
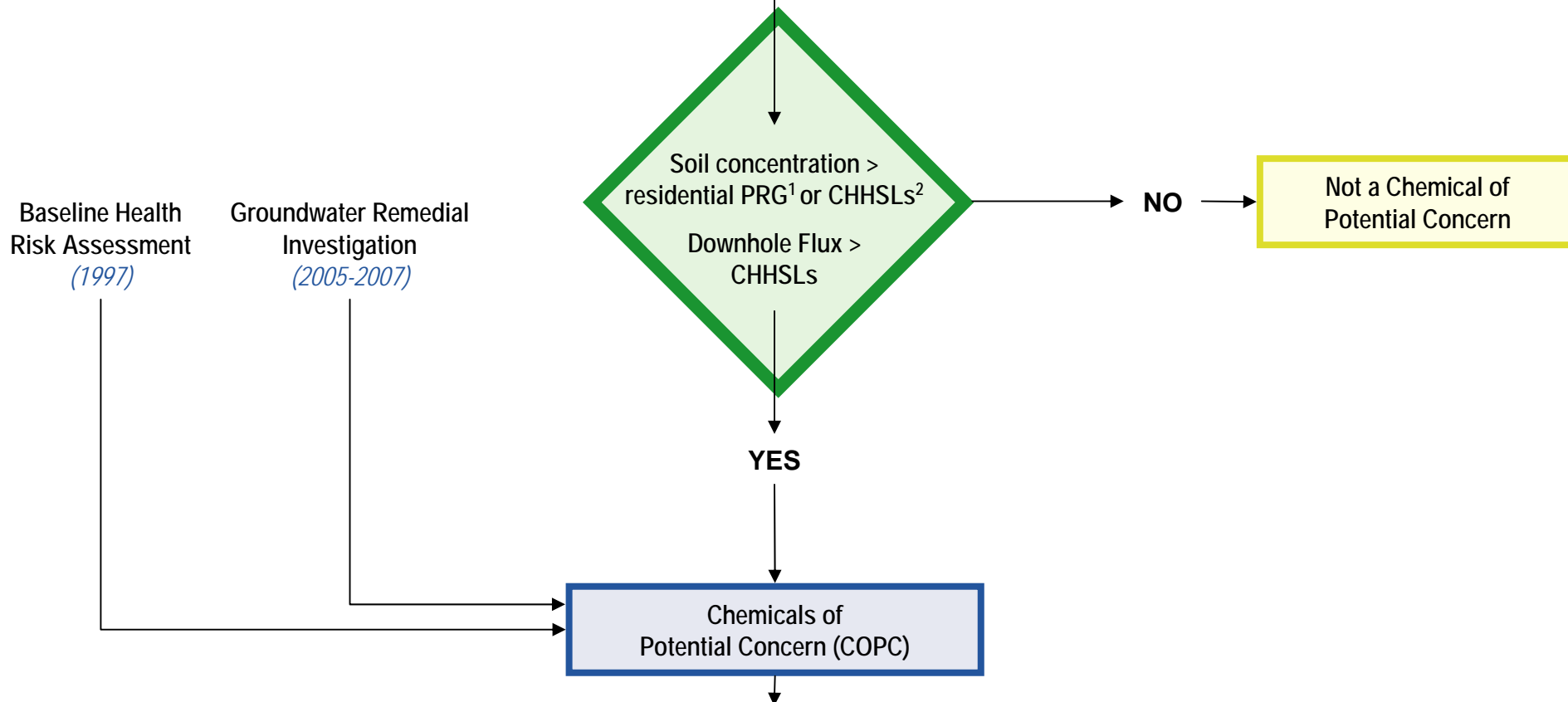


Recent Environmental Investigations	1996-1997	1999	2000	2001	2002	2003	2004-2006
Remedial Investigation (RI)	RI <i>(ESE, 1997)</i>				GARFR <i>(Project Navigator, Ltd., 2002b)</i>		Groundwater RI <i>(Geosyntec, 2005-2007)</i>  Pilot Study No.3 <i>(Project Navigator, Ltd. and Geosyntec, 2004, 2005)</i>  Soil Vapor Invest. <i>(Geosyntec, 2006)</i>
Risk Assessment (RA)	BHRA <i>(ESE, 1997)</i>				Air Pathway Evaluation <i>(Geosyntec, 2002)</i>  Ambient Air Monitoring <i>(Geosyntec, 2002)</i>	Perimeter Air Monitoring <i>(Geosyntec, 2003)</i>	Pilot Study No.3 <i>(Project Navigator, Ltd. and Geosyntec, 2004, 2005)</i>  Groundwater RA <i>(Geosyntec, 2005-2007)</i>
Feasibility Study (FS)		Pilot Studies <i>(J&amp;W, 1998, 1999)</i>	Soil/Waste FS <i>(Environ, 2000)</i>		IROF <i>(Project Navigator, Ltd., 2002)</i>  WMCROF <i>(Project Navigator, Ltd., 2002)</i>  TM No.1 (TM1ROF) <i>(Project Navigator, Ltd., 2002)</i>		Pilot Study No.3 <i>(Project Navigator, Ltd. and Geosyntec, 2004, 2005)</i>
Remedial Action Plan (RAP)			Soil/Waste Draft RAP <i>(Environ, 2000)</i>		Soil/Waste Draft RAP <i>(Project Navigator, Ltd., 2002)</i>		

Recent Environmental Investigation History		Figure 4.1-1
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California		September 2007 

## Remedial Investigation plus Pilot Study No. 3 Soil and Downhole Flux Data



## Derive Risk-Based Concentrations (RBCs)

### RESIDENTIAL

- Direct contact
- Inhalation of outdoor dust/vapors
- Inhalation of vapors - indoor air

### COMMERCIAL

- Direct contact
- Inhalation of outdoor dust/vapors
- Inhalation of vapors - indoor air

