, and should not to be assumed as such.
- o Cost estimates for cleanup are highly dependent upon actual study results, risk assessments, technology innovations, future property use and regulatory/community concurrence with remedial solutions. Revisions to the estimates will be made as additional information is obtained for each program.

A property disposal/transfer evaluation model is currently under development for MCAS El Toro to provide the capability for quick, real-time evaluation of base closure and property disposal/transfer strategies. This model will provide MCAS El Toro with the ability to track the various LOCs by geographical location (i.e., by parcel boundaries) and the ability to assign a cost and time frame for the remediation of each parcel based on the various LOCs contained within it. A discussion of some of the aspects and capabilities of this model is presented at the end of this chapter.

5.1 ENVIRONMENTAL RESTORATION PROGRAM

5.1.1 Response Schedules

Four scheduling scenarios for the Station's IRP are presented in Figures 5-1A through 5-1D.

- o Figure 5-1A presents the FFA schedule for the IRP at MCAS El Toro.
- o Figure 5-1B shows the current planned schedule for OU-1 only. This schedule has not yet been approved; however, it is currently being negotiated between the Navy and the agencies. It will be based on the Irvine Desalter Project Settlement Agreement between the Navy and the OCWD.
- o Figure 5-1C depicts the schedule for OU-2 and OU-3 based on unconstrained cost estimates.
- o Figure 5-1D shows the schedule for OU-2 and OU-3 based on constrained costs.

5.1.2 Requirements by Fiscal Year

Cost estimates for the IRP are provided in Tables A-1A and A-1B (Unconstrained and Constrained Costs) in Appendix A. These tables provide unconstrained and constrained cost summaries from 1994 through 1999 as of December 1993. Table A-5 summarizes the historical expenditures for the IR program at the Station.

5.2 COMPLIANCE PROGRAMS

5.2.1 Master Compliance Schedules

The Master Schedule for compliance programs being conducted on-Station is summarized in Figures 5-2 (Mission-Related Compliance) and

5-3 (Closure-Related Compliance). Mission/operational-related compliance activities are summarized in Figure 5-2. Activities depicted in this schedule include maintenance and monitoring requirements to maintain all of the Station's current environmental operating permits (e.g., UST, air, RCRA Part B, and NPDES permits). For the USTs at the Station, mission-essential USTs (assumed to be the currently active USTs) will need to be brought into compliance with current UST regulations for monitoring.

Closure-related compliance activities are summarized in Figure 5-3. Currently, the only closure-related compliance activity in progress is the removal of nonessential (inactive) USTs. It is anticipated that as the Station moves closer to the closure date of 1999, mission/ operational-related compliance activities will transition into closure-related activities.

5.2.2 Requirements by Fiscal Year

Environmental compliance funding summaries are included in Tables A-2A and A-2B in Appendix A. Unconstrained cost summaries for mission-related and closure-related compliance programs are provided in Table A-2A. Constrained cost summaries are included in Table A-2B.

5.3 NATURAL AND CULTURAL RESOURCES

5.3.1 Natural and Cultural Resources Schedule(s)

Natural and cultural resource activities are summarized in Figure 5-4 (Master Program Schedule). Three management activities have been identified and are assumed to continue until the Station closes. These

include management of threatened and endangered species, biological resources management, and erosion control. The five survey activities identified in Figure 5-4 will be assessed for completeness and additional survey work that may be required.

5.3.2 Requirements by Fiscal Year

Funding requirements for Natural and Cultural Resources are summarized in Table A-3 (Natural/Cultural Resources Survey) in Appendix A.

5.4 MEETING SCHEDULE

A meeting schedule for the BCT is provided in Table 5-1 (BRAC Cleanup Team Meeting Schedule). At a minimum, the BCT will meet on a monthly basis to discuss technical issues, scheduling issues, program status, and team building. If additional meetings are required, they will be scheduled as such.

5.5 EVALUATION MODEL FOR MCAS EL TORO

An evaluation model is being developed for MCAS El Toro to provide the capability for timely evaluation of base closure and property disposal/transfer strategies. This model will provide MCAS El Toro with the ability to track the various LOCs by geographical location (i.e., by parcel boundaries) and the ability to assign a cost and time frame for the remediation of each parcel based on the various LOCs contained within it.

5.5.1 Preparation of a Computerized Map of the Station

- o A map of MCAS El Toro has been developed on a Geographical Information System (GIS) database. This map includes the boundaries of the five zones identified in Chapter 4 and the boundaries of the various parcels currently identified within each of the zones.
- o Each of the LOCs identified at the Station (over 1,000 in number) have been digitized into the GIS system for display on the Station map.
- o A GIS database has been set up to download the identity/name of each of the various LOCs contained within each individual parcel on the map. This GIS database will also provide the BCT with the capability of identifying a list of LOCs contained within any rearrangement of parcels desired for evaluation.

5.5.2 Preparation of Cost Estimates for Closing LOCs

- o A computer-based remedial action cost estimating system (RACER/ENVEST - Remedial Action Cost Engineering and Requirements/Environmental Cost Engineering) has been selected to generate cost estimates for the closure of MCAS El Toro. RACER/ENVEST was developed by the U.S. Air Force and is a widely-used system by the DoD for generating cost estimates for remedial action.

- o To minimize the number of RACER/ENVEST runs needed to cover over 1,000 LOCs at the Station, grouping of identical (or similar) LOCs was done. For example, grouping of USTs of the same size and material of construction was done so that just one RACER/ENVEST run was needed to be completed for the cost of removal of this size of tank.

- o Another method used to reduce the number of required runs for RACER/ENVEST was to group similar remedial actions. For example, one RACER/ENVEST run was performed for in-situ treatment by SVE for soil contamination at USTs where the extent of contamination is currently not known.

- o The groupings done to reduce the RACER/ENVEST runs to a more manageable number result in various cost runs/modules that must be applied to LOCs to determine the overall cost of what may be required to close the LOC. Examples include:
 - A leaking 25,000-gallon UST will have a cost module for the tank removal and a cost module for remediation of contamination where the extent is not yet known.

 - The remediation of an RI/FS site may involve a cost module for excavation of contaminated soil at one stratum and in-situ treatment of soil at another stratum.

- o To determine the cost of closure for an LOC, manipulation of the various RACER/ENVEST runs/modules is required. A database (or data staging area) has been established to perform the manipulations of the cost modules for the various LOCs.

5.5.3 Set Up a Database (Data Staging Area) for Manipulating RACER/ENVEST Costs

- o A database has been established to include a list of each LOC, its parcel location on the Station, and its estimated cost for closure based on a manipulation of the cost data/modules from RACER/ENVEST. A simple LOC may involve only one cost module; a more complicated LOC may involve the manipulation of two or more cost modules.
- o For USTs, Chapter 4 of the BCP presented a model for assigning the percentage of USTs that leak or do not leak, as well as the percentage that will have shallow or deep contamination requiring remedial action. To obtain a unit cost for UST closure, the cost for remediating the leaking USTs has been equally distributed among all USTs, since at this time it is unknown which specific USTs may have leaked. Thus, the cost for closure of a specific UST includes the cost module for removal of the UST + 30 percent of the cost module for excavating shallow contamination at a UST site + 15 percent of the cost module for in-situ SVE treatment at a UST site + 15 percent of the cost module for in-situ bioremediation at a UST site + 5 percent of the cost module for a groundwater treatment system at a UST site.

5.5.4 Development of a Master Schedule

- o Development of a Master Schedule for the base closure is in progress. This schedule is being developed with Primavera software, and will show planned time for closure of individual LOCs or groups of LOCs (such as USTs being removed in clusters). LOCs within the boundaries of a parcel will be grouped together, and schedule bars will be presented depicting the estimated time duration associated with closure for each LOC or group of LOCs.
- o The database output from the staging area (closure costs for LOCs) will be linked to the Primavera schedule so that the cost of closing an LOC or LOC group will be incorporated onto the schedule for each LOC or LOC group being tracked.
- o The Master Schedule will thus provide an estimated time and an estimated cost for investigation and cleanup each parcel identified on the Station.
- o The Master Schedule will be a dynamic tool for evaluating base closure strategies. It will need frequent updates as work on base closure continues to move forward.

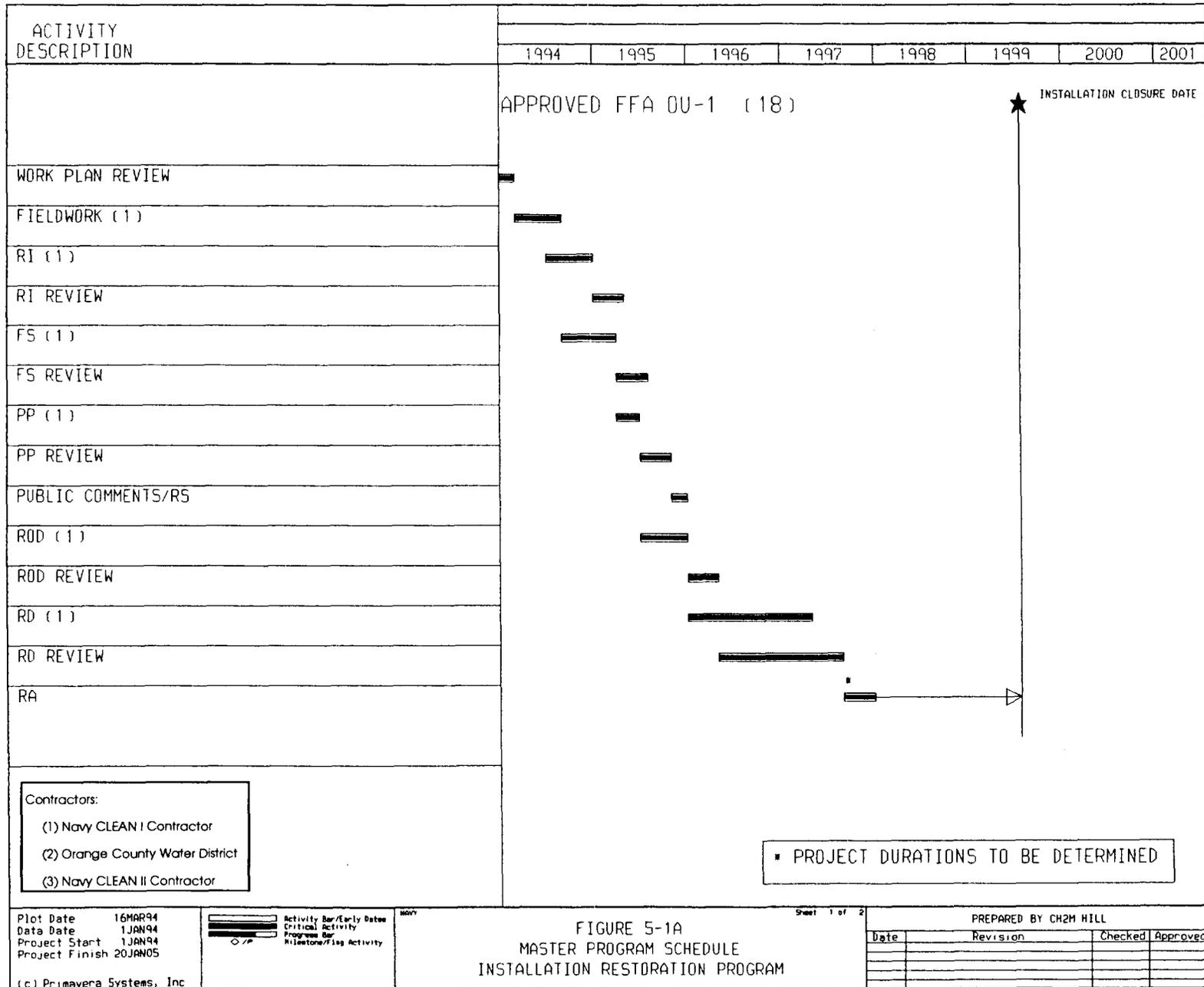
5.5.5 Flexibility for Evaluation of Parcels

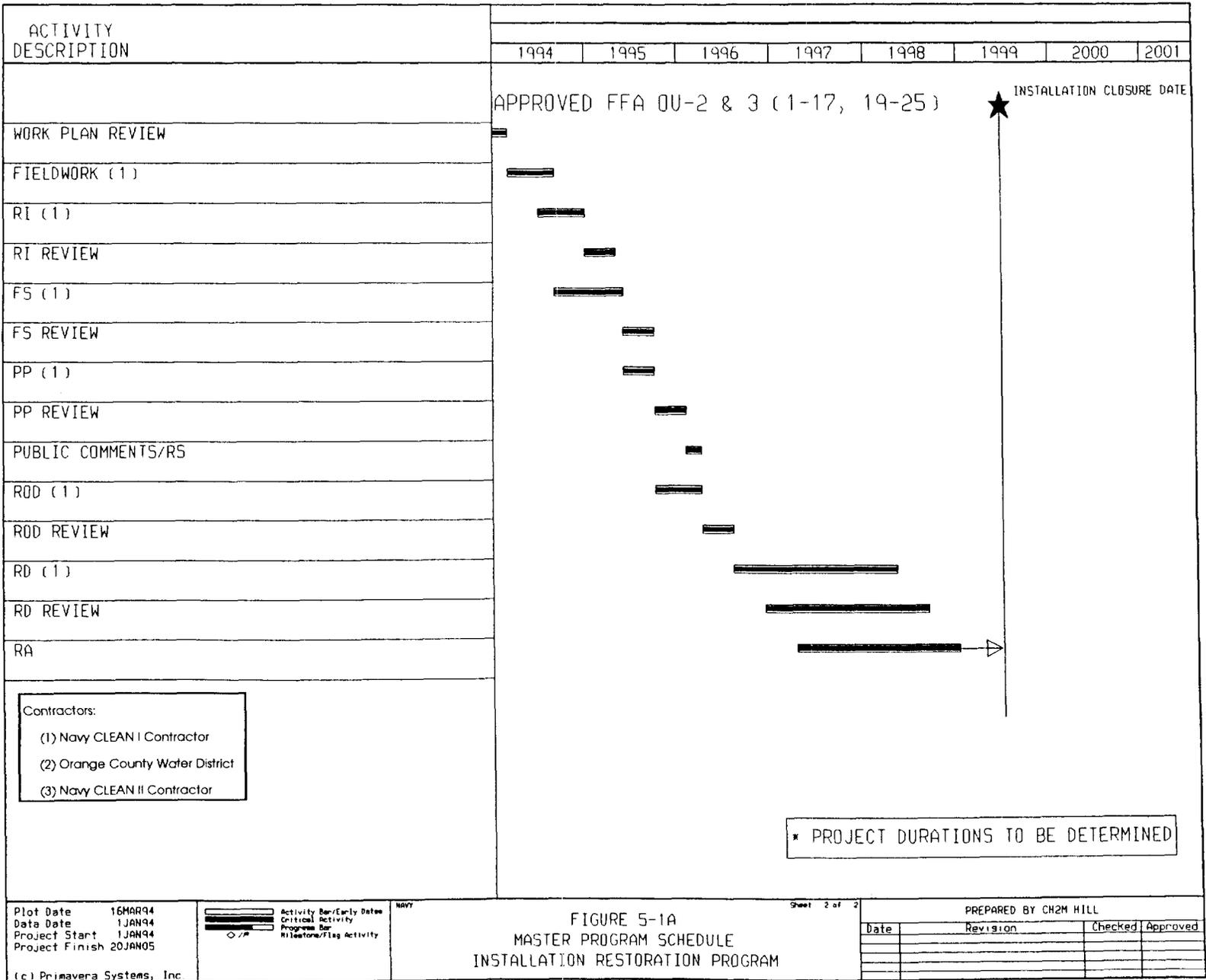
- o The system established for MCAS El Toro will assist the BCT in evaluating multiple base closure strategies in a reasonably expeditious manner.

- o When changes in parcel boundaries are being considered, the GIS database will be able to quickly download a complete list of all of the various LOCs contained within each newly-identified parcel. With some manipulation of the staging area database, costs for each new parcel can be obtained by summing the costs for the LOCs now contained in that parcel. A new Master Schedule can be developed for the new parcels (and associated LOCs) with costs downloaded from the staging area database.

- o After completion of the initial set of RACER/ENVEST runs and establishment of the staging area database, very few changes will need to be made with these two aspects of the system for MCAS El Toro.

Table 5-1 Project Team Meeting Schedule MCAS EI Toro BCP	
Date	Topic
4-6 October 1993	BCP Training
16-18 November 1993	Discussions of BCP Preparation Plan and Policies
13 January 1994	Discussions of Restoration Advisory Board Development
14 January 1994	Discussions of Field Screening Costs and Quality
27-28 January 1994	Program Priorities, Strategies, and Schedules (BCT Only)
8 February 1994	Early Actions
9 February 1994	OU-1 Feasibility Study and Schedule
10 February 1994	Soil Gas Survey for Site 24
15-18 February 1994	Redline Review of Working Draft BCP
23 March 1994	OU-1 and FFA Schedule Impacts
6 April 1994	Groundwater Modelling Presentation and Discussion
April 1994	Funding Impacts and Phase II Work Plan Discussions
May 1994	Team Building
June 1994	Early Actions Status
July 1994	Groundwater Monitoring Program
August 1994	Soil Gas Survey Conclusions





Plot Date 16MAR94
 Date Date 1JAN94
 Project Start 1JAN94
 Project Finish 20JAN05

Activity Bar/Early Dates
 Critical Activity
 Program Bar
 Milestone/Flag Activity

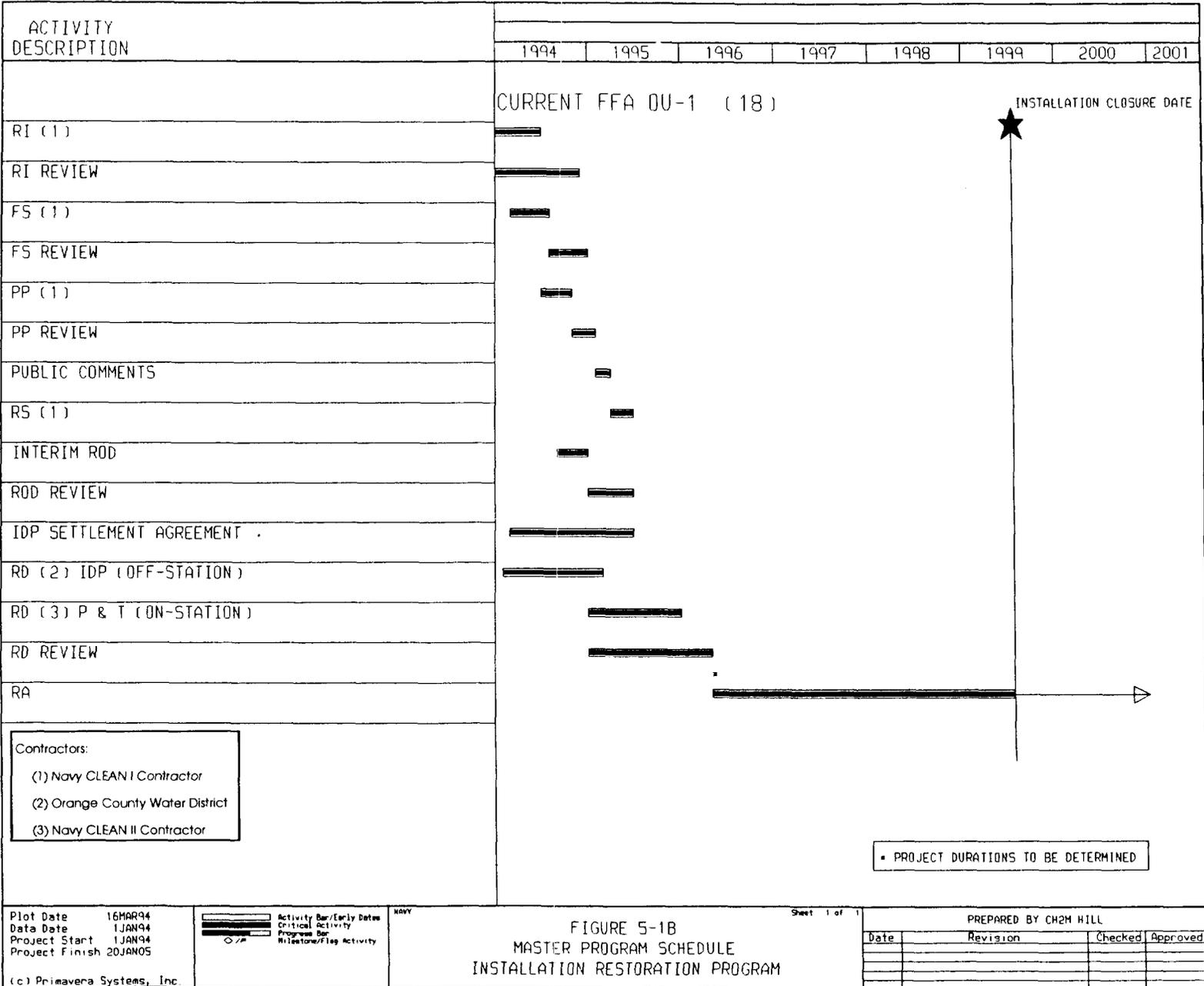
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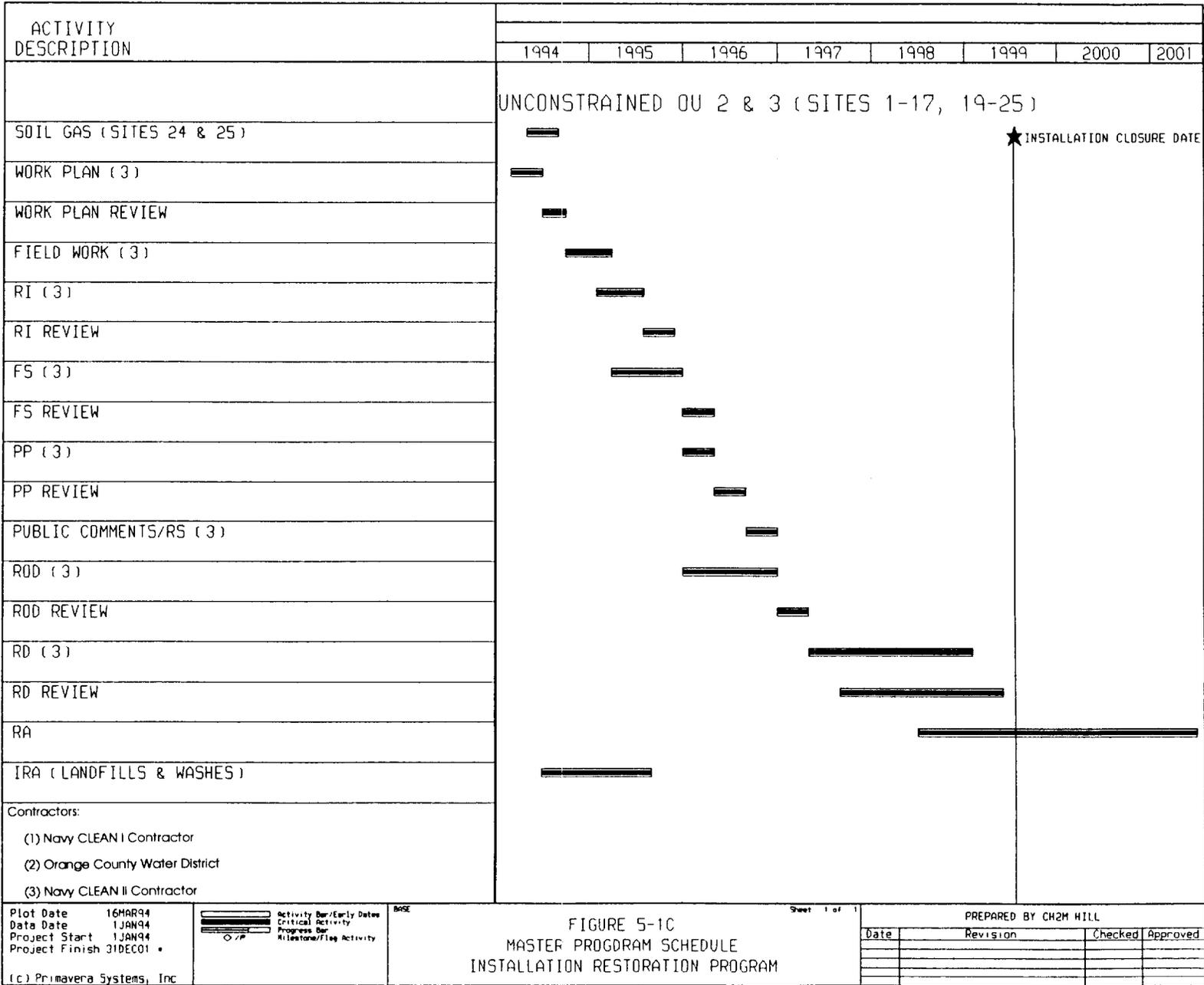
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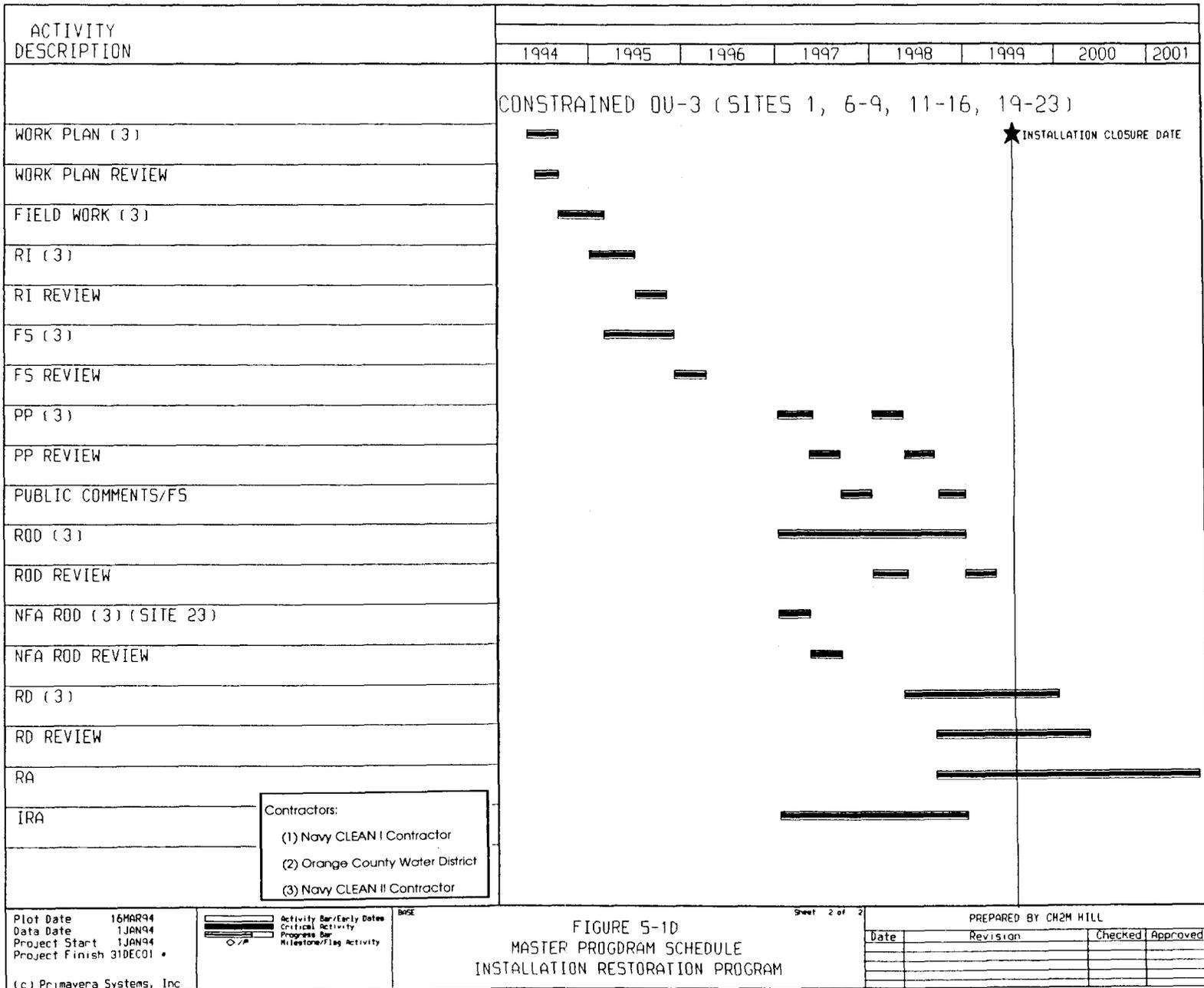
FIGURE 5-1A
 MASTER PROGRAM SCHEDULE
 INSTALLATION RESTORATION PROGRAM

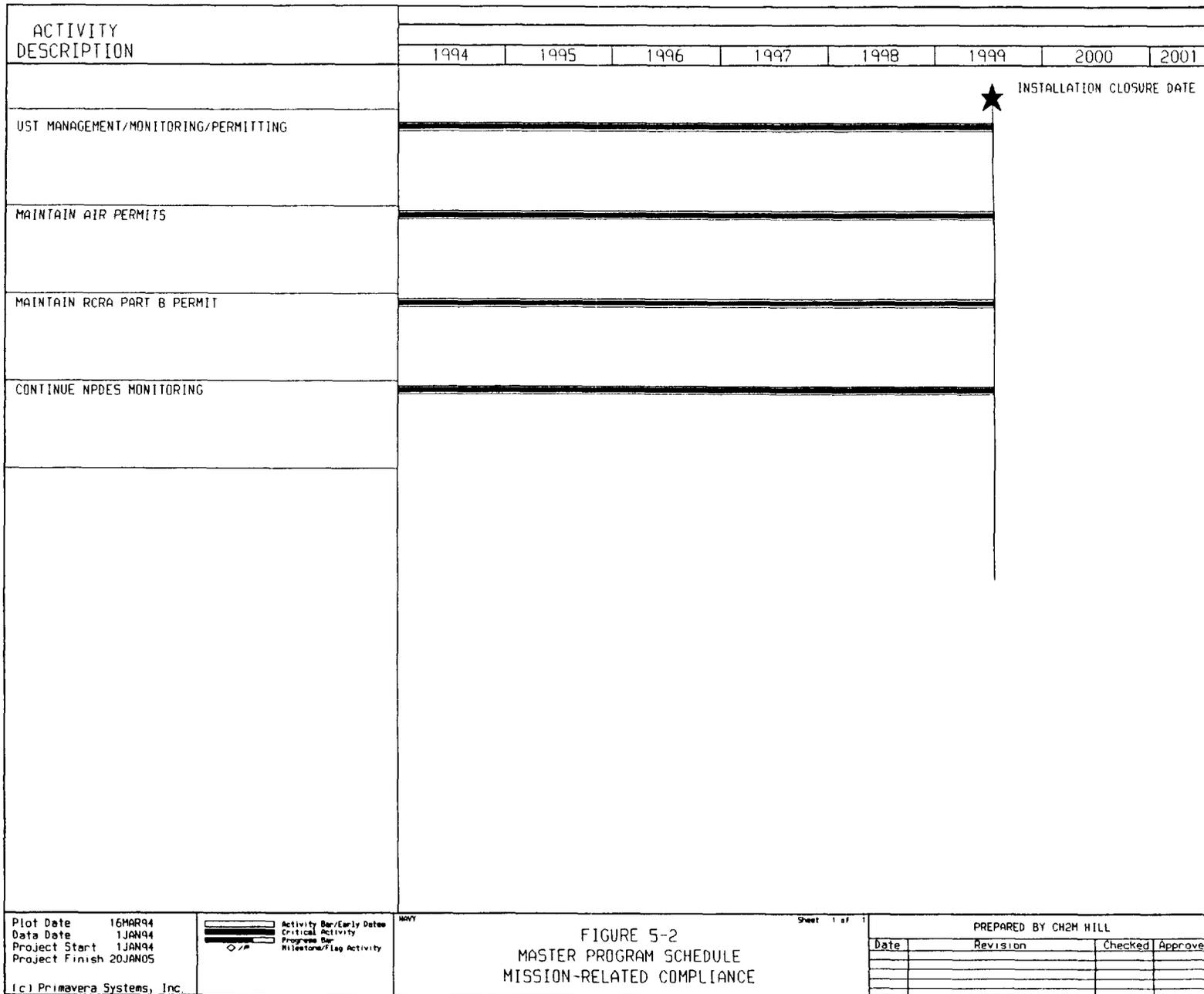
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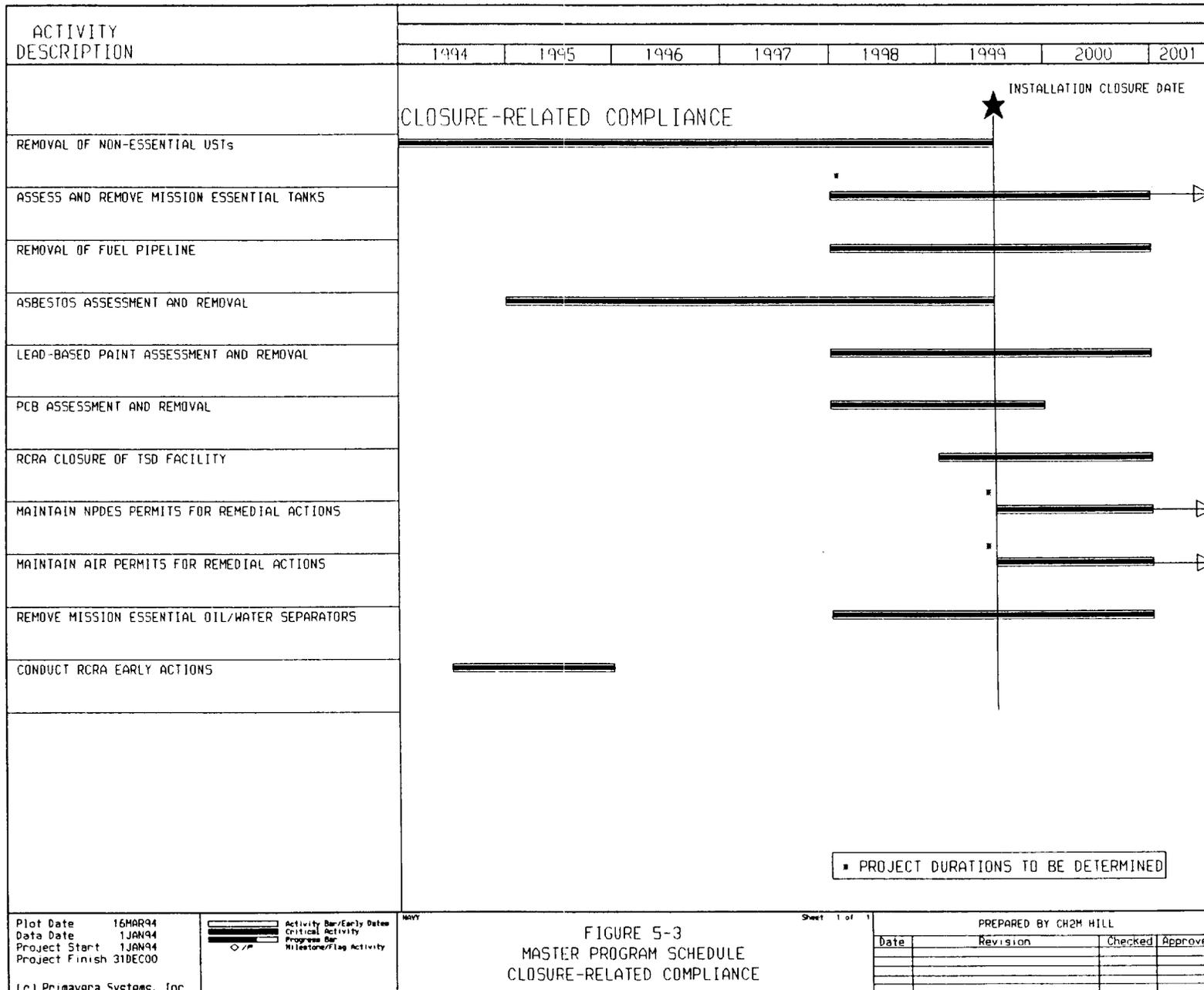
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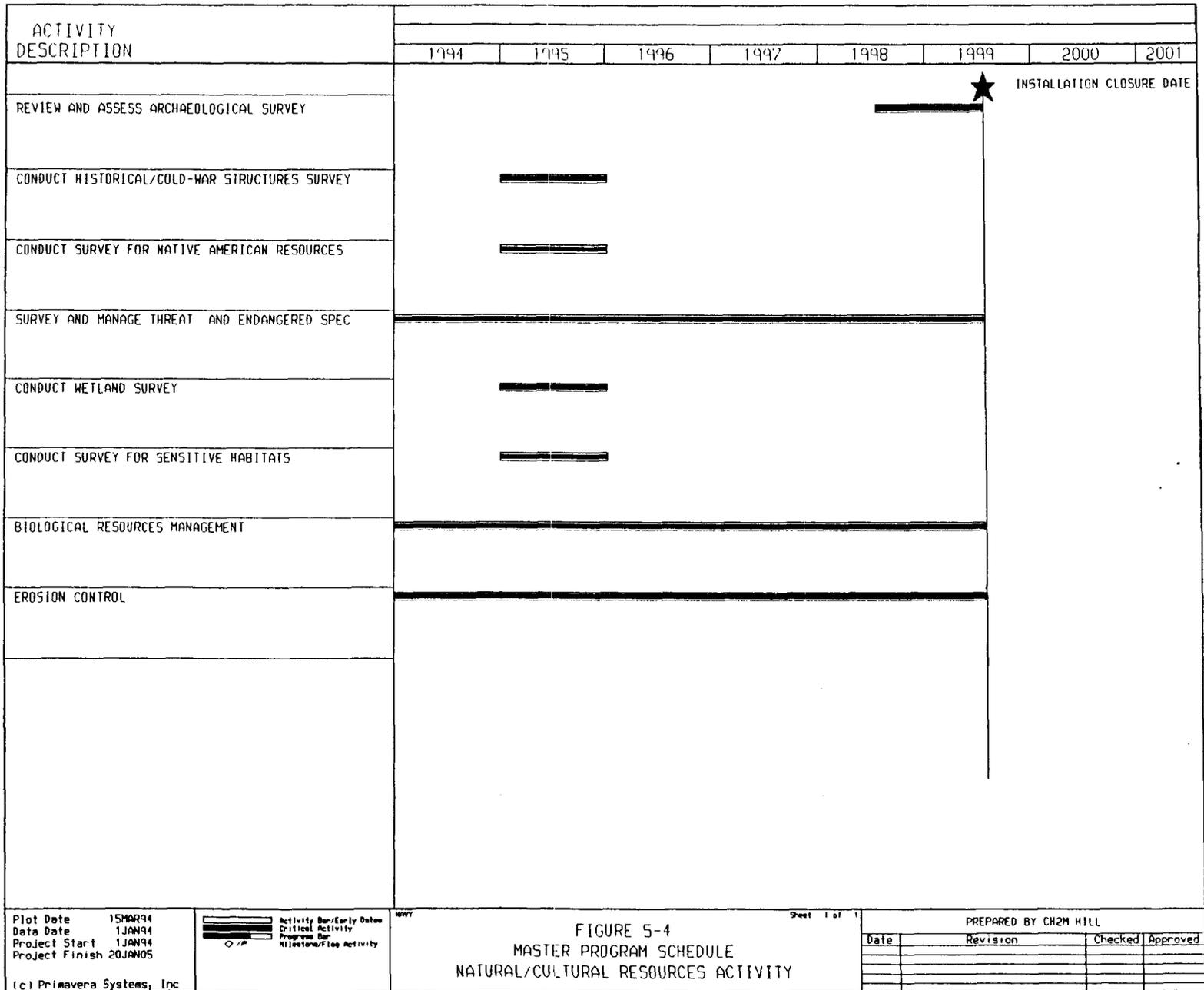












Chapter 6

Technical and Other Issues to be Resolved

This section summarizes technical, administrative, and other issues that are yet to be fully resolved. This section of the AWP will be updated as issues proceed toward resolution and additional issues are identified.

6.1 DATA USABILITY

In order to obtain data of usable quality for decisionmaking, data quality management is necessary. Management steps include defining data quality objectives, setting procedures for QA/QC practices, and developing data management procedures that provide for easy information storage, retrieval, and transfer.

Major data collection programs to date for MCAS El Toro include the IRP (RI/FS) and the RFA. An extensive amount of analytical data was collected under both of these programs under agency-approved Quality Assurance Project Plans (QAPPs). Analyses were generally performed at data quality level IV, and analytical data from both programs were checked via a data validation effort. The validated data from these programs have been loaded into a database.

Historical data prior to or outside of these major programs may need to be evaluated on a case-by-case basis for data usability and quality.

6.2 INFORMATION MANAGEMENT

Analytical data from both the RI/FS and the RFA Programs has been entered into a database for MCAS El Toro. Data from future investigations should be combined with this data to create a Master

Chapter 6 Technical and Other Issues to be Resolved

Database for the Station. Currently, data from UST removals performed at the Station is not in the database.

Geographical data for MCAS El Toro have been included in a GIS database. The GIS base map currently has the location of over 1,000 LOCs and the zone/parcel boundaries for base closure digitized into the system. IRP groundwater wells and analytical data are also included in the GIS database.

6.2.1 BRAC Cleanup Team Action Items

- o Evaluate historical data not currently in the database for possible incorporation into a Master Database for the Station
- o Ensure that data from future data collection activities (e.g., Phase II of the IRP) are entered into the database
- o Ensure Navy workstations are acquired, installed, and maintained at SWDIV. Ensure that all necessary software is acquired for remote access to the system and the BCT members are trained on the system
- o Ensure database integrity (i.e., it is current and correct for all users)

Chapter 6 Technical and Other Issues to be Resolved

6.2.2 Rationale

- o Accessibility of data to the BCT will assist in the review and management of data, and expedite the ability of the BCT to make decisions.

6.2.3 Status/Strategy

- o Continue receiving data in electronic form from the laboratories involved with work at MCAS El Toro.
- o Require future contractors to have data in a format that is compatible with the database.
- o Continue to update the database as appropriate.

6.3 DATA GAPS

A second phase of the RI at the Station is planned for 1994. The Work Plan established for this effort was based on filling data gaps that may have existed after completion of Phase I.

Currently identified data gaps that will need to be addressed by the BCT include the following:

- o Numerous futures/anomalies were identified by SAIC in a review of aerial photographs of the Station. A meeting of the BCT to discuss this issue will need to be conducted.

Chapter 6 **Technical and Other Issues to be Resolved**

- o Interviews of past and present employees familiar with the refurbishing operations at the former "rework facility" at Buildings 296, 297, and 324 will be conducted to enhance current knowledge of this past facility located in the general area of a potential source of the VOC-contaminated groundwater.

- o A TMP will be developed to identify/verify USTs and associated data (capacity, material of construction, location, etc.) at the Station. This plan will also identify strategies for UST management with respect to essential Station operation and base closure activities.

6.4 BACKGROUND LEVELS

Background levels for MCAS El Toro were addressed as part of the preparation of the Draft Phase II RI/FS Work Plan submitted in November 1993. The following sections present discussions of activities conducted to date, for evaluating background levels for surface soils, groundwater, surface water, and sediments.

Surface Soils. Background levels for metals and pesticides/herbicides in soils at MCAS El Toro were established in the Draft Phase II RI/FS Work Plan. The upper range of naturally occurring metal concentrations and pesticide/herbicide concentrations was estimated by calculating the 99th percentile of the log normal distribution of the data values. The results of the statistical analysis for the metal parameters and pesticides/herbicides in background soil samples are presented in Tables E-2a and E-2b, respectively (Appendix E).

Chapter 6 Technical and Other Issues to be Resolved

Groundwater. Because of the complexity of the geochemistry and the high variability of the data, it does not appear to be feasible to establish regional background concentrations for inorganics in groundwater at this time. The Draft Phase II RI/FS Work Plan proposed geochemical analysis of the RI data as part of the RI Report to evaluate ambient concentrations of inorganics in groundwater.

Surface Water. Background levels in surface waters have not been established for MCAS El Toro. Limited surface water sampling was conducted as part of the Phase I RI. Additional upgradient surface water samples have been proposed for the Phase II RI. These data will be combined with Phase I upgradient data to evaluate ambient concentrations of inorganic and organic compounds that are flowing onto MCAS El Toro in surface drainage.

Sediment. For screening purposes for the Draft Phase II RI/FS Work Plan, sediment data collected during the Phase I RI were compared to the reference background concentrations for inorganics in surface soils. Additional upgradient soil sampling proposed as part of the investigation of RI/FS Site 25 (Major Drainages) will be evaluated to assess concentrations of organic chemicals, particularly pesticides and herbicides, that may be migrating onto MCAS El Toro through surface drainage.

6.4.1 BRAC Cleanup Team Action Items

Reach consensus on background levels for surface soil background levels of metals and pesticides/herbicides.

Chapter 6 Technical and Other Issues to be Resolved

6.4.2 Rationale

Background concentrations of elements in the environment at MCAS El Toro must be determined for use in the Baseline Risk Assessment computations and/or as screening criteria. Media to be addressed include surface soils, groundwater, surface water, and sediments.

6.4.3 Status/Strategy

- o Evaluate groundwater quality data produced from continuing groundwater monitoring activities to evaluate background levels for groundwater.
- o Evaluate data from surface water sampling planned to be performed as part of the Phase II RI to determine background levels in surface waters entering the Station.

6.5 RISK ASSESSMENTS

6.5.1 BRAC Cleanup Team Action Items

There are no identified Project Team action items for risk assessments.

6.5.2 Rationale

A baseline risk assessment must be performed to establish cleanup criteria for IRP sites to protect human health. In addition an ecological risk assessment will be prepared for the Station.

Chapter 6 Technical and Other Issues to be Resolved

6.5.3 Status/Strategy

The Draft Phase II RI/FS Work Plan designed sampling schemes that will provide sufficient sample data to conduct a baseline risk assessment and ecological risk assessment. The baseline risk assessment will be prepared following completion of the Phase II RI.