### RECREATIONAL

- Inhalation of vapors - outdoor air
- Inhalation of vapors - indoor air

<sup>1</sup> PRG = Preliminary Remediation Goal set by Region IX of USEPA, 2004

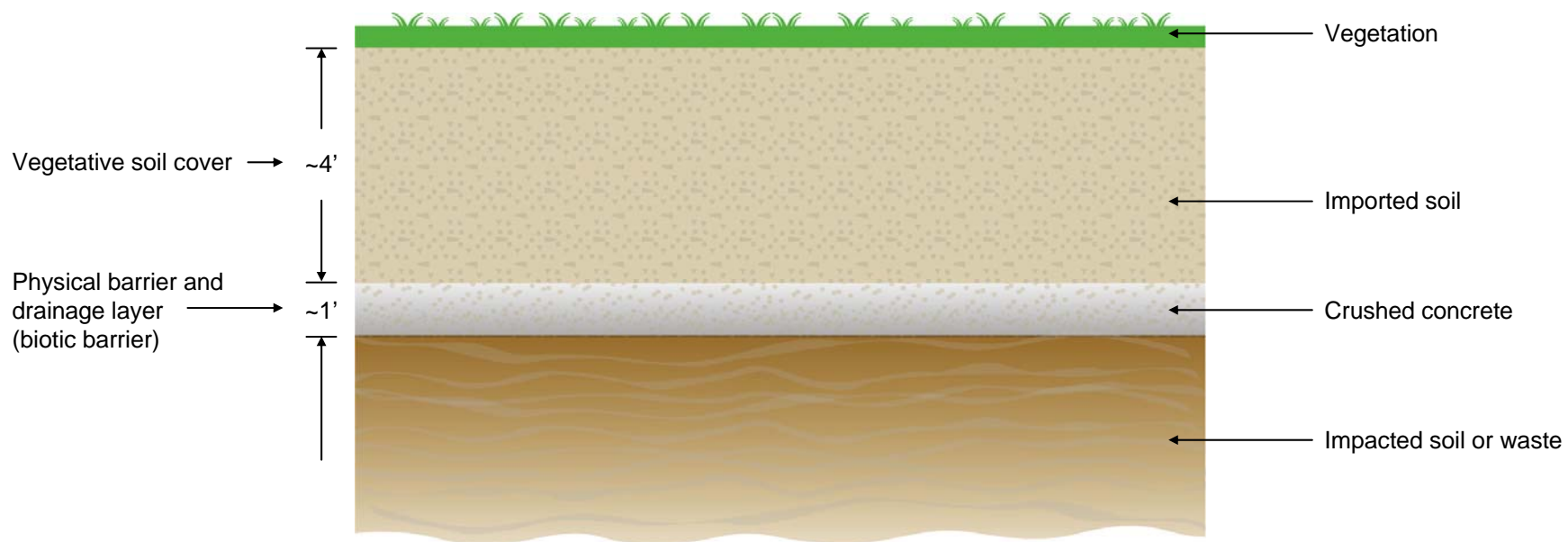
<sup>2</sup> CHSSL = California Human Health Screening Levels