6.6 BASE-WIDE REMEDIAL ACTION STRATEGY

The strategy for Base-wide remedial action will need to take the following into consideration:

- o There is currently a strong emphasis within the Navy for completing remedial actions as early as possible.
- o To successfully accomplish the early transfer of parcels at MCAS El Toro, there will need to be a geographical component to the evaluation and prioritization of LOCs for remedial action.
- o The Station's numerous USTs will need significant attention since it is anticipated that a high percentage of these have leaked. At this time, it is being assumed that 60 percent of the USTs have leaked and may require some form of remedial action.
- o A reuse plan has not been generated yet by the community. When it is received by the Navy, adjustments to currently planned strategies for remedial action may need to be made.

6.7 INTERIM MONITORING OF GROUNDWATER AND SURFACE WATER

At present, two groundwater sampling events have been completed at MCAS El Toro. A groundwater monitoring program for the wells at the Station will be implemented in the near future by the Navy. The frequency of the monitoring and the analytical parameters are currently under evaluation by the Navy.

Two rounds of surface water sampling have been conducted as part of the Phase I RI. The Navy is currently evaluating the planned future sampling events for surface water.

6.8 EXCAVATION OF CONTAMINATED MATERIALS

Excavation of contaminated materials will be involved in a number of remedial actions taken at various locations around the Station. Management of contaminated materials will be done in accordance with regulations current at the time of the excavation activities.

6.9 PROTOCOLS FOR REMEDIAL DESIGN REVIEWS

Remedial design reviews will be performed in accordance with the QAPP developed for the remedial design effort.

Chapter 6 Technical and Other Issues to be Resolved

6.10 CONCEPTUAL MODELS**6.10.1 BRAC Cleanup Team Action Items**

No Project Team action items are currently identified for conceptual site models.

6.10.2 Rationale

Conceptual site models are used to show relationships between potential sources, exposure pathways, and receptors. Complete exposure pathways include sources, mechanisms of contaminant release, transport media, exposure points, and exposure routes at points of receptor contact.

6.10.3 Status/Strategy

Conceptual models for the MCAS El Toro IRP sites were developed as part of the Draft Phase II RI/FS Work Plan based on existing data from the Phase I RI. The conceptual models are provided in Appendix E of this document. The conceptual models may be revised as additional information on the IRP sites becomes available. As appropriate, the conceptual models in Appendix E may be replaced or supplemented.

6.11 CLEANUP STANDARDS

Cleanup standards for the IRP sites are currently based on the preliminary risk assessment prepared as part of the Draft Phase II RI/FS Work Plan completed in November 1993.

Chapter 6 Technical and Other Issues to be Resolved

Groundwater cleanup standards will be evaluated during the FS for OU-1. Metals concentrations in shallow soils will be compared to background levels for metals (refer to Section 6.4).

6.12 INITIATIVES FOR ACCELERATING CLEANUP

As an ongoing action item, the BCT will identify and evaluate opportunities for accelerating cleanup throughout the base closure process. Some currently identified methods for acceleration include:

- o Use of presumptive remedies as appropriate for site remedial action
- o Fast-tracking of Navy contracting procedures for cleanup activities
- o Identifying portions of sites that may be appropriate for early remedial action

6.13 REMEDIAL ACTIONS

The BCT will maintain a bias toward implementing effective and expedited remedial action during the course of the base closure effort at MCAS El Toro.

Chapter 6 Technical and Other Issues to be Resolved

6.14 REVIEW OF SELECTED TECHNOLOGIES FOR APPLICATION OF EXPEDITED SOLUTIONS

Review of technologies for expediting remedies will be conducted during the RI/FS. Presumptive remedies, as appropriate, will be considered for sites. Publications such as "Treatment Technologies Applications Matrix for Base Closure Activities," prepared by the California Military Base Closure Environmental Committee, dated November 1993, will also be reviewed as part of the evaluations performed in selecting technologies.

6.15 HOT SPOT REMOVALS

At this time, no hot spots (i.e., sites that pose an immediate danger to the environment and/or human health) have been identified at the Station. In the event that any hot spots are discovered during ongoing investigations, the BCT will consider giving such sites high priority for early (near-immediate) action.

6.16 IDENTIFICATION OF CLEAN PROPERTIES

The environmental condition of properties are being evaluated in CERFA and EBS activities. Preliminary CERFA and EBS reports for the Station are also being prepared and are scheduled for completion later this year. These documents must receive concurrence by the regulatory agencies prior to final determinations of suitability for property disposal.

Chapter 6 Technical and Other Issues to be Resolved

6.16.1 BRAC Cleanup Team Action Items

The BCT will continue the site characterization per BRAC guidance and identify clean properties at the Station.

6.16.2 Rationale

Identification of clean properties is necessary for early disposal of Station property.

6.16.3 Status/Strategy

Clean parcels have not yet been identified at the Station. Final determinations for clean properties will be made following agency concurrence of the CERFA and EBS documents being prepared for the Station.

6.17 OVERLAPPING PHASES OF THE CLEANUP PROCESS

As an ongoing effort, the BCT will attempt to identify phases of the cleanup process that can be overlapped to produce a potential reduction in the time required for completion of the cleanup process.

6.18 IMPROVED CONTRACTING PROCEDURES

Environmental restoration at the Station will require the Navy to aggressively issue numerous contracts for investigation and remediation activities. Flexible contracting procedures must be implemented to expedite installation restoration and meet established closure schedules.

Chapter 6 Technical and Other Issues to be Resolved

The BCT will get input from Jeff Allen/SWDIV and other members of the Project Team on new approaches to contracting to fast-track cleanup of the Station.

6.19 INTERFACING WITH THE COMMUNITY REUSE PLAN

To date, no reuse plan has been prepared for MCAS El Toro. Regular meetings and clear communication between the BCT members and the EXTPA will be critical to incorporate reuse plans in the restoration plans for the Station.

6.20 BIAS FOR CLEANUP INSTEAD OF STUDIES

The Navy's current position emphasizes expedited remedial actions and attempts to avoid traditional lengthy site characterization studies and prolonged RI/FS activities.

BCT members should collaborate with agencies in devising future work plans, identifying cleanup criteria, and selecting remedial actions in efforts to aggressively pursue cleanup instead of studies and data collection.

6.21 EXPERT INPUT ON CONTAMINATION AND POTENTIAL REMEDIAL ACTIONS

The BCT and RI/FS team should consult experts to provide input on faster investigative techniques and potential remedial actions to meet the aggressive cleanup schedules established for the Station.

Chapter 6 Technical and Other Issues to be Resolved

6.22 PRESUMPTIVE REMEDIES

Presumptive remedies are remedies that, based on past evaluations of remedial alternatives at similar sites, can be presumed to be an effective, optimum remedy. Presumptive remedies can expedite the evaluation process that is normally involved in selecting a remedial alternative for a site through the FS process. The BCT will ensure that presumptive remedies are considered for implementation at appropriate sites at the Station.

6.23 PARTNERING (USING INNOVATIVE MANAGEMENT, COORDINATION, AND COMMUNICATION TECHNIQUES)

A partnering agreement among the Project Team is essential for efficient management of the base closure process. As a group, the Project Team will establish a partnering agreement that incorporates the latest and most efficient management techniques to coordinate installation restoration activities.

6.24 UPDATING THE EBS AND NATURAL/CULTURAL RESOURCES DOCUMENTATION

A preliminary EBS report for the Station is scheduled to be issued later this year. The EBS will be updated and CERFA determinations made at a later date.

Natural and cultural resources documentation provided in this ERA will be updated as additional information becomes available.

Chapter 6 Technical and Other Issues to be Resolved

6.25 IMPLEMENTING THE POLICY FOR ONSITE DECISIONMAKING

Onsite decisionmaking authority during future field efforts at MCAS El Toro will be an essential part of expediting the investigation and cleanup effort at sites. While field efforts are in progress, the BCT will periodically check that onsite decisionmaking is occurring.

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Table 6-1 Future Land Use Risk Assessment for Development of Remedy Selections MCAS El Toro BCP							
Site ID	Risks	Contaminants (1)			Current Use	Adjacent Use	Anticipated Use
		Groundwater	Subsurface-Soil	Surface/Sediment (2)			
1 (OU-3)	Refer to Appendix E	VOCs, Metals, Gross Alpha Beta, GCP	Metals (4)	VOCs, TFH, TRPH, GCP	EOD Range	Open Space	TBD
2 (OU-2)	Refer to Appendix E	Metals, Gross Alpha Beta, VOCs, GCP	Metals, VOCs, Herbicides	Metals, VOCs, SVOCs, Herbicides, TFH, Pesticides and PCBs	Inactive landfill	Agricultural, Open Space	TBD
3/4 (OU-2)	Refer to Appendix E	Metals, Gross Alpha Beta, GCP, VOCs, TFH, SVOCs, Pesticides and PCBs	Metals, VOCs, Herbicides, TFH, TRPH, SVOCs	Metals, VOCs, Pesticides, Herbicides, PCBs, TFH, TRPH, Dioxins, Furans, GCP, SVOCs	Inactive landfill	Maintenance, Supply/Storage, Housing, Fuel Storage	TBD
5 (OU-2)	Refer to Appendix E	Metals, VOCs, Gross Alpha Beta, GCP, VOCs	Metals, Herbicides	VOCs, Metals, Pesticides and PCBs, TFH, TRPH	Inactive Landfill, RI-Derived Waste Storage Area	Golf Course, Agriculture, Airfield Operations	TBD
6 (OU-3)	Refer to Appendix E	Metals, VOCs, SVOCs, GCP	Metals, VOCs	Metals, SVOCs, TFH, TRPH, VOCs	Open Space, Airfield Operations	Airfield Operations, Agriculture	TBD
7 (OU-3)	Refer to Appendix E	Metals, VOCs, TFH, GCP, Gross Alpha and Beta	Metals, VOCs, SVOCs, TFH, TRPH	Metals, VOCs, SVOCs, TFH, TRPH, Pesticides and PCBs	Open Space, Airfield Operations	Airfield Operations, Supply/Storage, Maintenance	TBD
8 (OU-3)	Refer to Appendix E	Metals, VOCs, GCP	Metals, VOCs, SVOCs, Pesticides, PCBs, TFH, TRPH	Metals, VOCs, Pesticides, PCBs, TFH, TRPH, SVOCs	DRMO Storage Yard	Supply/Storage, Maintenance	TBD
9 (OU-3)	Refer to Appendix E	Metals, VOCs, TFH, Gross Alpha Beta, GCP	Metals, VOCs, SVOCs, TFH, TRPH	Metals, VOCs, SVOCs, TFH, TRPH	Open Space	Airfield Operations, Supply Storage	TBD
10 (OU-2)	Refer to Appendix E	Metals, SVOCs, VOCs, GCP	Metals, TFH	Metals, VOCs, SVOCs, TFH, TRPH	Aircraft Parking (Tarmac)	Airfield Operations, Supply Storage, Maintenance	TBD
11 (OU-3)	Refer to Appendix E	Not investigated	Not investigated	Pesticides, PCBs	Storage Area	Supply/Storage, Maintenance, Administrative Support	TBD
12 (OU-3)	Refer to Appendix E	Metals, VOCs, GCP	Metals, TFH, TRPH, SVOCs, Pesticides and PCBs	Metals, VOCs, SVOCs, Herbicides, TFH, TRPH, Pesticides and PCBs, GCP	Open Space, Contractor Staging Area	Airfield Operations, Supply/Storage	TBD

Table 6-1 Future Land Use Risk Assessment for Development of Remedy Selections MCAS EI Toro BCP							
Site ID	Risks	Contaminants (1)			Current Use	Adjacent Use	Anticipated Use
		Groundwater	Subsurface-Soil	Surface/Sediment (2)			
13 (OU-3)	Refer to Appendix E	Metals, VOCs, TFH, GCP	Metals, SVOCs, TFH	Metals, VOCs, SVOCs, TFH, TRPH, Pesticides, PCBs	Historic Aircraft Storage	Supply/Storage, Maintenance, Fuel Storage	TBD
14 (OU-3)	Refer to Appendix E	Metals, VOCs, GCP	Metals, TRPH	Metals, VOCs, SVOCs, TFH, TRPH	Open Area	Supply/Storage, Maintenance, Community Support	TBD
15 (OU-3)	Refer to Appendix E	Metals, VOCs, TFH, GCP	Metals	Metals, VOCs, SVOCs, TFH, TRPH	Storage Area	Administrative Support, Supply/Storage	TBD
16 (OU-3)	Refer to Appendix E	Metals, GCP	Metals, SVOCs, TFH, TRPH, VOCs	Metals, VOCs, SVOCs, TFH, TRPH	Open Space	Airfield Operations, Crash Crew Training	TBD
17 (OU-2)	Refer to Appendix E	Metals, VOCs, GCP	Metals, Herbicides, TFH, TRPH	Metals, VOCs, Herbicides, Pesticides, PCBs, TFH, TRPH, SVOCs	Inactive landfill	Agricultural, Open Space, Housing	TBD
18 (OU-1)	Refer to Appendix E	VOCs			NA	NA	TBD
19 (OU-3)	Refer to Appendix E	Metals, VOCs, Gross Alpha Beta, GCP	Metals, VOCs, SVOCs, TFH, TRPH	Metals, VOCs, SVOCs, TFH, TRPH	Unused	Airfield Operations	TBD
20 (OU-3)	Refer to Appendix E	Metals, VOCs, GCP	Metals	VOCs, SVOCs, TFH, TRPH, Pesticides and PCBs, Metals	Hobby Shop	Community Support	TBD
21 (OU-3)	Refer to Appendix E	Metals, VOCs, GCP	Metals, Pesticides, TFH, PCBs	Metals, VOCs, SVOCs, Herbicides, TFH, Pesticides and PCBs	Material Storage	Supply/Storage	TBD
22 (OU-3)	Refer to Appendix E	Metals, VOCs, TFH, Gross Alpha Beta, GCP	Metals, VOCs, SVOCs, TFH	Metals, VOCs, SVOCs, Pesticides and PCBs, TFH, TRPH	Aircraft Parking (Tarmac/Gravel)	Airfield Operations, Supply/Storage, Maintenance	TBD

**Table 6-1
Future Land Use Risk Assessment for Development of Remedy Selections
MCAS EI Toro BCP**

Site ID	Risks	Contaminants (1)			Current Use	Adjacent Use	Anticipated Use
		Groundwater	Subsurface-Soil	Surface/Sediment (2)			
24 (3) (OU-2)	Refer to Appendix E	VOCs	VOCs	VOCs	Airfield Operations, Supply/Storage, Maintenance, Administrative Support	Airfield Operations, Supply/Storage, Maintenance, Administrative Support	TBD
25 (3) (OU-2)	Refer to Appendix E	VOCs, GCP, Metals, Pesticides, PCBs, TFH, SVOCs	VOCs, SVOCs, Metals, TFH, TRPH, Pesticides and PCBs	VOCs, Pesticides and PCBs, TFH, TRPH, SVOCs, Herbicides, Metals	Major Surface Water Drainages	Various	TBD

Notes:

Contaminant Abbreviations:

VOCs- Volatile Organic Compounds	TRPH- Total Recoverable Petroleum Hydrocarbons
SVOCs-Semivolatile Organic Compounds	PCBs- Polychlorinated Biphenyls
TFH- Total Fuel Hydrocarbons	GCP- General Chemistry Parameters.

(1) - Contaminants of Potential Concern (COPCs) identified in Phase II RI Work Plan. Contaminants listed for all on-site soil/sediment COPCs and all on-site and down Gradient groundwater COPCs.
 (2) - Corresponds to Shallow Soil/Sediment Definitions in Phase II RI Work Plan.
 (3) - Sites 24 and 25 will be investigated during Phase II of the RI/FS
 (4) - COPCs for Downgradient locations only.
 (5) - Indicates COPC for surface water only.
 TBD- To Be Determined

Source:
 JEG MCAS EI Toro, Phase II RI/FS Draft Work Plan, November 1993.

Table 6-3	
Surface Water Standards	
MCAS EI Toro BCP	
CONSTITUENT/PARAMETER	CONCENTRATION LIMIT/CRITERIA
Organics (ug/l):	
1,1,1-Trichloroethane	18,000 (k)
2-Butanone	NA
4,4'-DDE	0.001(e)
4,4'-DDT	0.001(e)
4-Nitrophenol	150 (c,f)
Acetone	NA
Benzyl butyl phthalate	3.0 (c,g)
Beta BHC	0.08 (c,h)
Bis(2-ethylhexyl)phthalate	360 (a)
Chloroform	1,240 (c)
Delta BHC	0.08 (c,h)
Endosulfan sulfate	0.056 (i)
Gamma chlordane	0.0043 (j)
Methyl chloride	11,000 (l)
Methylene chloride	11,000 (c,k,l)
TFH-diesel	NA
Toluene	17,500 (c,k)
Inorganics (ug/L):	
Aluminum	87
Antimony	30 (a)
Arsenic	190(b)
Barium	NA
Beryllium	5.3c
Cadmium	3.6/1.2/2.5 (d)
Chromium	694/212/474 (b,d)
Cobalt	NA
Copper	42/12/28 (d)
Lead	20.9/3.3/11.5(d)
Manganese	NA
Mercury	0.012
Nickel	550/162/371 (d)
Selenium	5
Silver	0.12
Thallium	40 (c)
Vanadium	NA
Zinc	271/109/250 (d)

Table 6-3
Surface Water Standards
MCAS EI Toro BCP

CONSTITUENT/PARAMETER	CONCENTRATION LIMIT/CRITERIA
<p>Note:</p> <p>a - Proposed criterion.</p> <p>b - For the trivalent form.</p> <p>c - Data insufficient to develop criterion. Value is lowest observed effect level.</p> <p>d - Calculation of these water quality criteria are based on there levels of water hardness. Site specific hardness was estimated by summing calcium and magnesium concentrations to yield yeild 438, 103, 275 mg/l as CaCO3 for sites 2, 3, and 25, respectively. Sites 2, 3, and 25 comprise all the surface runoff collection channels that flow through or adjacent to the Station.</p> <p>e - Criterion values for DDT refer to the sum of the p,p' and o,p' isomer of DDT, DDD, (TDE), and DDE</p> <p>f - Value listed is the generic criterion for nitrophenols.</p> <p>g - Value listed is the generic criterion for phthalate esters.</p> <p>h - Value listed is for technical BHC</p> <p>i - Value listed is for the sum of endosulfan-alpha, -beta, and endosulfan sulfate.</p> <p>j - Criteria levels for chlordanes refer to the sum of chlordanes-alpha, chlordanes-gamma, Chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordanes. Criteria are for 1 day average exposure.</p> <p>k - No chronic criterion was available, and the value listed is the acute criterion.</p> <p>l - Value listed is a generic criterion for halomethanes.</p> <p>Sources:</p> <p>(1) USEPA Quality Criteria for Water, 1992</p> <p>(2) Amendments of the Water Quality Control Plan for Inland Surface Waters of California, Functional Equivalent Document, California State Water Resources Control Board, November 1992</p>	

Appendix A

Fiscal Year Funding Requirements

Table A-1A Restoration Summary (Unconstrained Costs)										
OU #	Site #	IRP Phases	FY 1994 (\$000)	FY 1995 (\$000)	FY 1996 (\$000)	FY 1997 (\$000)	FY 1998 (\$000)	FY 1999 + (\$000)	Total (\$000)	
1	18	RI/FS	200						200	
		IRA (1)	3,500	16,000					19,500	
		PP/ROD	50							50
		RD		500						500
		RA				500	500	1,500		2,500
SUBTOTAL OU-1			3,750	16,500	0	500	500	1,500	22,750	
2	2, 3/4, 5, 10, 17, 24, 25	RI/FS	4,335	2,550					6,885	
		IRA	500	250					750	
		PP/ROD			625					625
		RD				2,905	625			3,530
		RA					12,315	61,315		73,630
SUBTOTAL OU-2			4,835	2,800	625	2,905	12,940	61,315	85,420	
3	1, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22	RI/FS	8,215	4,800					13,015	
		PP/ROD			875				875	
		RD				2,000				2,000
		RA					40,060	8,310		48,370
SUBTOTAL OU-3			8,215	4,800	875	2,000	40,060	8,310	64,260	
TOTAL UNCONSTRAINED COSTS			16,800	24,100	1,500	5,405	53,500	71,125	172,430	

(1) Interim removal action funding is for the Irvine Desalter Project Settlement Agreement (SA) between Orange County Water District and Department of Navy. The Navy anticipates SA negotiations to conclude June 1995. Total funding requirements may range anywhere from \$5 million to \$60 million. The value shown is only a mid-range estimate.

NOTE:
 Program estimates shown are preliminary estimates for planning purposes only. The costs do not represent actual approved budget amounts and are not to be assumed as such. Cleanup estimates are highly dependent upon actual study results, risk assessments, technology innovations, future property use, and regulatory/community concurrence with remedial solutions.

Table A-1B Restoration Summary (Constrained Costs)									
OU #	Site #	IRP Phases	FY 1994 (\$000)	FY 1995 (\$000)	FY 1996 (\$000)	FY 1997 (\$000)	FY 1998 (\$000)	FY 1999 + (\$000)	Total (\$000)
1	18	RI/FS	500						500
		IRA (1)	500	19,500					20,000
		PP/ROD	100						100
		RD		431	500				931
		RA			500	1,000	1,000	3,000	5,500
SUBTOTAL OU-1			1,100	19,931	1,000	1,000	1,000	3,000	27,031
2	2, 3/4, 5, 10, 17, 24, 25	RI/FS	5,900	250					6,150
		IRA	500		500	1,500	2,000		4,500
		PP/ROD				500	400		900
		RD				600	2,500	1,000	4,100
		RA					10,000	17,500	27,500
SUBTOTAL OU-2			6,400	250	500	2,600	14,900	18,500	43,150
3	1, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22	RI/FS	9,300	250					9,550
		IRA				1,500	2,000		3,500
		PP/ROD				305	300		605
		RD					1,000	500	1,500
		RA					5,800	3,000	8,800
SUBTOTAL OU-3			9,300	250	0	1,805	9,100	3,500	23,955
TOTAL CONSTRAINED COSTS			16,800	20,431	1,500	5,405	25,000	25,000	94,136

(1) Interim removal action funding is for the Irvine Desalter Project Settlement Agreement (SA) between Orange County Water District and Department of Navy. The Navy anticipates SA negotiations to conclude June 1995. Total funding requirements may range anywhere from \$5 million to \$60 million. The value shown is only a mid-range estimate.

NOTE:

Program estimates shown are preliminary estimates for planning purposes only. The costs do not represent actual approved budget amounts and are not to be assumed as such. Cleanup estimates are highly dependent upon actual study results, risk assessments, technology innovations, future property use, and regulatory/community concurrence with remedial solutions.

Table A-2A Environmental Compliance Summary Unconstrained Costs							
Activity	Funding Requirements						
	FY 1994 (\$000)	FY 1995 (\$000)	FY 1996 (\$000)	FY 1997 (\$000)	FY 1998 (\$000)	FY 1999 + (\$000)	Total (\$000)
MISSION-RELATED COMPLIANCE							
UST Program	297	1,675	140	140	140	120	2,512
Air Program	533	320	200	200	200	100	1,553
RCRA Part B Permit	900	877	800	800	800	400	4,577
NPDES Monitoring	729	750	150	150	150	80	2,009
Mission-Related Subtotal	2,459	3,622	1,290	1,290	1,290	700	10,651
CLOSURE RELATED COMPLIANCE							
Assess/Removal of Non-Essential UST	4,548	11,050	13,813	19,337	16,575	11,050	76,373
Assess/Removal of Mission-Essential USTs					4,000	16,535	20,535
Removal Fuel Pipeline					270	910	1,180
Asbestos Assessment and Removal		100	500	500	500	500	2,100
Lead-Based Paint Assessment and Removal					300	400	700
PCB Assessment and Removal					660	650	1,310
RCRA Closure of TSD Facilities						2,900	2,900
Oil/Water Separator Removal					400	968	1,368
Conduct RCRA Early Actions	2,800	1,470					4,270
Closure Subtotal	7,348	12,620	14,313	19,837	22,705	33,913	110,736
Total Unconstrained Costs	9,807	16,242	15,603	21,127	23,995	34,613	121,387

NOTE:

Program estimates shown are preliminary estimates for planning purposes only.

The costs do not represent actual approved budget amounts and are to be assumed as such.

Cleanup estimates are highly dependent upon actual study results, risk assessments, technology innovations, future property use, and regulatory/community concurrence with remedial solutions.

Table A-2B Environmental Compliance Summary Constrained Costs							
Activity	Funding Requirements						
	FY 1994 (\$000)	FY 1995 (\$000)	FY 1996 (\$000)	FY 1997 (\$000)	FY 1998 (\$000)	FY 1999 + (\$000)	Total (\$000)
MISSION-RELATED COMPLIANCE							
UST Program	297	1,675	140	140	140	120	2,512
Air Program	533	320	200	200	200	100	1,553
RCRA Part B Permit	900	877	800	800	800	400	4,577
NPDES Monitoring	729	750	150	150	150	80	2,009
Mission-Related Subtotal	2,459	3,622	1,290	1,290	1,290	700	10,651
CLOSURE RELATED COMPLIANCE							
Assess/Removal of Non-Essential UST	200	5,612	5,659	4,254	3,514		19,239
Assess/Removal of Mission-Essential USTs						1,146	1,146
Removal Fuel Pipeline					270		270
Asbestos Assessment and Removal		100	500	500			1,100
Lead-Based Paint Assessment and Removal					300		300
PCB Assessment and Removal					660		660
RCRA Closure of TSD Facilities						1,900	1,900
Oil/Water Separator Removal					400		400
Conduct RCRA Early Actions	2,800	1,470					4,270
Closure Subtotal	3,000	7,182	6,159	4,754	5,144	3,046	29,285
Total Constrained Costs	5,459	10,804	7,449	6,044	6,434	3,746	39,936

NOTE:

Program estimates shown are preliminary estimates for planning purposes only.

The costs do not represent actual approved budget amounts and are to be assumed as such.

Cleanup estimates are highly dependent upon actual study results, risk assessments, technology innovations, future property use, and regulatory/community concurrence with remedial solutions.

Table A-3 Natural/Cultural Resources Summary							
Activity	Fund Requirements						
	FY 1994 (\$000)	FY 1995 (\$000)	FY 1996 (\$000)	FY 1997 (\$000)	FY 1998 (\$000)	FY 1999 (\$000)	Total (\$000)
CULTURAL RESOURCES PROGRAM							
Archaeological Survey					20	20	40
Historical/Cold-War Structures Survey		20					20
Native American Resources Survey		20					20
SUBTOTAL CULTURAL RESOURCES	0	40	0	0	20	20	80
NATURAL RESOURCES PROGRAM							
Threatened/Endangered Species Survey and Management	40	110	50	50	50	25	325
Wetlands Survey		20					20
Sensitive Habitat Survey		20					20
Biological Resources Management	100	100	100	100	100	50	550
Erosion Control	35	180	10	10	10	5	250
SUBTOTAL NATURAL RESOURCES	175	430	160	160	160	80	1,165
TOTAL COSTS	175	470	160	160	180	100	1,245

NOTE:

Program estimates shown are preliminary estimates for planning purposes only. The costs do not represent actual approved budget amounts and are not to be assumed as such. Cleanup estimates are highly dependent upon actual study results, risk assessments, technology innovations, future property use, and regulatory/community concurrence with remedial solutions.

Table A-4A							
Total Environmental Program Summary							
Unconstrained Costs							
Program	Fund Requirements						
	FY 1994 (\$000)	FY 1995 (\$000)	FY 1996 (\$000)	FY 1997 (\$000)	FY 1998 (\$000)	FY 1999 (\$000)	Total (\$000)
IRP	16,800	24,100	1,500	5,405	53,500	71,125	172,430
Compliance-Closure Related	7,348	12,620	14,313	19,837	22,705	33,913	110,736
Compliance-Mission Related	2,459	3,622	1,290	1,290	1,290	700	10,651
Natural/Cultural Resources	175	470	160	160	180	100	1,245
Total Unconstrained Costs	26,782	40,812	17,263	26,692	77,675	105,838	295,062

NOTE:

Program estimates shown are preliminary estimates for planning purposes only.

The costs do not represent actual approved budget amounts and are to be assumed as such.

Cleanup estimates are highly dependent upon actual study results, risk assessments, technology innovations, future property use, and regulatory/community concurrence with remedial solutions.

Table A-4B Total Environmental Program Summary Constrained Costs							
Program	Fund Requirements						
	FY 1994 (\$000)	FY 1995 (\$000)	FY 1996 (\$000)	FY 1997 (\$000)	FY 1998 (\$000)	FY 1999 (\$000)	Total (\$000)
IRP	16,800	20,431	1,500	5,405	25,000	25,000	94,136
Compliance-Closure Related	3,000	7,182	6,159	4,754	5,144	3,046	29,285
Compliance-Mission Related	2,459	3,622	1,290	1,290	1,290	700	10,651
Natural/Cultural Resources	175	470	160	160	180	100	1,245
Total Constrained Costs	22,434	31,705	9,109	11,609	31,614	28,846	135,317

NOTE:

Program estimates shown are preliminary estimates for planning purposes only.
 The costs do not represent actual approved budget amounts and are to be assumed as such.
 Cleanup estimates are highly dependent upon actual study results, risk assessments, technology innovations, future property use, and regulatory/community concurrence with remedial solutions.

OU	Site	1985	1986	1987	1988	1989	1990	1991	1992	1993
OU-1		PA		SI	HRS SI	SI RI	RI	RI	RI	RI FS
	18	■		■	■ ■	■ ■	■	■	■	■ ■
OU-2		PA			HRS SI	SI RI	RI	RI	RI	RI
	2	■			■ ■	■ ■	■	■	■	■
		PA			HRS SI	SI RI	RI	RI	RI	RI
	3	■			■ ■	■ ■	■	■	■	■
					HRS SI	RI	RI	RI	RI	RI
	4				■ ■	■	■	■	■	■
		PA			HRS SI	RI	RI	RI	RI	RI
	5	■			■ ■	■	■	■	■	■
		PA			HRS	RI	RI	RI	RI	RI
	10	■			■	■	■	■	■	■
	PA			HRS SI	SI RI	RI	RI	RI	RI	
17	■			■ ■	■ ■	■	■	■	■	
	24									
	25									
OU-3		PA			HRS	RI	RI	RI	RI	RI
	1	■			■	■	■	■	■	■
		PA			HRS	RI	RI	RI	RI	RI
	6	■			■	■	■	■	■	■
		PA			HRS	RI	RI	RI	RI	RI
7	■			■	■	■	■	■	■	
				HRS	RI	RI	RI	RI	RI	
8				■	■	■	■	■	■	

Legend	
PA	Preliminary Assessment
SI	Site Inspection
SI*	Investigated in RFA
RI	Remedial Investigation
FS	Feasibility Study
HRS	Hazardous Ranking Score

Figure A-1
Past Restoration Schedule
MCAS El Toro BCP
(Page 1 of 2)

OU	Sites	1985	1986	1987	1988	1989	1990	1991	1992	1993
OU-3 (cont'd)	9	PA			HRS	RI	RI	RI	RI	RI
	11	PA			HRS	RI	RI	RI	RI	RI
	12				HRS	RI	RI	RI	RI	RI
	13	PA			HRS	RI	RI	RI	RI	RI
	14	PA			HRS	RI	RI	RI	RI	RI
	15	PA			HRS	RI	RI	RI	RI	RI
	16				HRS	RI	RI	RI	RI	RI
	19				HRS SI	RI	RI	RI	RI	RI
	20						RI	RI	RI	RI
	21						RI	RI	RI	RI
	22						RI	RI	RI	RI
	23							SI*	SI*	SI*

Legend	
PA	Preliminary Assessment
SI	Site Inspection
SI*	Investigated in RFA
RI	Remedial Investigation
FS	Feasibility Study
HRS	Hazardous Ranking Score

Figure A-1
Past Restoration Schedule
MCAS El Toro BCP
(Pag of 2)

Table A-5 Historical Expenditures by Site by OU Funds													
OU #	Site #	Site Description	IRP Phases	FY 1985 (\$000)	FY 1986 (\$000)	FY1987 (\$000)	FY 1988 (\$000)	FY 1989 (\$000)	FY 1990 (\$000)	FY 1991 (\$000)	FY 1992 (\$000)	FY 1993 (\$000)	Total (\$000)
OU-1	18		PA	3.7			1.4						5.1
			SI			846.1	465.0	400.1					1711.2
			RI/FS					1.1	102.4	43.0	976.0	2000.0	3122.5
			RD									797.0	797.0
OU-2	2		PA	3.7			2.3						6.0
			SI				7.4	38.6					46.0
			RI/FS					1.1	12.3	27.0	857.0	98.2	995.6
	3		PA	3.7			1.4						5.1
			SI				7.4	38.6					46.0
			RI/FS					1.1	12.3	27.0	857.0	98.2	995.6
	4		PA				1.4						1.4
			SI				6.3						6.3
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	5		PA	3.7			1.4						5.1
			SI				7.4	38.6					46.0
			RI/FS					1.1	12.3	27.0	857.0	98.2	995.6
10		PA	3.4			1.4						4.8	
		SI											
		RI/FS					1.1	12.3	27.0	857.0	98.2	995.6	

Table A-5 Historical Expenditures by Site by OU Funds													
OU #	Site #	Site Description	IRP Phases	FY 1985 (\$000)	FY 1986 (\$000)	FY1987 (\$000)	FY 1988 (\$000)	FY 1989 (\$000)	FY 1990 (\$000)	FY 1991 (\$000)	FY 1992 (\$000)	FY 1993 (\$000)	Total (\$000)
OU-3	17		PA	3.7			1.4						5.1
			SI				7.4	38.6					46.0
			RI/FS					1.1	12.3	27.0	857.0	98.2	995.6
	1		PA	3.7			1.4						5.1
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	6		PA	3.4			1.4						4.8
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	7		PA	3.4			1.4						4.8
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	8		PA				1.4						1.4
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	9		PA	3.7			1.4						5.1
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	11		PA	3.7			1.4						5.1
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	12		PA				1.4						1.4
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	13		PA	3.4			1.4						4.8
RI/FS							1.1	12.2	27.0	857.0	98.2	995.5	
14		PA	3.7			1.4						5.1	
		RI/FS					1.1	12.2	27.0	857.0	98.2	995.5	

Table A-5 Historical Expenditures by Site by OU Funds													
OU #	Site #	Site Description	IRP Phases	FY 1985 (\$000)	FY 1986 (\$000)	FY1987 (\$000)	FY 1988 (\$000)	FY 1989 (\$000)	FY 1990 (\$000)	FY 1991 (\$000)	FY 1992 (\$000)	FY 1993 (\$000)	Total (\$000)
	15		PA	3.7			1.4						5.1
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	16		PA				1.4						1.4
			RI/FS					1.1	12.2	27.0	857.0	98.2	995.5
	19		PA				1.4						1.4
			SI				16.4						16.4
			RI/FS					1.1	13.0	27.0	857.0	98.2	996.3
	20		RI/FS						13.0	27.0	857.0	98.2	995.2
	21		RI/FS						13.0	27.0	857.0	98.2	995.2
	22		RI/FS						13.0	27.0	857.0	98.2	995.2
	23		SI							1.2	32.0	20.0	53.2

Appendix B

Installation Environmental Restoration Documents Summary Tables

**Table B-1
Project Deliverables
MCAS El Toro BCP**

Year	Phase	Project Title	Report No.	Sites Examined	Deliverable Date/ Author
1986	PA	Initial Assessment Study for MCAS El Toro, California	1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	May 1986 - Brown and Caldwell Engineers
1988	SI	Site Inspection Plan of Action, Installation Restoration Program, MCAS Tustin and El Toro, California	2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	August 1988 - James M. Montgomery Engineers
1989	SI	Perimeter Investigation Interim Report, MCAS El Toro, Installation Restoration Program	3	18	April 1989 - James M. Montgomery Engineers
February 1990 - MCAS El Toro Placed on National Priorities List (NPL)					
1990	SI	Solid Waste Air Quality Assessment Test Report, MCAS El Toro, California, Communications Station Landfill Inactive Disposal Site	4	17	October 1990 - James M. Montgomery Engineers
1990	SI	Solid Waste Air Quality Assessment Test Report, MCAS El Toro, California, Perimeter Road Landfill Inactive Disposal Site	5	5	October 1990 - James M. Montgomery Engineers
1990	SI	Solid Waste Air Quality Assessment Test Report, MCAS El Toro, California, Magazine Road Landfill Inactive Disposal Site	6	2	October 1990 - James M. Montgomery Engineers

**Table B-1
Project Deliverables
MCAS El Toro BCP**

Year	Phase	Project Title	Report No.	Sites Examined	Deliverable Date/ Author
1990	SI	Solid Waste Air Quality Assessment Test Report, MCAS El Toro, California, Original Landfill Inactive Disposal Site	7	3	October 1990 - James M. Montgomery Engineers
1991	FS	Groundwater Model Simulations to Investigate Well Field Scenarios for the Irvine Desalter Project	8	18	April 1991 - Orange County Water District
1993	PA/SI	Final RCRA Facility Assessment Report, MCAS El Toro	9	3, 12 (1)	July 1993 - Jacobs Engineering Group Inc.
1993	RI	MCAS El Toro Phase I RI Technical Memorandum	10	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22	May 1993 - Jacobs Engineering Group Inc.

Notes:

(1) Three SWMUs/AOCs were added to the IRP based on the RFA sampling results: SWMUs/AOCs 194 (Former Incinerator) and 300 (Solvent Spill Area) were included in Site 3/4; SWMU/AOC 90 (Former Sewage Treatment Plant) was included in Site 12 (refer to Draft Phase II RI Work Plan).

Table B-2 Site Deliverables MCAS EI Toro BCP						
Site ID	PA/SI	RI/FS	Close Out	IRA	LTM	NRAP
1	1, 2	10				
2	1, 2, 6	10				
3/4 (1)	1, 2, 7, 9	10				
5	1, 2, 5	10				
6	1, 2	10				
7	1, 2	10				
8	1, 2	10				
9	1, 2	10				
10	1, 2	10				
11	1, 2	10				
12	1, 2, 9	10				
13	1, 2	10				
14	1, 2	10				
15	1, 2	10				
16	1, 2	10				
17	1, 2, 4	10				
18	2, 3	8				
19	2	10				
20	(2)	10				
21	(2)	10				
22	(2)	10				
23	9					
24	(2)	(3)				
25	(2)	10 (4)				

Notes:

(1) Sites 3 (Original Landfill) and 4 (Ferrocene Spill Area) were combined in the Phase II RI Work Plan.

(2) PA/SI was not performed for Sites 20, 21, 22, 24, and 25.

(3) Site 24 was not investigated during the Phase I RI.

(4) Site 25 (Station Washes) was evaluated as part of Site 18 (Regional Groundwater Investigation) in the Phase I RI.

The deliverable numbers in this table correspond to the report numbers in Table B-1.

Table B-3 Technical Documents/Data Loading Status Summary MCAS EI Toro BCP					
Date	IRP Title	Site/OU	Contractor	Service Center	Database Status (1)
Notes: (a) At this time, the software to be used for the master database for MCAS EI Toro is not known.					

Information will be input to Table B-3 when a master database for MCAS EI Toro IRP information is established. This table will be regularly updated based on current data loading activities and status.

Appendix C

Decision Document/ROD Summaries

Appendix C

Decision Document/ROD Summaries

The purpose of Appendix C is to provide documentation of records of decision (RODs) for the Installation Restoration Program (IRP) sites at MCAS El Toro. As of March 1994, no RODs have been prepared for the IRP sites at MCAS El Toro. As RODs are prepared for sites at the Station, documentation will be included in this appendix.

It is anticipated that an interim ROD for OU-1 (Site 18 - Regional Groundwater Investigation) will be completed by June 1995. At that time, an abstract of the ROD should be added to this appendix.

Appendix D

No Further Response Action Planned (NFRAP) Summaries

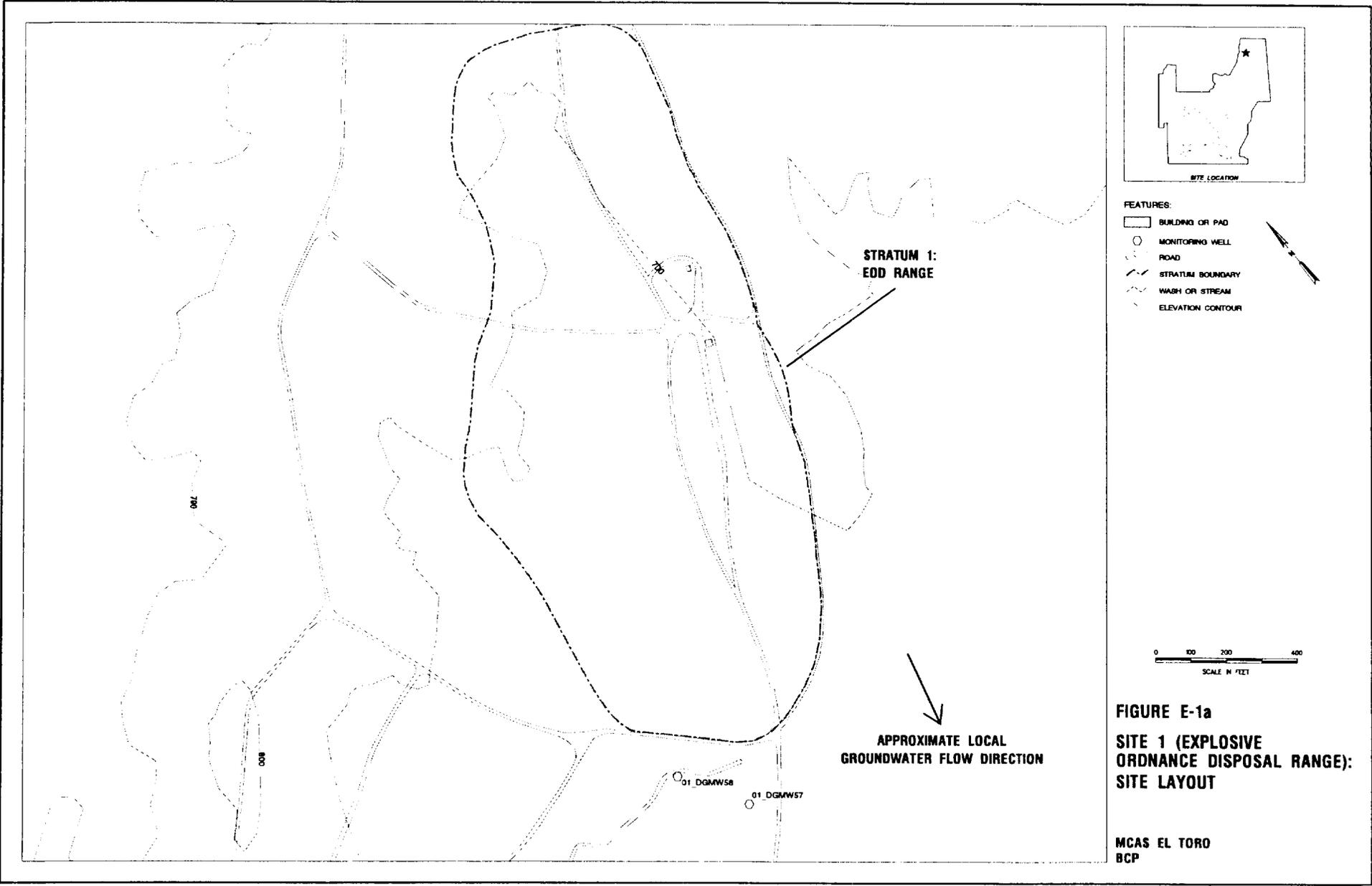
Appendix D

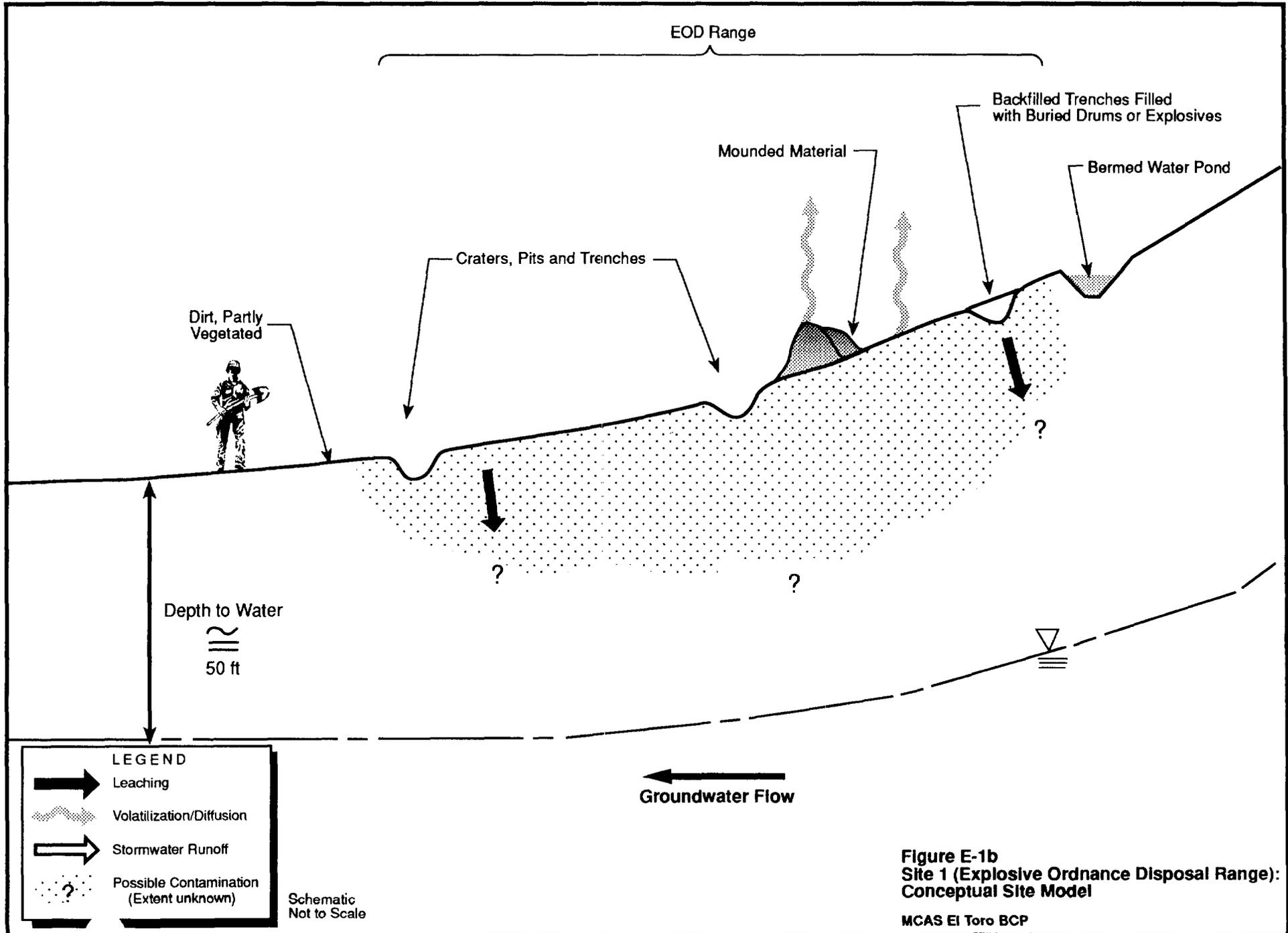
No Further Response Action Planned (NFRAP) Summaries

The purpose of Appendix D is to provide documentation of no further response action planned (NFRAP) decisions for the Installation Restoration Program (IRP) sites at MCAS El Toro. As of 31 March 1994, no NFRAP determinations have been made for the IRP sites at MCAS El Toro. As such determinations are made for sites at the Station, documentation will be included in this appendix.

Appendix E

Conceptual Site Model Data Summaries and Environmental Background Data





EOD Range

Backfilled Trenches Filled with Buried Drums or Explosives

Mounded Material

Bermed Water Pond

Craters, Pits and Trenches

Dirt, Partly Vegetated



Depth to Water
 ≈
 50 ft

←
 Groundwater Flow

LEGEND

- Leaching
- Volatilization/Diffusion
- Stormwater Runoff
- Possible Contamination (Extent unknown)

Schematic
 Not to Scale

Figure E-1b
Site 1 (Explosive Ordnance Disposal Range):
Conceptual Site Model

MCAS El Toro BCP

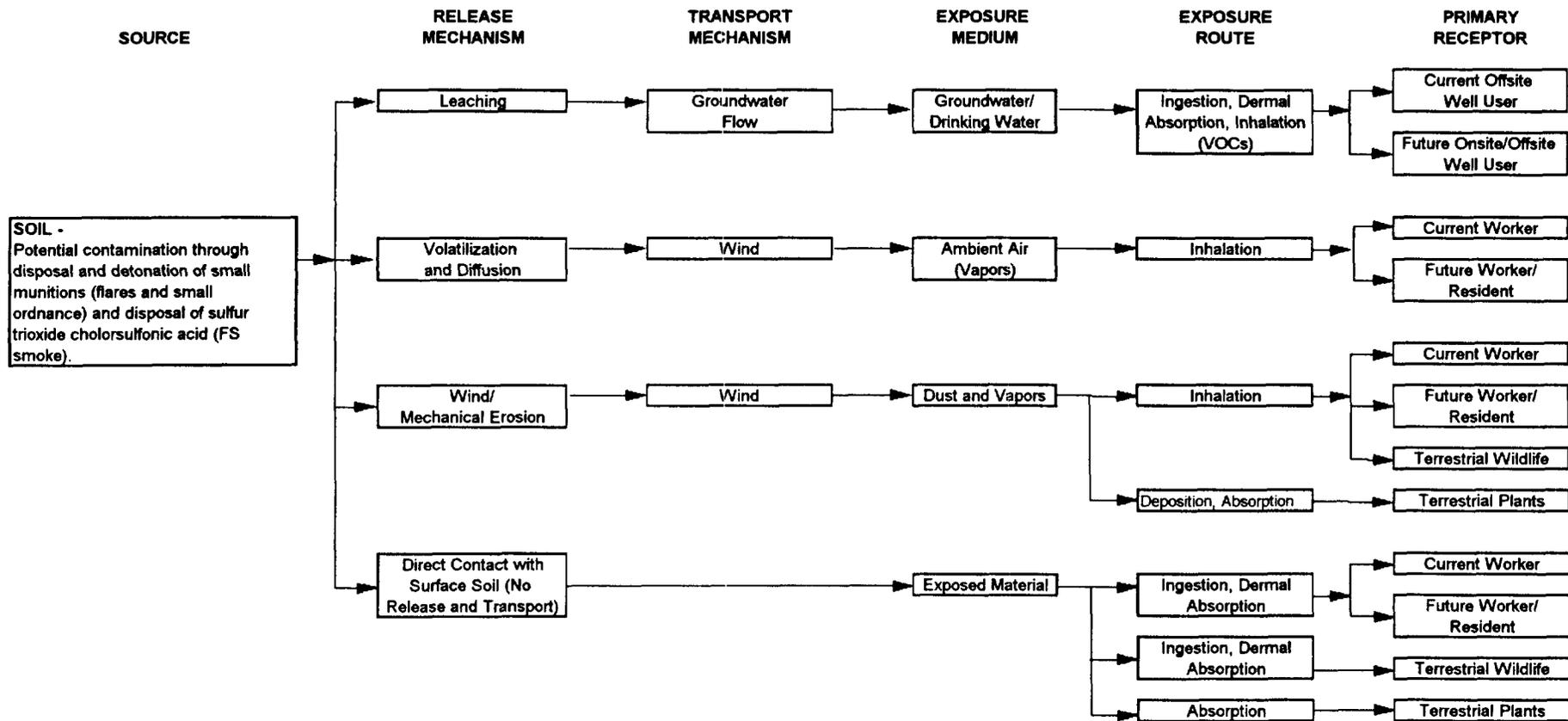
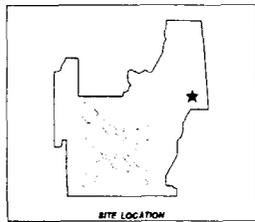
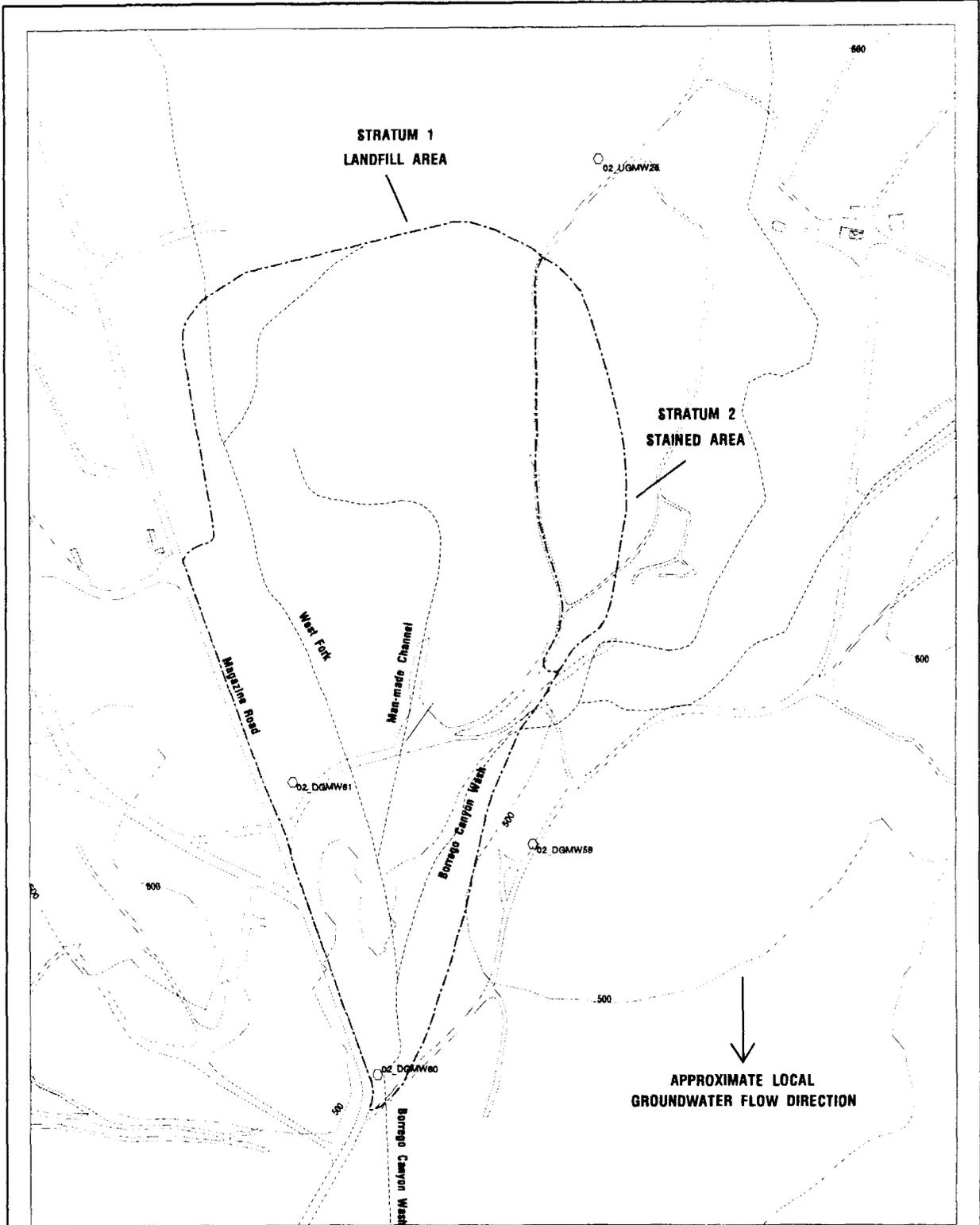


Figure E-1c
Site 1 (Explosive Ordnance Disposal Range):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
 MCAS EI Toro BCP



- FEATURES:
- BUILDING OR PAD
 - MONITORING WELL
 - ROAD
 - STRATUM BOUNDARY
 - WASH OR STREAM
 - ELEVATION CONTOUR



FIGURE E-2a
SITE 2 (MAGAZINE
ROAD LANDFILL):
SITE LAYOUT

MCAS EL TORO
BCP

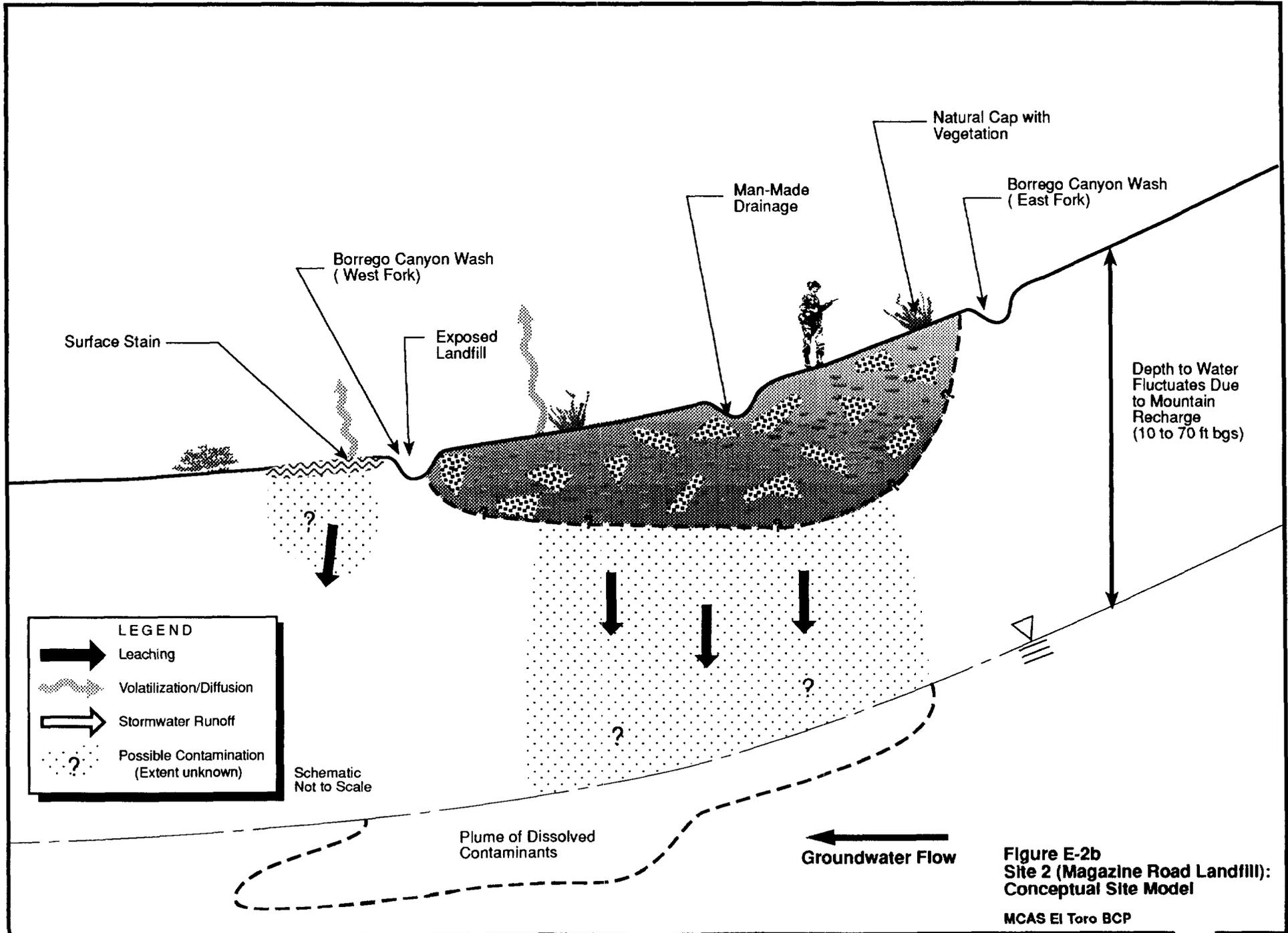


Figure E-2b
Site 2 (Magazine Road Landfill):
Conceptual Site Model

MCAS El Toro BCP

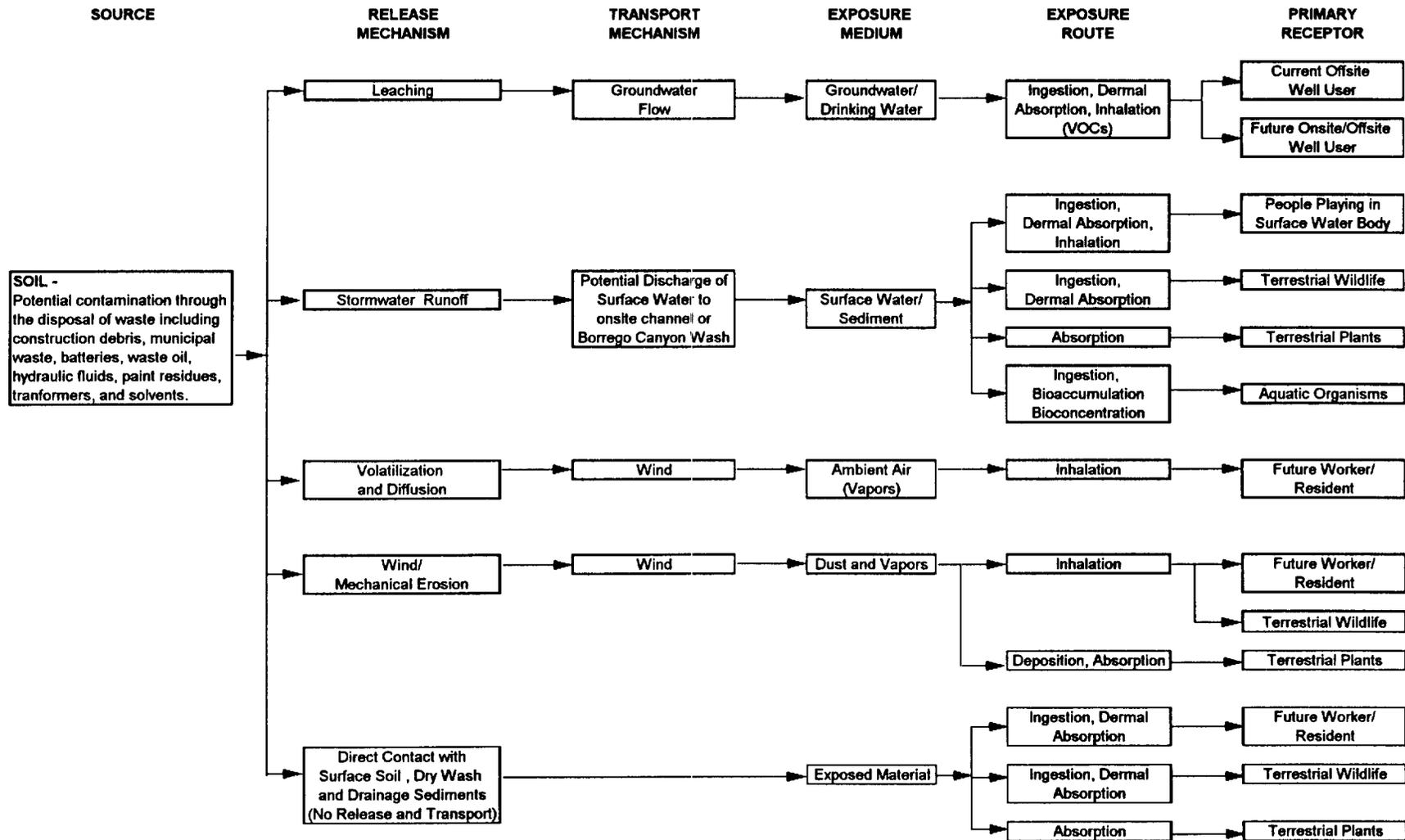
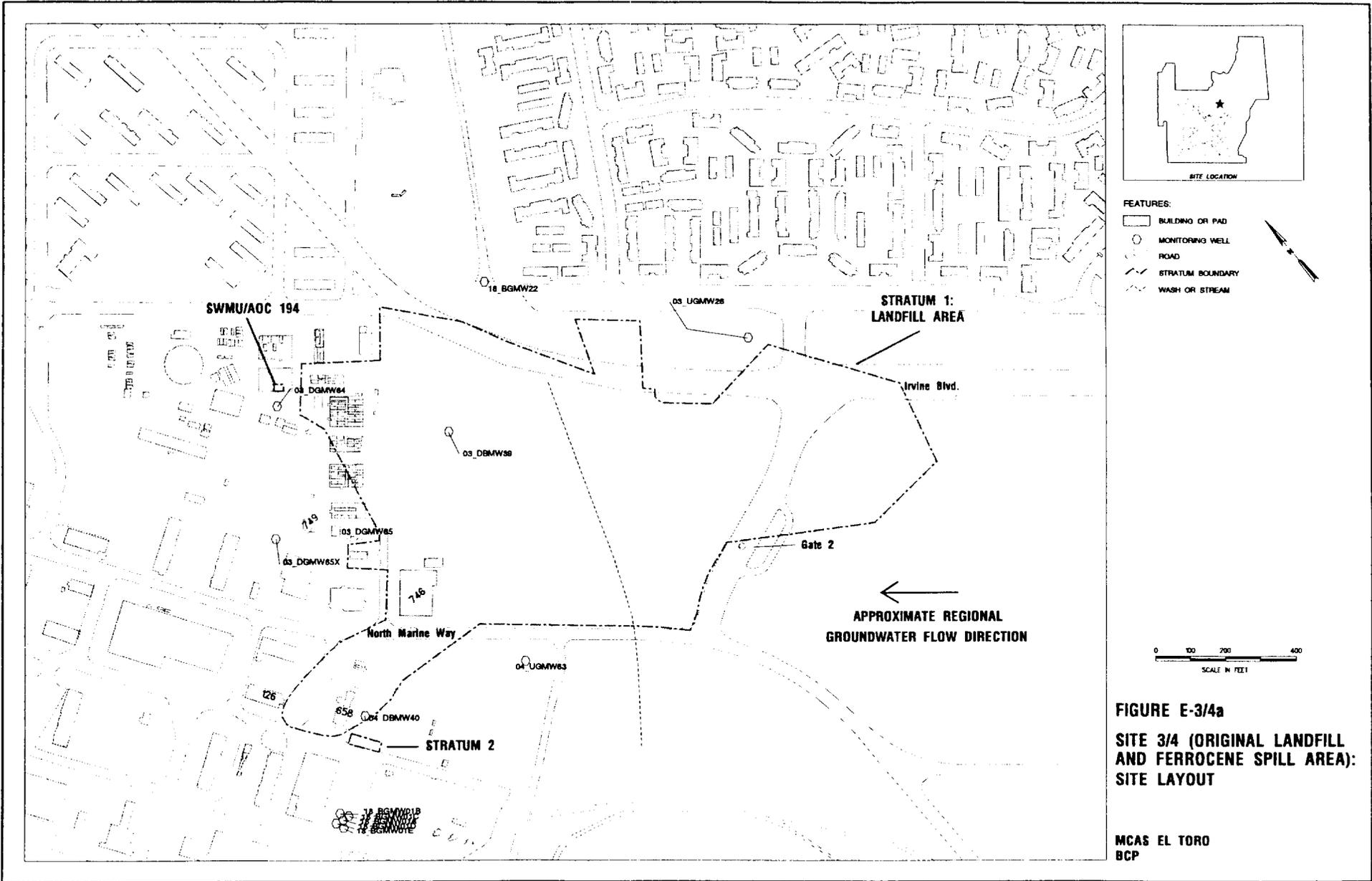
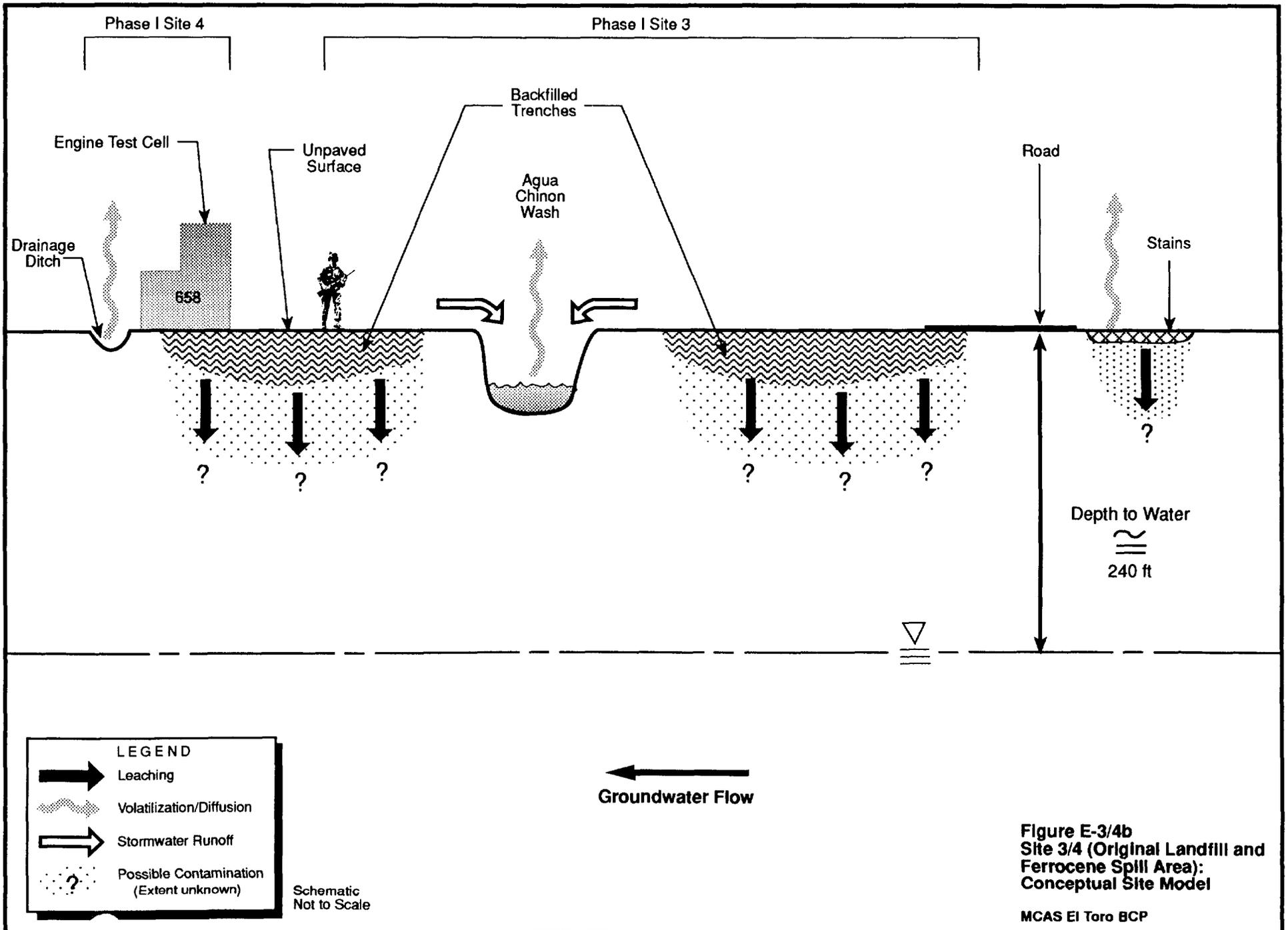


Figure E-2c
 Site 2 (Magazine Road Landfill):
 Potential Exposure Routes and Pathways for Human and Ecological Receptors
 MCAS El Toro BCP





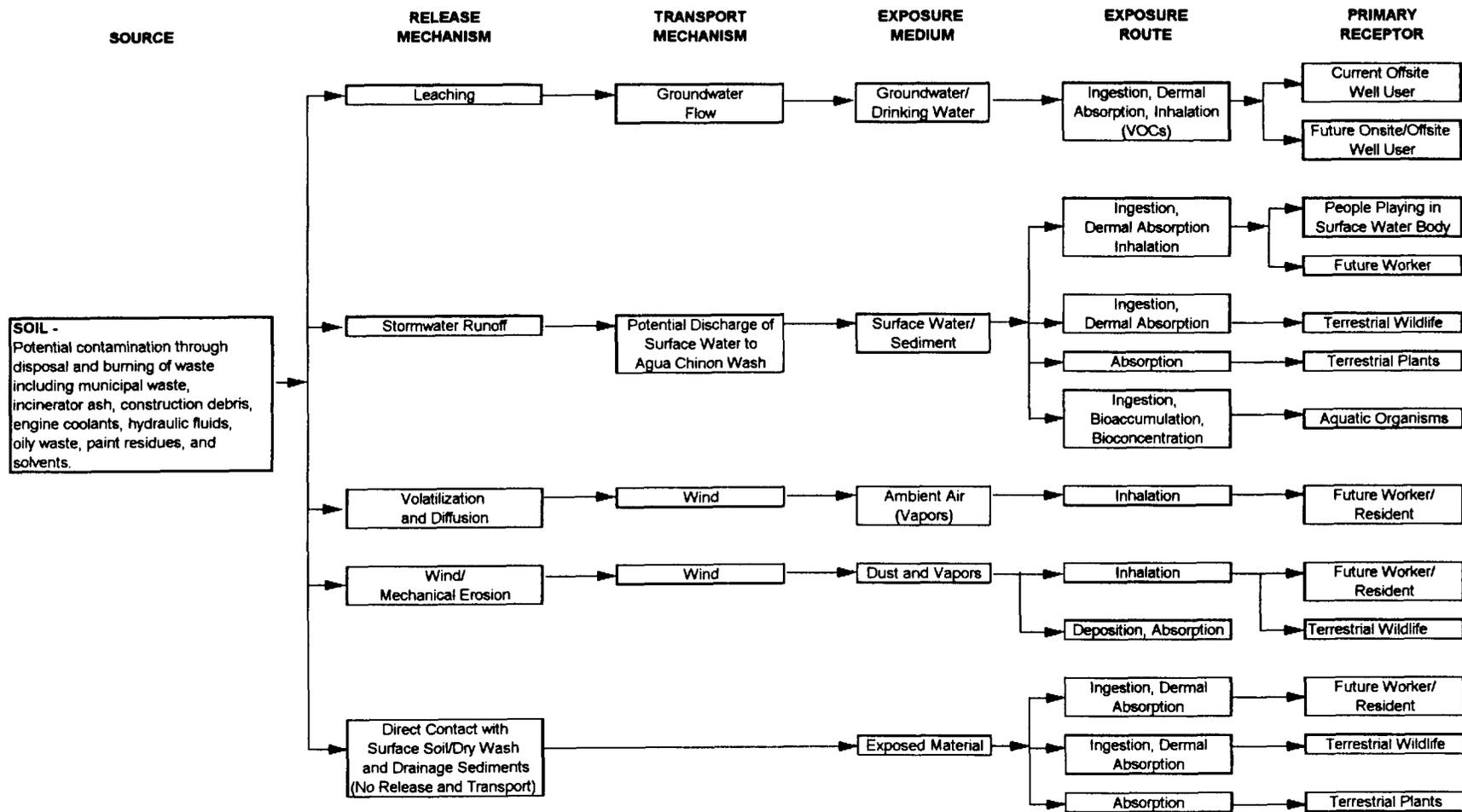


Figure E-3/4c
Site 3/4 (Original Landfill and Ferrocene Spill Area):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
MCAS El Toro BCP

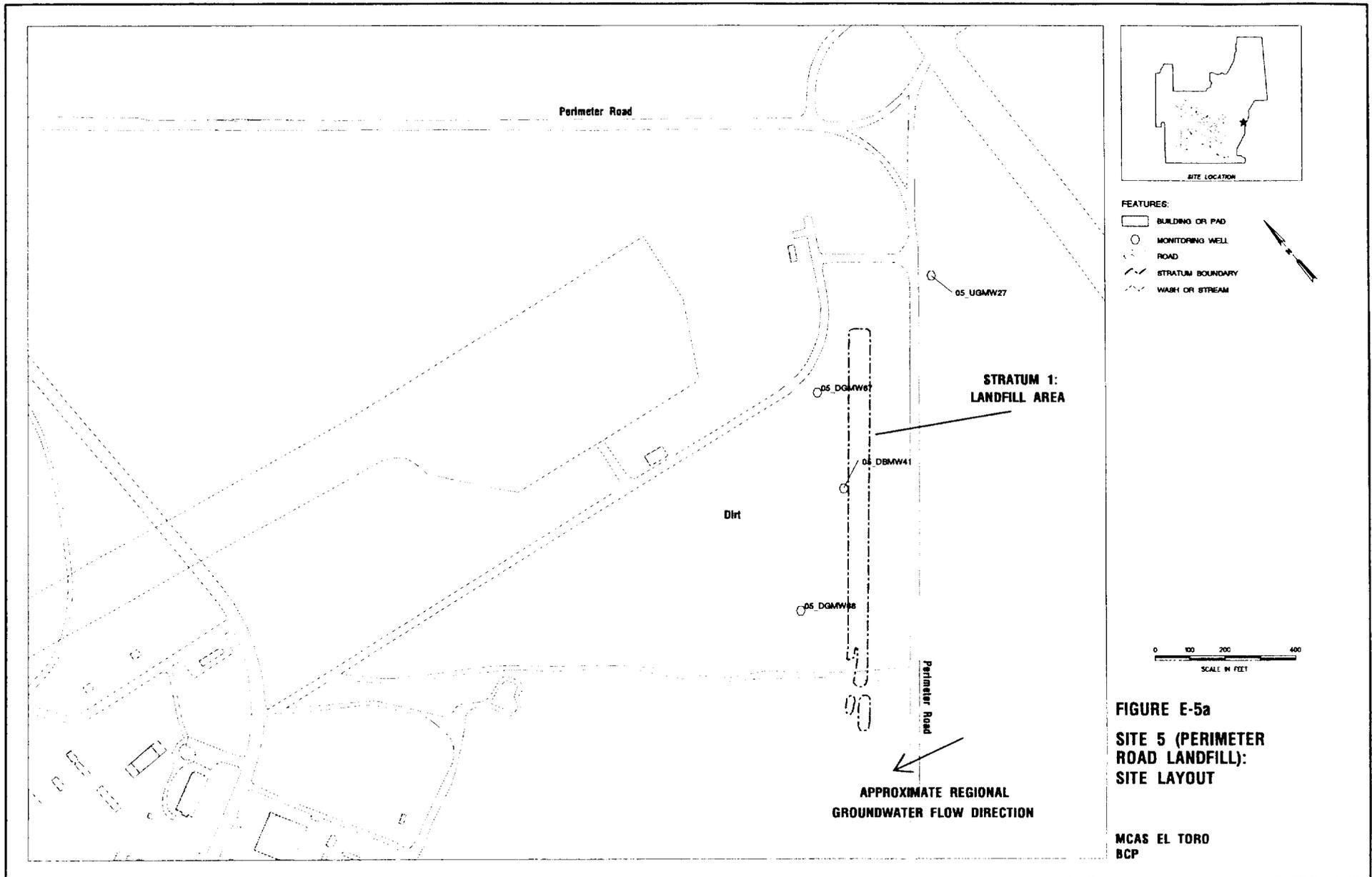


FIGURE E-5a
SITE 5 (PERIMETER ROAD LANDFILL):
SITE LAYOUT

MCAS EL TORO
BCP

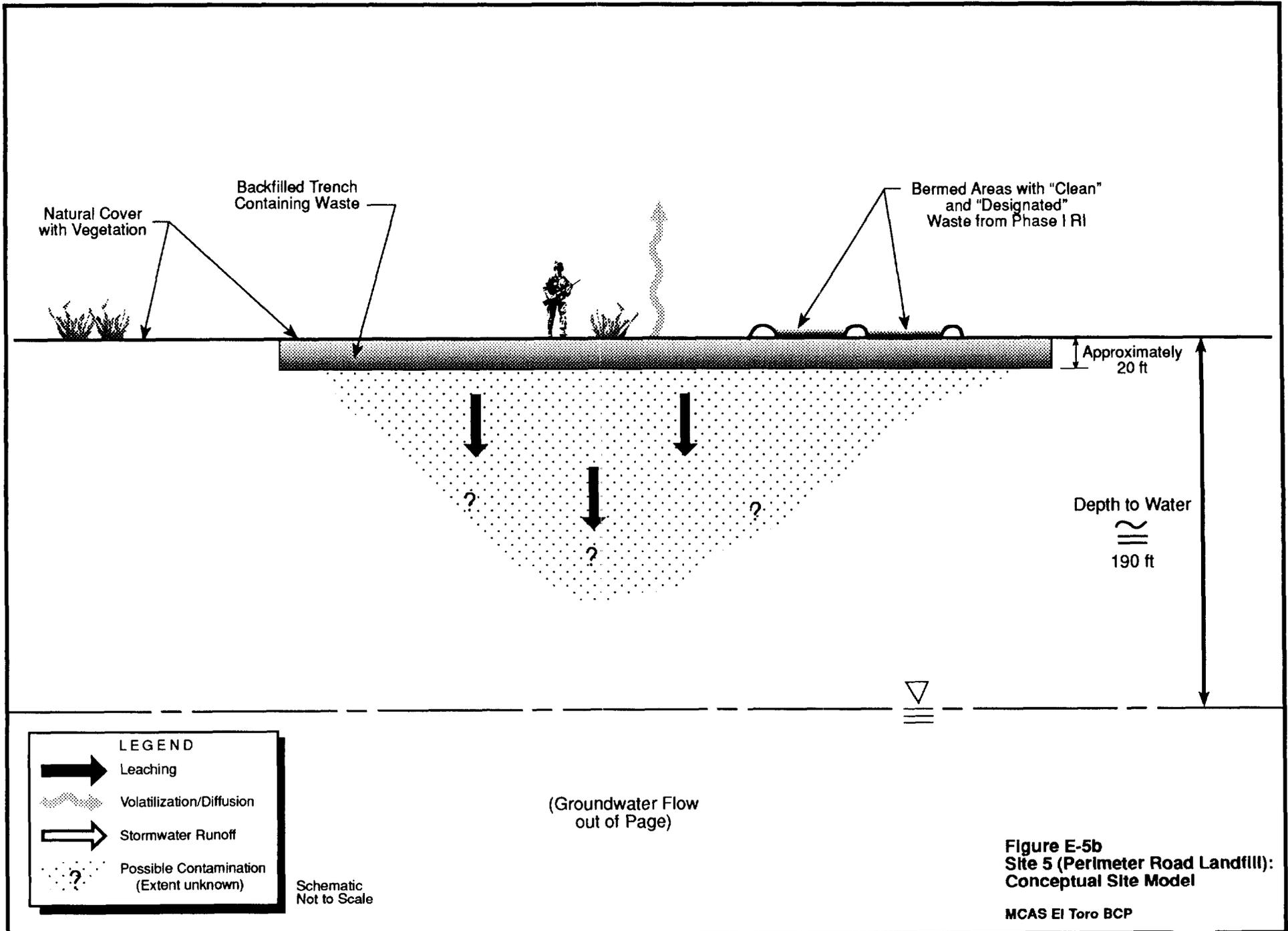


Figure E-5b
Site 5 (Perimeter Road Landfill):
Conceptual Site Model

MCAS El Toro BCP

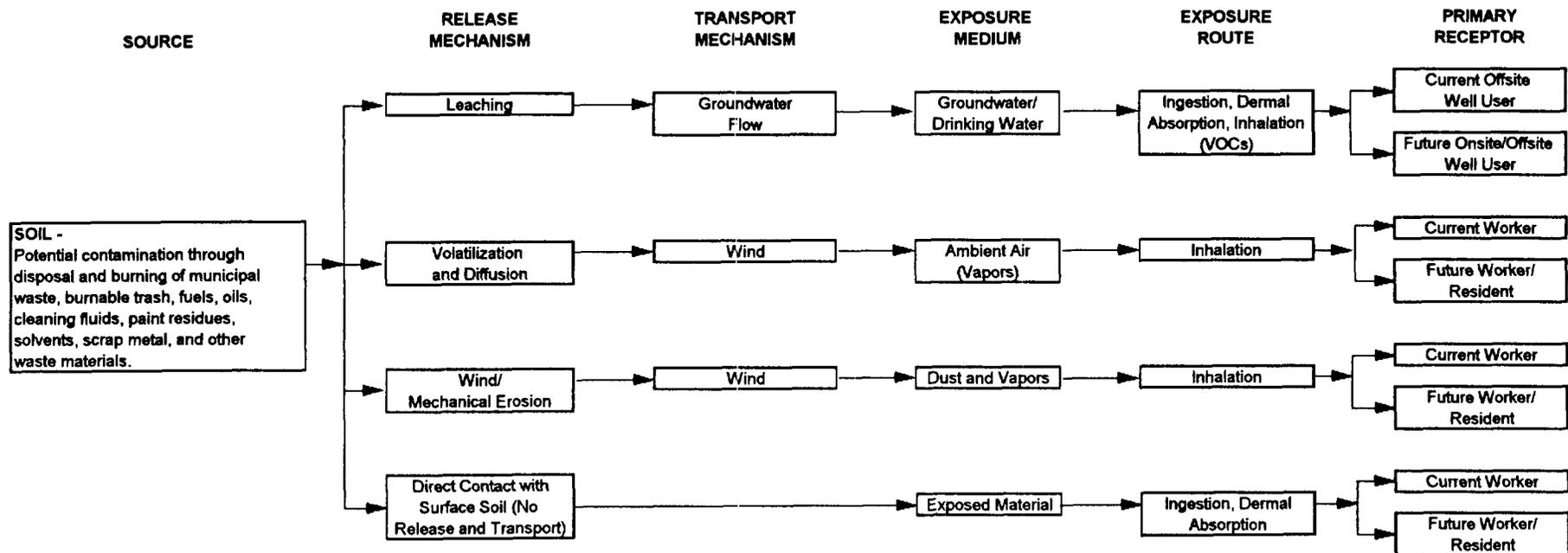


Figure E-5c
Site 5 (Perimeter Road Landfill):
Potential Exposure Routes and Pathways for Human Receptors
MCAS El Toro BCP

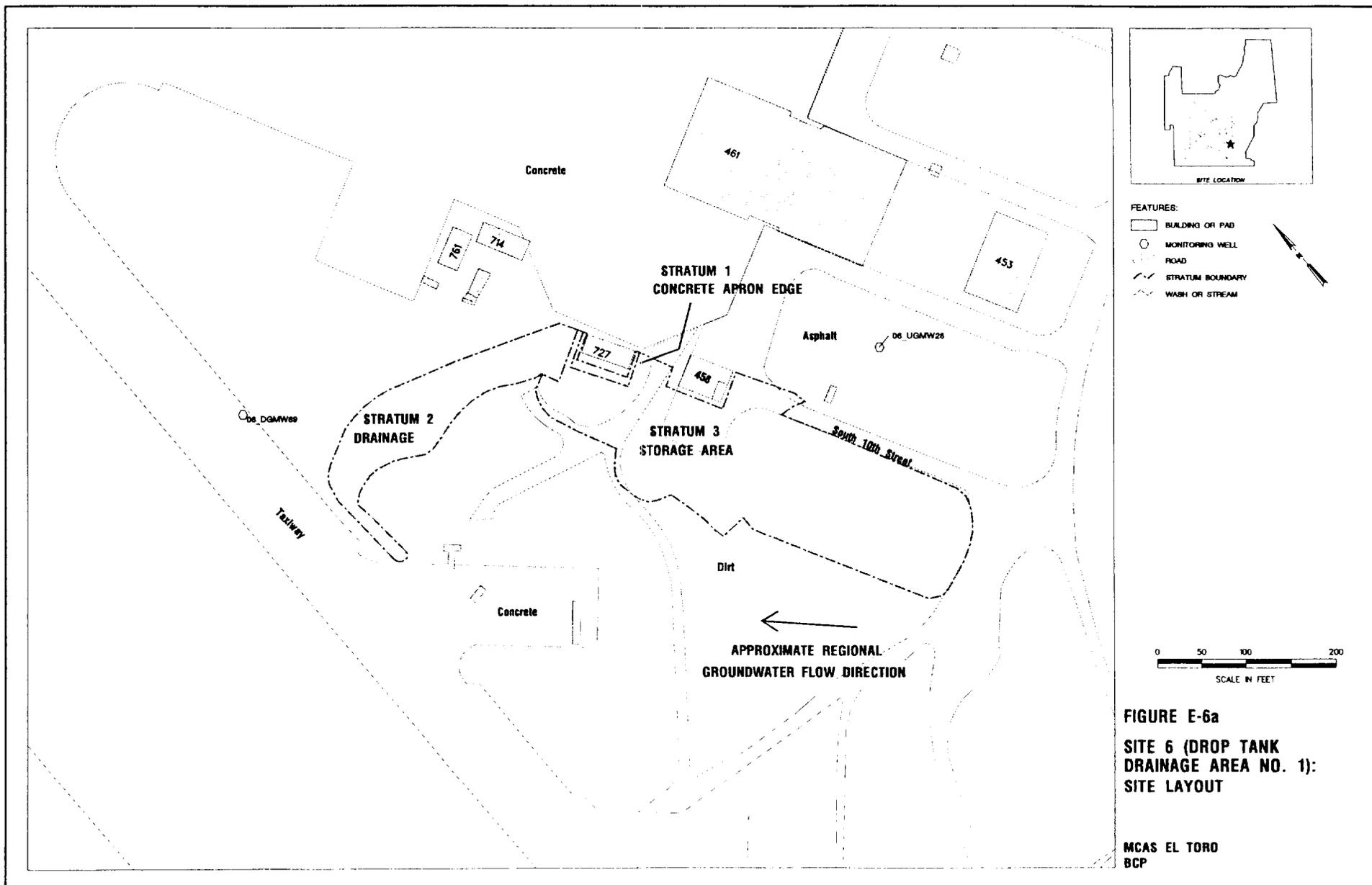
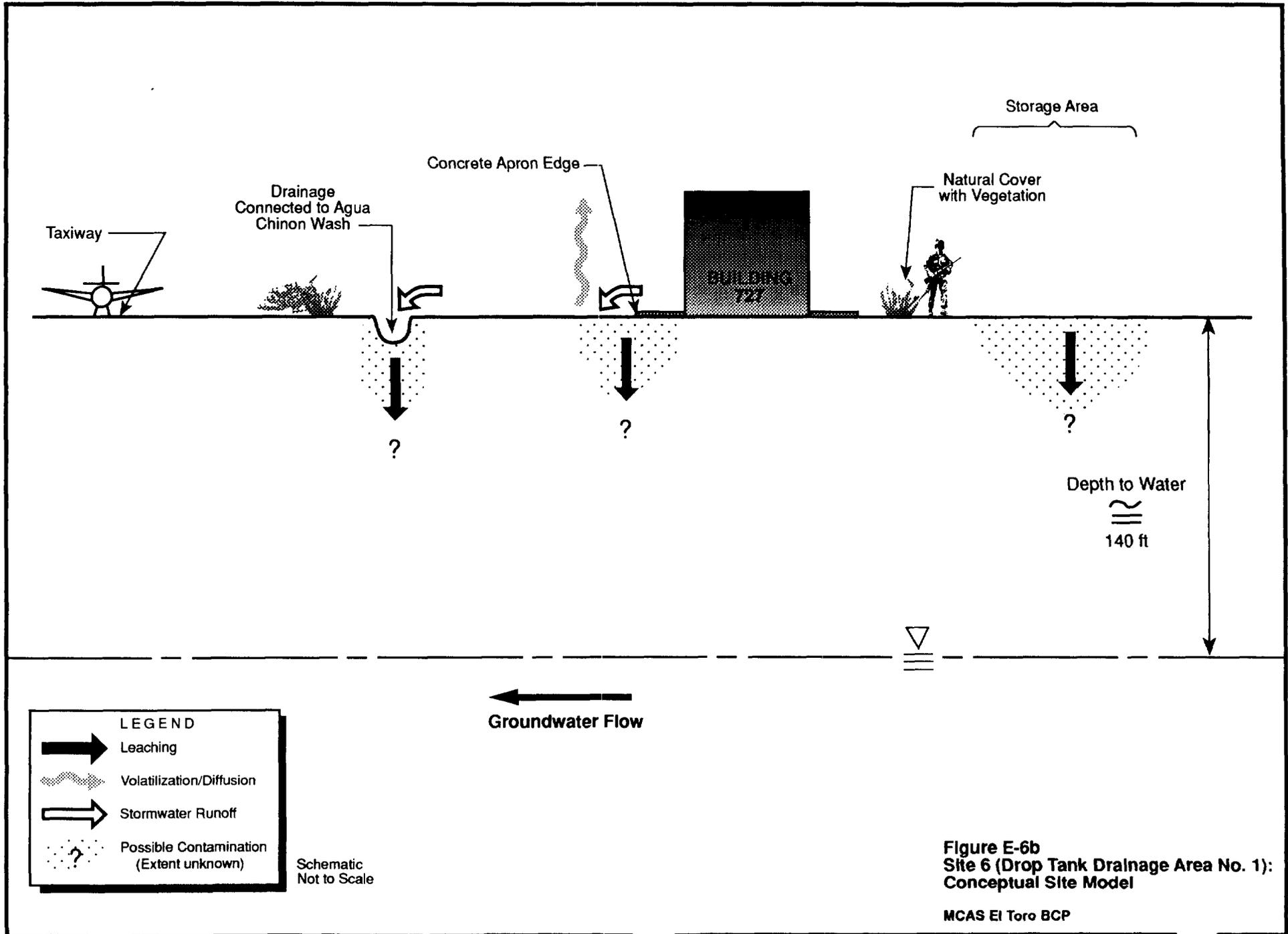