### COPC / RBC Development Process

Figure 4.4-1

## FUNCTION

## MATERIAL

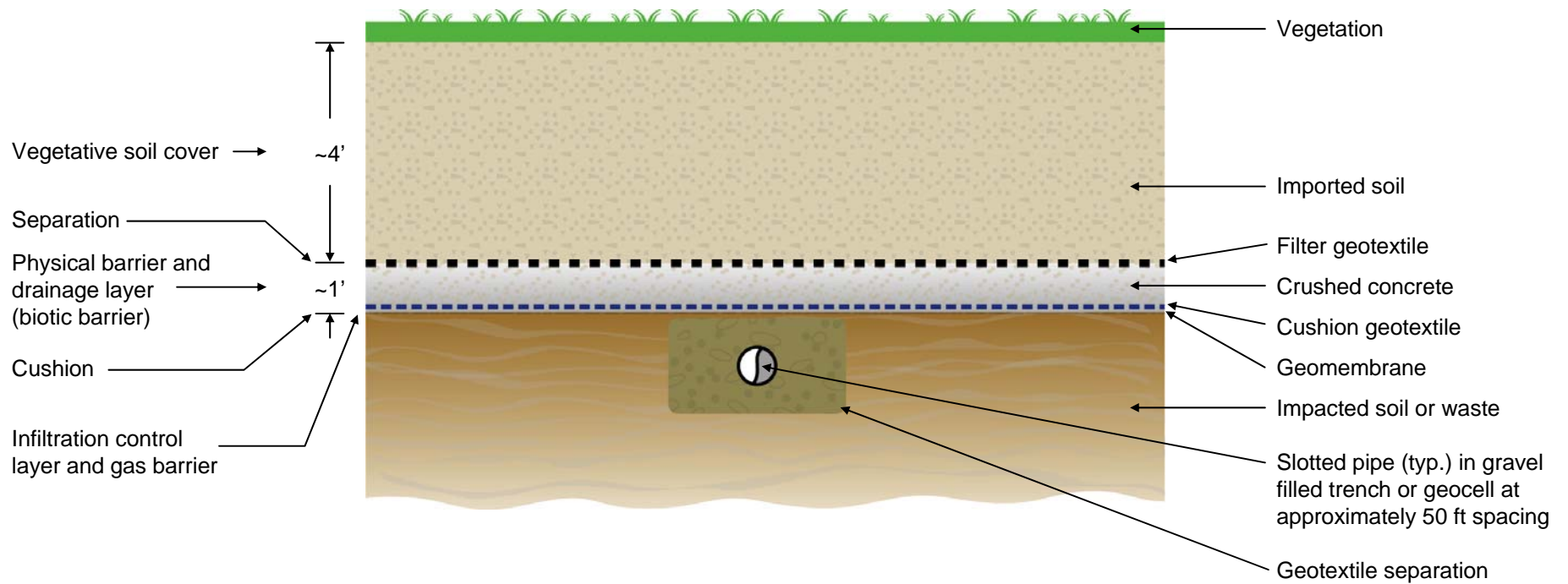


**Monolithic Soil Cap**

**Figure 8.4-1**

## FUNCTION

## MATERIAL

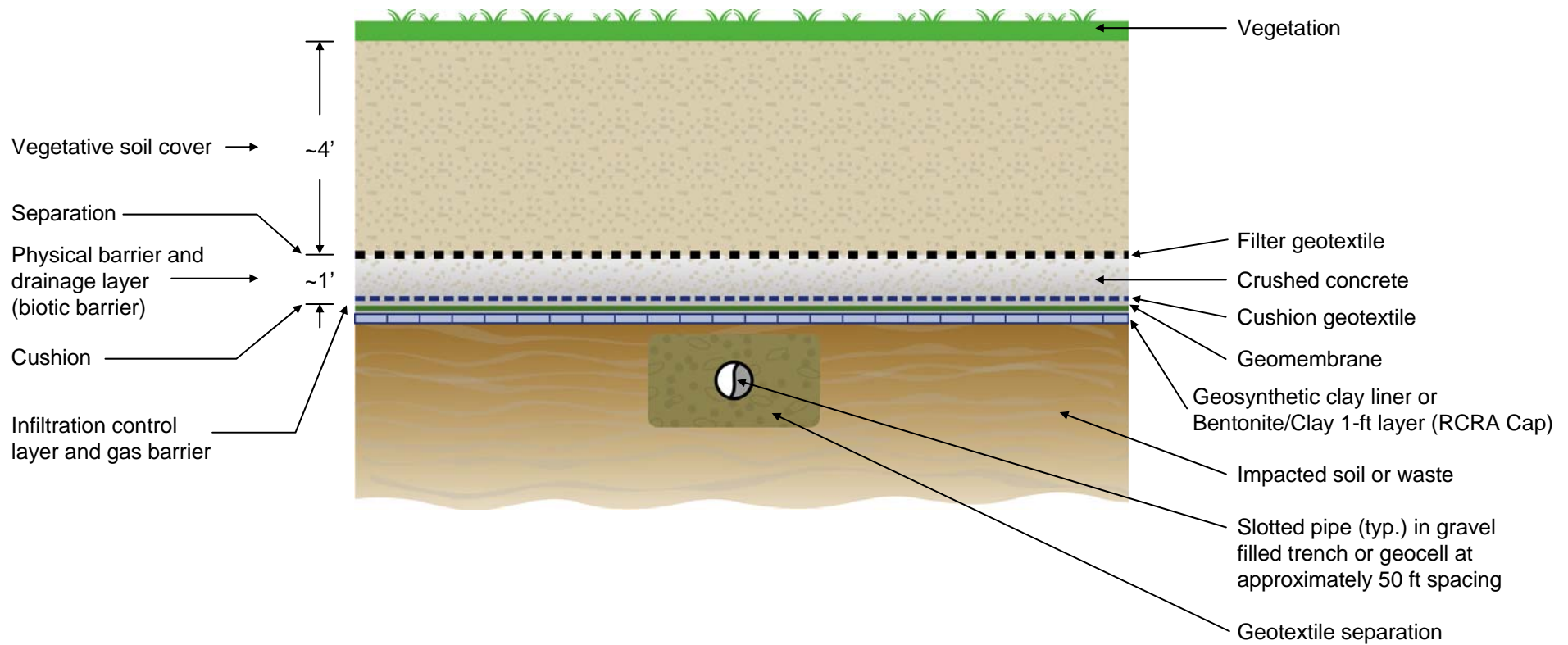


**Geomembrane Cap**

**Figure 8.4-2**

## FUNCTION

## MATERIAL




RCRA-Equivalent and RCRA Cap

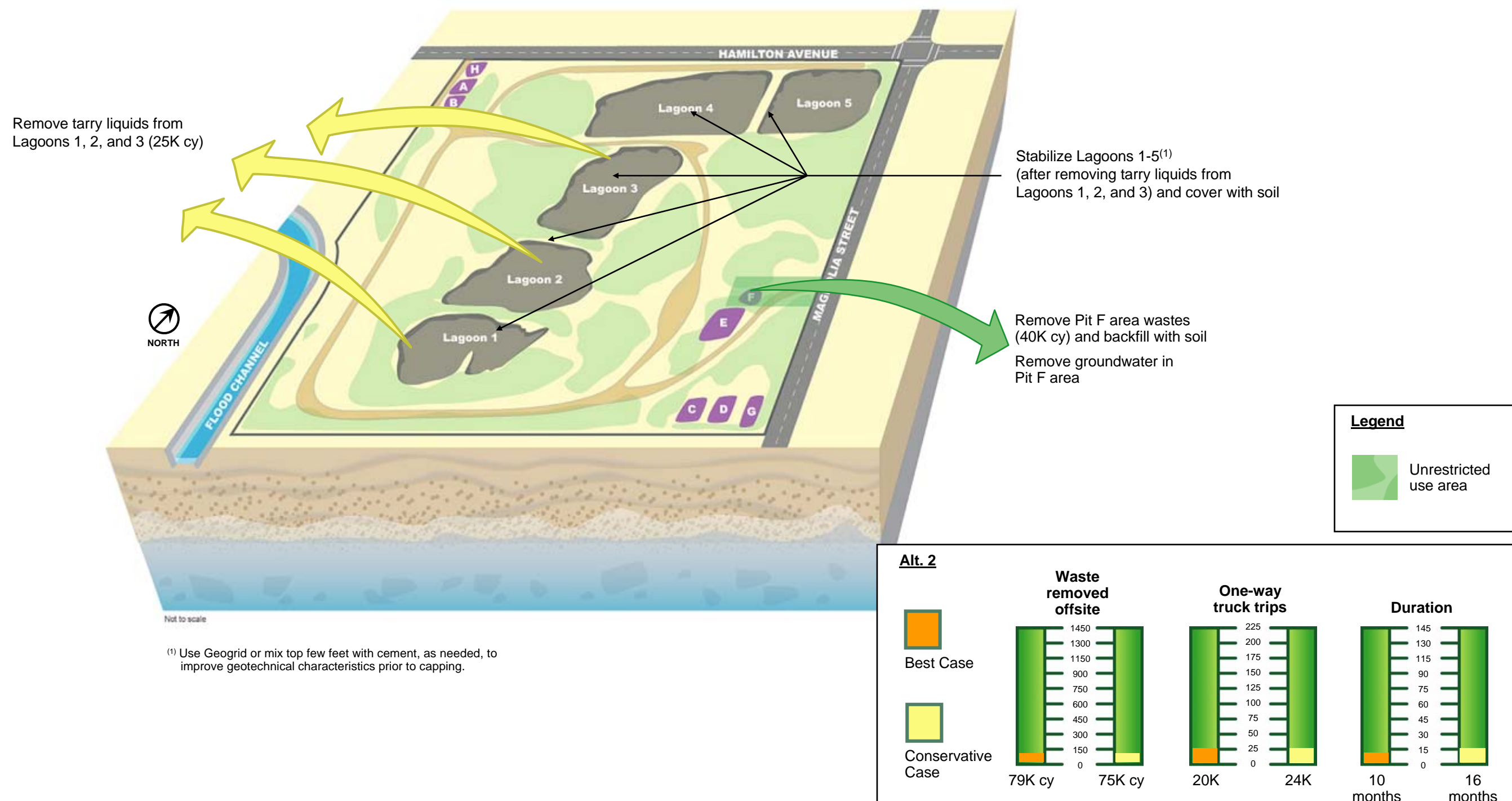
Figure 8.4-3



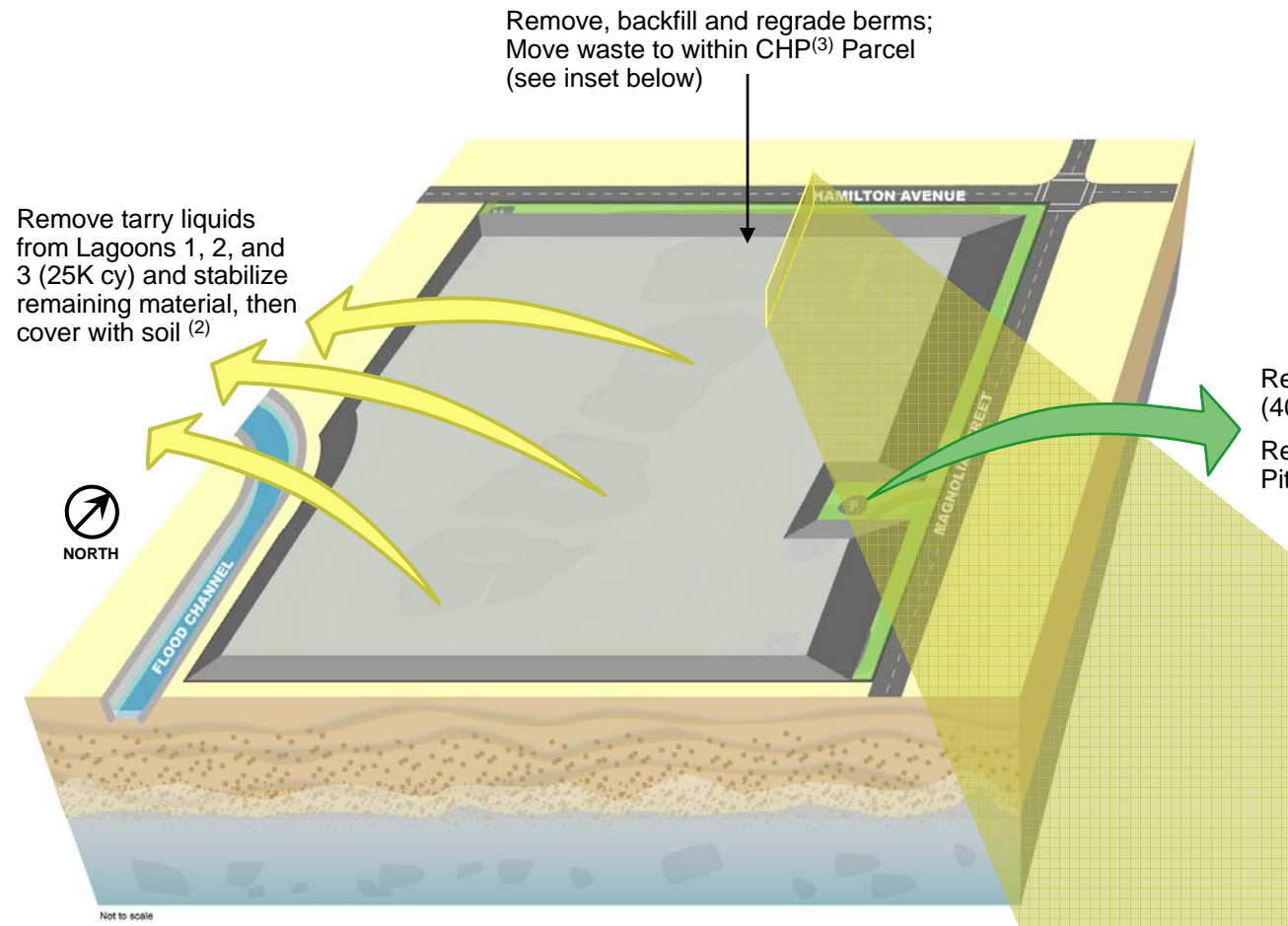
All waste materials remain onsite,  
untreated and uncovered

Alternative 1 – No Action		Figure 9.2-1
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	



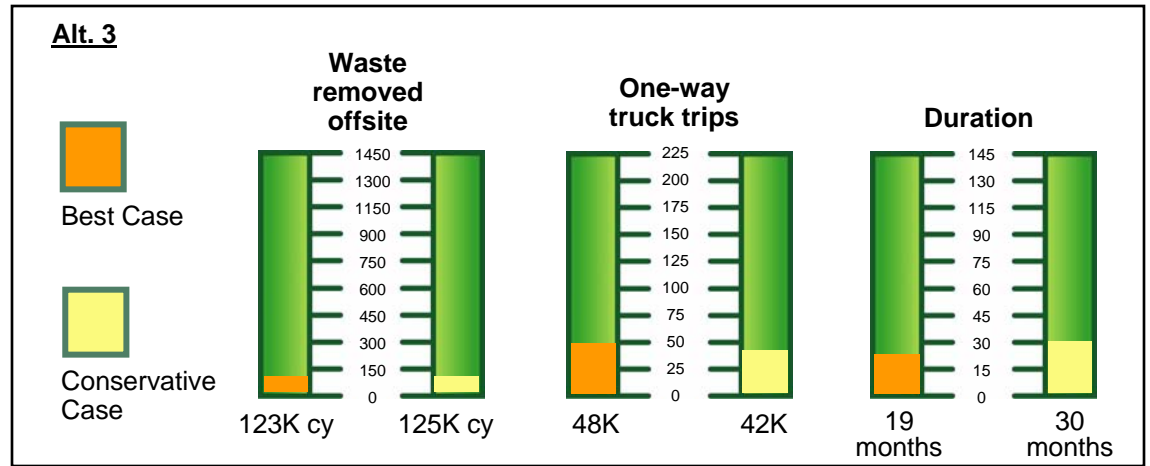


Alternative 2 – Limited Waste Removal		Figure 9.2-2