FIGURE E-6a
SITE 6 (DROP TANK
DRAINAGE AREA NO. 1):
SITE LAYOUT

MCAS EL TORO
BCP



LEGEND

- Leaching
- Volatilization/Diffusion
- Stormwater Runoff
- Possible Contamination (Extent unknown)

Schematic
Not to Scale

Figure E-6b
Site 6 (Drop Tank Drainage Area No. 1):
Conceptual Site Model

MCAS El Toro BCP

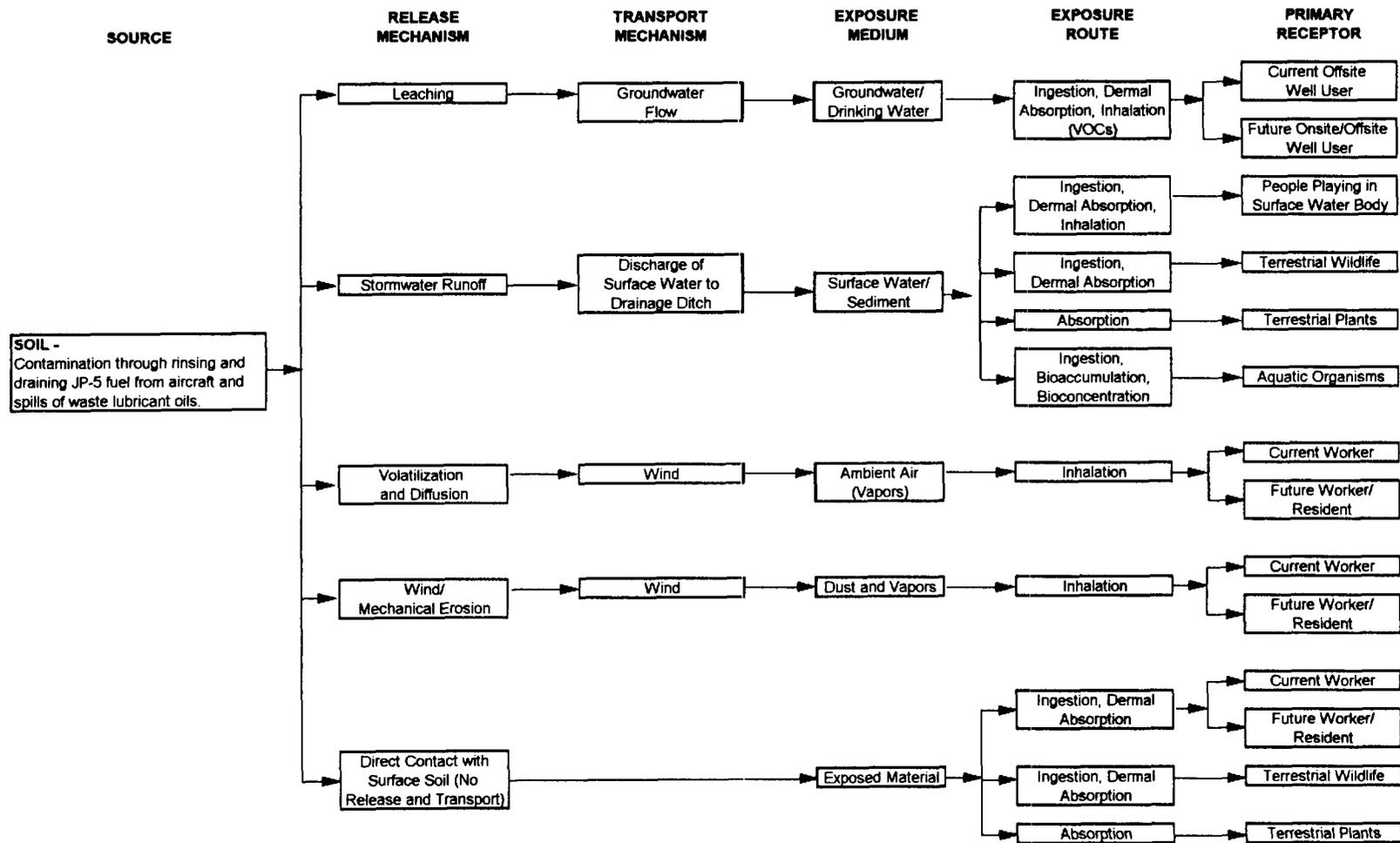
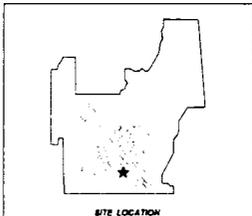
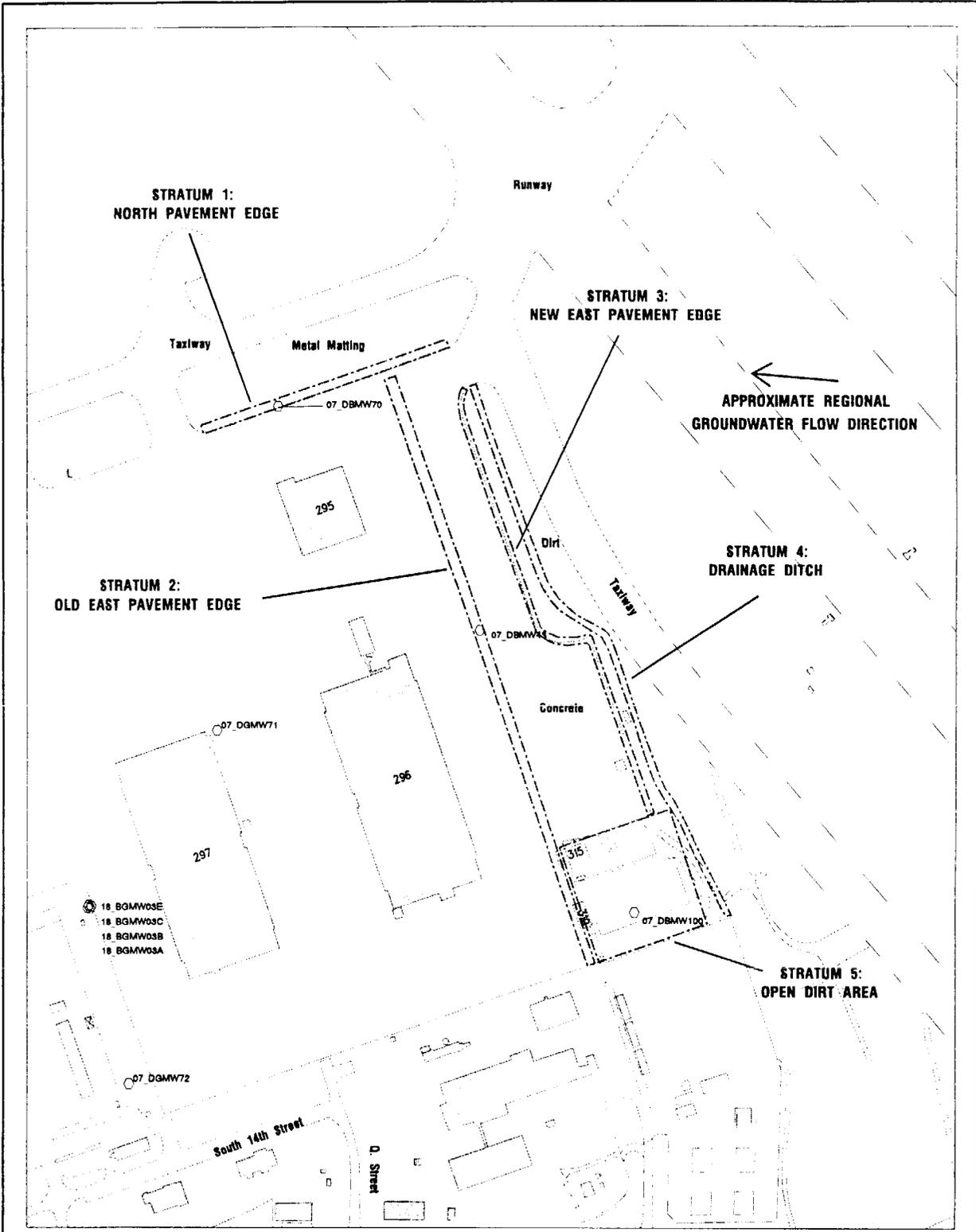


Figure E-6c
Site 6 (Drop Tank Drainage Area No.1):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
MCAS El Toro BCP



- FEATURES:**
- BUILDING OR PAD
 - MONITORING WELL
 - ROAD
 - STRATUM BOUNDARY
 - WASH OR STREAM

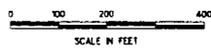
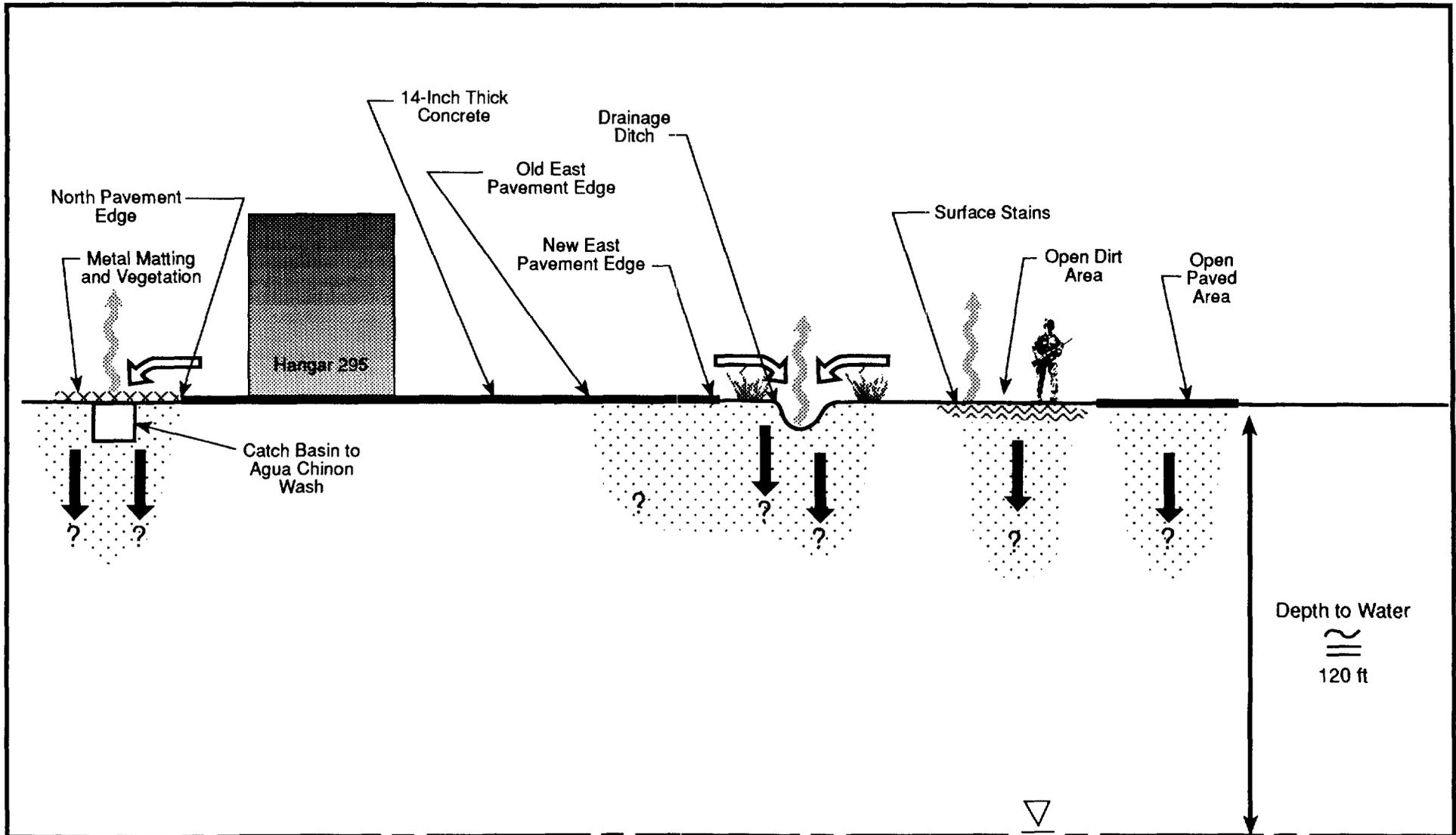


FIGURE E-7a
SITE 7 (DROP TANK
DRAINAGE AREA NO. 2):
SITE LAYOUT

MCAS EL TORO
BCP



LEGEND

- Leaching
- Volatilization/Diffusion
- Stormwater Runoff
- Possible Contamination (Extent unknown)

Schematic
Not to Scale

Groundwater Flow

Figure E-7b
Site 7 (Drop Tank Drainage Area No. 2):
Conceptual Site Model

MCAS El Toro BCP

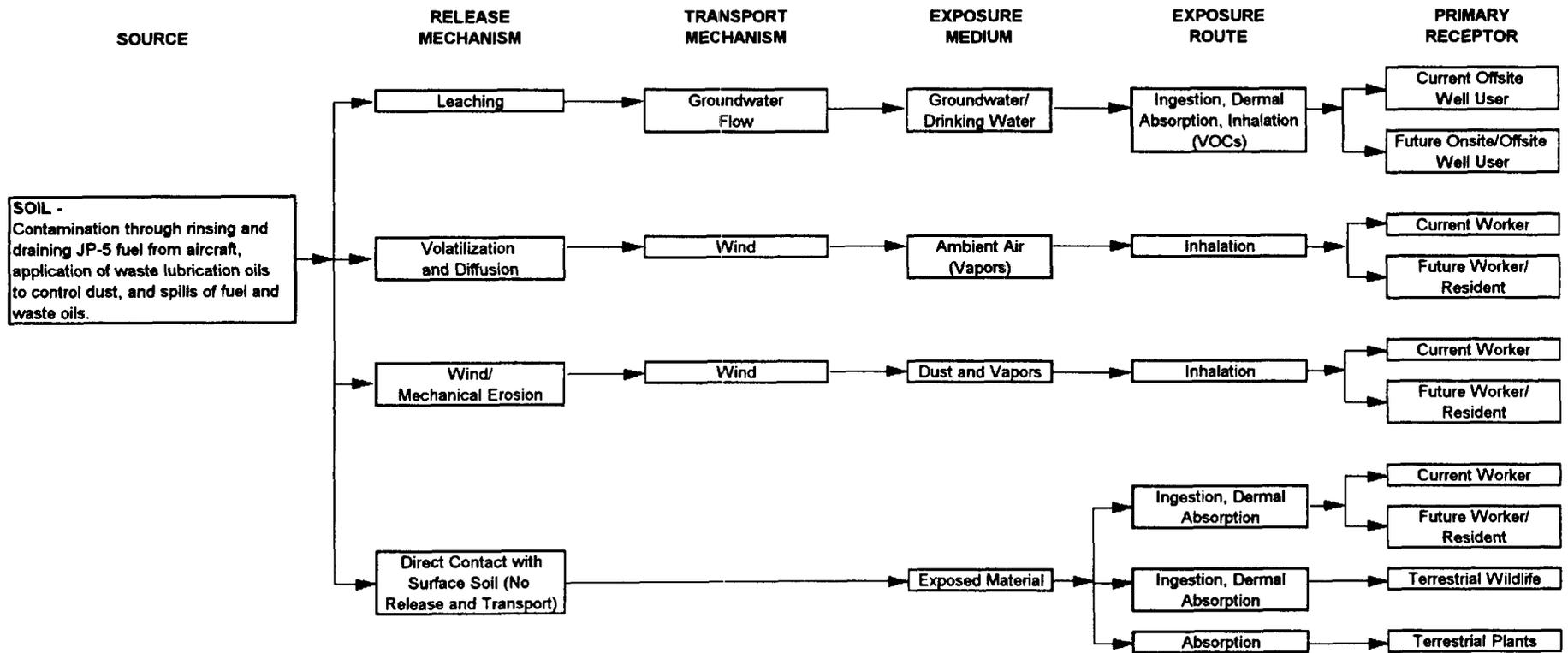


Figure E-7c
 Site 7 (Drop Tank Drainage Area No. 2):
 Potential Exposure Routes and Pathways for Human and Ecologic
 MCAS El Toro BCP

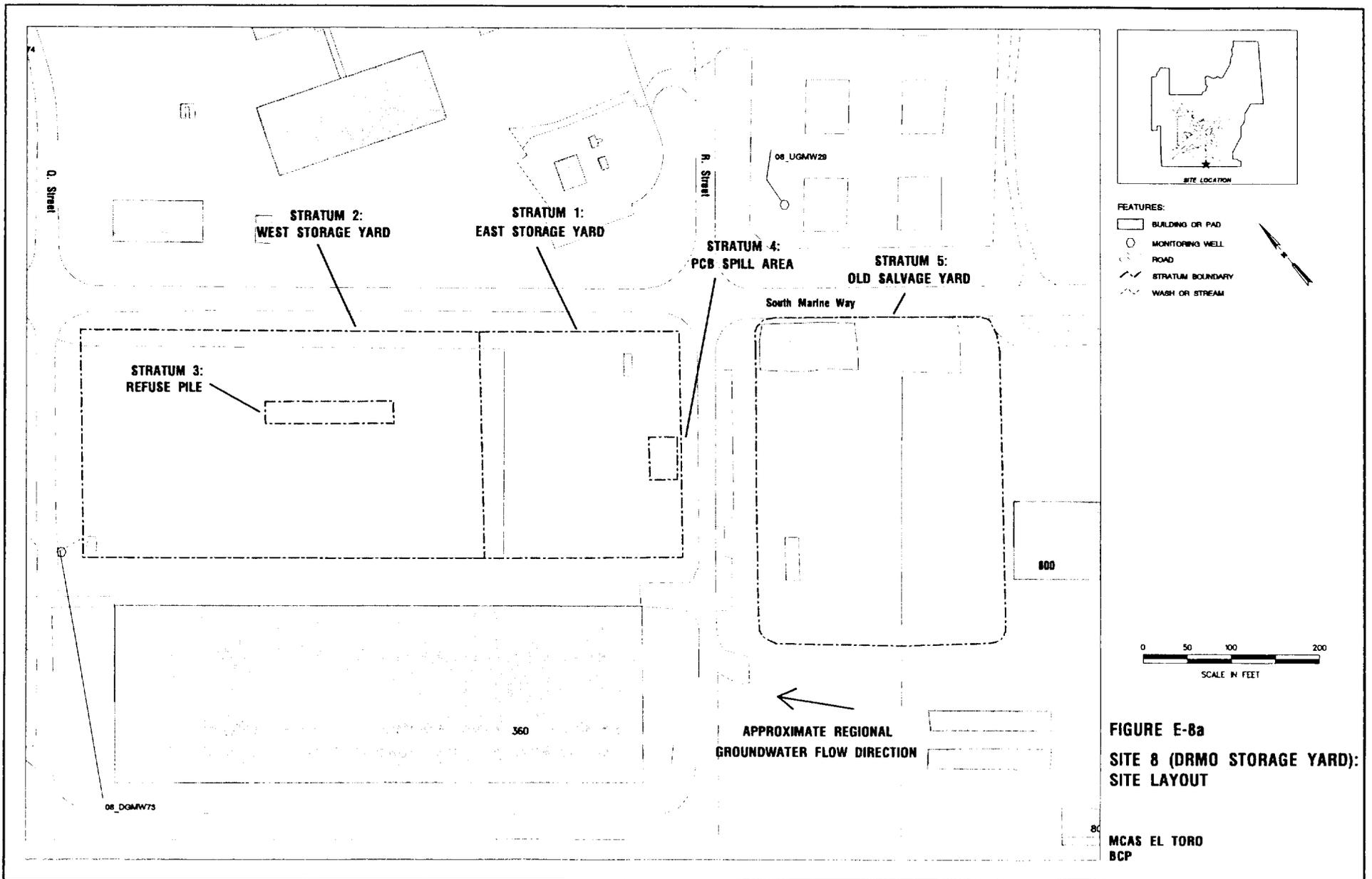
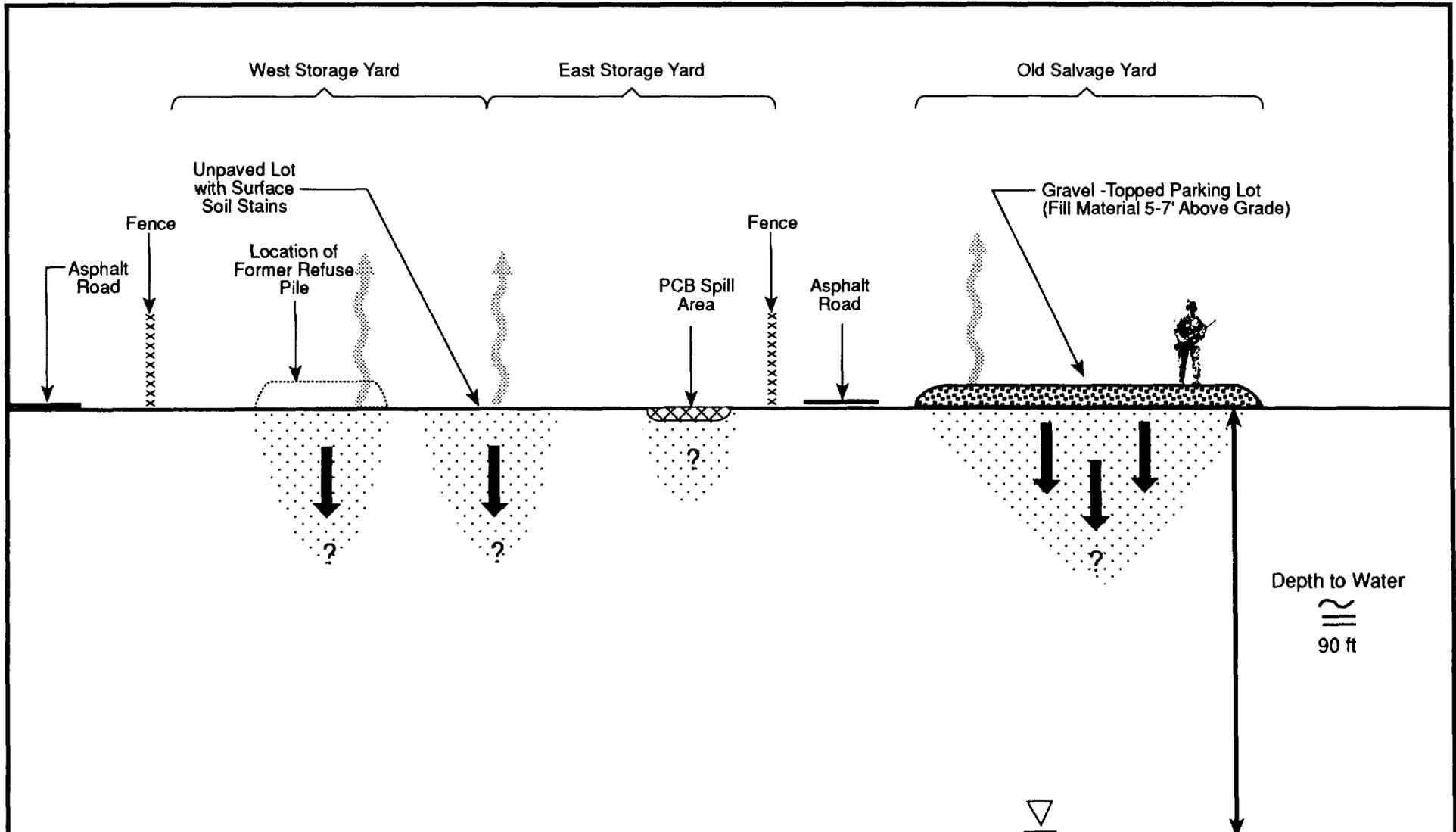


FIGURE E-8a
SITE 8 (DRMO STORAGE YARD):
SITE LAYOUT

MCAS EL TORO
BCP



LEGEND

- Leaching
- Volatilization/Diffusion
- Stormwater Runoff
- Possible Contamination (Extent unknown)

Schematic
Not to Scale

Groundwater Flow

Figure E-8b
Site 8 (DRMO Storage Yard):
Conceptual Site Model

MCAS El Toro BCP

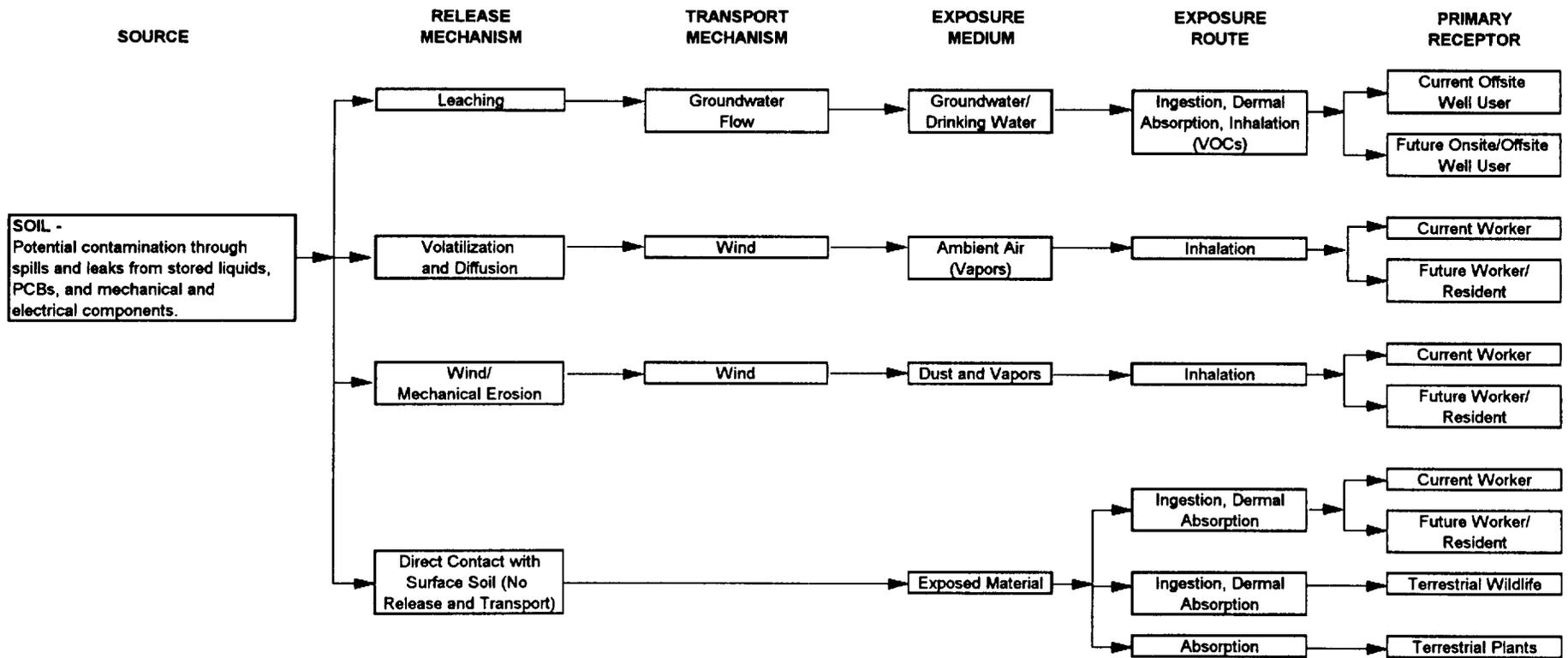
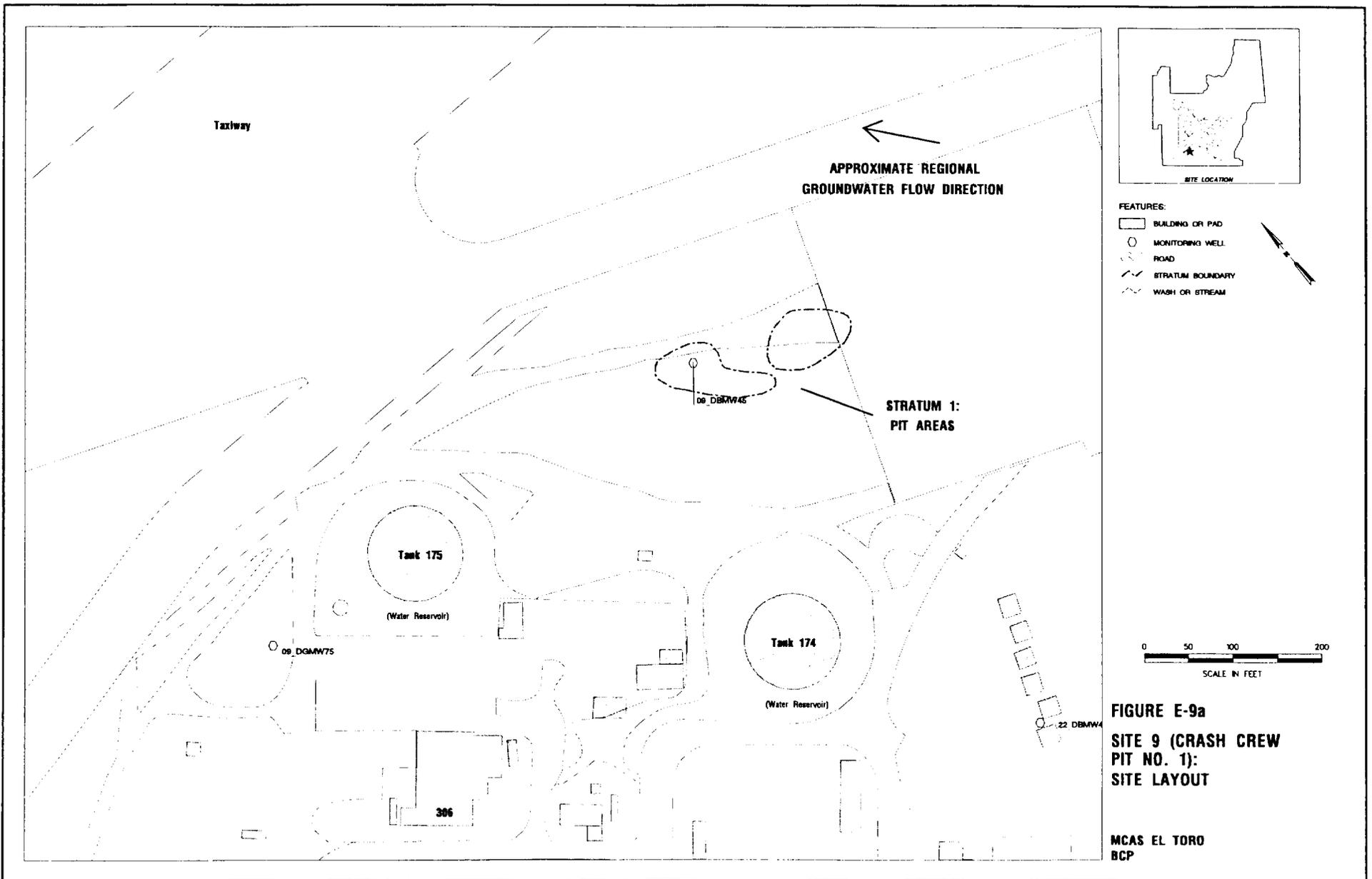
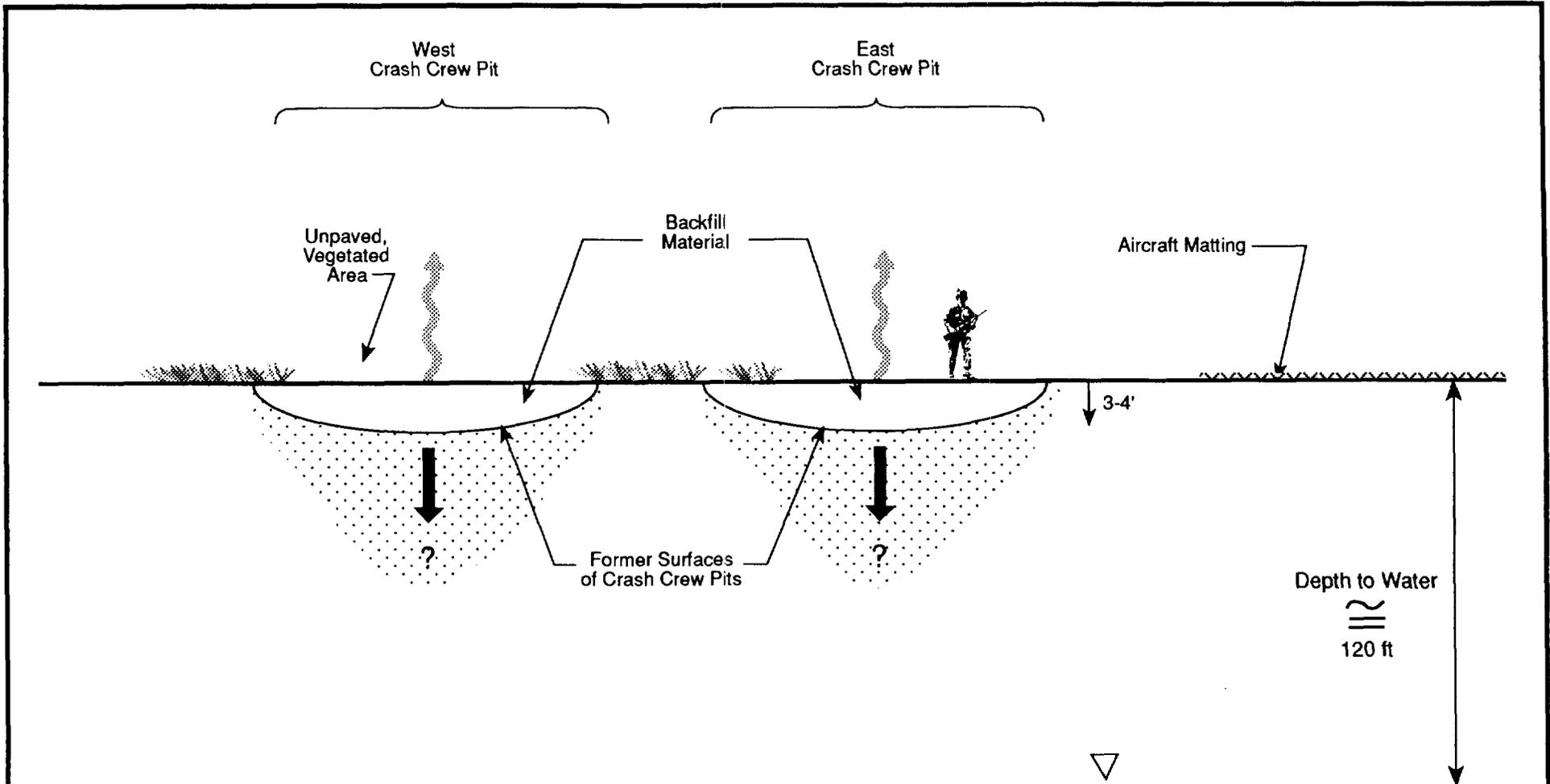


Figure E-8c
Site 8 (DRMO Storage Yard):
Potential Exposure Routes and Pathways for Human and Ecologic
MCAS EI Toro BCP





LEGEND

- Leaching
- Volatilization/Diffusion
- Stormwater Runoff
- Possible Contamination (Extent unknown)

Schematic
Not to Scale

Figure E-9b
Site 9 (Crash Crew Pit No. 1):
Conceptual Site Model

MCAS El Toro BCP

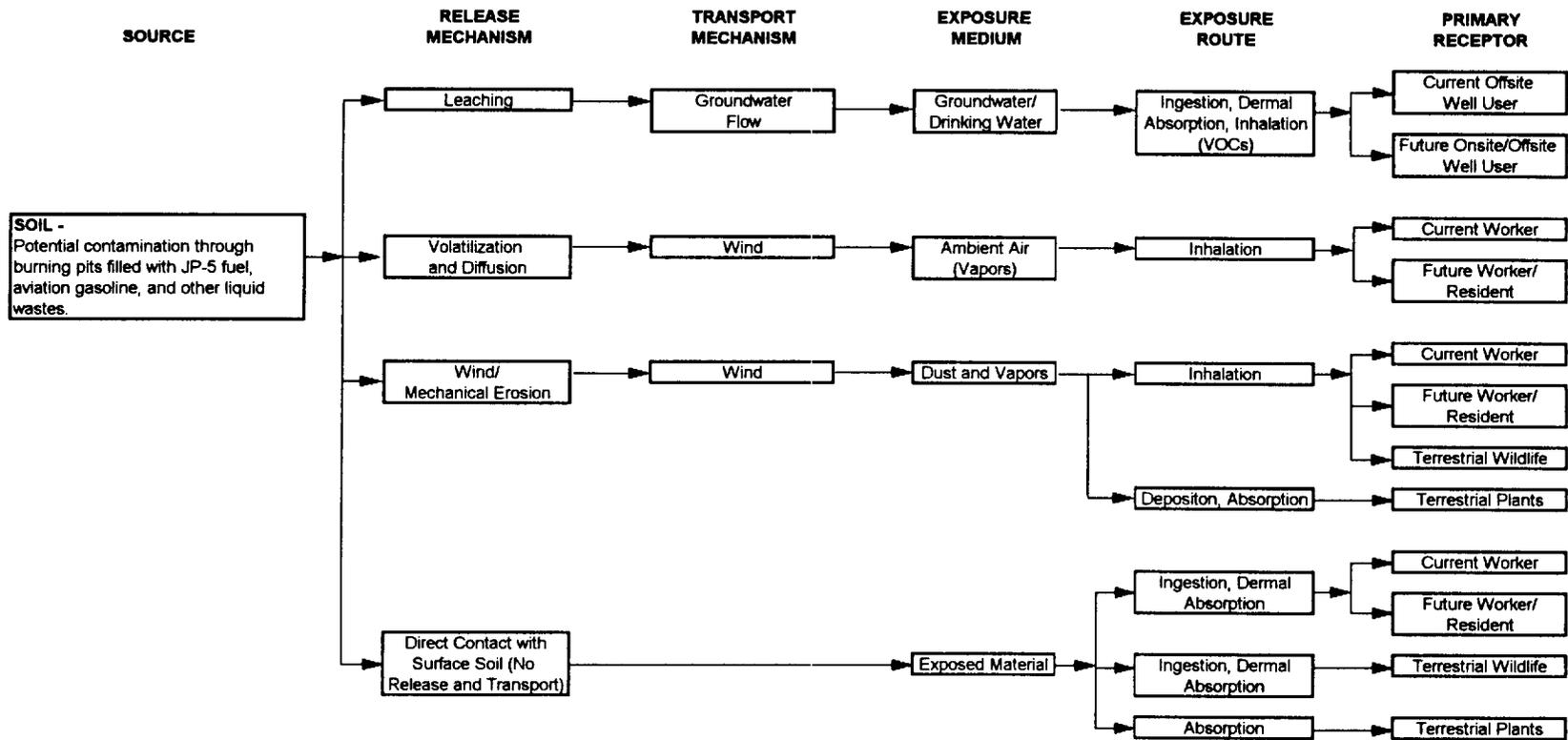
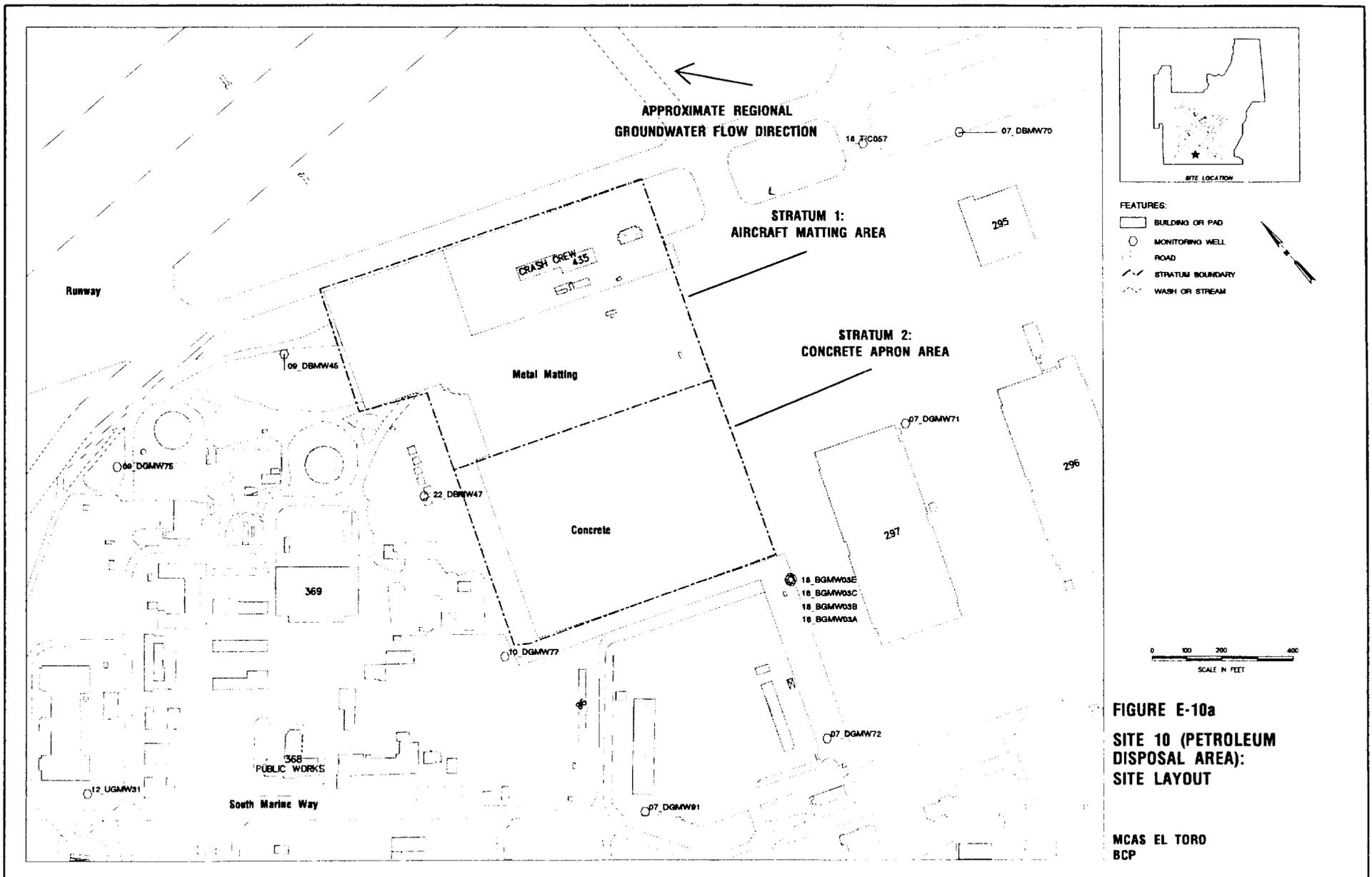
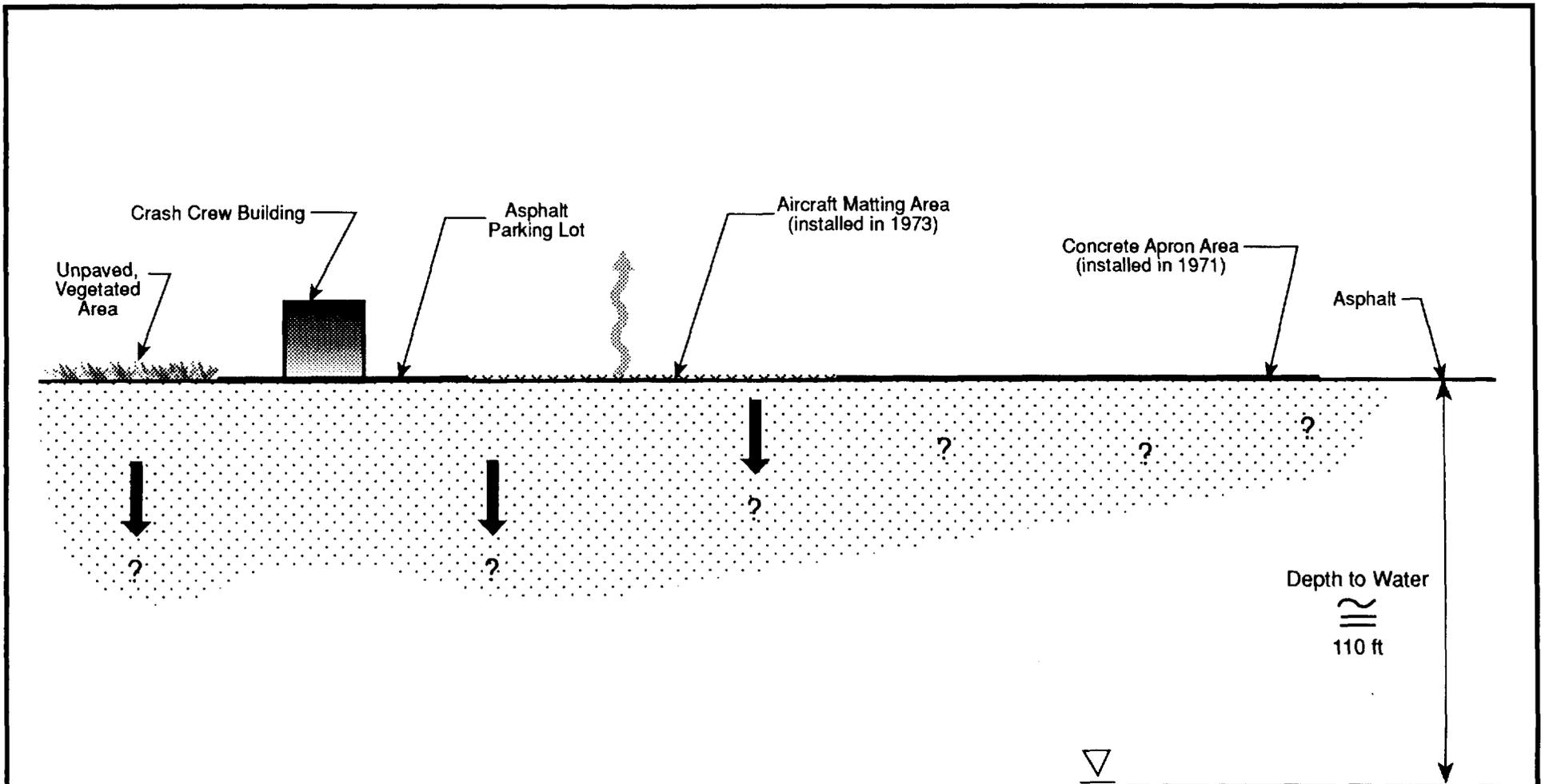


Figure E-9c
Site 9 (Crash Crew Pit No. 1):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
MCAS EI Toro BCP





LEGEND

- Leaching
- Volatilization/Diffusion
- Stormwater Runoff
- Possible Contamination (Extent unknown)

Schematic
Not to Scale

(Groundwater Flow
is off Page)

Figure E-10b
Site 10 (Petroleum Disposal Area):
Conceptual Site Model

MCAS El Toro BCP

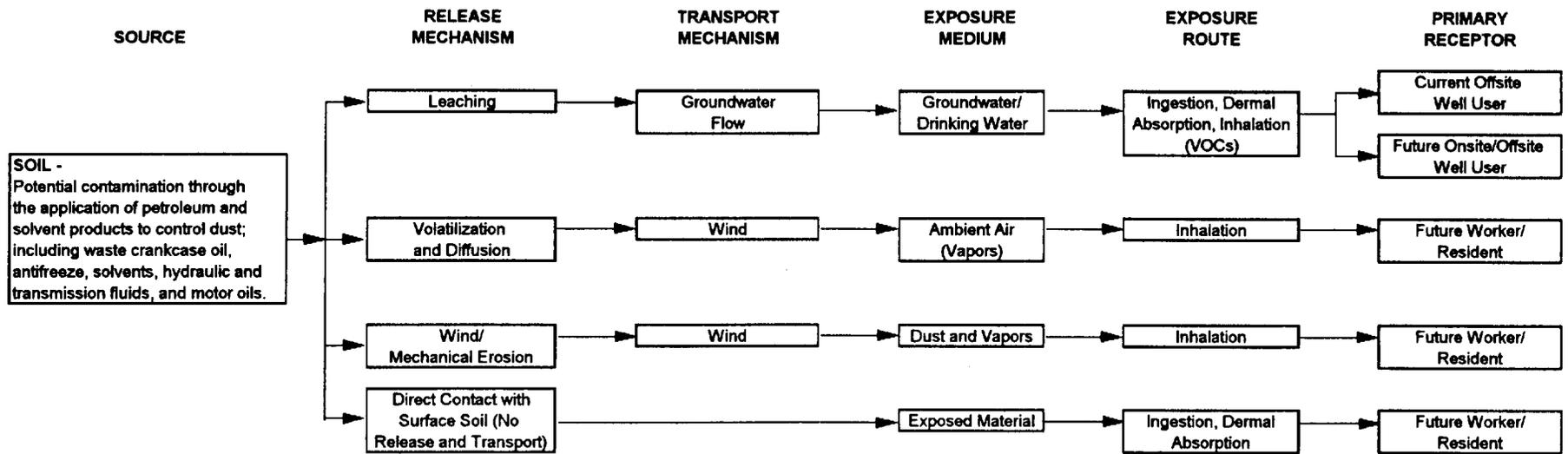


Figure E-10c
Site 10 (Petroleum Disposal Area):
Potential Exposure Routes and Pathways for Human Receptors
MCAS El Toro BCP

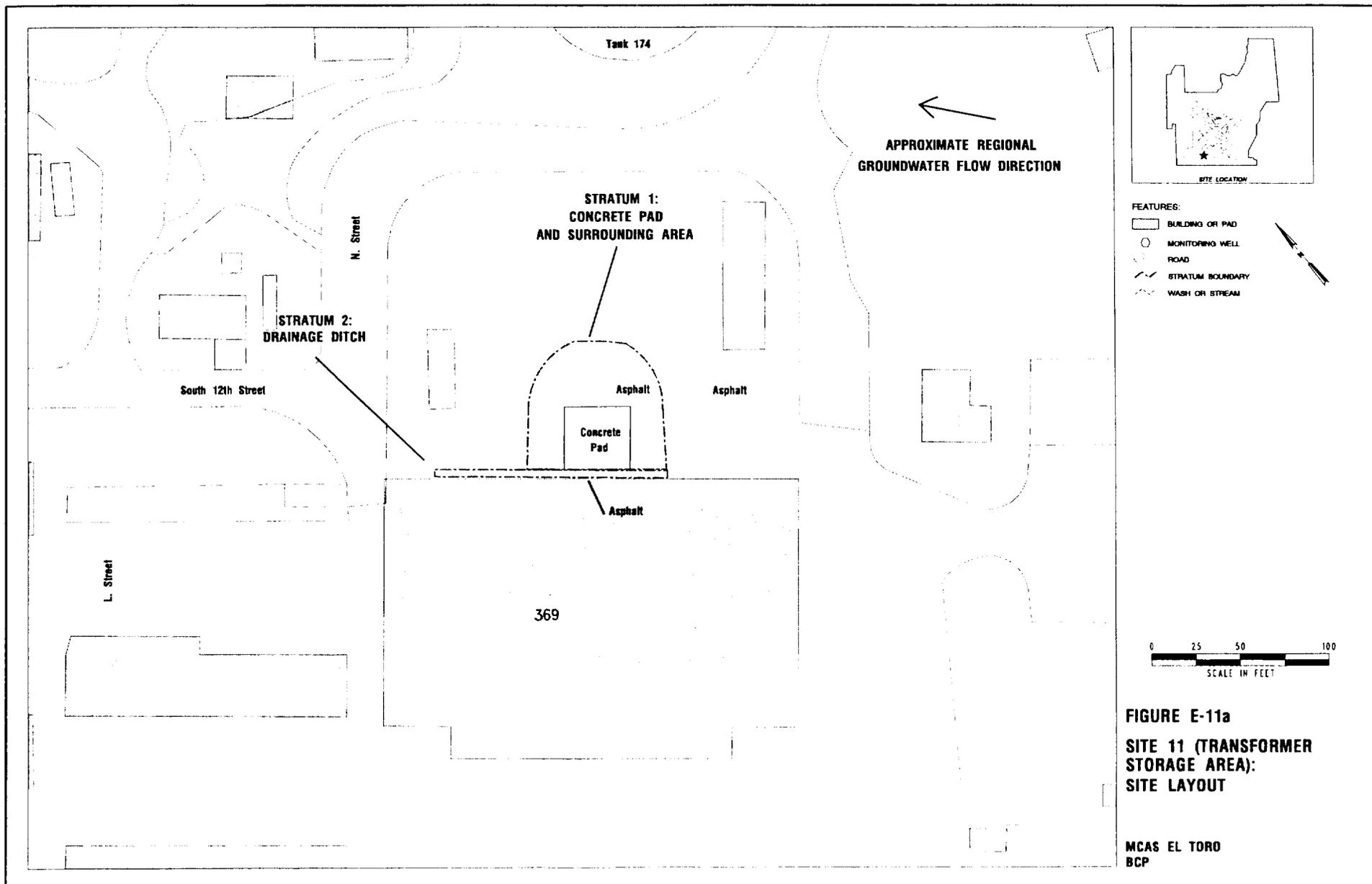
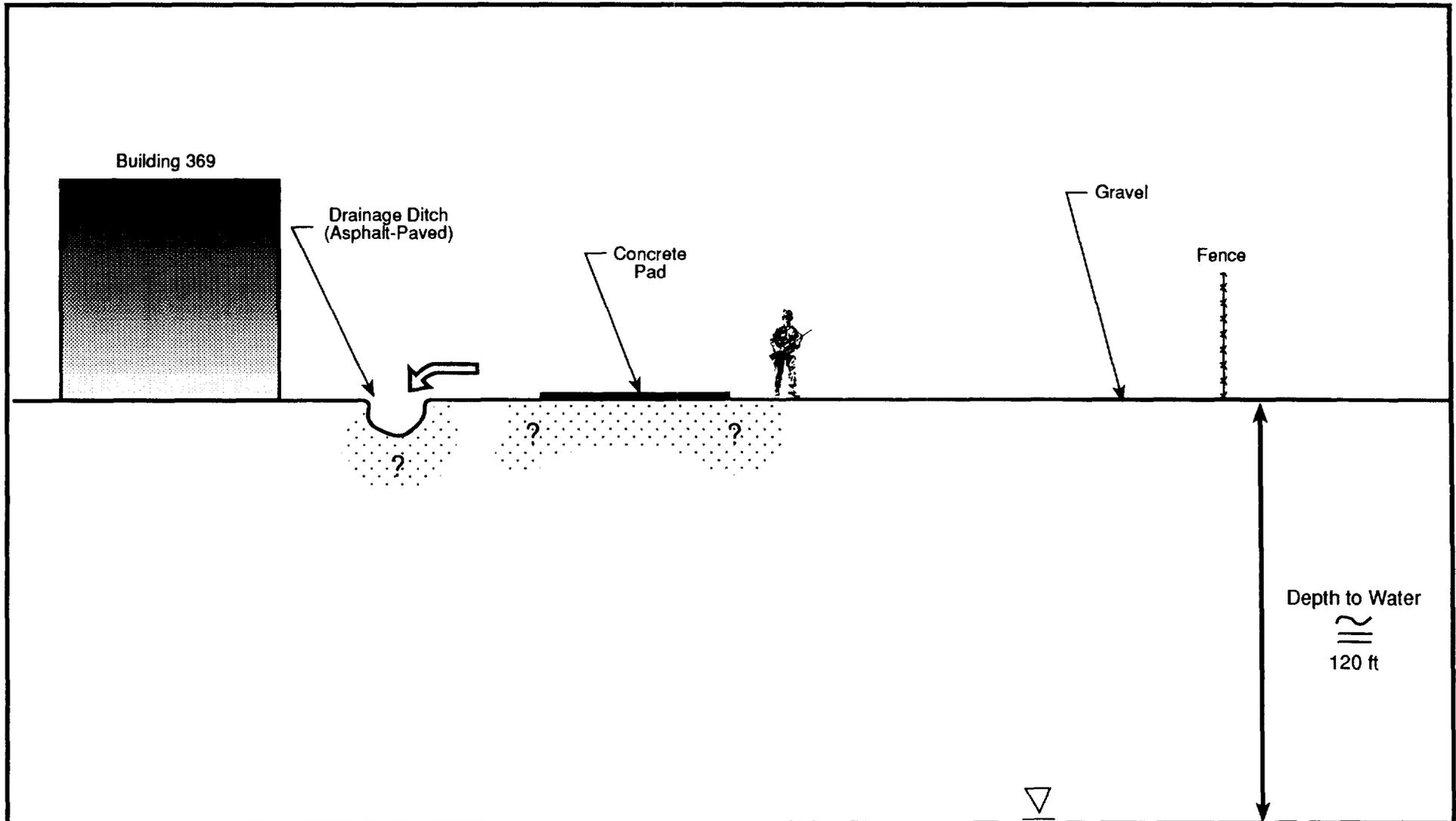
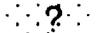


FIGURE E-11a
SITE 11 (TRANSFORMER
STORAGE AREA):
SITE LAYOUT

MCAS EL TORO
BCP



LEGEND

-  Leaching
-  Volatilization/Diffusion
-  Stormwater Runoff
-  Possible Contamination (Extent unknown)

Schematic
Not to Scale

(Groundwater Flow
Is into Page)

Figure E-11b
Site 11 (Transformer Storage Area):
Conceptual Site Model

MCAS El Toro BCP

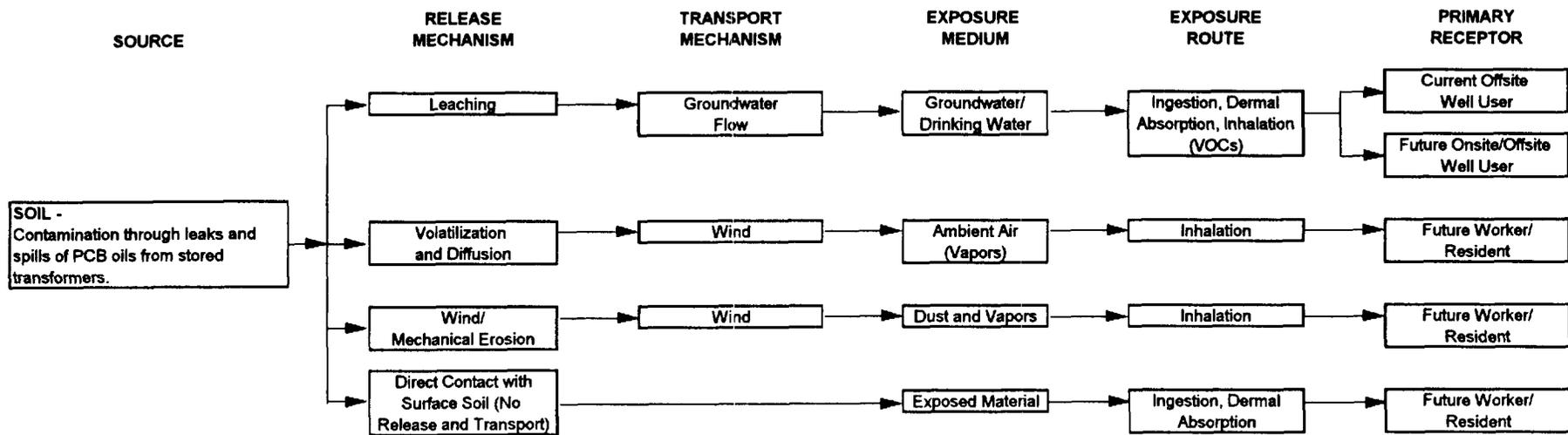
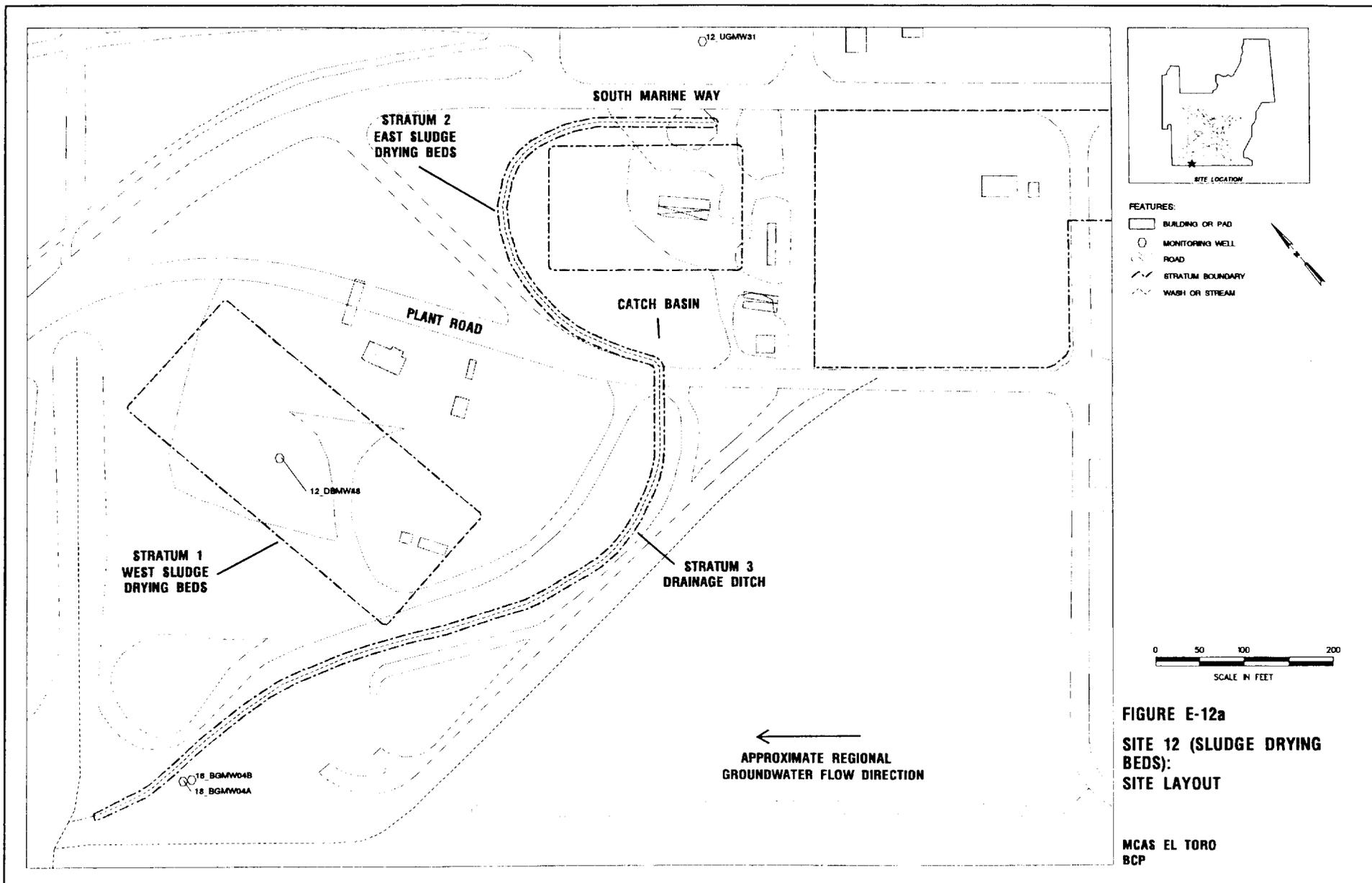
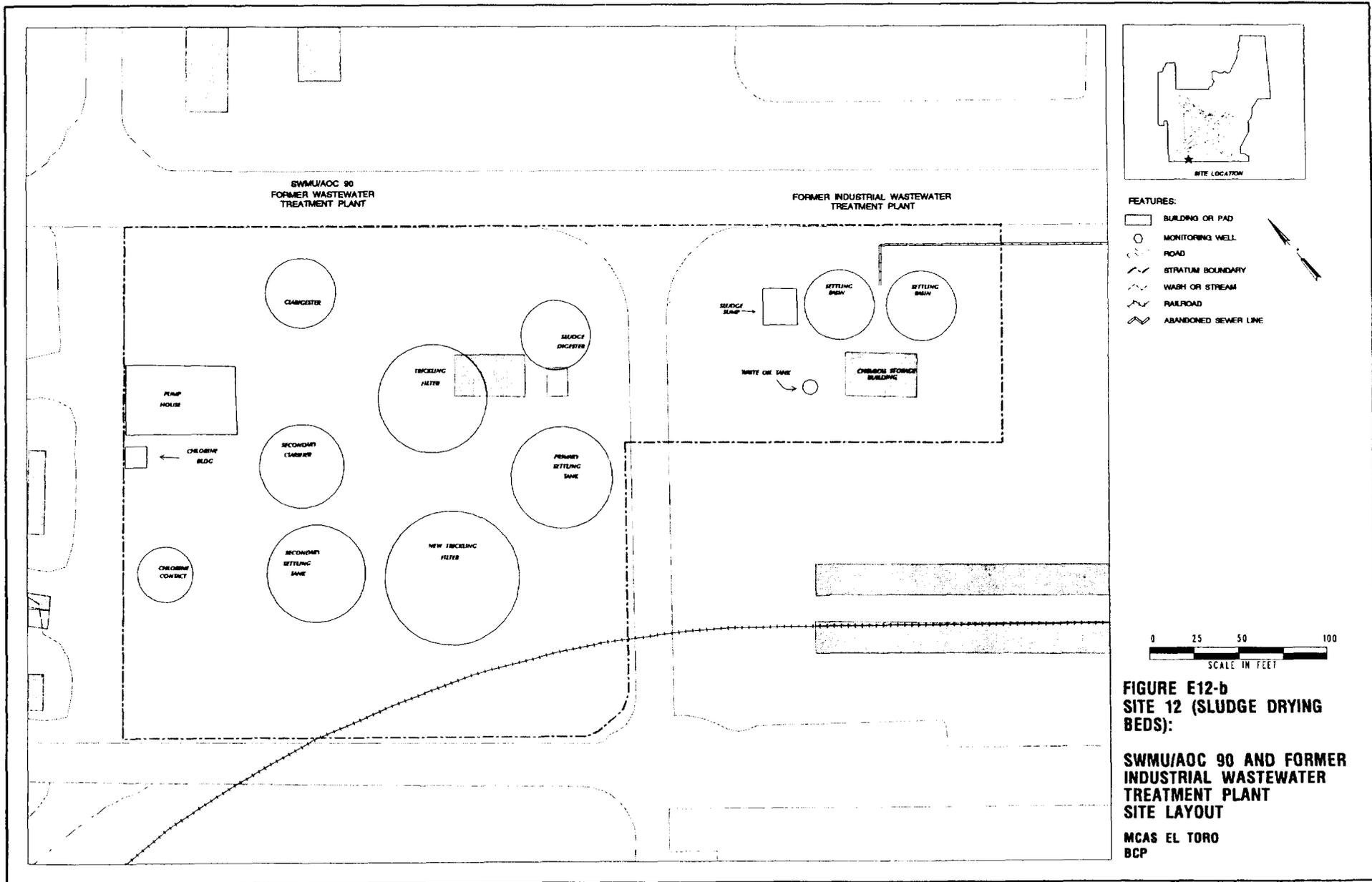
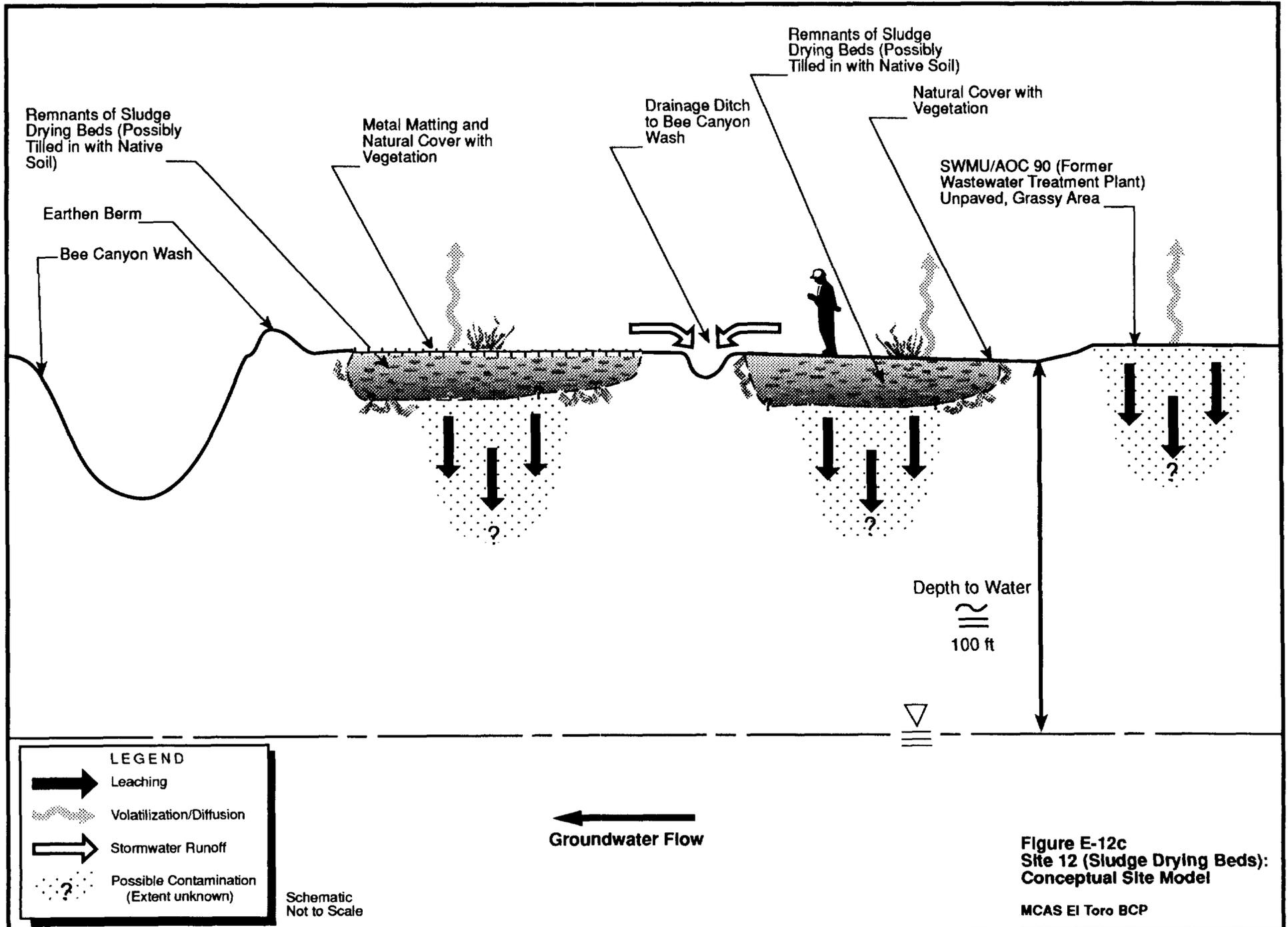


Figure E-11c
 Site 11 (Transformer Storage Area):
 Potential Exposure Routes and Pathways for Human Receptors
 MCAS EI Toro BCP







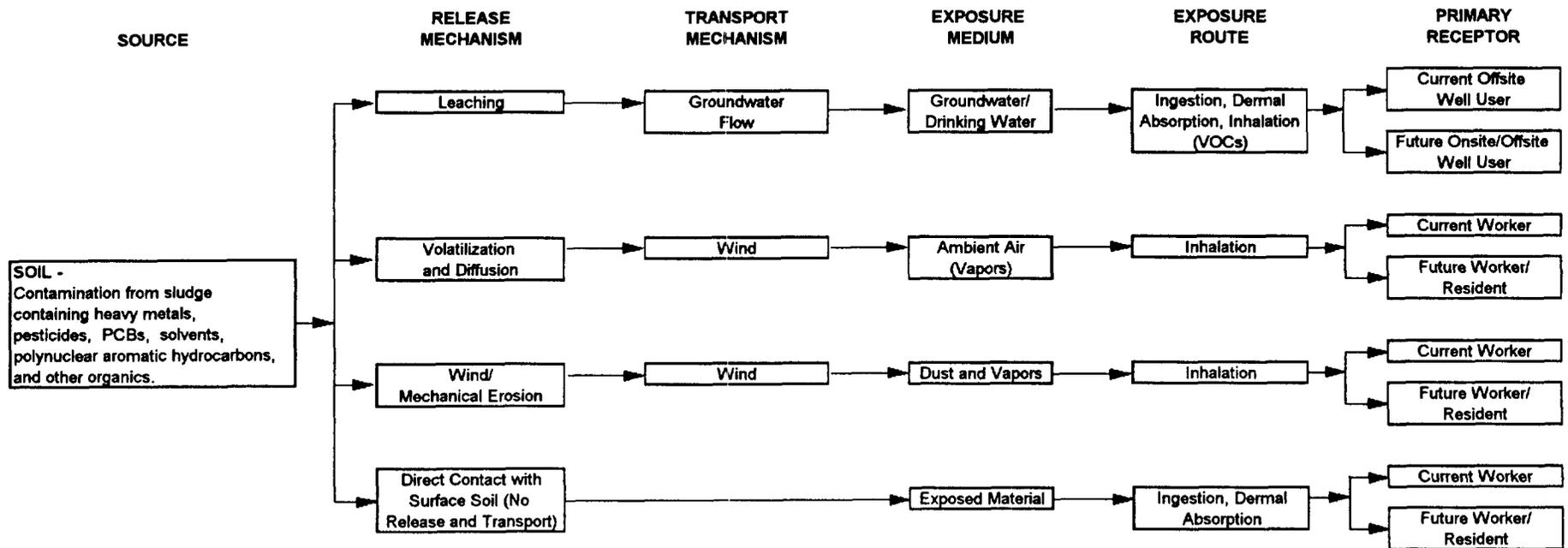
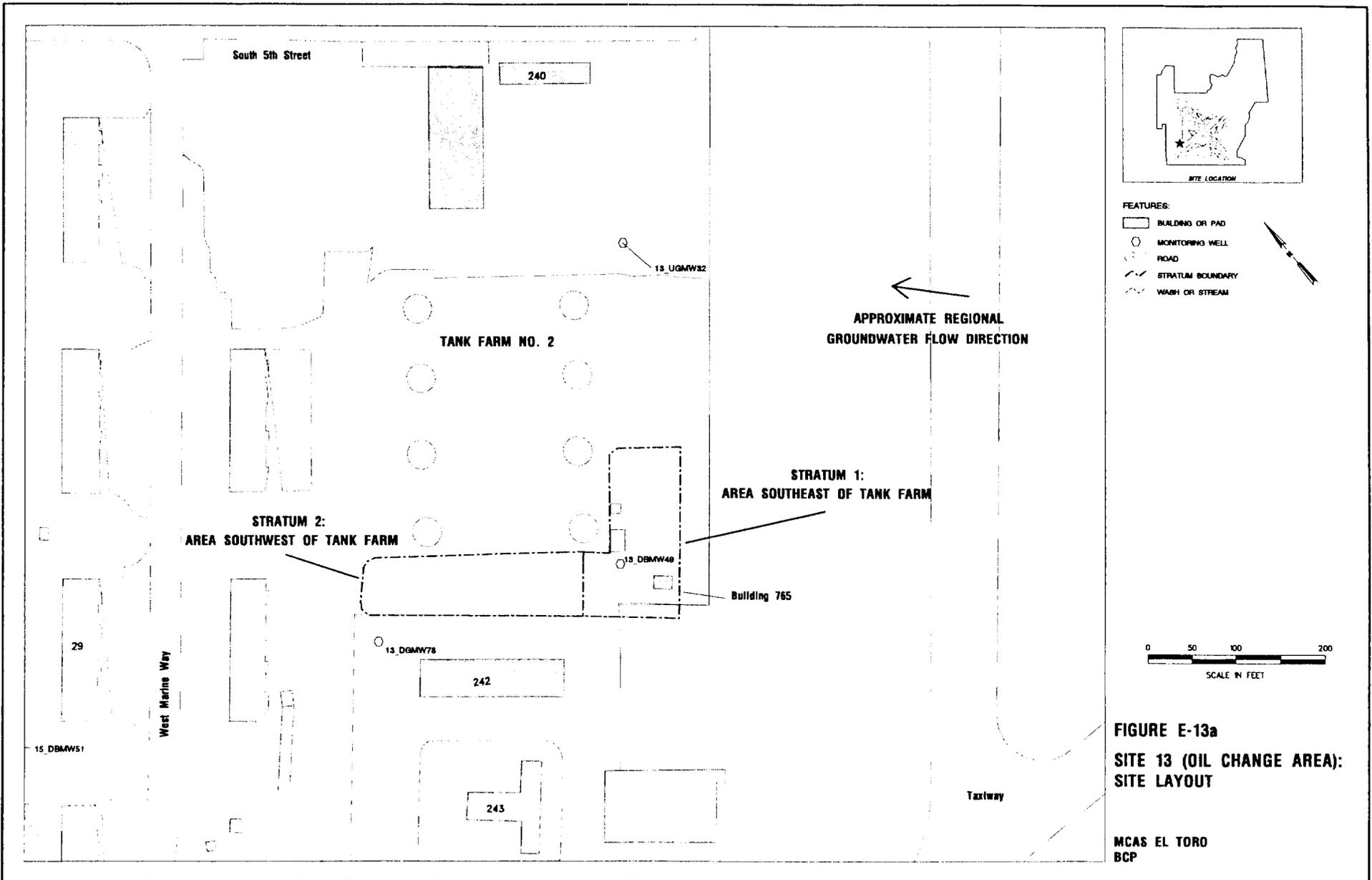
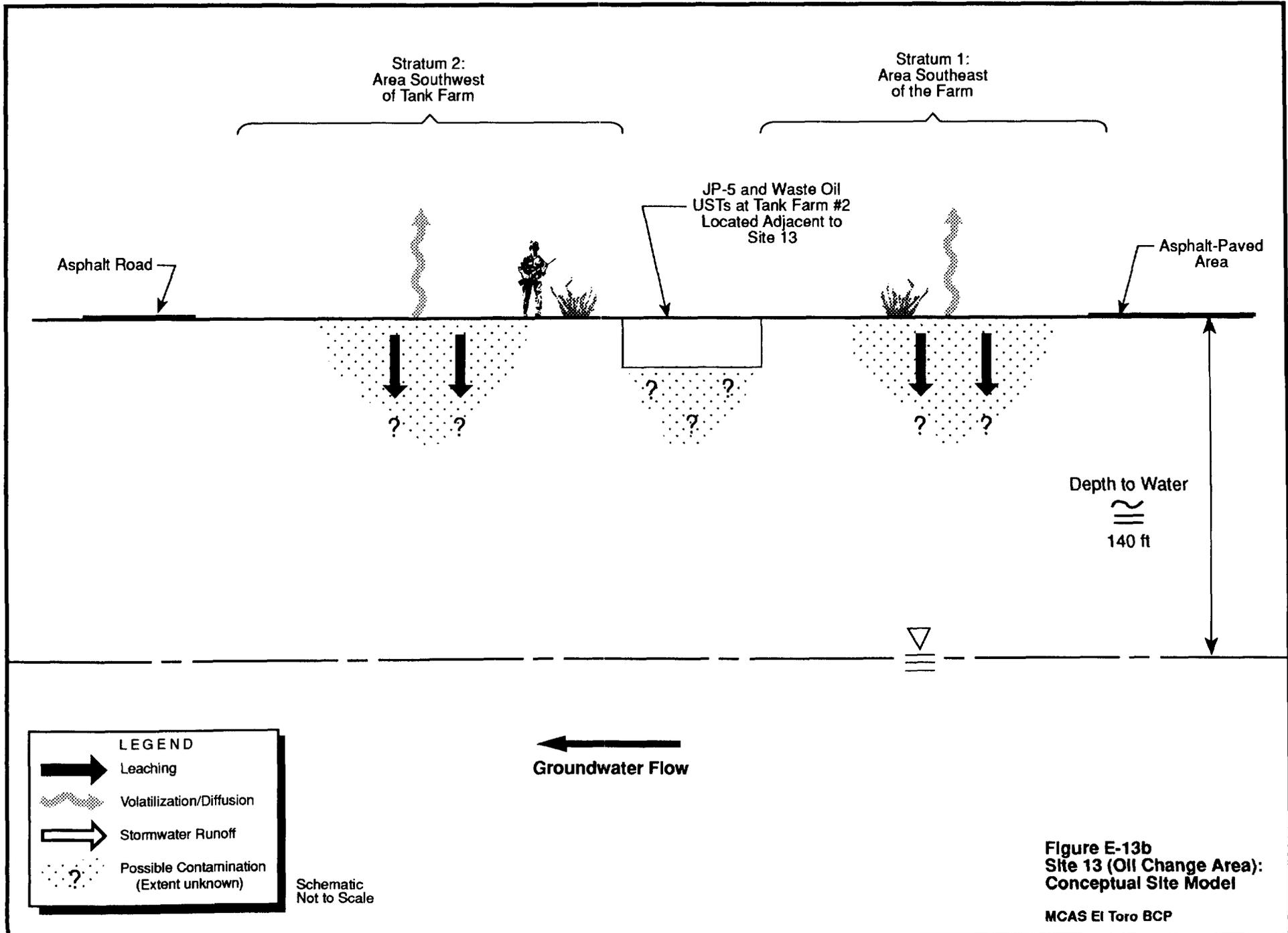


Figure E-12d
Site 12 (Sludge Drying Beds):
Potential Exposure Routes and Pathways for Human Receptors
MCAS El Toro BCP





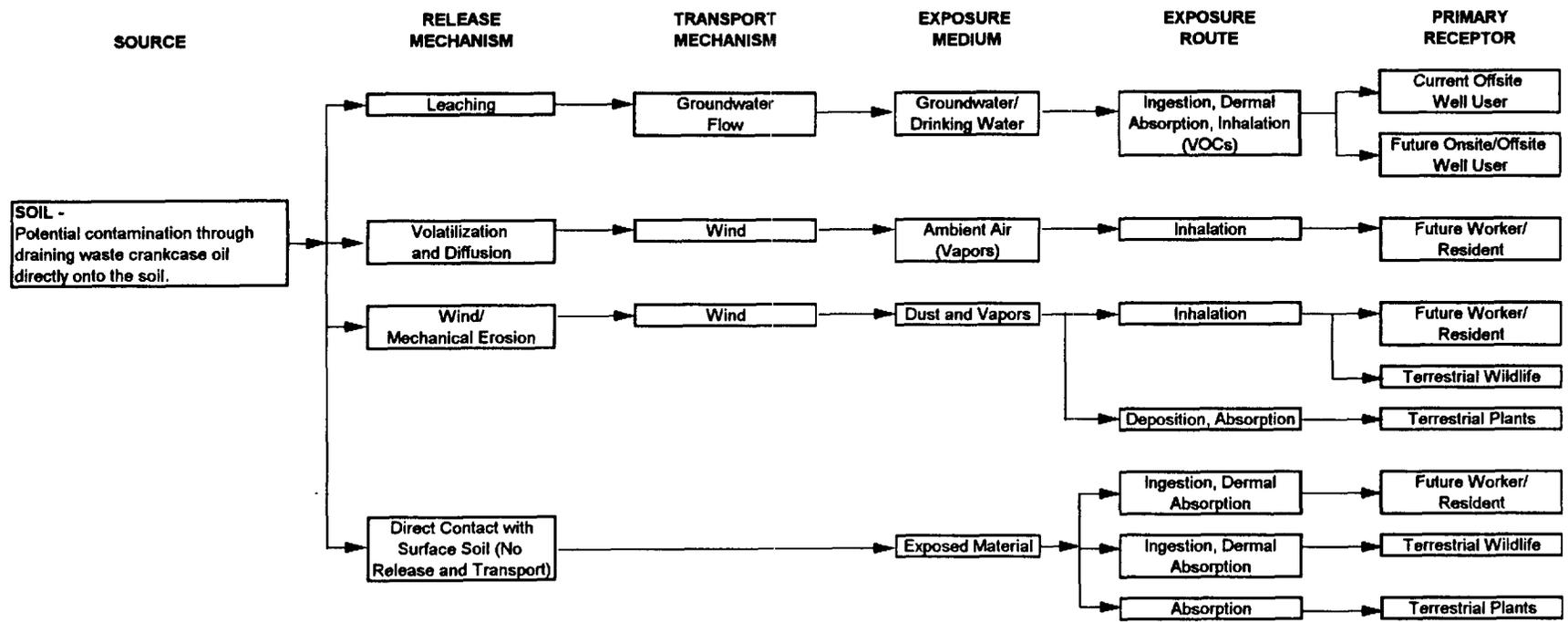
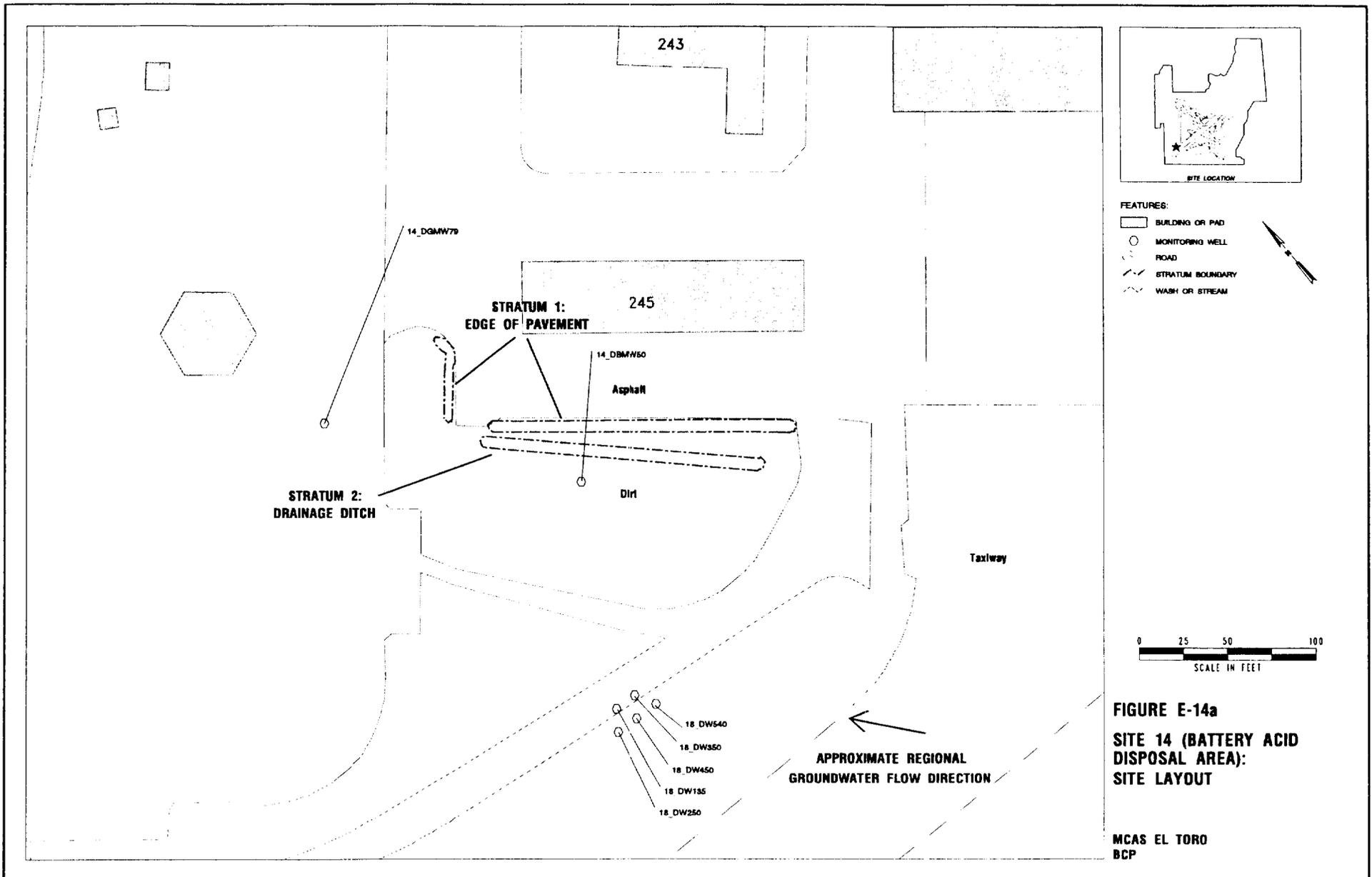
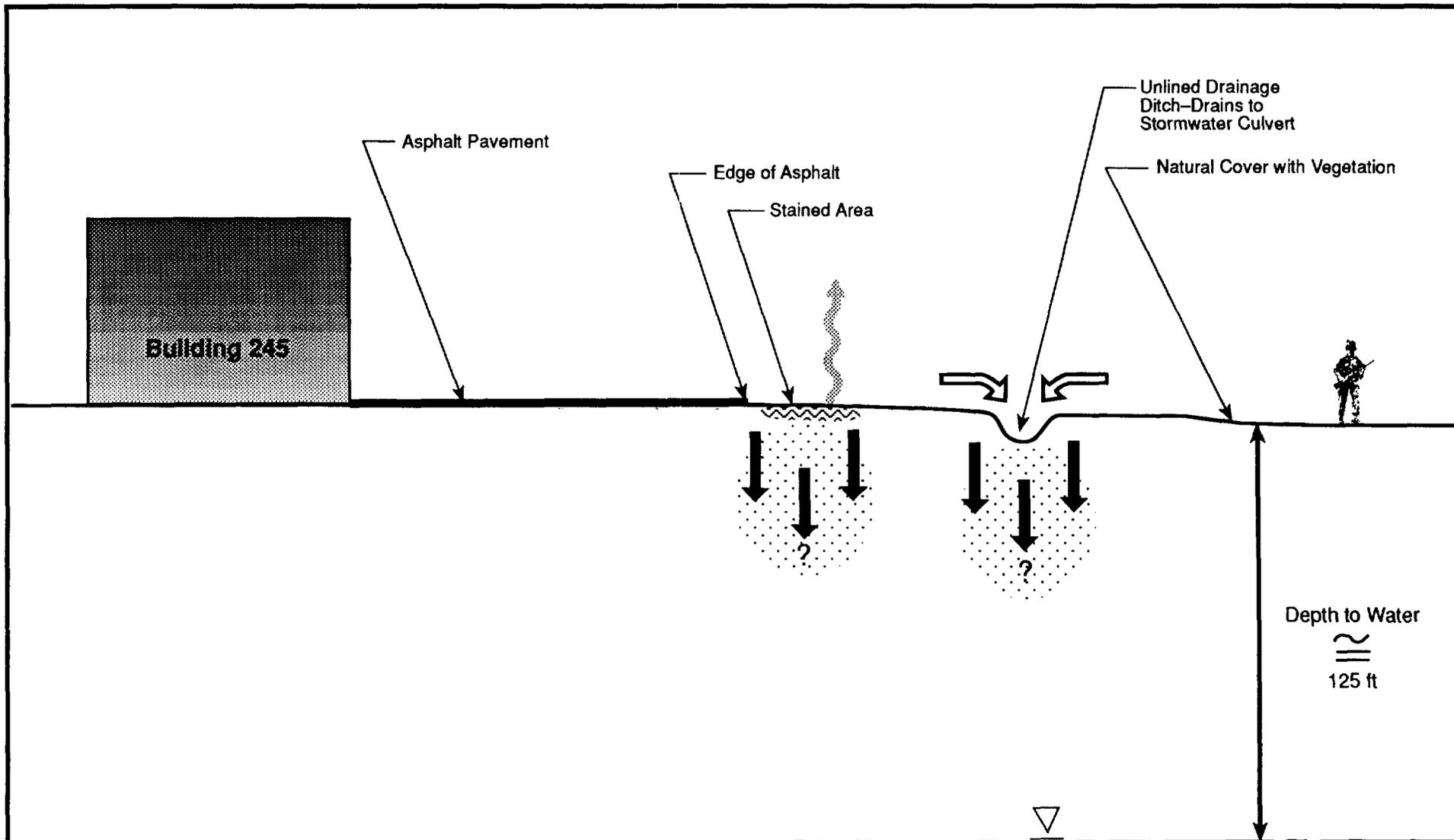