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	

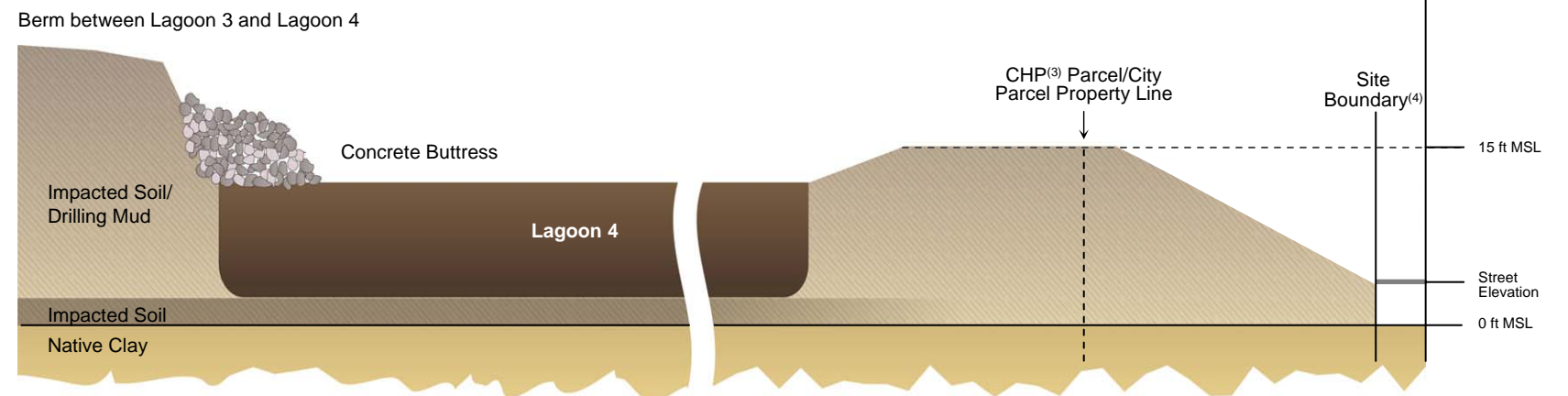


- <sup>(1)</sup> Cap (38 acres) will consist of, at a minimum, a drainage layer and vegetative cover over the waste. Other protective elements such as a vapor mitigation barrier and leachate/vapor collection systems may be added during remedial design if data determine these are needed.
- <sup>(2)</sup> Use Geogrid or mix top few feet with cement, as needed, to improve geotechnical characteristics prior to capping.
- <sup>(3)</sup> CHP is Cannery Hamilton Properties, LLC.
- <sup>(4)</sup> Site boundary as identified in Consent Order, dated January 8, 2003.

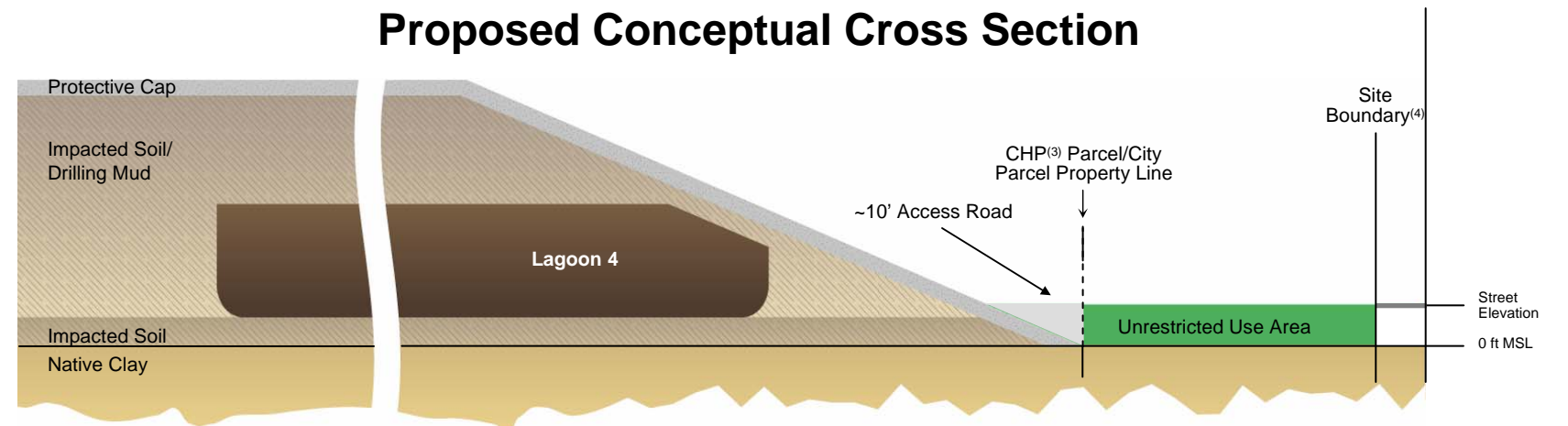
#### Legend



### Existing Cross Section



### Proposed Conceptual Cross Section



Not to Scale

#### Alternative 3 – Protective Cap

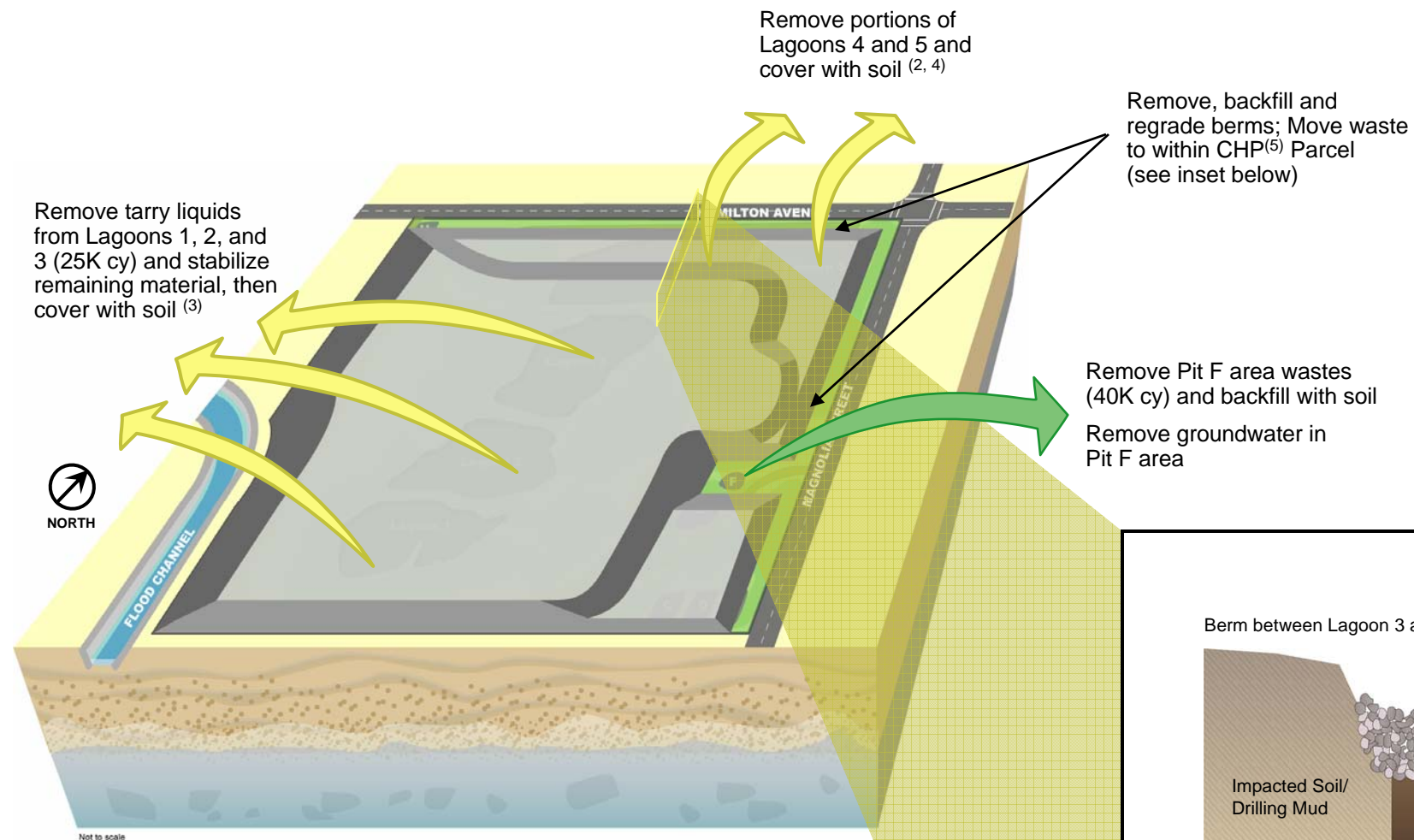
#### Figure 9.2-3

Revised Feasibility Study  
Ascon Landfill Site, Huntington Beach, California

September 2007

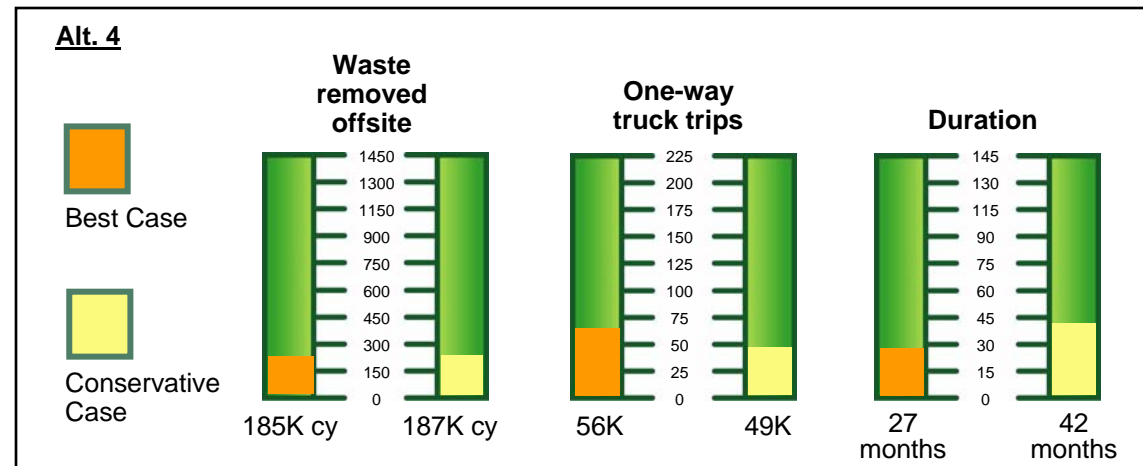




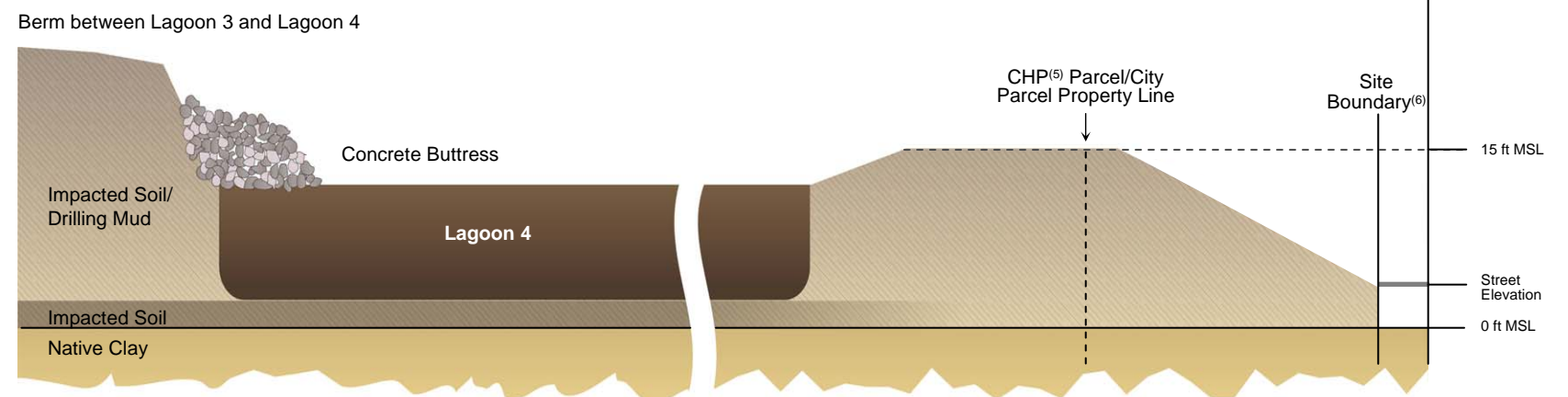


- <sup>(1)</sup> Cap (38 acres) will consist of, at a minimum, a drainage layer and vegetative cover over the waste. Other protective elements such as a vapor mitigation barrier and leachate/vapor collection systems may be added during remedial design if data determine these are needed.
- <sup>(2)</sup> Remove waste materials to approximate adjacent street elevation (exact elevation to be determined during remedial design).
- <sup>(3)</sup> Use Geogrid or mix top few feet with cement, as needed, to improve geotechnical characteristics prior to capping.