Figure E-13c
 Site 13 (Oil Change Area):
 Potential Exposure Routes and Pathways for Human and Ecological Receptors
 MCAS El Toro BCP





Building 245

Asphalt Pavement

Edge of Asphalt

Stained Area

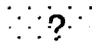
Unlined Drainage Ditch—Drains to Stormwater Culvert

Natural Cover with Vegetation

Depth to Water
 ≈
 125 ft

(Groundwater Flow
 is out of Page)

LEGEND

-  Leaching
-  Volatilization/Diffusion
-  Stormwater Runoff
-  Possible Contamination (Extent unknown)

Schematic
 Not to Scale

Figure E-14b
Site 14 (Battery Acid Disposal Area):
Conceptual Site Model

MCAS El Toro BCP

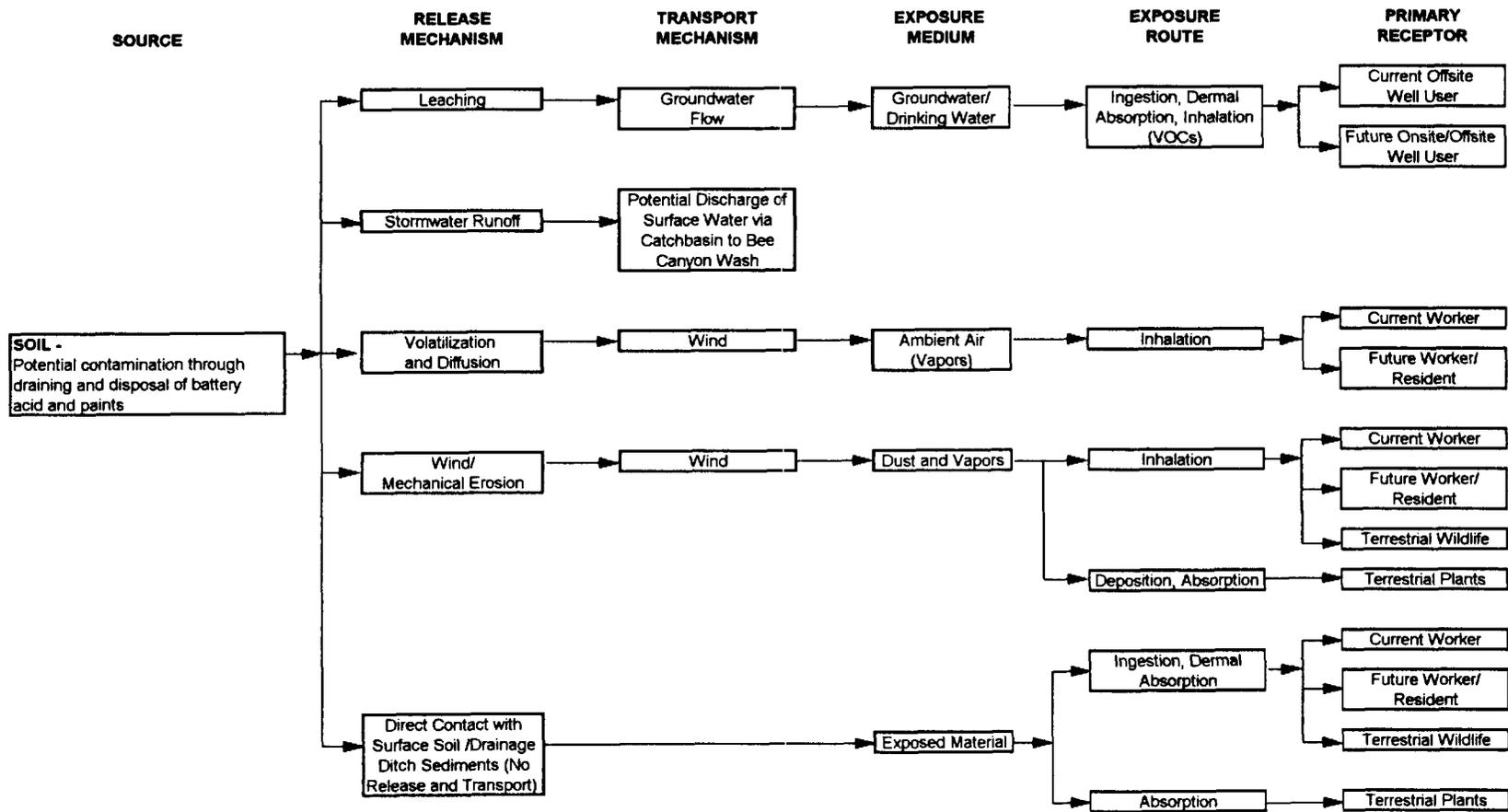
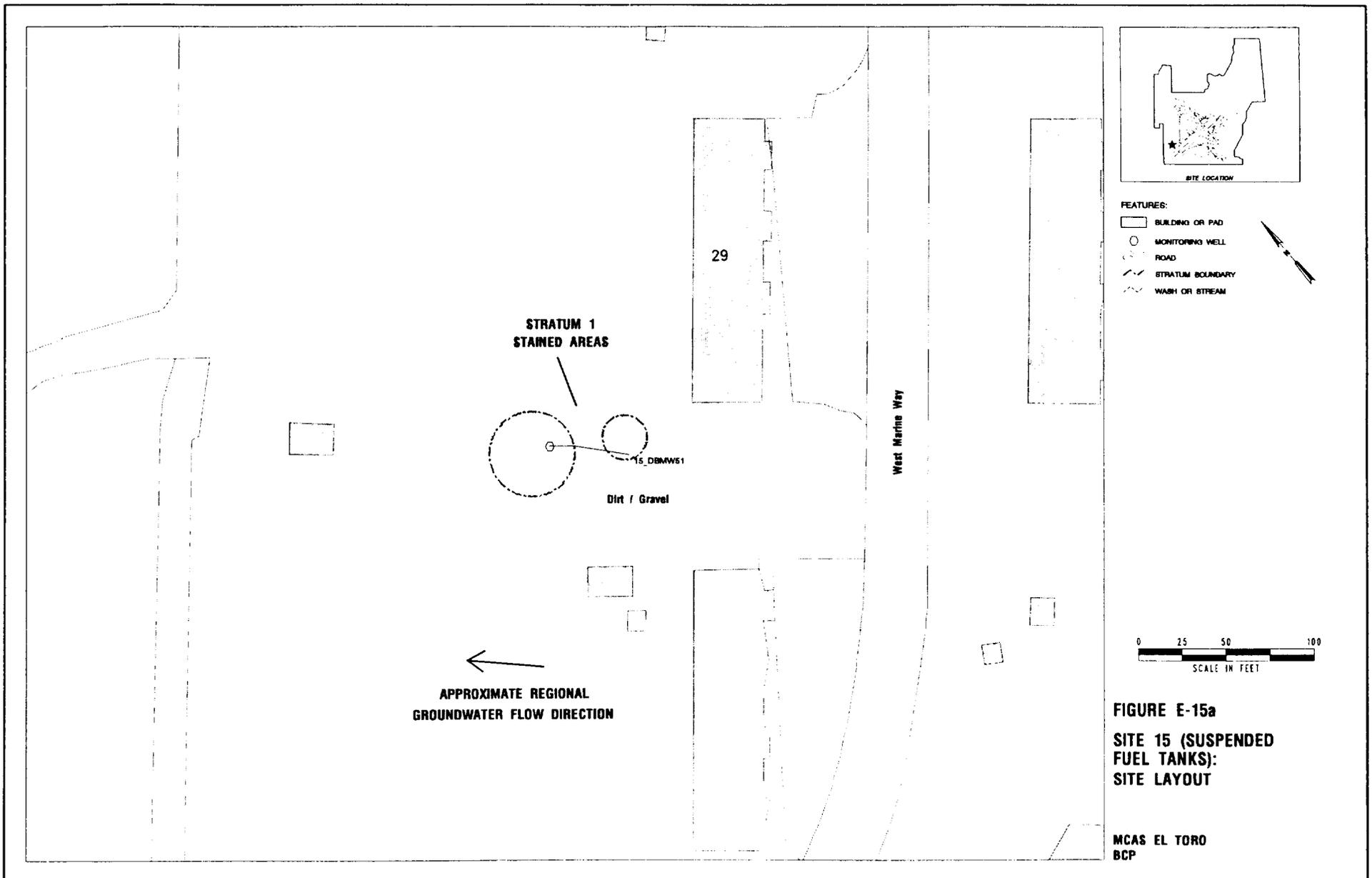


Figure E-14c
Site 14 (Battery Acid Disposal Area):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
MCAS El Toro BCP



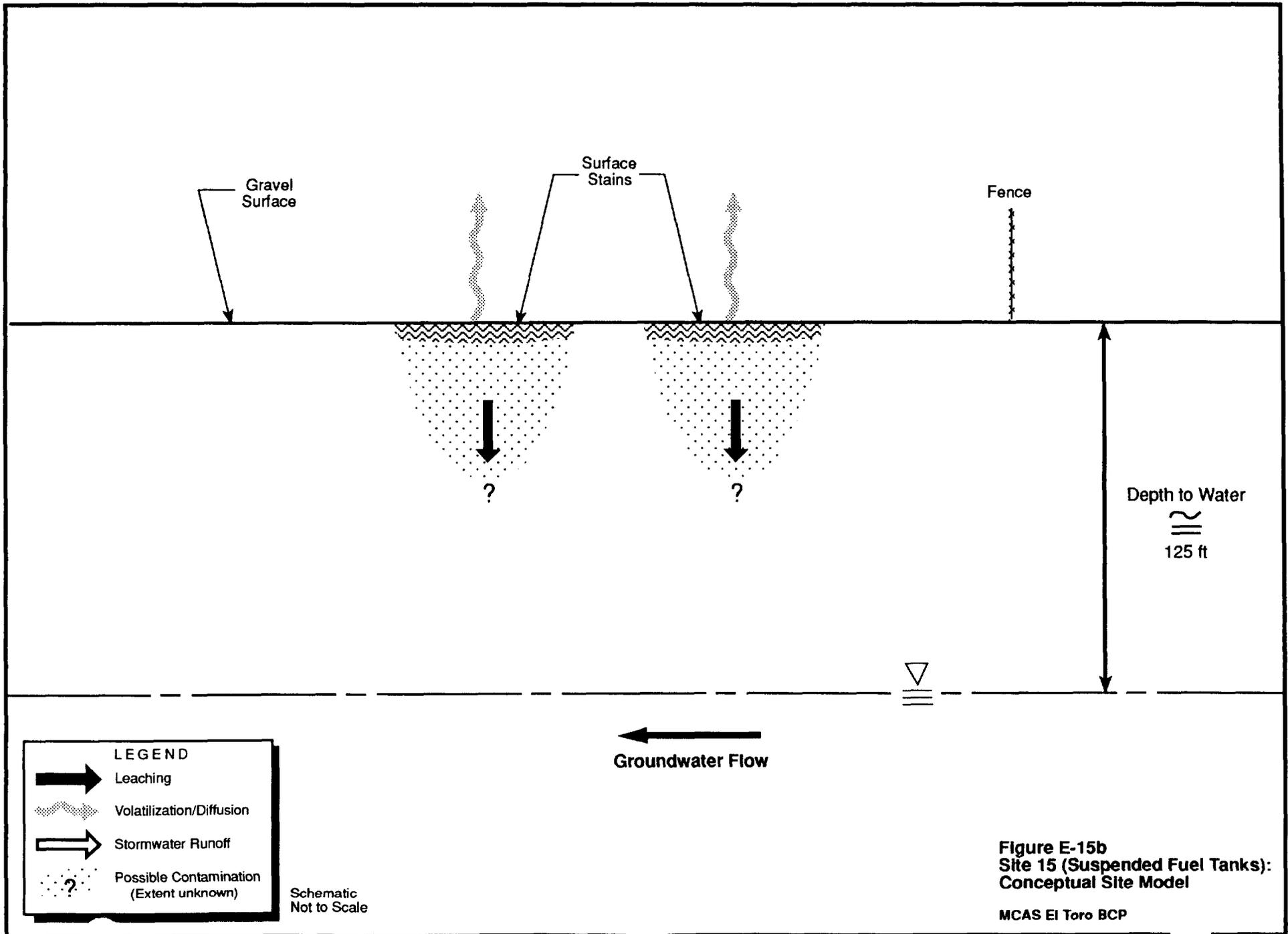


Figure E-15b
Site 15 (Suspended Fuel Tanks):
Conceptual Site Model

MCAS El Toro BCP

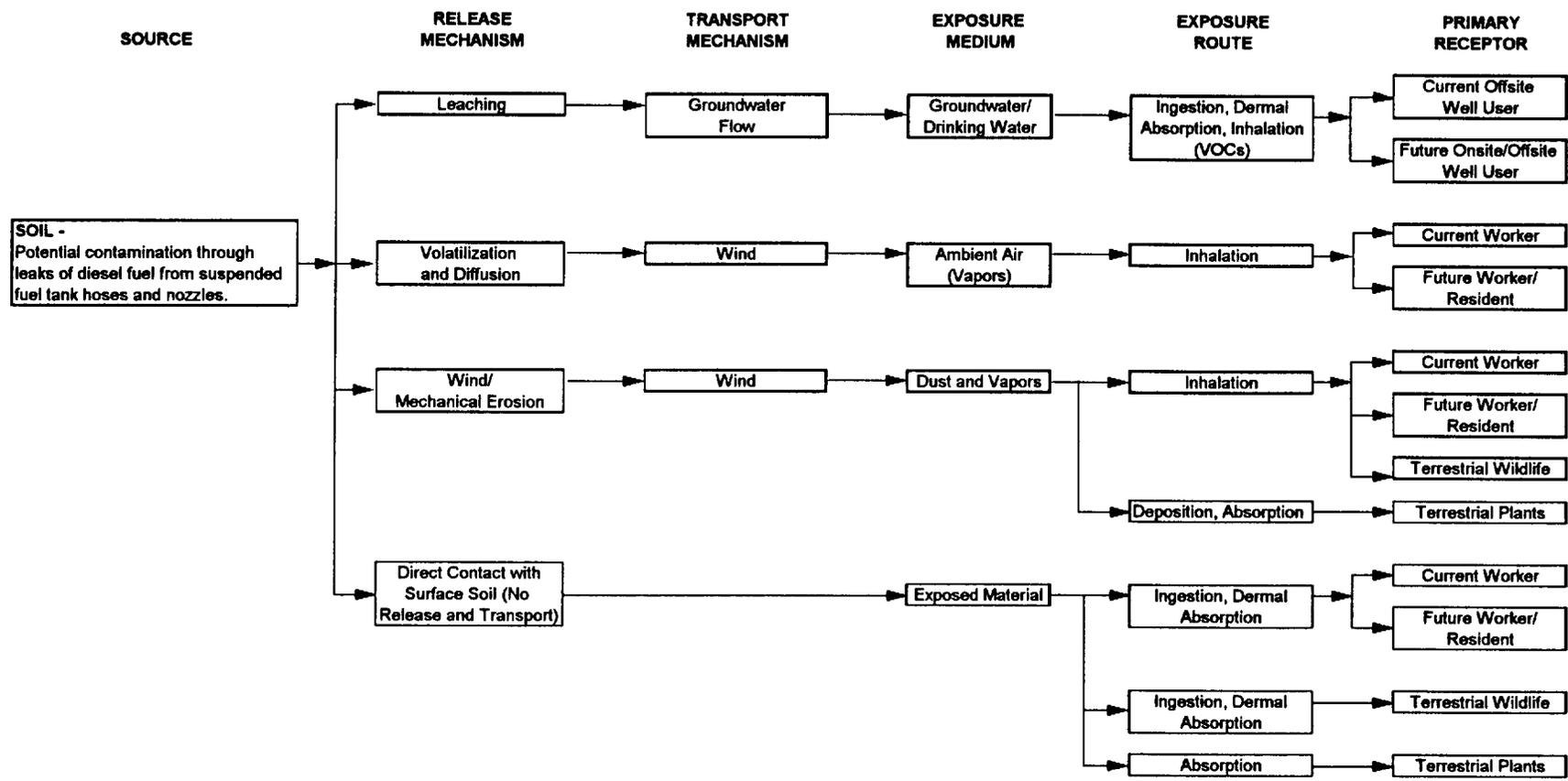
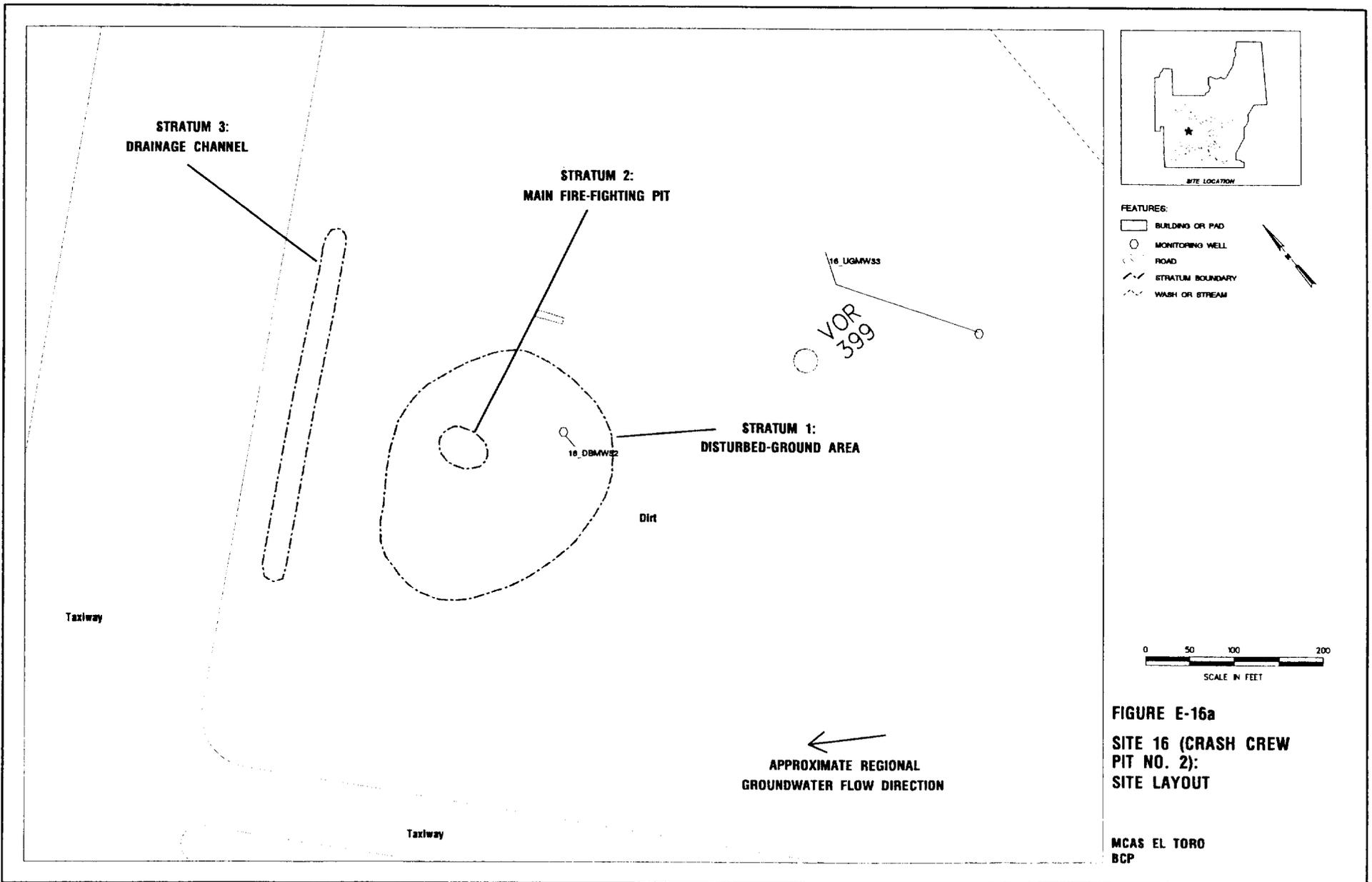


Figure E-15c
Site 15 (Suspended Fuel Tanks):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
MCAS El Toro BCP



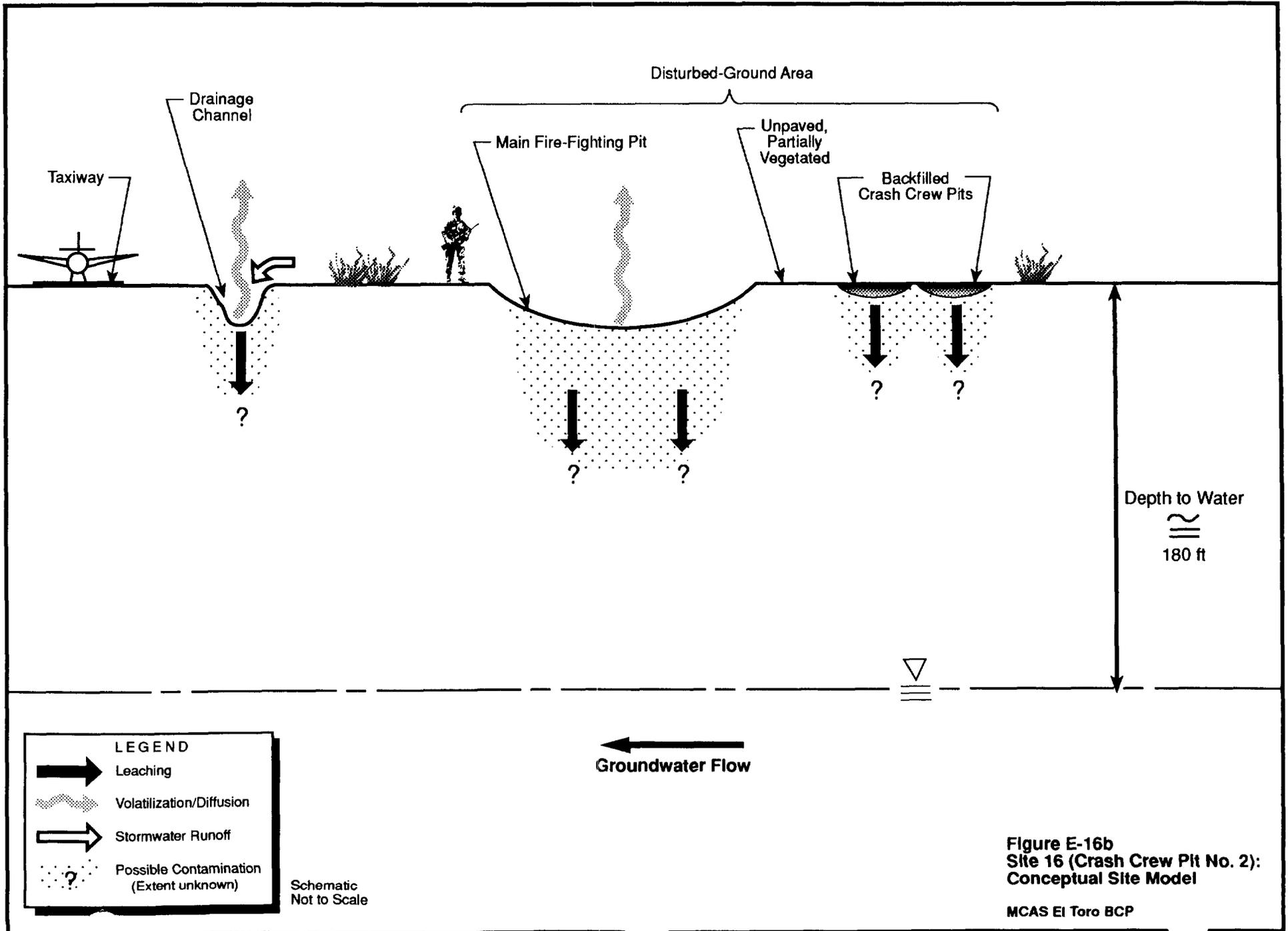


Figure E-16b
Site 16 (Crash Crew Pit No. 2):
Conceptual Site Model

MCAS El Toro BCP

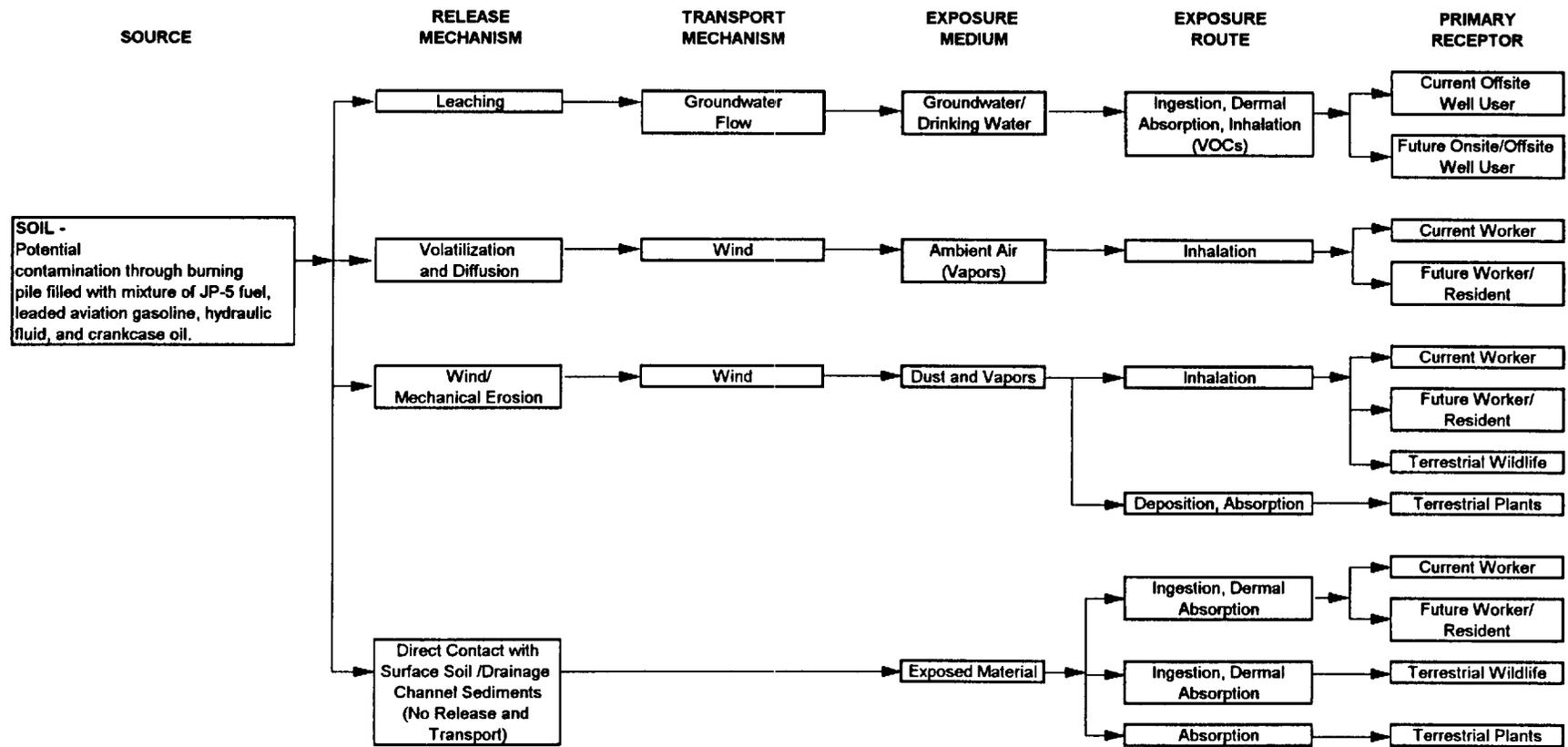
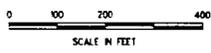
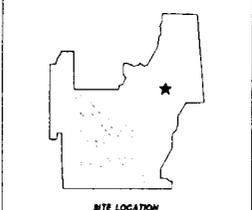
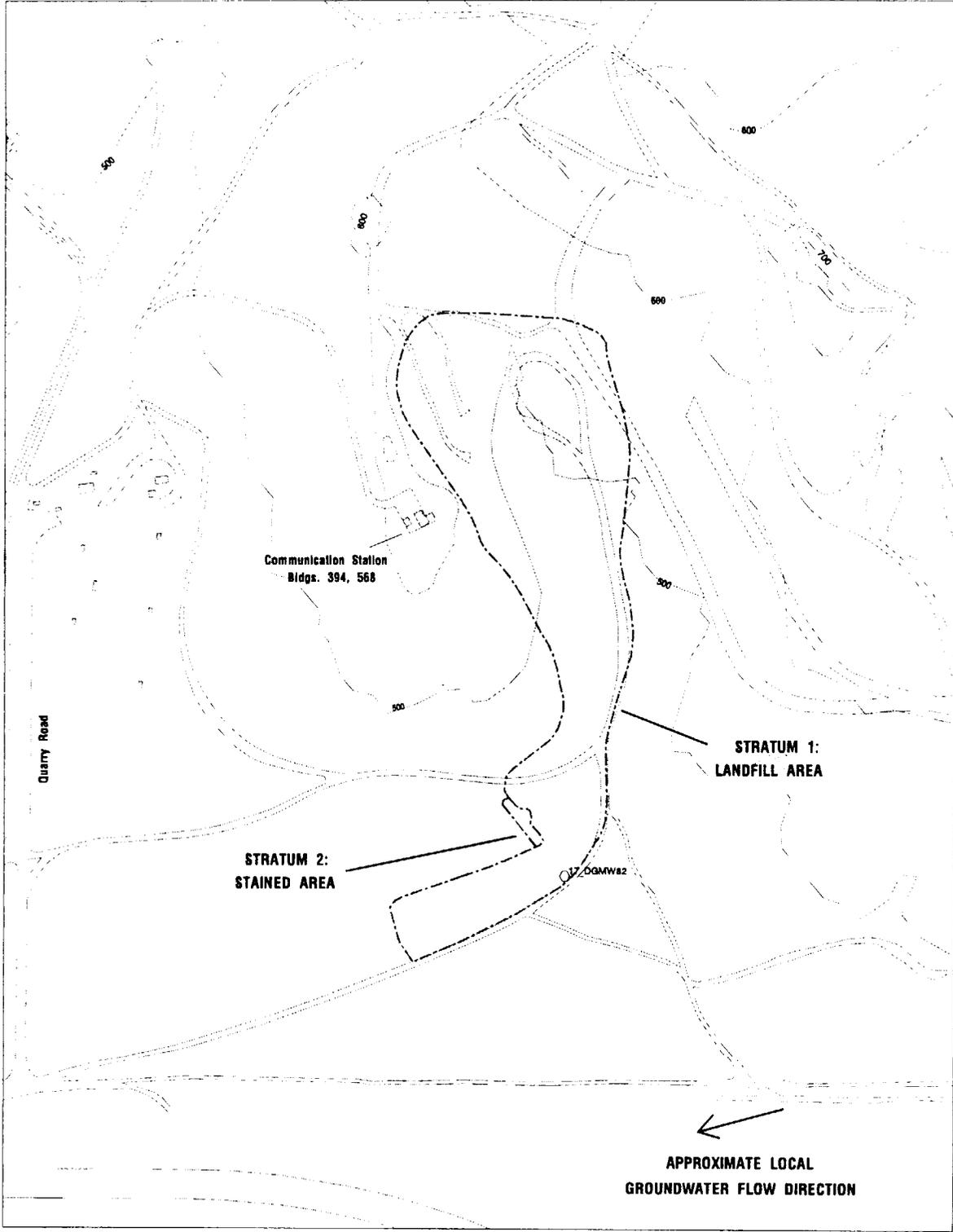


Figure E-16c
Site 16 (Crash Crew Pit No. 2):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
MCAS El Toro BCP



- FEATURES:**
- BUILDING OR PAD
 - MONITORING WELL
 - ROAD
 - STRATUM BOUNDARY
 - WASH OR STREAM
 - ELEVATION CONTOUR

FIGURE E-17a
SITE 17 (COMMUNICATION
STATION LANDFILL):
SITE LAYOUT

MCAS EL TORO
BCP

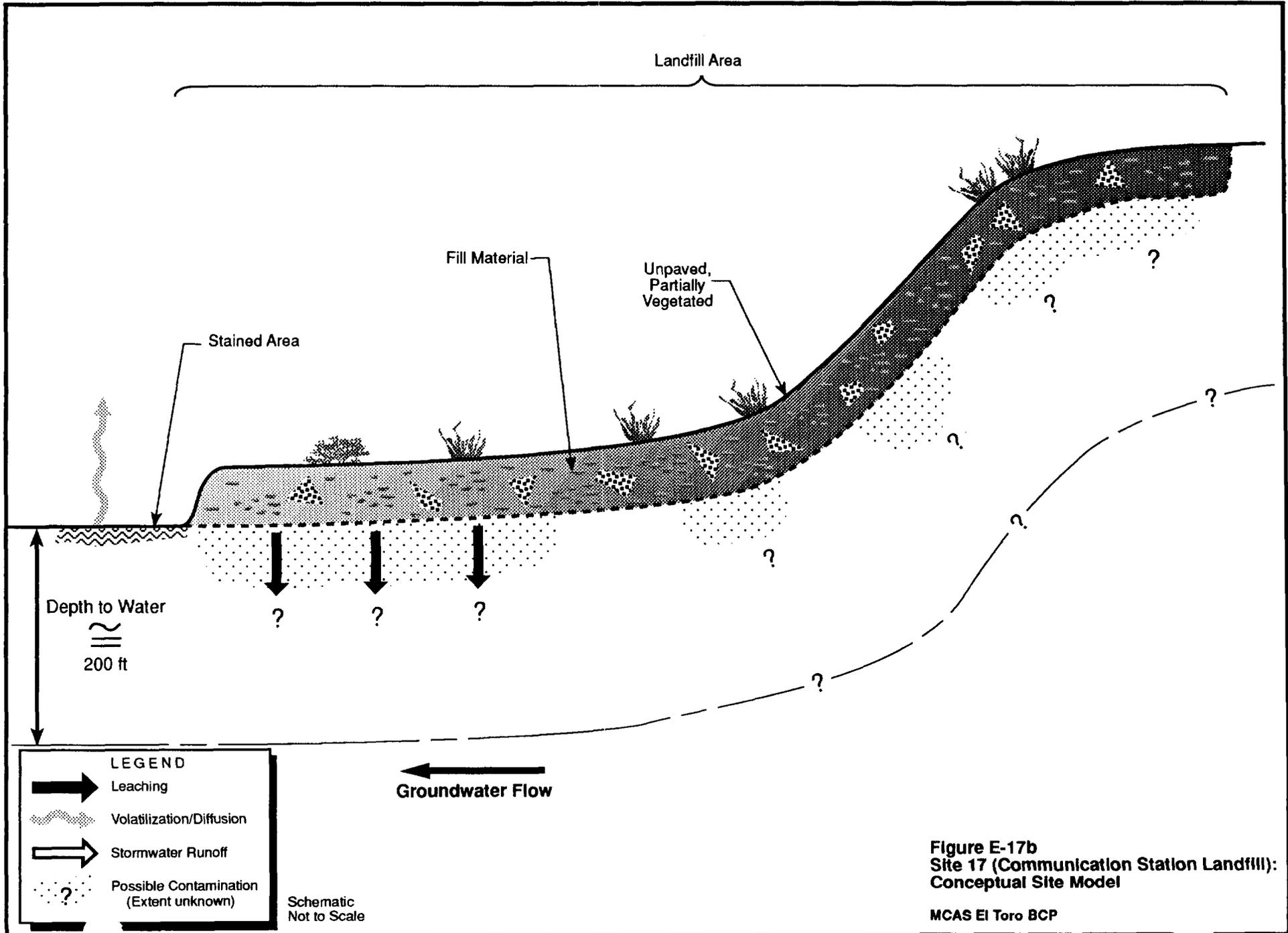


Figure E-17b
Site 17 (Communication Station Landfill):
Conceptual Site Model

MCAS El Toro BCP

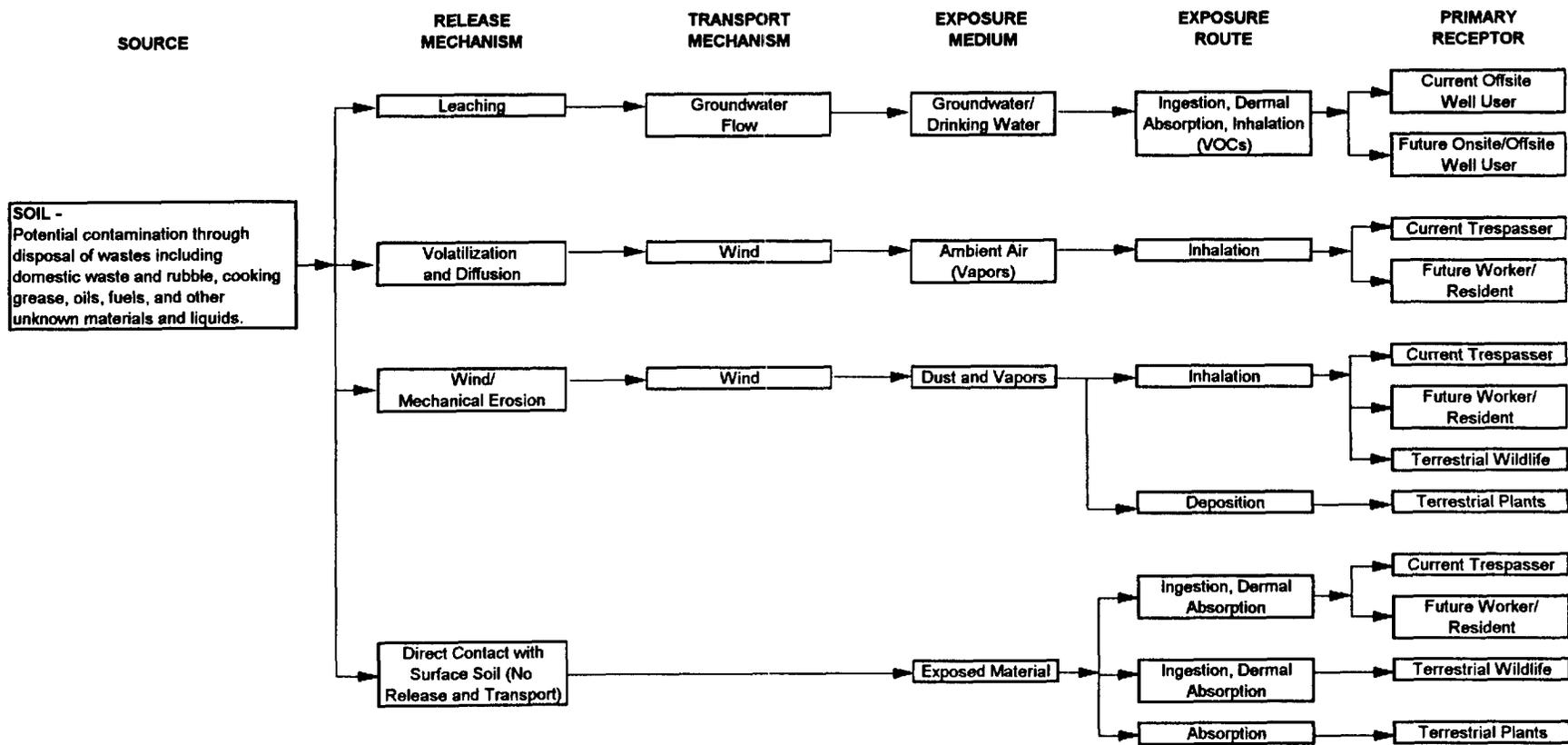
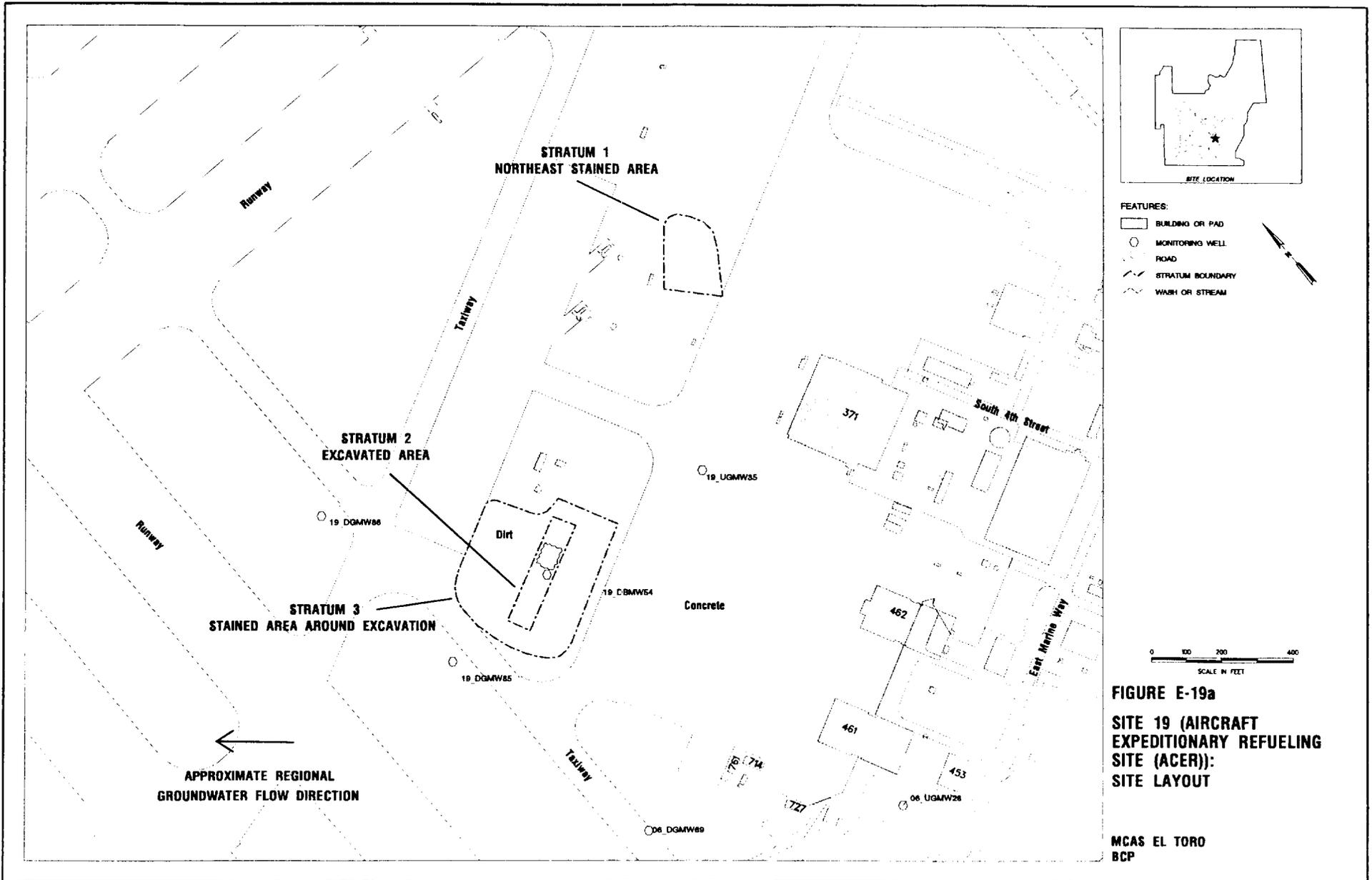
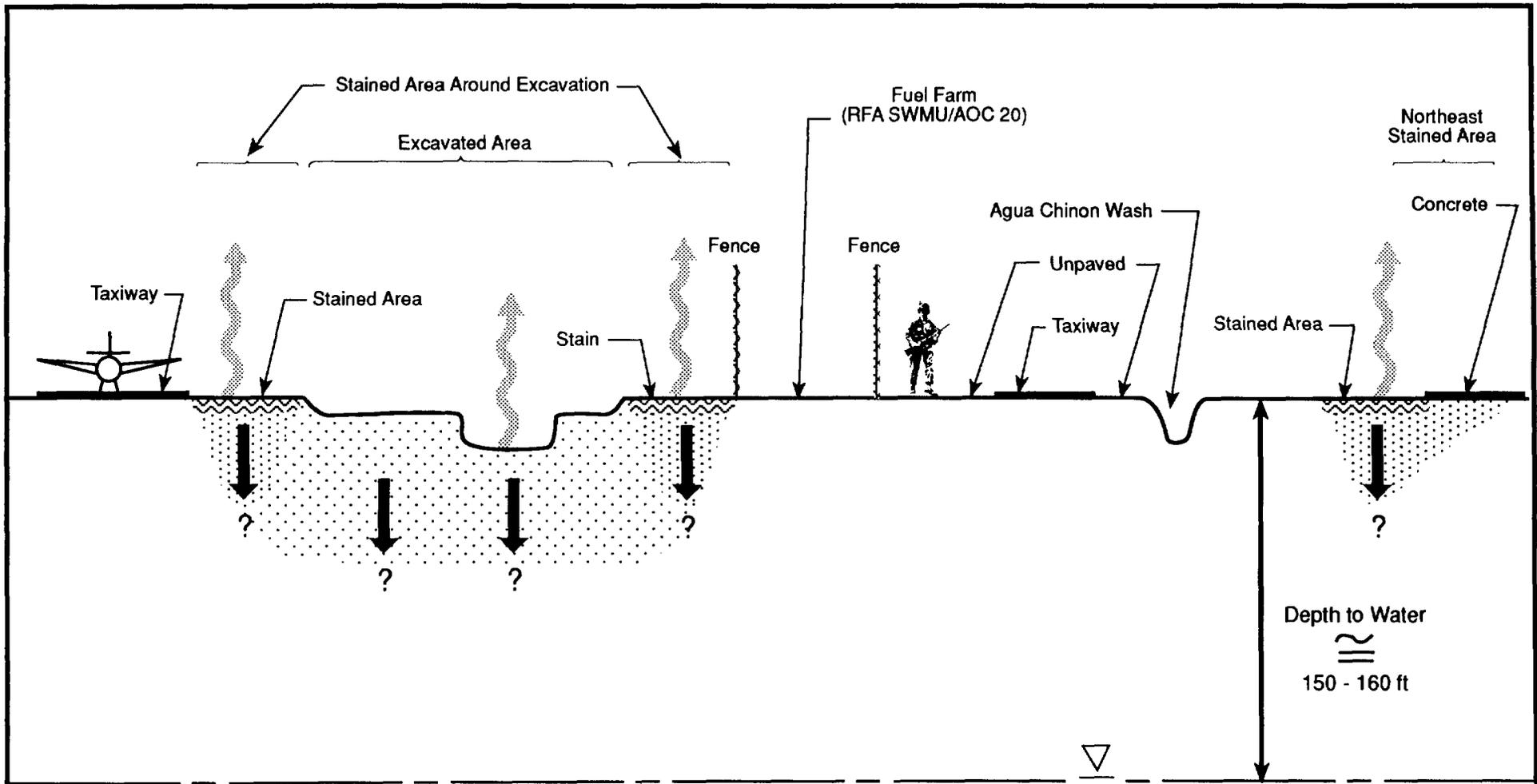