- <sup>(4)</sup> Exact dimension of cap will be determined during remedial design.
- <sup>(5)</sup> CHP is Cannery Hamilton Properties, LLC.
- <sup>(6)</sup> Site boundary as identified in Consent Order, dated January 8, 2003.

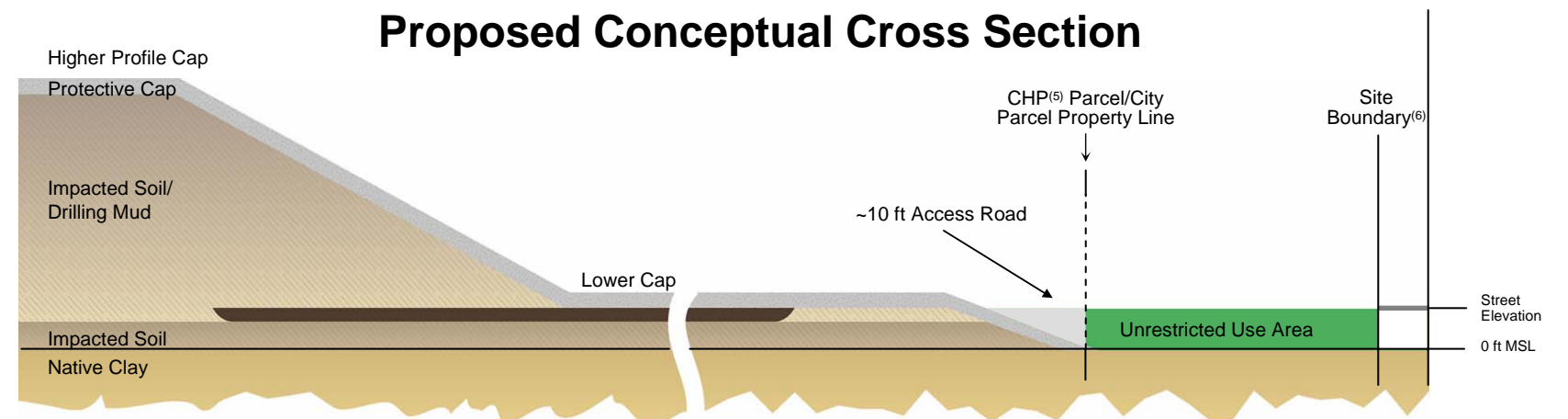
#### Legend



### Existing Cross Section



### Proposed Conceptual Cross Section



#### Alternative 4 – Partial Source Removal with Protective Cap

#### Figure 9.2-4

Revised Feasibility Study  
Ascon Landfill Site, Huntington Beach, California

September 2007



Remove all waste materials, including pits and lagoons, and potentially impacted clay

Backfill 38 acres with acceptable soil to approximate adjacent street elevation



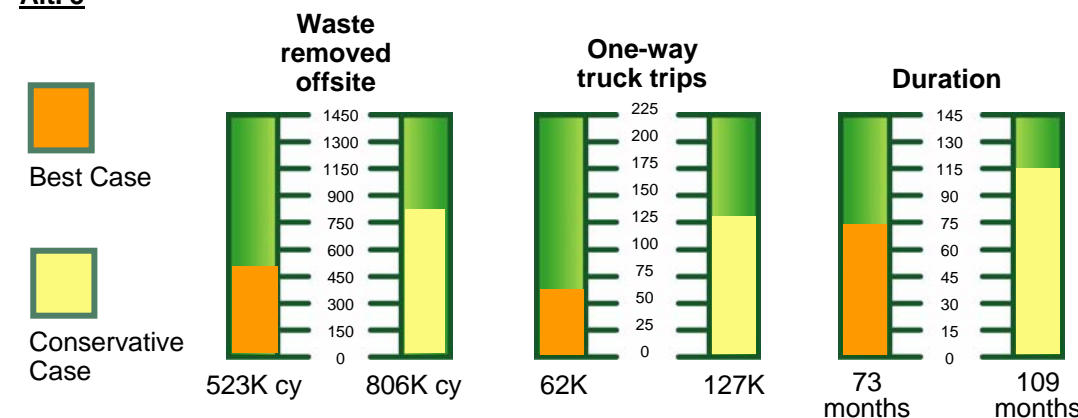
Remove groundwater in Pit F area

Inject drilling mud and liquid waste slurry into Slurry Injection Well(s) (~550K cy)  
(Balance of waste disposed offsite)

**Legend**



**Alt. 5**



**Alternative 5 – Source Removal with Offsite Disposal and Slurry Injection Technology**

**Figure 9.2-5**

Remove all waste materials, including pits and lagoons, and potentially impacted clay

Backfill 38 acres with acceptable soil to approximate adjacent street elevation

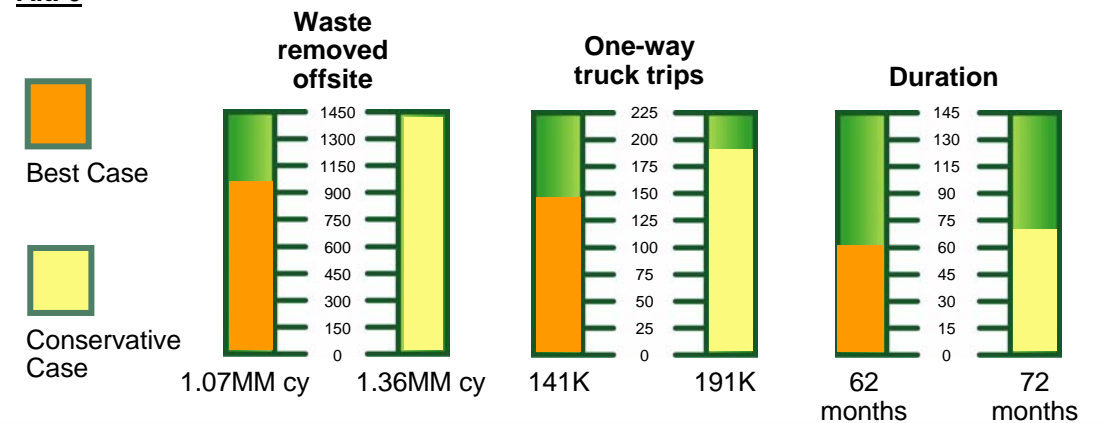
Remove groundwater in Pit F area



**Legend**

Unrestricted use area

**Alt. 6**



Alternative 6 – Source Removal with Offsite Disposal

Figure 9.2-6




Screening Criteria	Nine Evaluation Criteria
Effectiveness	Overall Protection of Human Health and Environment
	Compliance with ARARS
	Long-term Effectiveness and Permanence
	Reductions in Toxicity, Mobility, and Volume Through Treatment
	Short-term Effectiveness
Implementability	Implementability
Cost	Cost
	State Acceptance
	Community Acceptance

#### Role of Criteria During Remedy Selection

- “Threshold” Factors
- “Primary Balancing” Factors
- “Modifying” Considerations

Reference: Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, EPA, October 1988

Relationship of Screening Criteria to Nine Evaluation Criteria		Figure 9.3-1
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	