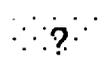
Figure E-17c
 Site 17 (Communication Station Landfill):
 Potential Exposure Routes and Pathways for Human and Ecological Receptors
 MCAS El Toro BCP





(Groundwater Flow
is into Page)

LEGEND

-  Leaching
-  Volatilization/Diffusion
-  Stormwater Runoff
-  Possible Contamination (Extent unknown)

Schematic
Not to Scale

Figure E-19b
Site 19 (Aircraft Expeditionary Refueling [ACER] Site):
Conceptual Site Model

MCAS El Toro BCP

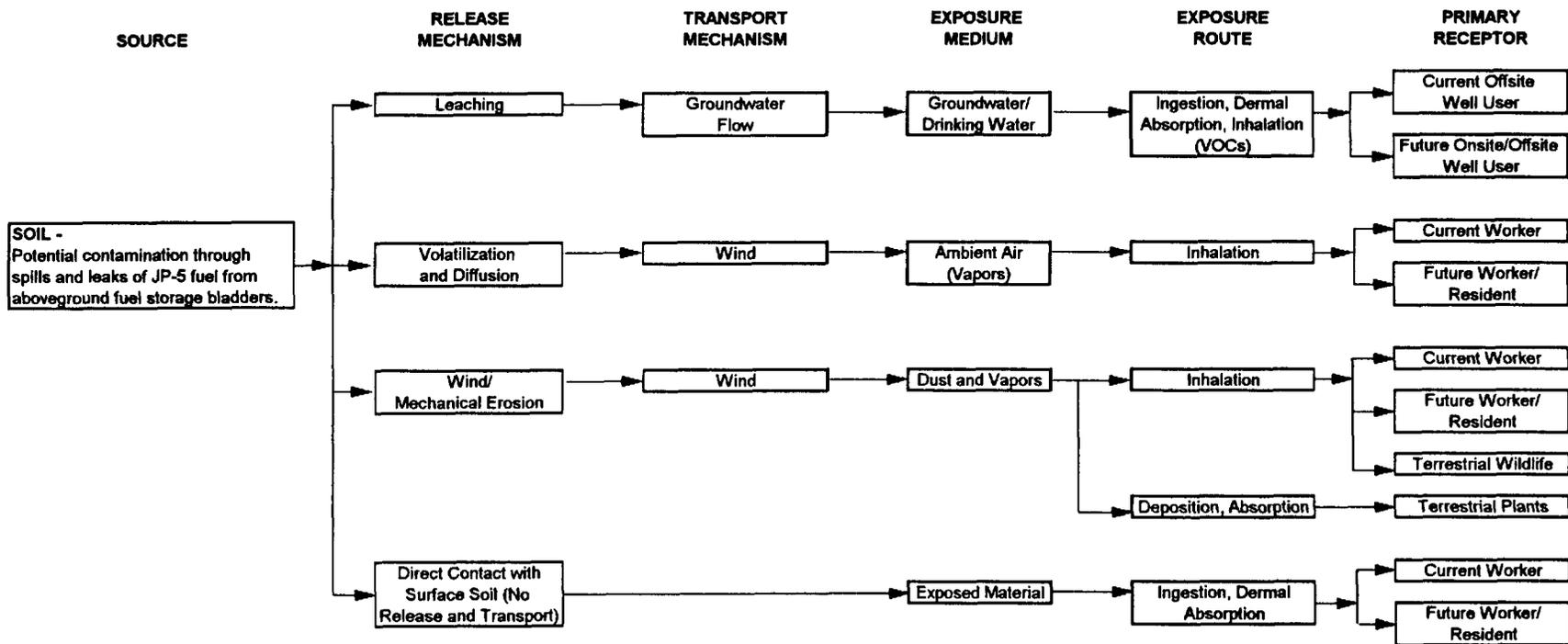


Figure E-19c
 Site 19 (Aircraft Expeditionary Refueling (ACER) Site):
 Potential Exposure Routes and Pathways for Human and Ecological Receptors
 MCAS El Toro BCP

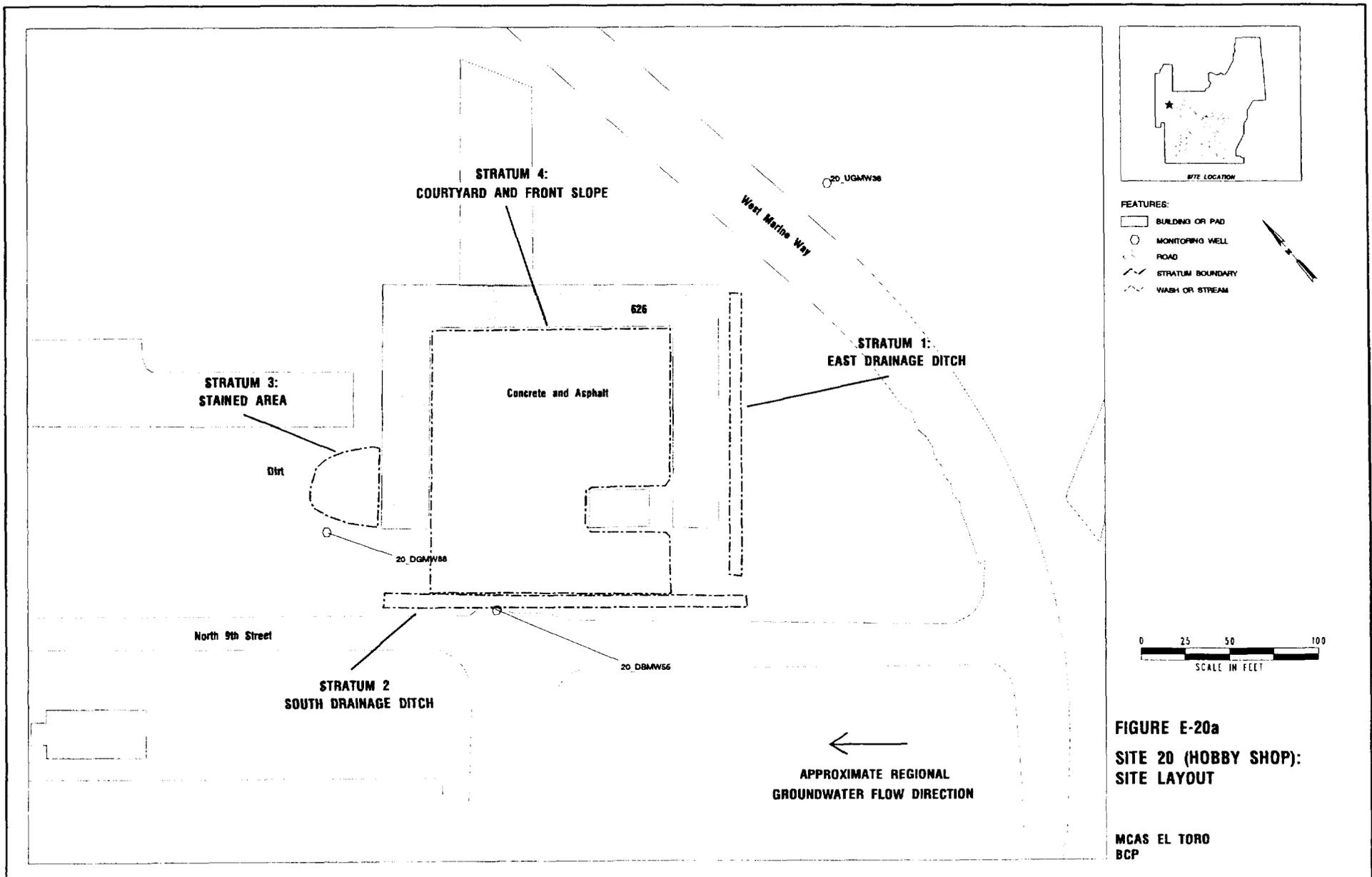
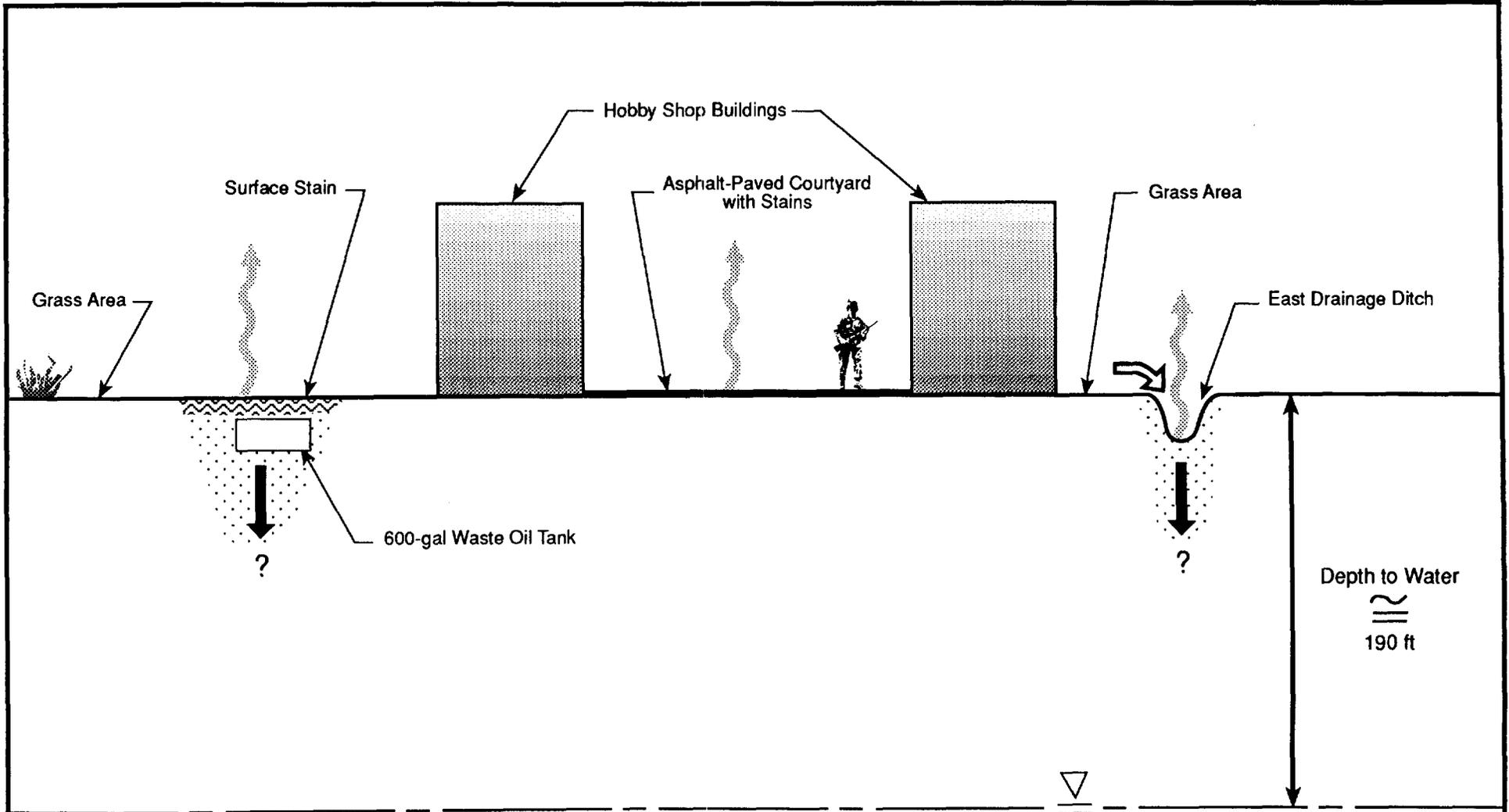


FIGURE E-20a
SITE 20 (HOBBY SHOP):
SITE LAYOUT

MCAS EL TORO
BCP



LEGEND

- Leaching
- Volatilization/Diffusion
- Stormwater Runoff
- Possible Contamination (Extent unknown)

Schematic
Not to Scale

Figure E-20b
Site 20 (Hobby Shop):
Conceptual Site Model

MCAS El Toro

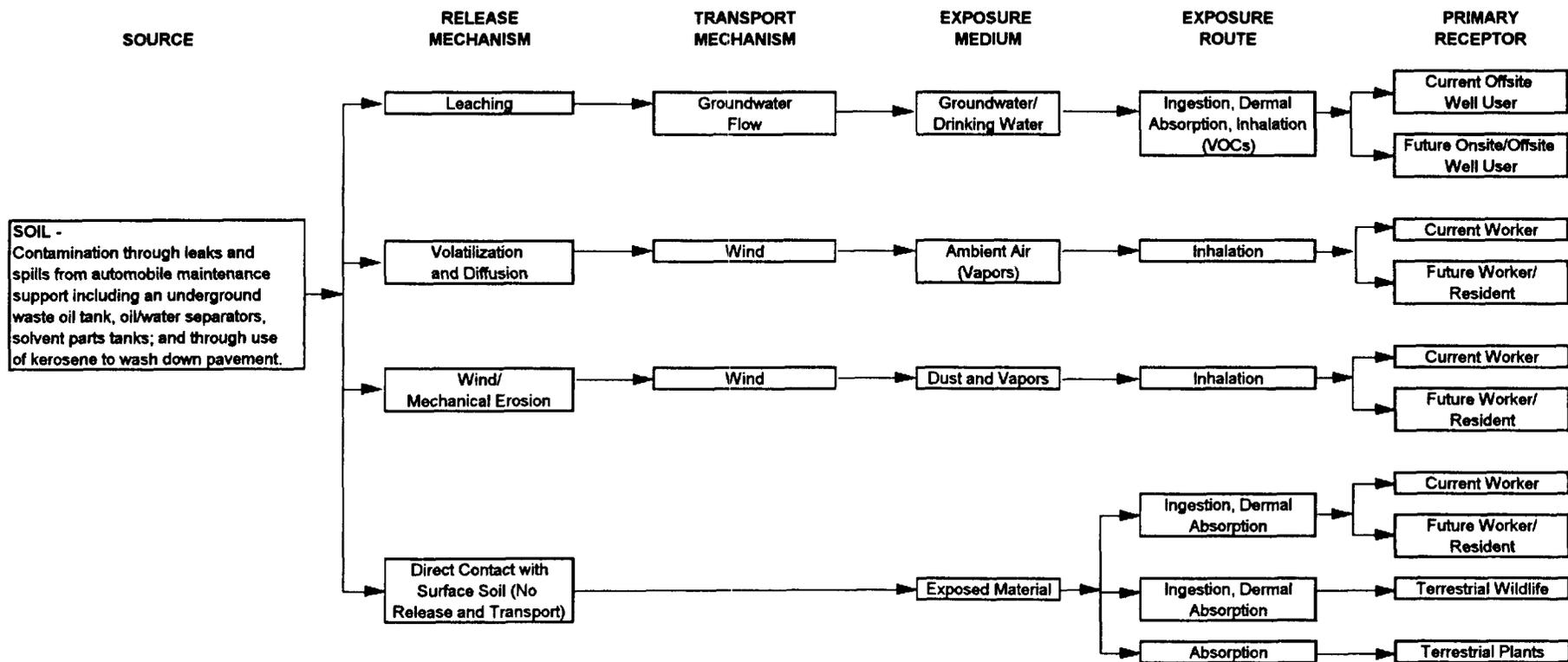


Figure E-20c
Site 20 (Hobby Shop):
Potential Exposure Routes and Pathways for Human and Ecological
MCAS EI Toro BCP

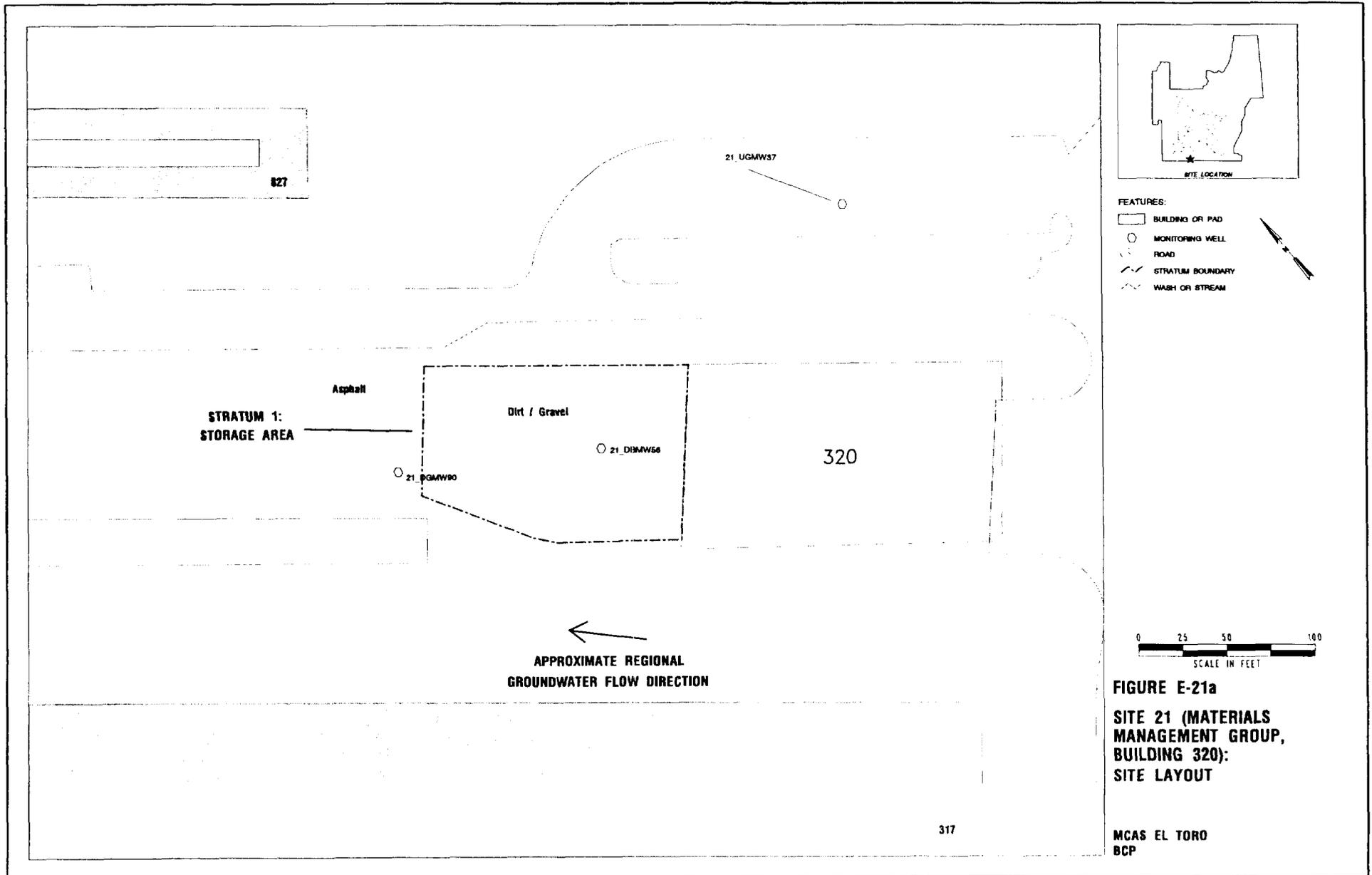
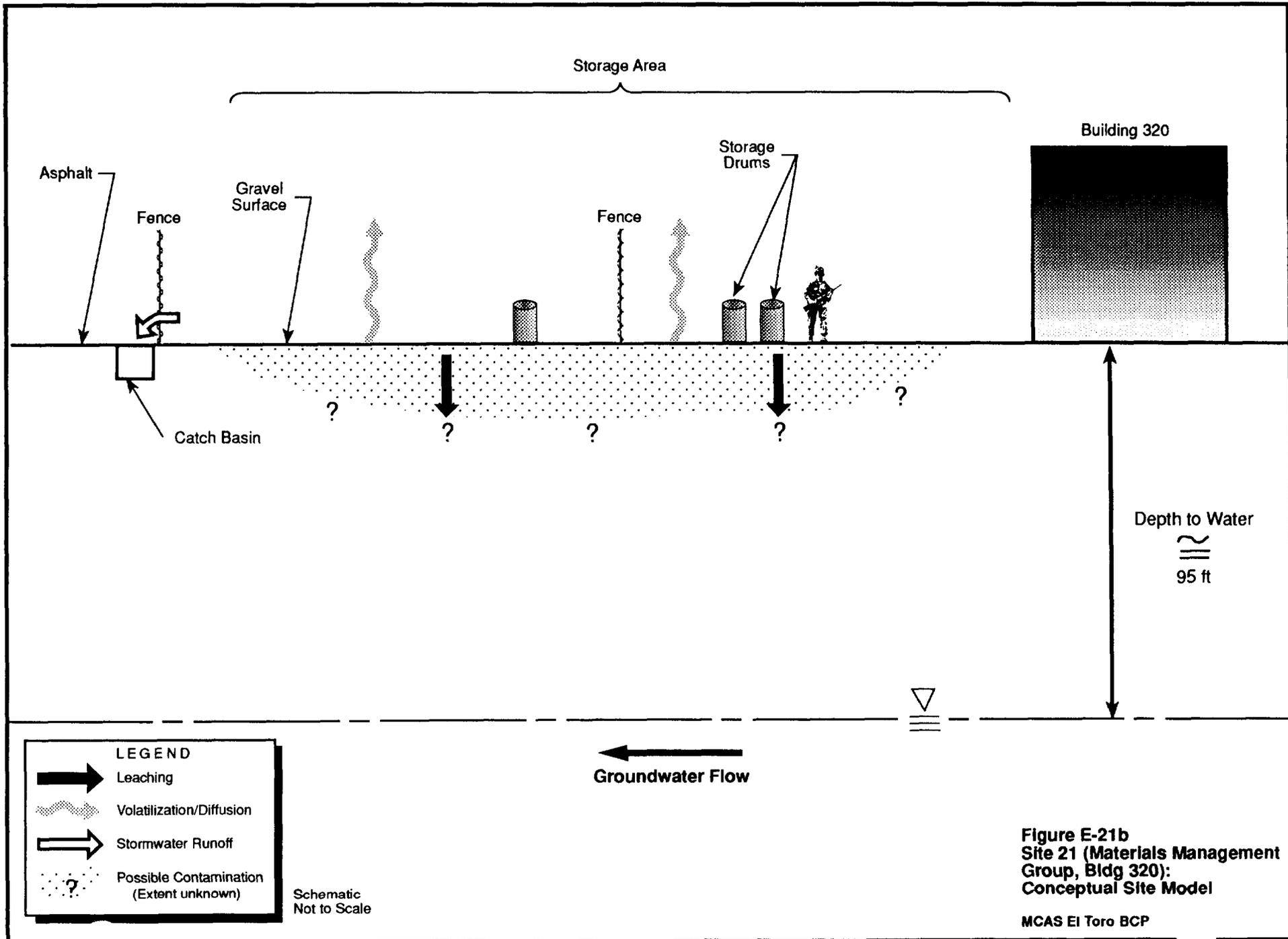


FIGURE E-21a
SITE 21 (MATERIALS
MANAGEMENT GROUP,
BUILDING 320):
SITE LAYOUT

MCAS EL TORO
BCP



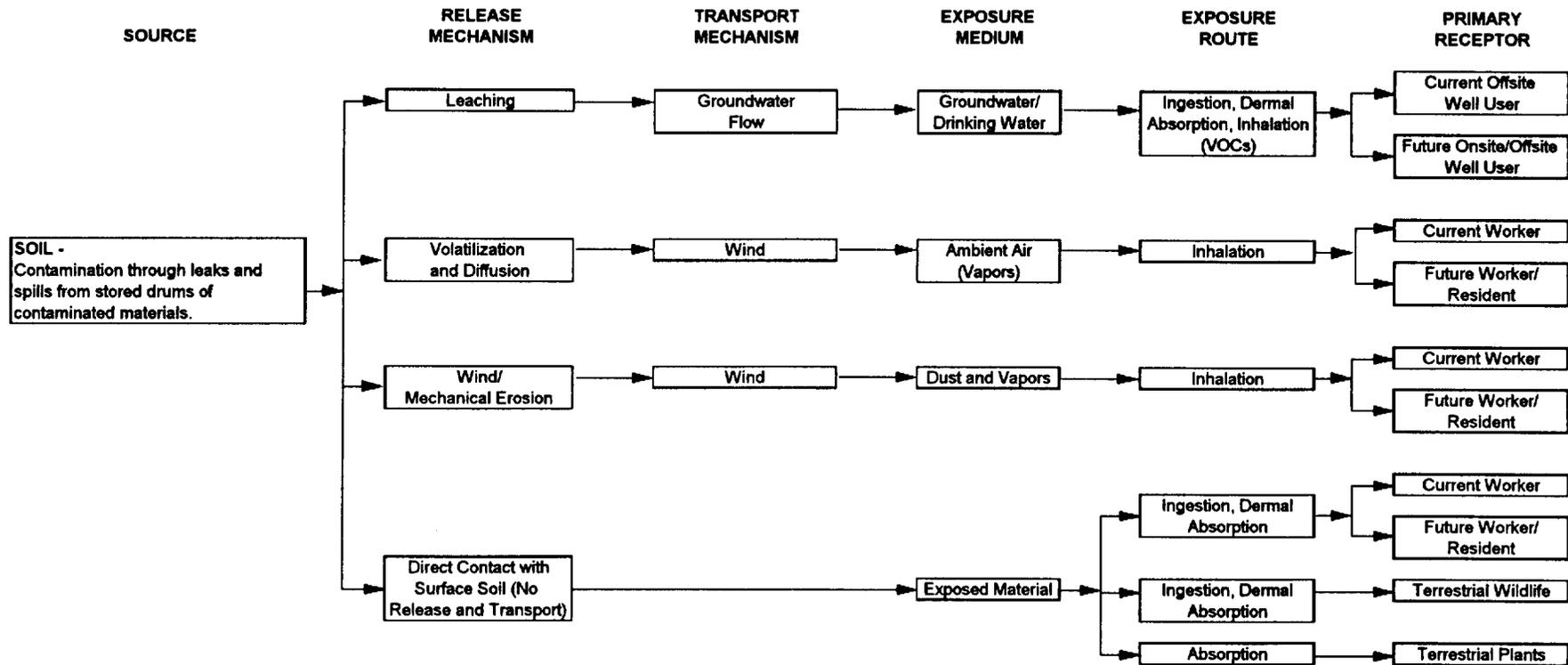
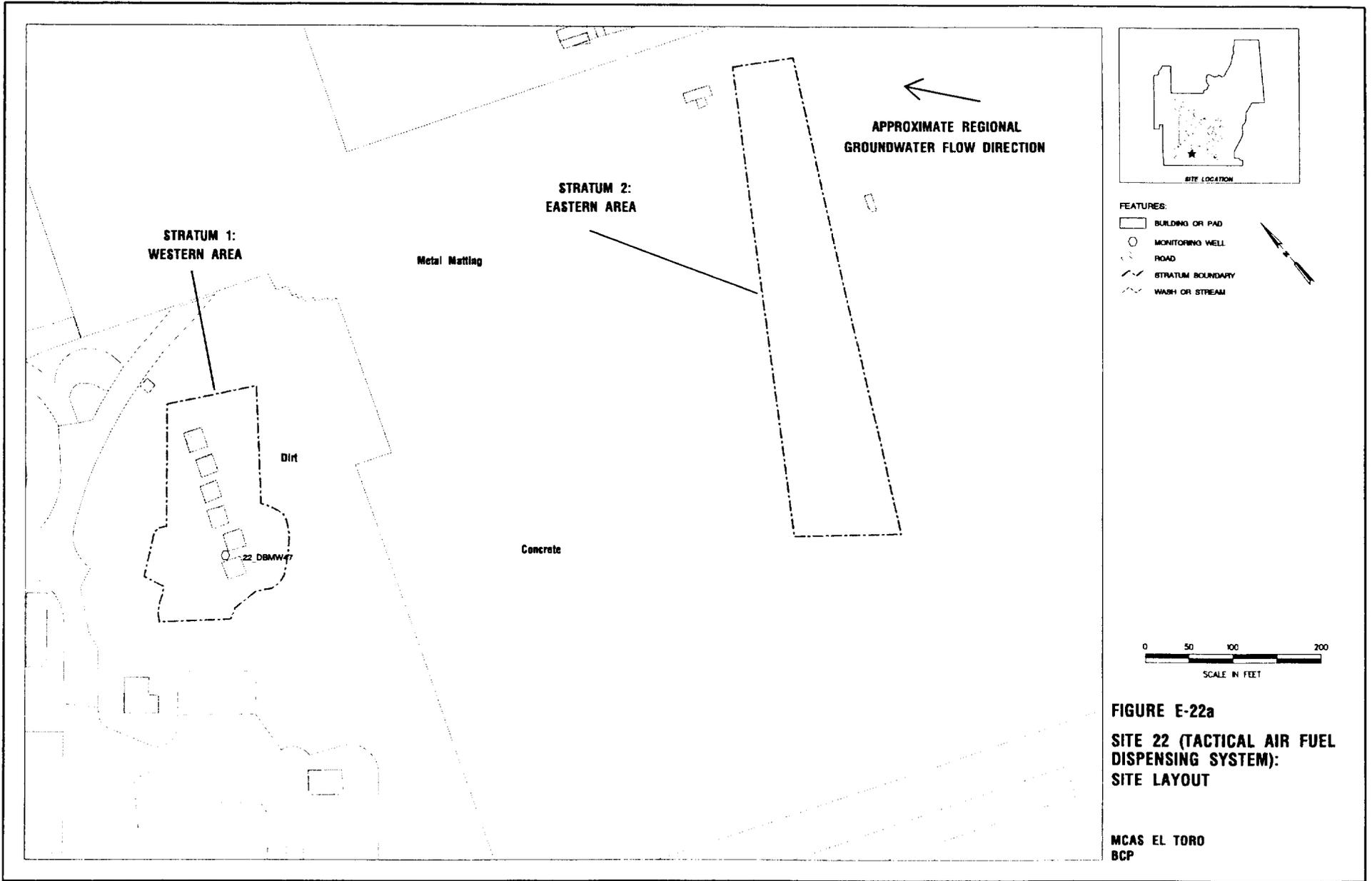
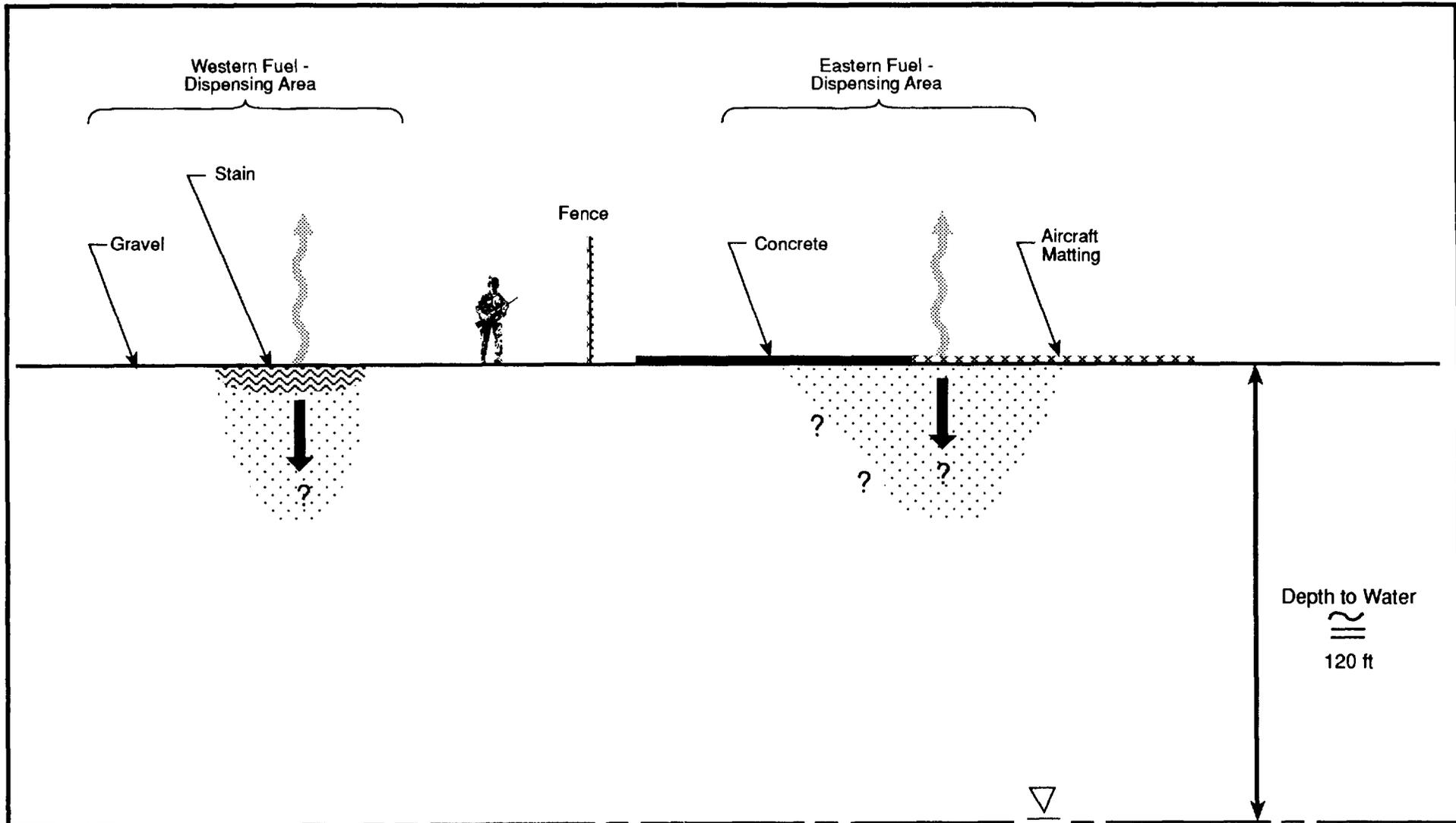


Figure E-21c
Site 21 (Materials Management Group, Bldg. 320):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
MCAS El Toro BCP





LEGEND

- Leaching
- Volatilization/Diffusion
- Stormwater Runoff
- Possible Contamination (Extent unknown)

Schematic
Not to Scale

Approximate Direction of Groundwater Flow

Figure E-22b
Site 22 (Tactical Air Fuel Dispensing System):
Conceptual Site Model

MCAS El Toro BCP

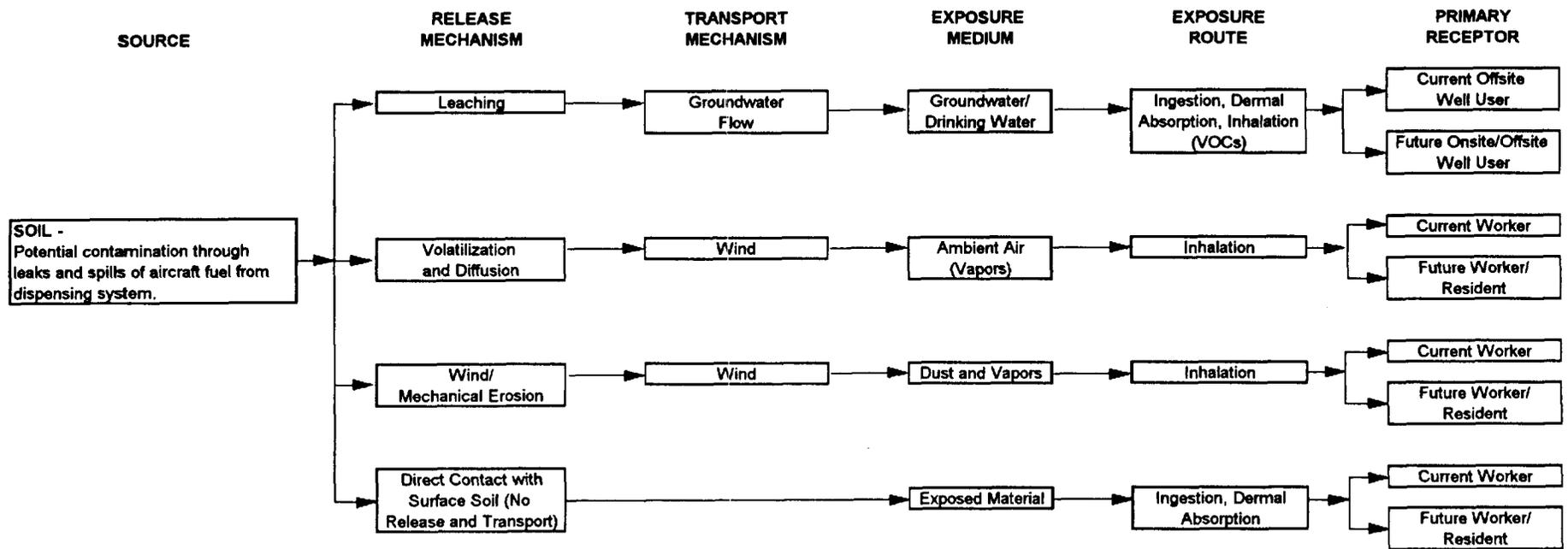
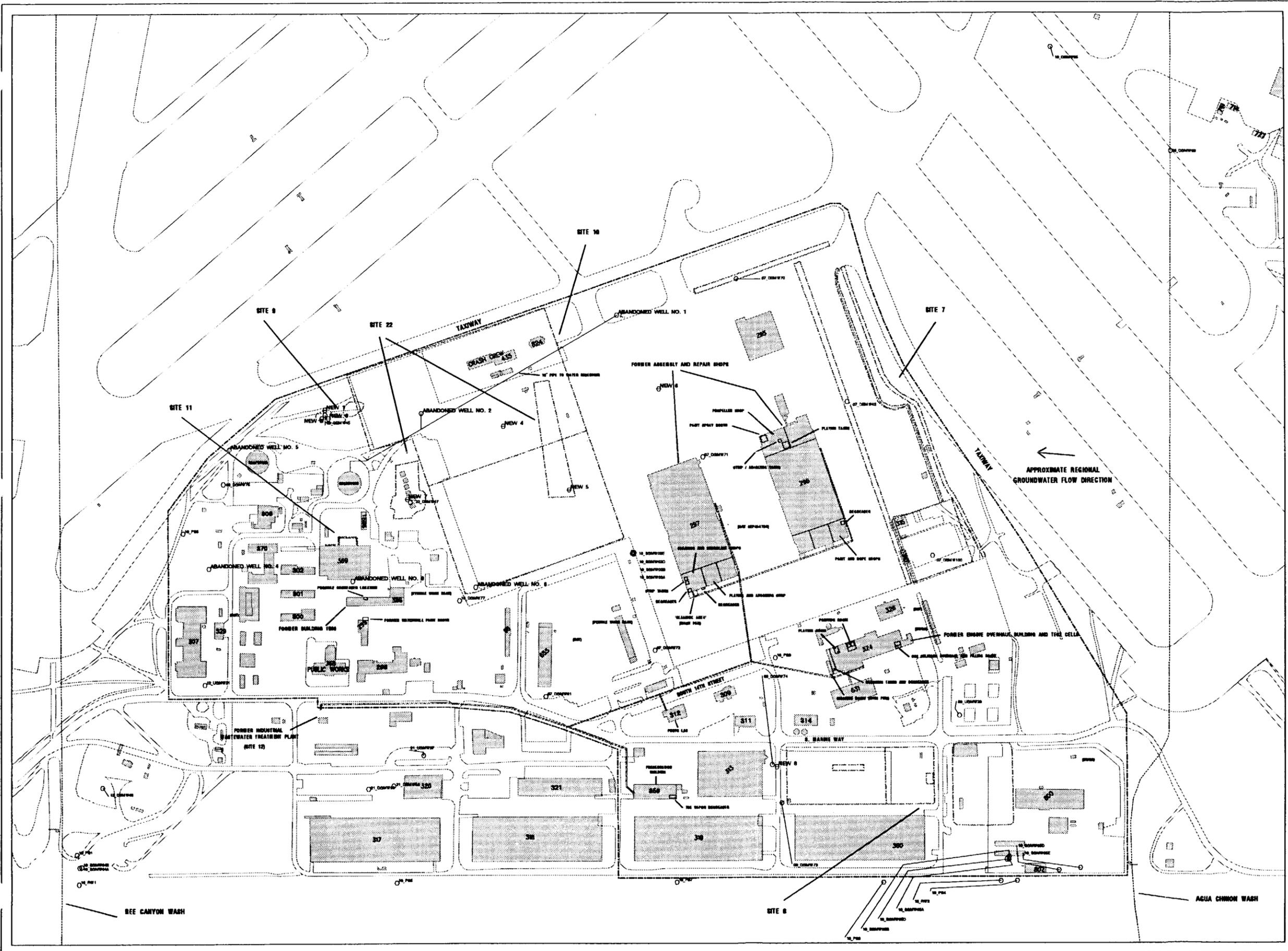


Figure E-22c
Site 22 (Tactical Air Fuel Dispensing System):
Potential Exposure Routes and Pathways for Human Receptors
MCAS EI Toro BCP



- FEATURES:
- ▭ BUILDING OR PAD
 - MONITORING WELL
 - ROAD
 - - - - - STRIPES BOUNDARY
 - ~ ~ ~ ~ ~ WASH OR STREAM
 - SITE BOUNDARY
 - ~ ~ ~ ~ ~ ABANDONED INDUSTRIAL WASTE REVENUE LINES

SCALE IN FEET
0 100 200 400

FIGURE E-24a
SITE 24 (POSSIBLE VOC
SOURCE AREA):
SITE LAYOUT

MCAS EL TORO
BCP

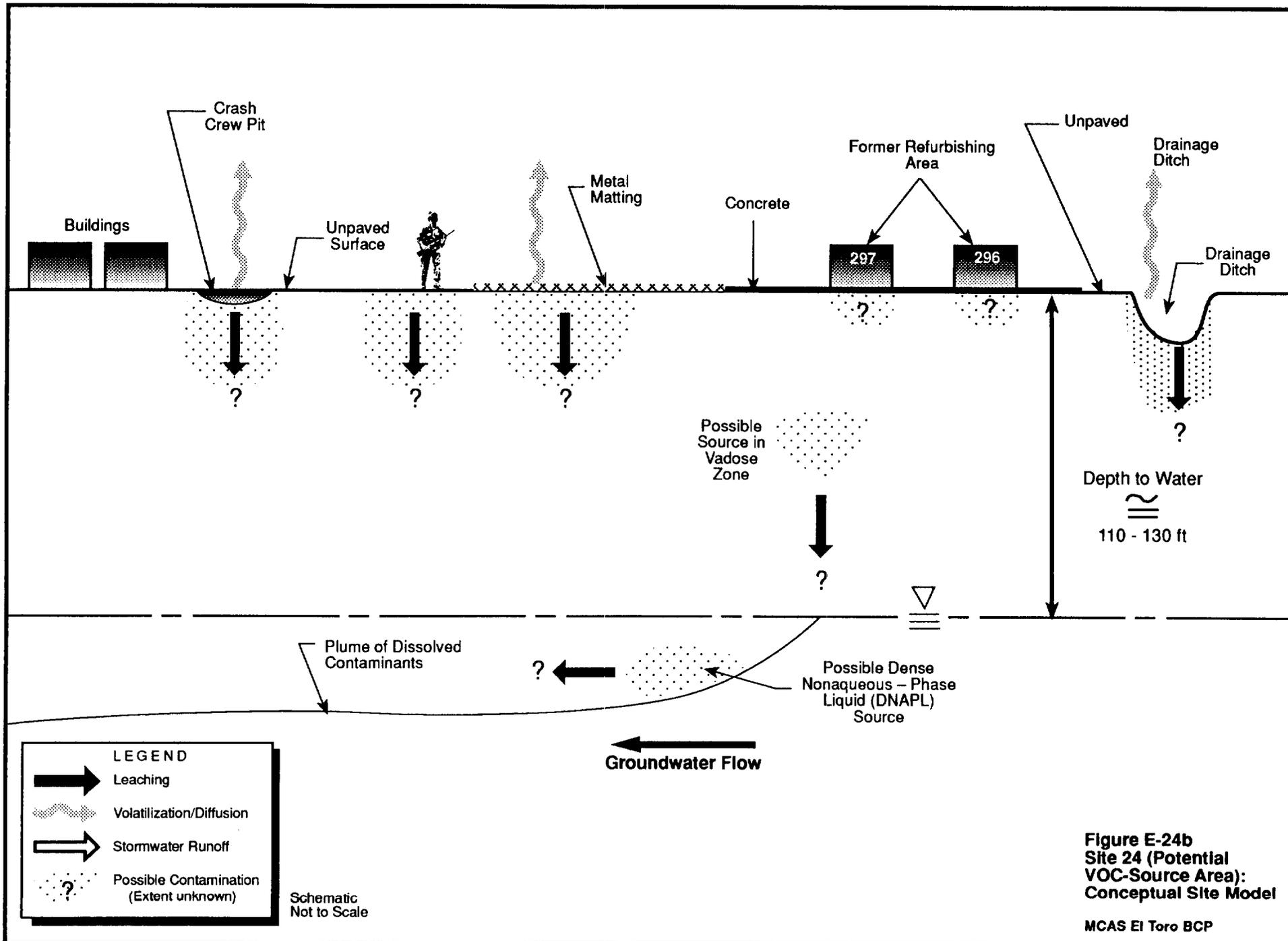


Figure E-24b
Site 24 (Potential
VOC-Source Area):
Conceptual Site Model

MCAS El Toro BCP

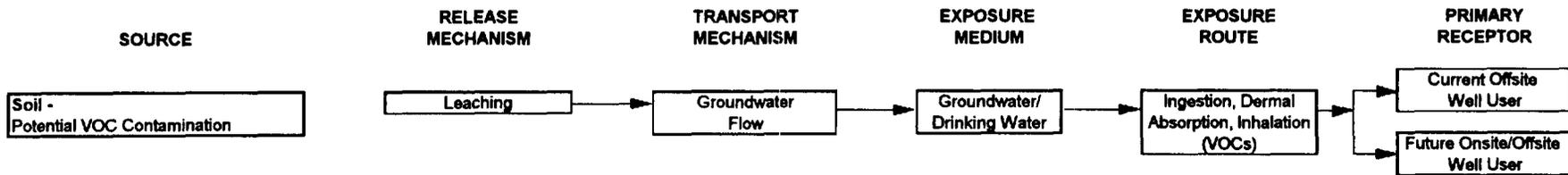
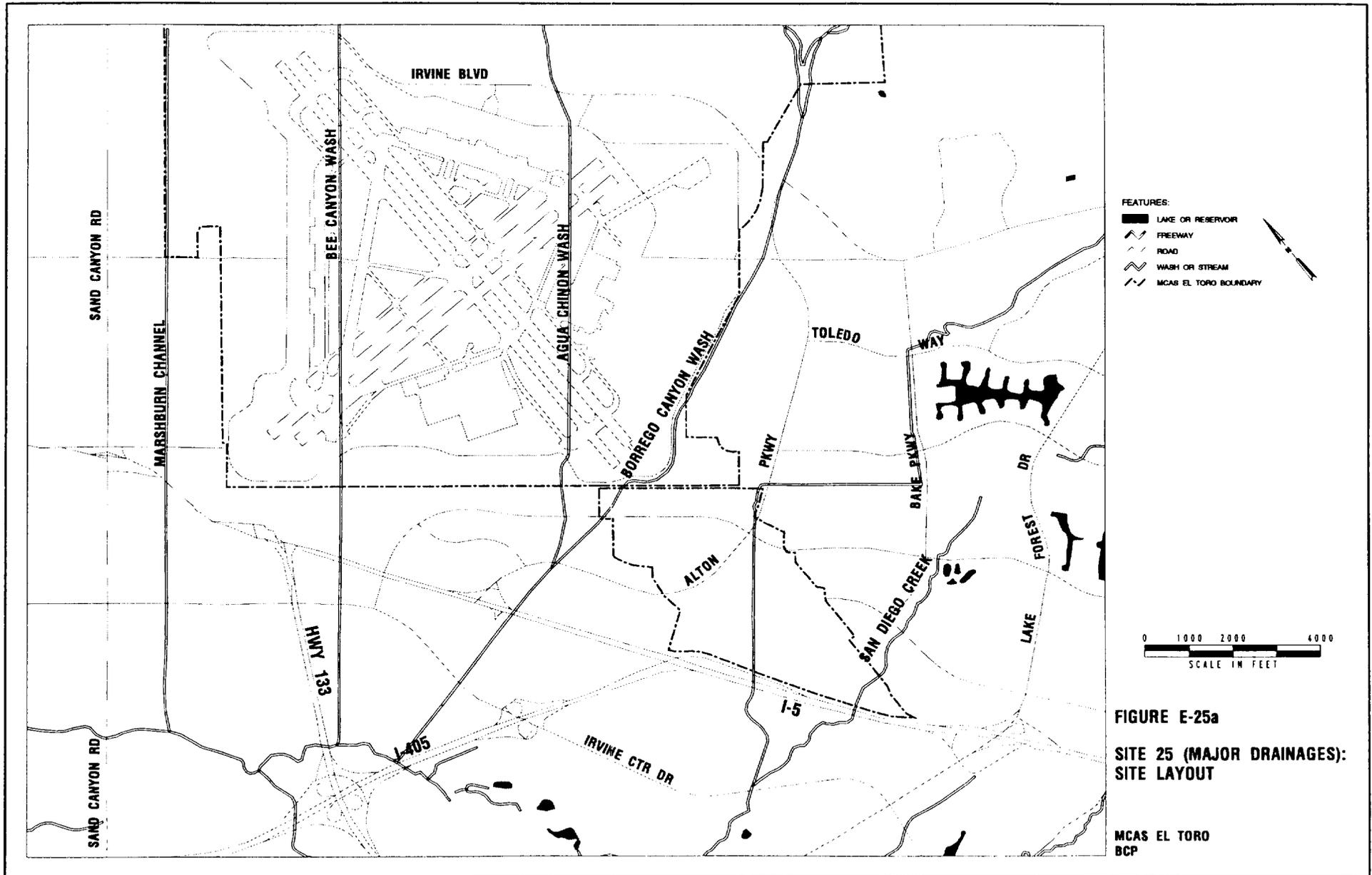
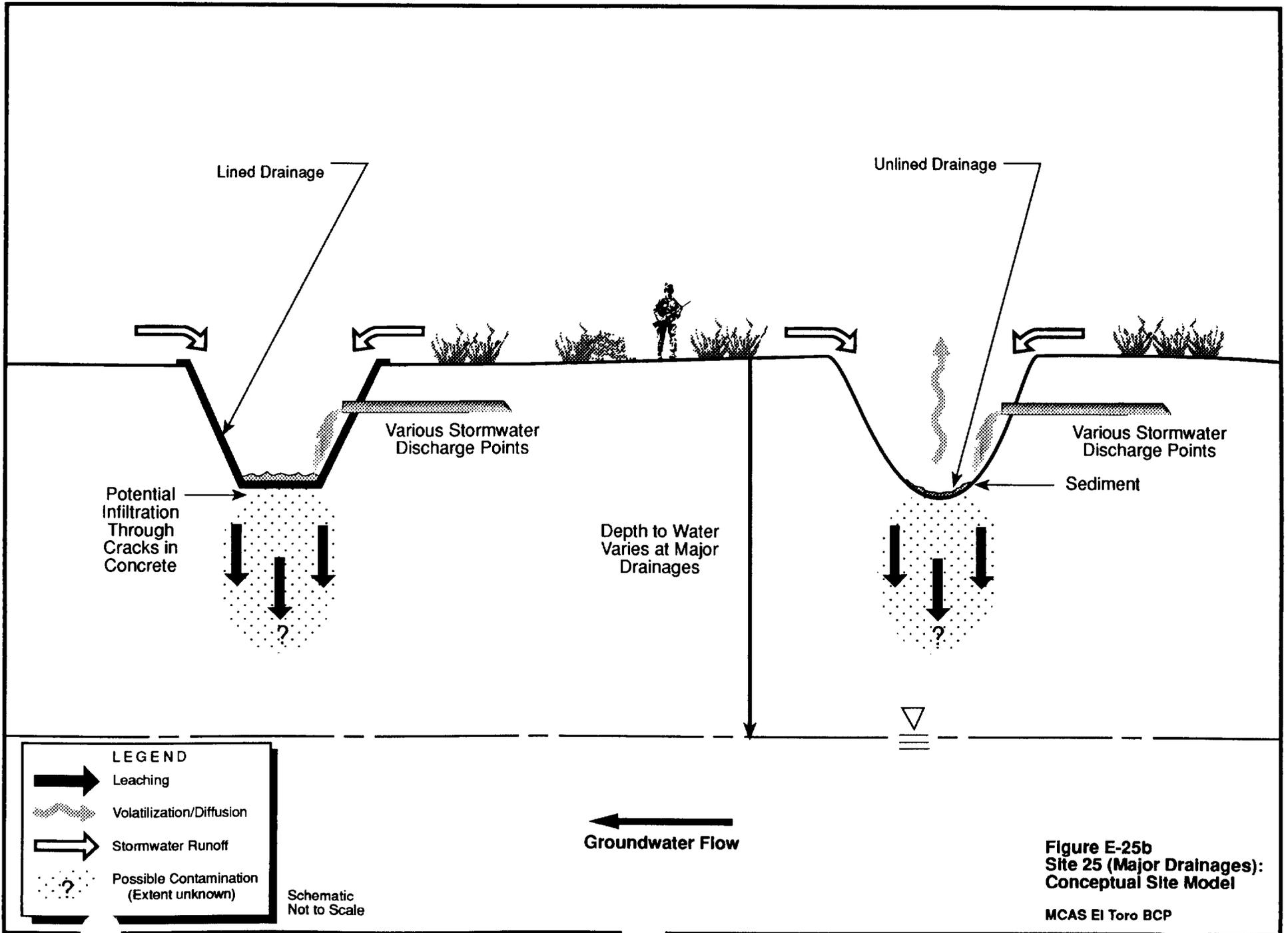


Figure E-24c
Site 21 (Materials Management Group, Bldg. 320):
Potential Exposure Routes and Pathways for Human and Ecological Receptors
MCAS El Toro BCP





**Figure E-25b
Site 25 (Major Drainages):
Conceptual Site Model**

MCAS El Toro BCP

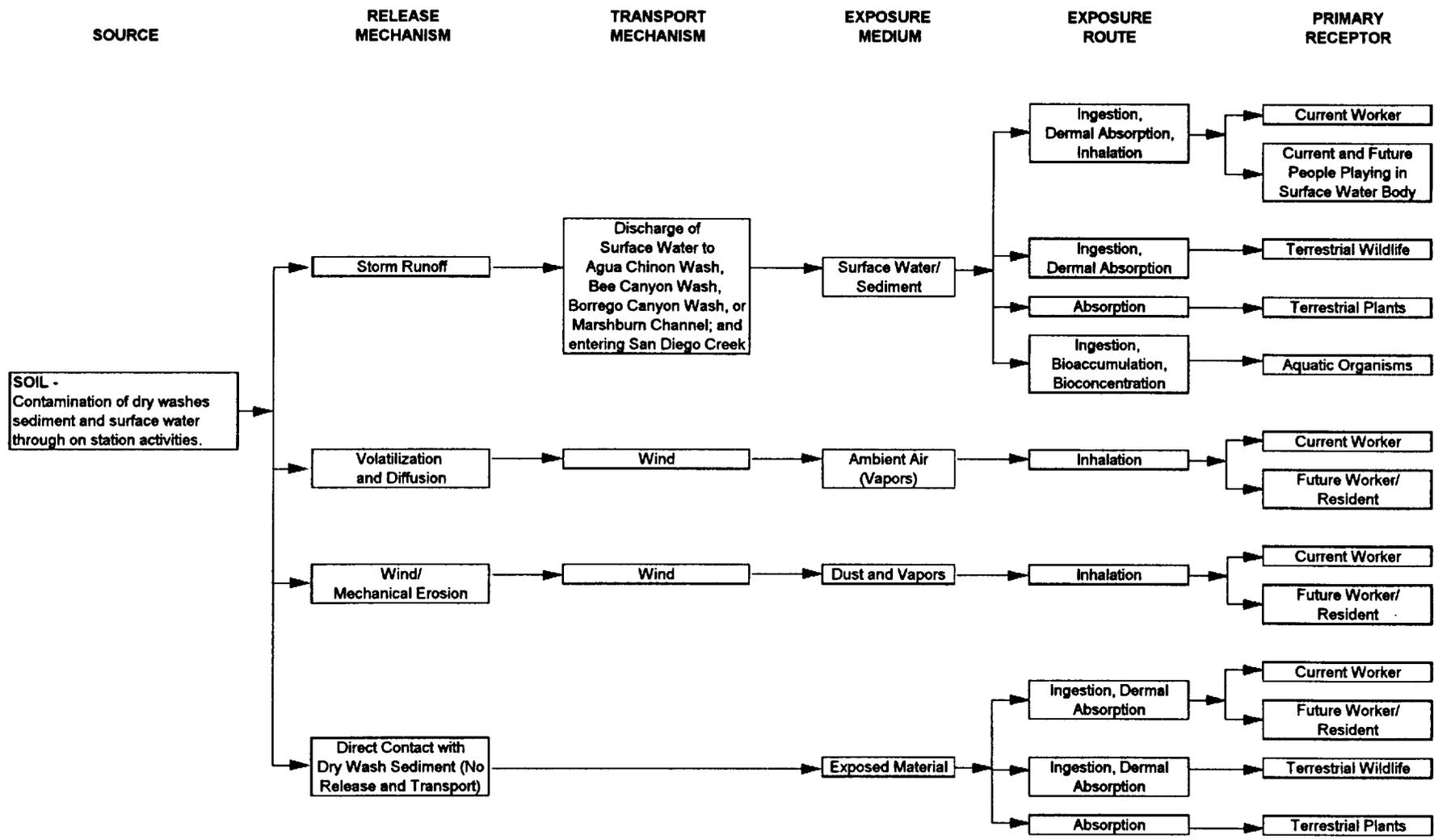


Figure E-25c
Site 25 (Major Drainage):
Potential Exposure Routes and Pathways for Human and Ecological
MCAS EI Toro BCP

Table E-2a
Results of Background Statistical Analysis - Metals
MCAS EI Toro BCP

Parameter	Number Stations	Arith. Mean	Estimated Mean	CV	99th Percentile 50% Conf.	Units
Silver	11	.3	.3	.30	.55	MG/KG
Aluminum	11	7212.0	7307.1	.53	25396.26	MG/KG
Arsenic	11	1.9	2.3	2.18	37.61	MG/KG
Barium	11	69.6	70.4	.60	281.01	MG/KG
Beryllium	11	.3	.3	.55	1.20	MG/KG
Calcium	11	8651.6	6645.9	1.28	62164.12	MG/KG
Cadmium	11	1.6	1.5	2.09	23.11	MG/KG
Cobalt	11	3.2	3.6	1.19	31.02	MG/KG
Chromium	11	11.1	11.6	1.45	124.81	MG/KG
Copper	11	7.7	7.9	1.41	82.91	MG/KG
Iron	11	8404.3	8881.8	.88	54001.66	MG/KG
Mercury	11	.1	.1	1.01	.37	MG/KG
Potassium	11	2150.2	2258.5	.92	14399.89	MG/KG
Magnesium	11	3359.5	3377.4	.78	18014.29	MG/KG
Manganese	11	170.4	181.8	.89	1114.98	MG/KG
Sodium	11	228.3	228.8	.38	592.31	MG/KG
Nickel	11	13.1	13.0	2.00	193.61	MG/KG
Lead	11	6.0	6.3	.71	29.91	MG/KG
Antimony	11	1.4	1.4	.26	2.81	MG/KG
Selenium	11	.1	.1	.69	.48	MG/KG
Thallium	11	.2	.2	.53	.60	MG/KG
Vanadium	11	30.4	30.8	1.27	285.55	MG/KG
Zinc	11	31.9	32.3	.81	179.47	MG/KG

**Table E-2b
Results of Background Statistical Analysis - Pesticides/Herbicides
MCAS El Toro BCP**

Parameter	Number Stations	Arith. Mean	Estimated Mean	CV	99th % tile 50% Conf.	Units
Herbicides						
2, 4 Dichlorophenoxy Acetic Acid	21	58.4	58.4	.04	64.47	UG/KG
2, 4, 5-T	21	14.6	14.6	.04	16.13	UG/KG
2, 4-DB	21	29.9	29.9	.10	38.27	UG/KG
Dicamba	21	29.2	29.2	.04	32.25	UG/KG
MCPA	21	15986.3	15812.0	.25	28808.83	UG/KG
Dalapon	21	29.2	29.2	.04	32.25	UG/KG
Dinoseb	21	14.6	14.6	.04	16.13	UG/KG
MCPP	21	14601.2	14601.6	.04	16127.24	UG/KG
Dichloroprop	21	60.4	60.4	.12	81.44	UG/KG
2, 3, 5-TP (Silvex)	21	14.6	14.6	.04	16.13	UG/KG
Pesticides						
Aldrin	21	1.0	1.0	.04	1.09	UG/KG
BHC-Alpha	21	1.0	1.0	.04	1.09	UG/KG
BHC-Beta	21	1.0	1.0	.04	1.09	UG/KG
BHC-Delta	21	1.0	1.0	.04	1.09	UG/KG
BHC-Gamma (Lindane)	21	1.0	1.0	.04	1.09	UG/KG
Alpha-Chlordane	21	1.2	1.2	.40	2.94	UG/KG
Gamma-Chlordane	21	1.3	1.2	.42	3.19	UG/KG
4, 4' -DDD	21	5.5	4.5	1.12	29.37	UG/KG
4, 4' -DDE	21	20.1	12.5	2.84	177.29	UG/KG
4, 4' -DDT	21	23.7	16.3	3.20	248.37	UG/KG
Dieldrin	21	7.2	4.2	1.21	29.42	UG/KG
Endrin Aldehyde	21	2.9	2.5	.57	8.31	UG/KG
Endrin Ketone	21	1.9	1.9	.04	2.13	UG/KG
Endrin	21	2.3	2.2	.38	5.34	UG/KG
Endosulfan Sulfate	21	2.0	2.0	.15	2.95	UG/KG
Endosulfan I	21	1.0	1.0	.42	2.51	UG/KG
Endosulfan II	21	2.1	2.1	.27	3.96	UG/KG
Heptachlor Epoxide	21	1.0	1.0	.04	1.09	UG/KG
Heptachlor	21	1.0	1.0	.04	1.09	UG/KG

Table E-2b
Results of Background Statistical Analysis - Pesticides/Herbicides
MCAS EI Toro BCP

Parameter	Number Stations	Arith. Mean	Estimated Mean	CV	99th % tile 50% Conf.	Units
Methoxychlor	21	10.4	10.4	.11	13.67	UG/KG
PCB-1016	21	19.4	19.4	.04	21.27	UG/KG
PCB-1221	21	39.4	39.4	.04	43.19	UG/KG
PCB-1232	21	19.4	19.4	.04	21.27	UG/KG
PCB-1242	21	19.4	19.4	.04	21.27	UG/KG
PCB-1248	21	19.4	19.4	.04	21.27	UG/KG
PCB-1254	21	19.4	19.4	.04	21.27	UG/KG
PCB-1260	21	19.4	19.4	.04	21.27	UG/KG
Toxaphene	21	99.9	99.9	.04	109.49	UG/KG

Appendix F

SAIC Aerial Photograph Features/Anomalies

Adjacent Property Reviews

Table F-1			
Aerial Photograph Features/Anomalies Identified by SAIC			
MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
1	1946	EX	C
2	1946	FA	C
3	1946	GR, MMDT	C
4	1946	B, EX	C
5	1946	VT	C
6	1946	EX, WS, LQ	C
7	1946	ST	C
8	1946	EX	C
9	1946	B	C
10	1946	EXT	C
11	1946	B	C
12	1946	ST	C
13	1946	ST	C
14	1946	OS, D	C
15	1946	TR, LQ, R	C
16	1946	MMLT, MMDT, TR	B
17	1946	VT	A
18	1946	TR, FA, DG	C
19	1946	ST	B
20	1946	EXT	C
21	1946	OS, D	C
22	1946	ST	C
23	1946	ST	A
24	1946	VT	C
25	1946	OS	C
26	1946	OS, D, MMDT, MMLT, UO	C
27	1946	OS, D, MMDT, MMLT, UO	A
28	1946	OS, D, MMDT, MMLT, UO	C
29	1946	ST	A
30	1946	OS	C
31	1946	ST	B
32	1946	VT, WS, ST	C
33	1946	VT	C
34	1946	VT	C
35	1946	UO, VT, M	C
36	1946	VT	C
37	1946	LQ	A
38	1946	VT	C
39	1946	IM	C
40	1946	VT	A
41	1946	OS, D	B
42	1946	ST	B
43	1946	OS, D	B
44	1946	ST, OS	C
45	1946	WS, ST, OS	B
46	1946	WS, ST, OS	C
47	1946	OS, D	C
48	1946	ST, LQ	B
49	1946	D, OS	B
50	1946	OS	C

Table F-1			
Aerial Photograph Features/Anomalies Identified by SAIC			
MCAS El Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
51	1946	MMDT	C
52	1946	OS, R, EX, FA	C
53	1946	LQ	C
54	1946	B	C
55	1946	MMLT	C
56	1946	ST	C
57	1946	No activity	B
58	1946	TR	C
59	1946	IM	C
60	1952	B, VT	C
61	1952	UO	C
62	1952	EXT	C
63	1952	EX	C
64	1952	EXT	C
65	1952	GR	C
66	1952	TR	C
67	1952	VT	C
68	1952	TR	C
69	1952	MMLT	C
70	1952	TR, LQ	C
71	1952	GR	C
72	1952	HT, VT	C
73	1955	TR, EX	C
74	1955	DG	C
75	1955	B	C
76	1955	EX, B	C
77	1955	OS, D	C
78	1955	TR, WS	C
79	1955	OS	A
80	1955	ST	C
81	1955	TR, DG	C
82	1955	OS	C
83	1955	ST	C
84	1955	VT	C
85	1955	VT	B
86	1955	OS	C
570	1955	OS	C
87	1958	EX, MMLT	C
88	1958	IM	C
89	1958	ST, TR	C
90	1958	LQ, WS	C
91	1958	DG, EX	C
92	1958	WS	C
93	1958	OS, D, LQ	C
94	1958	VT	C
95	1958	EXT	B
96	1958	GS	B
97	1958	No significant changes	B
98	1958	TR	C
99	1960	B, DG, IM, WS, EX	C
100	1960	DG, EX, TR	C

Table F-1			
Aerial Photograph Features/Anomalies Identified by SAIC			
MCAS El Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
101	1960	EX, ST, WS, MMDT	C
102	1960	D	C
103	1960	VT, IM, LQ	C
104	1960	GR	C
105	1960	ST, WS	C
106	1960	EXT, GR	C
107	1960	EX, DG	C
108	1960	VT, EX	C
109	1960	VT	C
110	1960	ST, WS	C
111	1960	UO	C
112	1960	TR	C
113	1960	ST	C
114	1960	WS, LQ	C
115	1960	WS, LQ	C
116	1960	ST, TR, LQ	B
117	1960	ST	C
118	1960	UO	C
119	1961	VT	C
120	1961	WS, LQ	C
121	1961	EX, EXT	C
122	1961	VT	C
123	1961	HT	C
124	1961	WS, LQ	B
125	1961	WS	C
126	1961	WS	C
127	1961	ST, WS	C
128	1961	WS, LQ	C
129	1961	IM, VT	C
130	1961	ST, DG	C
131	1961	LQ	B
132	1961	ST	B
133	1964	UO, ST, WS, EX	C
134	1964	MMLT	C
135	1964	TR, DG	C
136	1964	VT	C
137	1964	ST	C
138	1964	OS, ST, D	C
139	1964	ST	C
140	1964	ST	C
141	1964	ST, LQ	C
142	1964	ST	C
143	1964	EX	C
144	1964	TR, EX	C
145	1967	WS, LQ	C
146	1967	LQ	C
147	1967	ST	C
148	1967	DG	C
149	1967	LQ	C
150	1967	ST, LQ	C
151	1967	No significant changes	C

Table F-1 Aerial Photograph Features/Anomalies Identified by SAIC MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
152	1967	EXT	C
153	1967	DG, B	C
154	1967	B, DG	C
155	1967	DG	C
156	1967	EXT, R, LQ	C
157	1967	EXT, FA	C
158	1967	No activity	C
159	1967	EXT, DG, ST, OS	C
160	1967	LQ, IM, B	C
161	1967	DG, TR	C
162	1967	ST	C
163	1967	EX, LQ	C
164	1967	EX, LQ	C
165	1967	OS, D	C
166	1967	VT	C
167	1967	ST	A
168	1967	OS, D	C
169	1967	EX	C
170	1967	ST	A
171	1967	VT	C
172	1967	ST, D	C
173	1967	FBR, ST	C
174	1967	LQ	C
175	1968	IM	C
176	1968	EXT	C
177	1968	EX	C
178	1968	ST, WS	C
179	1968	LQ, WS	C
180	1968	ST, WS	C
181	1968	WS	A
182	1968	WS, LQ	A
183	1968	ST	C
184	1968	ST	C
185	1968	VT	C
186	1968	ST	C
187	1968	OS	C
188	1968	MM, R	C
189	1968	EX, LQ	C
190	1968	ST, WS	C
191	1968	ST	A
192	1968	R	A
193	1968	GR	A
194	1968	EXT, ST, VT	A
195	1968	FA, EX	A
196	1968	LQ	C
197	1971	MMLT	C
198	1971	LQ	A
199	1971	LQ	A
200	1971	ST	B
201	1971	D, OS	C
202	1971	WS, LQ	B

Table F-1 Aerial Photograph Features/Anomalies Identified by SAIC MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
203	1971	LQ	C
204	1971	ST	C
205	1971	VT, ST	A
206	1971	WS, LQ	A
207	1971	ST, WS	C
208	1971	UO	C
209	1971	B	C
210	1971	MMLT	C
211	1971	B, VT	C
212	1971	B, VT	C
213	1971	B	C
214	1971	VT, ST	C
215	1971	DG, MMDT, UO	C
216	1971	VT	C
217	1971	MM, DG	C
218	1971	TR, LQ, EX, DG	B
219	1971	DG, TR, MM, EX	C
220	1971	IM, LQ, VT, TR	C
221	1971	No significant changes	B
222	1971	EXT	C
223	1971	HT, IM	C
224	1971	VT	C
225	1971	LQ	A
226	1971	OS, D	C
227	1971	ST	C
228	1973	OS	C
229	1973	DG, WS, ST	C
230	1973	WS, LQ	C
231	1973	ST	C
232	1973	ST	C
233	1973	OS	C
234	1973	ST	C
235	1973	ST, UO, VT	C
236	1973	EX, DG, HT	C
237	1973	WS	C
238	1973	OS	C
239	1973	WS	C
240	1973	ST	C
241	1973	ST	C
242	1973	OS	C
243	1973	WS	C
244	1973	VT	A
245	1973	EX	C
246	1973	EX, FA	C
247	1973	OS	C
248	1973	VT, LQ	B
249	1973	MMLT, DG	C
250	1973	WS, OS, UO	C
251	1973	OS	C
252	1973	EX	C
253	1973	VT	C

Table F-1			
Aerial Photograph Features/Anomalies Identified by SAIC			
MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
254	1973	TR, HT	B
255	1973	HT, OS, TR, R, LQ, EX	C
256	1973	R	B
257	1973	GR	C
258	1973	WS, ST, HT	C
259	1973	VT	C
260	1973	DG, EX	C
261	1973	MMLT, MMDT, MM	C
262	1973	No significant changes	C
263	1973	TR, DG	C
264	1973	IM, LQ	C
265	1973	GR, FA	C
266	1973	R	C
267	1973	DG	C
268	1973	DG, TR	C
269	1973	No significant changes	C
270	1974	LQ	C
271	1974	D	C
272	1974	ST, WS	C
273	1974	DG	C
274	1974	ST	C
275	1974	ST	C
276	1974	IM, LQ, ST, VT	C
277	1974	MMLT, MMDT, DG, D	C
278	1974	ST	A
279	1974	ST	C
280	1974	MMLT	C
281	1974	WS	C
282	1974	MMLT, FA	A
283	1974	WS, ST	A
284	1974	D, OS	C
285	1974	LQ	C
286	1974	TR, ST, B, VT	C
287	1974	EX	C
288	1974	DG, MM	C
289	1974	WS, ST, LQ, D	C
290	1974	No significant change	C
291	1974	No significant change	C
292	1974	TR, UO	A
293	1974	WS, LQ	C
571	1974	No significant changes	A
294	1975	LQ	C
295	1975	MMLT	C
296	1975	LQ	C
297	1975	DG, FA	C
298	1975	WS	C
299	1975	No significant changes	C
300	1975	LQ	A
301	1975	MM, FA	C
302	1975	WS	C
303	1975	WS, LQ	C

Table F-1 Aerial Photograph Features/Anomalies Identified by SAIC MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
304	1975	LQ	C
305	1975	D, OS	C
306	1975	ST	B
307	1975	VT	C
308	1975	D	C
309	1975	D, OS	C
310	1975	MMDT	C
311	1975	ST, LQ	C
312	1975	IM, DG, EX	C
313	1975	OS, D	C
314	1975	DG	C
315	1975	MMDT, MMLT	B
316	1975	TR, FA	B
317	1975	UO, VT	C
318	1975	ST	C
319	1975	TR	C
320	1975	No significant changes	C
321	1975	WS	C
322	1975	No significant change	C
323	1975	No significant change	C
324	1975	No significant change	
325	1975	GR, FA	C
326	1975	No significant change	C
327	1975	VT	C
328	1975	ST, WS, LQ	A
329	1975	B, OS	C
330	1975	ST	C
572	1975	No significant change	A
331	1976	OS, D	C
332	1976	ST	C
333	1976	ST, LQ	C
334	1976	LQ	C
335	1976	ST	C
336	1976	WS, LQ	C
337	1976	ST, LQ	C
338	1976	ST	C
339	1976	ST	C
340	1976	VT	C
341	1976	LQ	C
342	1976	WS, LQ	C
343	1976	WS	C
344	1976	ST	A
345	1976	ST	C
346	1976	LQ, WS	C
347	1976	LQ	C
348	1976	D, PS	C
349	1976	LQ, OS	A
350	1976	WS, ST, LQ	C
351	1976	WS, LQ	C
352	1976	VT	C
353	1976	OS, ST, WS	C

Table F-1			
Aerial Photograph Features/Anomalies Identified by SAIC			
MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
354	1976	WS, LQ	C
355	1976	ST, DG	C
356	1976	No significant change	C
357	1976	LQ	C
358	1976	LQ, D	C
359	1976	No significant change	A
360	1976	ST	C
573	1976	No significant change	A
574	1976	No significant change	A
361	1977	LQ	C
362	1977	LQ, ST	C
363	1977	LQ	C
364	1977	MMLT	C
365	1977	D	B
366	1977	WS, LQ	C
367	1977	MMLT, WS	B
368	1977	TR	C
369	1977	LQ	C
370	1977	GR, DS, MMDT	C
371	1977	No significant change	C
372	1977	WS, LQ	C
373	1977	No significant change	B
374	1977	TR, LQ	B
375	1977	No significant change	B
376	1977	No significant change	C
377	1978	MMLT	C
378	1978	LQ	C
379	1978	LQ	A
380	1978	LQ	A
381	1978	ST, LQ	C
382	1978	WS, ST	C
383	1978	LQ	A
384	1978	LQ	A
385	1978	D, OS	C
386	1978	D, OS	C
387	1978	D, OS	C
388	1978	LQ	A
389	1978	HT	C
390	1978	LQ	A
391	1978	LQ	A
392	1978	UO, TR	C
393	1978	No significant changes	C
394	1978	No significant changes	C
395	1978	MM	B
396	1978	TR, GR, EXT	A
397	1978	VT, GR, TR	C
398	1978	MM, GR	A
399	1978	LQ	C
400	1978	No significant changes	C
401	1978	No significant changes	C
402	1978	No significant changes	C

Table F-1			
Aerial Photograph Features/Anomalies Identified by SAIC			
MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
403	1979	ST, WS, GR, OS	C
404	1979	LQ	C
405	1979	WS, ST	C
406	1979	OS	B
407	1979	OS	B
408	1979	VT	C
409	1979	D	A
410	1979	ST	A
411	1979	DG	C
412	1979	ST	A
413	1979	DG	C
414	1979	OS	C
415	1979	ST, WS, OS	C
416	1979	IM, FA, EX	C
417	1979	EX, ST	C
418	1979	VT	C
419	1979	No significant changes	C
420	1979	LQ	C
421	1979	No significant changes	C
422	1979	LQ	C
423	1979	No significant changes	C
424	1979	No significant changes	C
425	1979	No significant changes	C
426	1979	No significant changes	C
427	1980	OS, B, DB	C
428	1980	B	C
429	1980	ST	C
430	1980	No significant changes	C
431	1980	OS, D	C
432	1980	ST, LQ	C
433	1980	No significant changes	A
434	1980	DG, GR	C
435	1980	B, ST	C
436	1980	B, GR	C
437	1980	OS, B	C
438	1981	No significant changes	C
439	1981	No significant changes	C
440	1981	No significant changes	C
441	1981	ST	C
442	1981	OS	C
443	1981	EXT	C
444	1981	IM, LQ	A
445	1981	No significant changes	C
446	1981	No significant changes	C
447	1981	MMLT	A
448	1981	LQ, IM	C
449	1981	WS, LQ	C
450	1981	TR	C
451	1981	OS, D	C
452	1981	ST	C
453	1981	No significant changes	C

Table F-1			
Aerial Photograph Features/Anomalies Identified by SAIC			
MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
454	1981	ST	C
455	1981	TR, GR	C
456	1983	LQ	C
457	1983	LQ	C
458	1983	ST	C
459	1983	ST, DG	C
460	1983	ST	A
461	1983	ST	B
462	1983	LQ	A
463	1983	LQ	C
464	1983	LQ	C
465	1983	EX, DG	C
466	1983	IM, LQ	C
467	1983	LQ	C
468	1983	No significant changes	C
469	1983	ST	C
470	1983	VT	C
471	1983	MM	C
472	1983	LQ, IM	C
473	1983	FA	C
474	1983	GR, FA	C
475	1983	EX, FA	C
476	1983	B, GR	C
477	1983	No significant changes	C
478	1983	LQ	C
479	1983	No significant changes	C
480	1984	WS	C
481	1984	ST	C
482	1984	ST	C
483	1984	ST, LQ	C
484	1984	ST	C
485	1984	MMLT, MMDT, DG	C
486	1984	ST	A
487	1984	LQ	B
488	1984	ST, WS	C
489	1984	ST, WS	B
490	1984	IM, LQ	C
491	1984	VT	C
492	1984	DG	C
493	1984	No significant changes	C
494	1984	ST, IM	A
495	1984	B, GR	C
496	1984	GR, EXT, FA	C
497	1984	B, DG	C
498	1984	EXT, ST, WS	C
499	1984	Appears abandoned	C
500	1984	No significant changes	C
501	1984	No significant changes	C
502	1987	ST	C
503	1987	No significant changes	A
504	1987	DG	C

Table F-1			
Aerial Photograph Features/Anomalies Identified by SAIC			
MCAS EI Toro BCP			
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments
505	1987	EX, DG	C
506	1987	VT	C
507	1987	LQ	B
508	1987	LQ	C
509	1987	No significant changes	A
510	1987	GR	C
511	1987	GR	C
512	1987	Landfill appears inactive	A
513	1987	No significant changes	A
514	1987	EXT, ST, LQ	C
515	1987	VT	C
516	1987	B, MMDT	C
517	1987	No significant changes	C
518	1987	ST, WS	C
519	1987	GR	C
520	1987	GR, B, IM, LQ, B	C
521	1987	B	C
522	1988	DG	C
523	1988	LQ, WS	C
524	1988	VT	C
525	1988	WS	C
526	1988	OS, D	C
527	1988	VT	C
528	1988	LQ	C
529	1988	LQ	C
530	1988	VT	C
531	1988	TR, LQ	B
532	1988	WS, LQ	C
533	1988	LQ	C
534	1988	VT	B
535	1988	FA, GR, EXT	A
536	1988	EXT	C
537	1988	EXT, ST	C
538	1988	ST, MMDT	C
539	1988	DG, B, MMLT, TR	C
540	1988	MMDT, LQ	C
541	1988	No significant changes	C
542	1988	GR	C
543	1988	B, GR	C
544	1988	GR	A
545	1988	IM	C
546	1988	No significant changes	C
547	1988	B, GR	C
548	1992	OS, D	C
549	1992	ST	C
550	1992	ST	A
551	1992	LQ	A
552	1992	LQ	C
553	1992	MMLT, DG	C
554	1992	TR	C
555	1992	LQ	C

Table F-1					
Aerial Photograph Features/Anomalies Identified by SAIC					
MCAS EI Toro BCP					
Feature/Anomaly No.	Year	Observations (see notes for abbreviations)	Comments		
556	1992	TR	A		
557	1992	B, UO, VT	C		
558	1992	DG	C		
559	1992	OS	C		
560	1992	MMLT, MMDT	C		
561	1992	MMLT, MMDT, IM, LQ	C		
562	1992	ST, MMDT	C		
563	1992	WS, LQ, MMLT, MMDT	C		
564	1992	GR	C		
565	1992	B, GR	C		
566	1992	No significant changes	A		
567	1992	OS	C		
568	1992	DGDT	C		
569	1992	LQ	C		
Notes:					
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> B - Building D - Drums DB - Debris DG - Disturbed ground DT - Dark-toned EX - Excavation EXT - Extraction FA - Fill area FBR - Fuel bladder revetment GR - Graded area GS - Ground scar HT - Horizontal tank </td> <td style="width: 50%; vertical-align: top;"> IM - Impoundment LQ - Liquid LT - Light-toned M - Material MM - Mounded material OS - Open storage R - Refuse ST - Stain TR - Trench UO - Unidentified object VT - Vertical tank WS - Wetsoil </td> </tr> </table>				B - Building D - Drums DB - Debris DG - Disturbed ground DT - Dark-toned EX - Excavation EXT - Extraction FA - Fill area FBR - Fuel bladder revetment GR - Graded area GS - Ground scar HT - Horizontal tank	IM - Impoundment LQ - Liquid LT - Light-toned M - Material MM - Mounded material OS - Open storage R - Refuse ST - Stain TR - Trench UO - Unidentified object VT - Vertical tank WS - Wetsoil
B - Building D - Drums DB - Debris DG - Disturbed ground DT - Dark-toned EX - Excavation EXT - Extraction FA - Fill area FBR - Fuel bladder revetment GR - Graded area GS - Ground scar HT - Horizontal tank	IM - Impoundment LQ - Liquid LT - Light-toned M - Material MM - Mounded material OS - Open storage R - Refuse ST - Stain TR - Trench UO - Unidentified object VT - Vertical tank WS - Wetsoil				
<p>(a) Verification of a feature identified in USEPA, 1991, "Site Analysis, EI Toro MCAS" and occurring within the Sampling and Analysis Plan (SAP) Amendment RI/FS site boundaries.</p> <p>(b) Features identified in SAIC assessment that occur within the SAP Amendment RI/FS site boundaries.</p> <p>(c) Sites outside of the SAP Amendment RI/FS site boundaries</p>					
Source:					
Science Application International Corporation, 1993. MCAS EI Toro Aerial Photograph Assessment.					

Environmental Condition of Adjacent Properties

In 1993, a preliminary Potentially Responsible Party (PRP) search was conducted in the vicinity of Marine Corps Air Station (MCAS) El Toro (or Station) as part of the Installation Restoration Program (IRP) at the Station (CTO 145). The PRP study area included areas outside the Station bounded approximately by Sand Canyon Avenue, Trabuco Road, and Harvard Avenue to the west; Interstate 405 and Irvine Center Drive to the south; and Lake Forest Drive and Bake Parkway to the east. The boundaries for the PRP search followed the regional groundwater plume off-Station, which ranges from approximately one half mile to four miles outside the Station's boundaries.

The purpose of the PRP search was to identify persons or parties who may have handled bulk quantities of chemicals within the study area. These persons or parties may thereby be of concern to MCAS El Toro as potential sources of contamination. The search was also intended to identify sites that may warrant further investigation.

The PRP search was conducted in accordance with the U.S. Environmental Protection Agency (EPA) Potentially Responsible Party Search manual and was organized into four general sections: Introduction, Search and Screening Methods, Search Results, and Summary and Recommendations.

The Search and Screening Methods section of the PRP Report described the categories into which potential users or handlers of bulk quantities of chemicals were classified, the records that were searched to identify potential users of bulk quantities of chemicals, and the assumptions used to screen such potential users.

The Screening Assumptions section of the PRP Report described the assumptions used to help screen out persons/companies who are not likely to have used or handled bulk quantities of chemicals.

Businesses considered in the PRP search used or handled the following chemicals: Trichloroethylene (TCE), Perchloroethylene (PCE), Trichloroethane (TCA), Dichloroethene (DCE), Dichloroethane (DCA), methyl ethyl ketone (MEK), 4-Methyl-2-pentanone (MIBK), fuels, petroleum based lubricants, bitumens, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), pesticides, nitrogen containing fertilizers, metals, and inorganic compounds.

The records searched for the PRP report included the following: City of Irvine business permits; City of Irvine Land Use and Zoning; Historical Orange County Chamber of Commerce and California Manufacturer's Directories; federal, state, and county agency environmental databases; historical land use documentation;

MCAS El Toro related environmental reports from the administrative record; and records of government contracts for on-Station services.

Identified releases were summarized in the PRP search. Types of releases included chlorinated and nonchlorinated solvents, petroleum products, pesticides, fertilizers, metals and inorganics. Table 11 in the PRP report provides a summary of the releases identified within the PRP study area. The following sections summarize the potential release of specific types of chemicals within the PRP study area. The site numbers correspond to the locations of these potential release sites provided in the PRP report.

Chlorinated Solvents

The following three discharges that may have possibly contained chlorinated compounds include:

- o Site 158, Meister Chrysler Plymouth. Several databases identified a solvent leak.
- o Site 60, Dunn Edwards Paint. Several databases reported a paint thinner leak.
- o Site 222, Spill 1. One gallon of extract all carpet cleaner was reported to have spilled in a storm drain on 7/20/91. None of the cleaner reportedly reached the water.

Nonchlorinated Solvents

One documented spill of nonchlorinated solvents was found. This spill was described as 1 quart of xylene spilled inside a building with no documented impacts on groundwater. The spill was reported at Allied Chemicals Laboratories, 4950 Barranca Parkway, Irvine.

Fuels and Oils

Twenty-six fuel leaks and spills were documented by governmental agencies. Several of these discharges are documented as affecting groundwater. Refer to Table 11 of the PRP Report for details. Six of these discharges were located within one half mile of the Station. These discharges took place at the following sites: Jim Click Ford (Site 127), Los Alisos Water District Reclamation Plant (Site 147), Keeline-Wilcox Nurseries, Inc. (Site 133), Meister Chrysler Plymouth (Site 158), Commercial Office and Warehouse Private Use (Site 49), Environmental Energy Research (Site 66).

Pesticides and Fertilizers

No significant discharges of pesticides or fertilizers were reported. However, prior to 1970, agriculture was the dominant land use and currently is a significant land use both on- and off-Station within the PRP study area. Low concentrations of pesticides and fertilizers may be assumed to be present in the surface soil. Agricultural activities consist of row crops, fruit orchards, and grazing.

Metals and Inorganics

One listed spill of cyanide/chromic acid was reported.

- o On 1 February 1991, 55 gallons of cyanide/chromic acid was reported to have spilled at Sand Canyon Avenue and Irvine Boulevard (Site 224).

There is no indication in the PRP search that the releases of solvents, fuels, or metals listed above impacted MCAS El Toro. Most of the sites are downgradient and would not be expected to impact the Station. The vast majority of the businesses listed in the PRP search are located to the area after 1980, and although their numbers are relatively large, the potential for discharge is relatively small due to the short histories of these businesses in a time of high environmental awareness. The PRP search was intended to gather information regarding potential sources of contamination from off-Station sources. Although information did not conclusively indicate that there were no impacts to the Station, further investigation of some releases could be performed to confirm that impacts have not occurred.

Historical Land Use

Historical literature from the PRP search and air photograph analysis dating back to 1931 indicate that land use on adjacent off-Station properties has been predominantly agricultural up until 1971. Potential historical and current bulk chemical usage on agricultural land includes the application of pesticides and fertilizers, the use of fuels for tractors and farm equipment, and the historical use of diesel fuel for operating smudge pots to warm orange groves during frost-threatening weather conditions.

In 1971, the City of Irvine was incorporated and more rapid development began in the area. Prior to 1971, nonagricultural activities in the PRP study area were limited to the operation of the following:

- o Orange County International Raceway (OCIR)

- o The Atchison, Topeka and Santa Fe Railway (ATSFR) (forms the southeastern boundary of the Station and divides the southern flight corridor from the main portion of the Station.
- o SCE Substation
- o A bus depot, storage, and maintenance yard
- o The City of Irvine (which contained a food packing plant, gas station, and blacksmith shop, etc.)

Of the above, only the OCIR, the ATSFR, and the SCE Substation are directly adjacent to MCAS El Toro and as a result, former activities that may have resulted in a release would have the greatest potential to adversely impact the Station. These three operations are addressed further in this section.

Orange County International Raceway

The OCIR operated on a leased section of Irvine Company property. The raceway was located southeast of the Station, north of Interstate 5, and west of the proposed extension of Barranca Parkway. The term of the lease was from 1966 to 1983. A site assessment was performed on the former site in 1988 by Anne Marie Brown of Environmental Management Consulting for the Irvine Office and Industrial Company. The report was based on interviews with mechanics and drivers at the racetrack, visual reconnaissance of the racetrack, and historical research into race car operations and maintenance procedures. The report stated that in 1984, 1 year after the raceway closed, the Irvine Company undertook a cleanup of the site, which was overseen by the Orange County Health Care Agency. Cleanup included excavation and removal of oil spills and removal and disposal of drummed oil.

In 1990, Ecology and Environment, Inc. under contract to the EPA performed a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) preliminary assessment (PA) of the OCIR. The purpose of the CERCLA PA was to evaluate the site for inclusion under the CERCLA program or on the National Priorities List (NPL). The assessment report concluded that the site does not warrant action under CERCLA or listing on the NPL.

Atchison, Topeka and Santa Fe Railroad Company

AT&SF RR Co's. Environmental Department has been keeping separate environmental files for their properties since the early 1980s. The files relate to the management of hazardous waste and materials, illegal dumping, and spills. The files contain internal correspondence and reports, in addition to documentation generated from regulatory agencies and correspondence from insurance

companies, adjacent property owners, suppliers and consultants. Incidents of environmental significance prior to this time were not tracked by any particular branch of the railway. The environmental files were reviewed by CH2M HILL in November 1993. No information was uncovered in the files relating to the area in the immediate vicinity of MCAS El Toro. The current manager of Environmental and Hazardous Material Control, who has been working in the Southern California area since the 1970s, stated that he has no personal knowledge of any spills or similar incidents along the line in the vicinity of MCAS El Toro.

Southern California Edison Substation

SCE owns and operates an electrical substation (Irvine Substation) adjacent to the main entrance gate to MCAS El Toro on Trabuco Road. According to an SCE representative, the substation was first energized in 1928 to supply electrical power for agricultural activities in the area. MCAS El Toro is currently the main user of the substation.

SCE staff reports that no underground storage tanks have been located at the substation and no leaks have occurred.