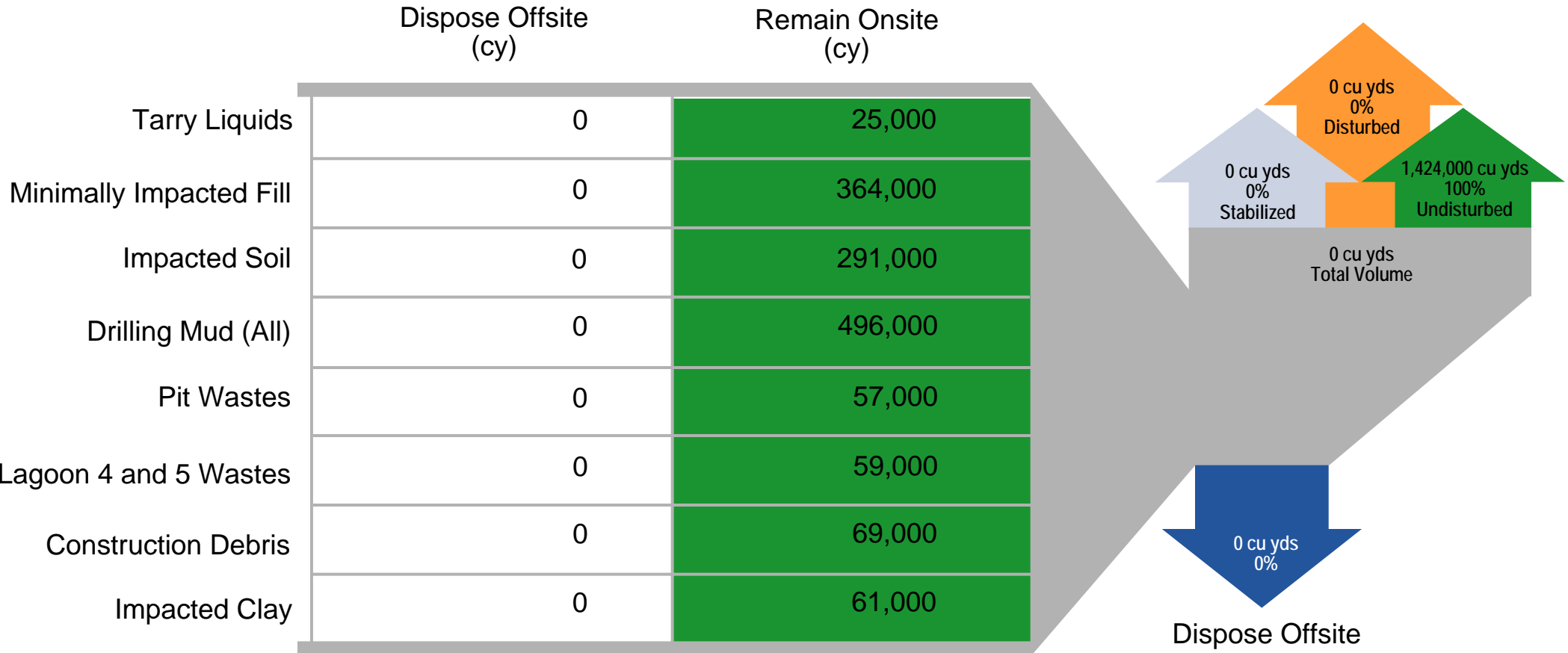
Alternative 1: No Action



All waste materials remain onsite, untreated and uncovered

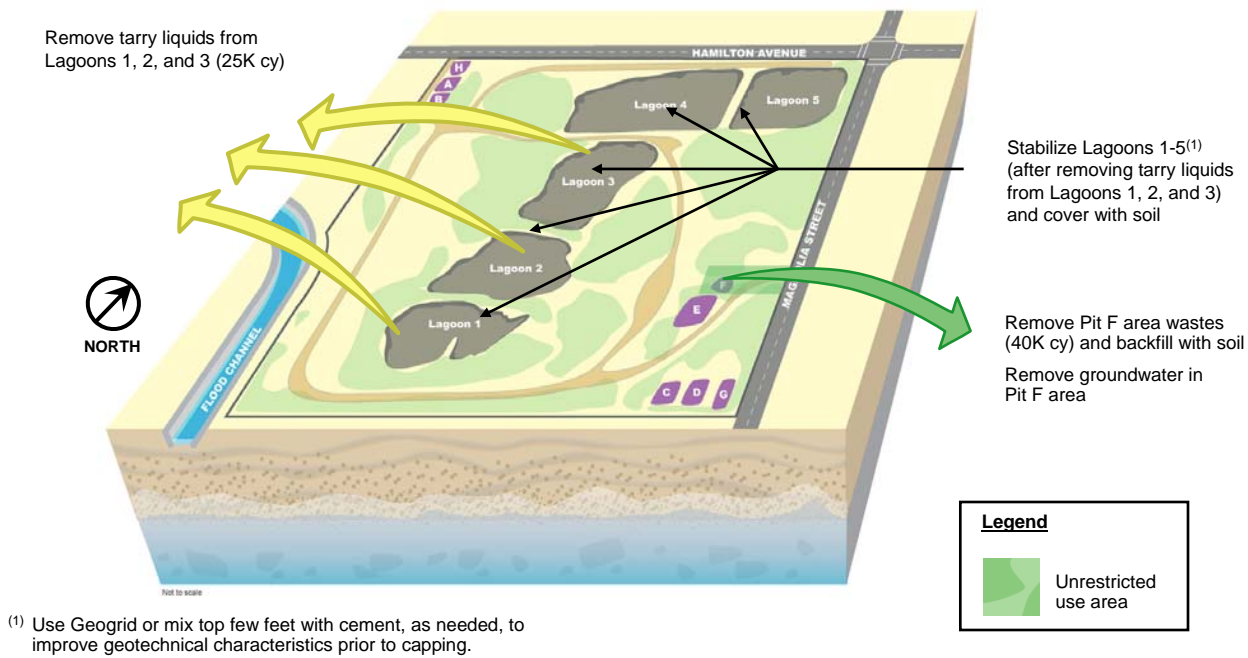
Legend

- Material disposed offsite – Landfill/waste recycler
- Partially disturbed materials left onsite
- Undisturbed material remaining *in situ*
- Stabilized material left onsite

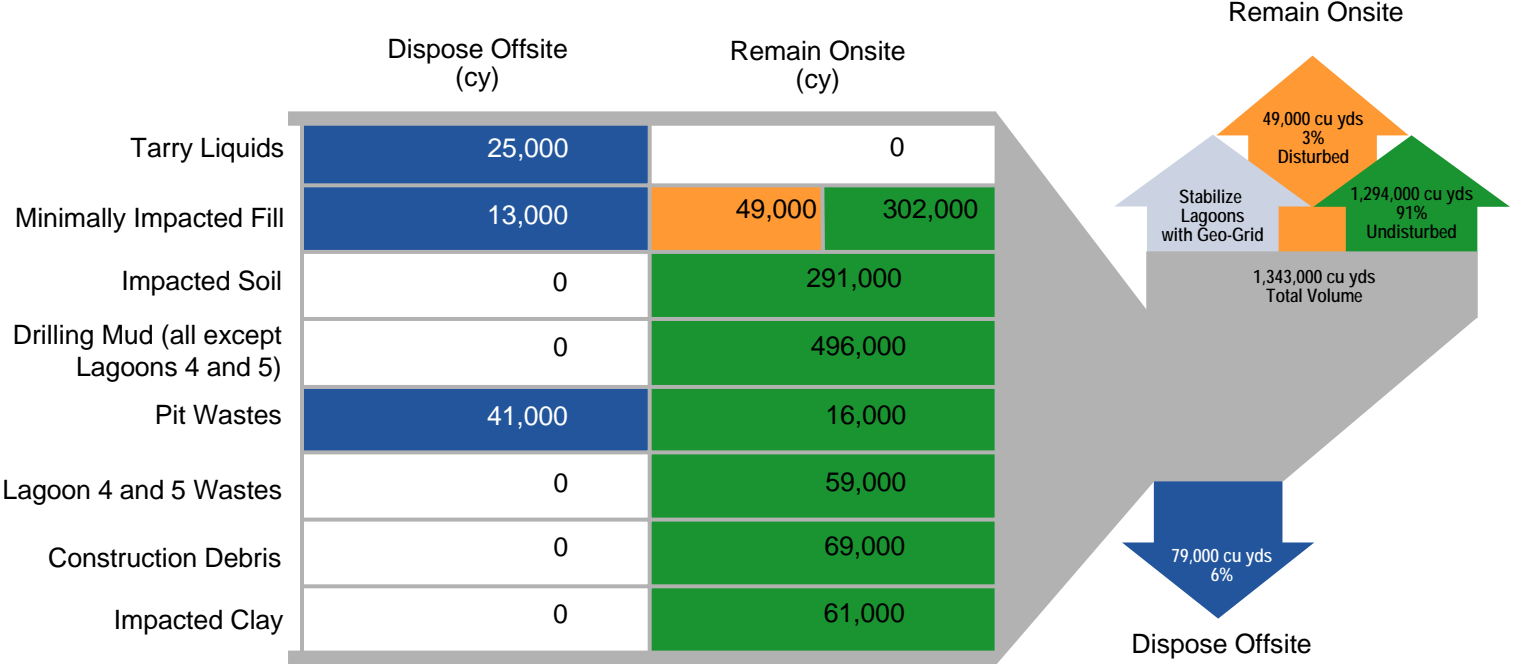




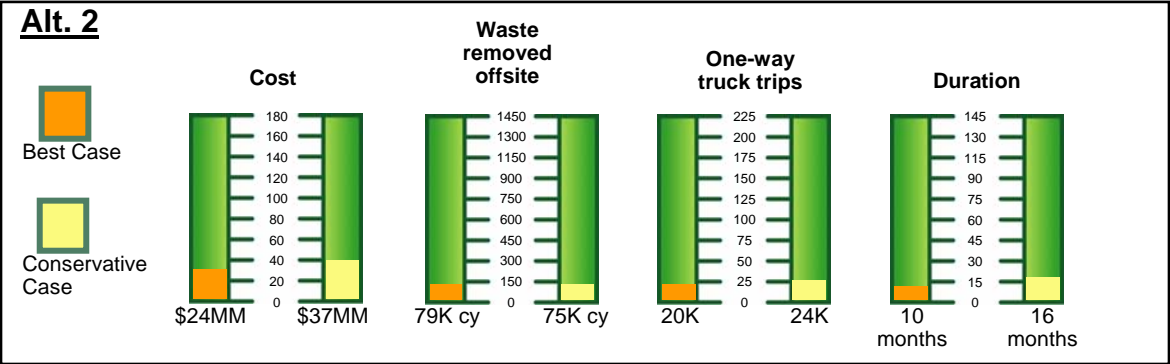
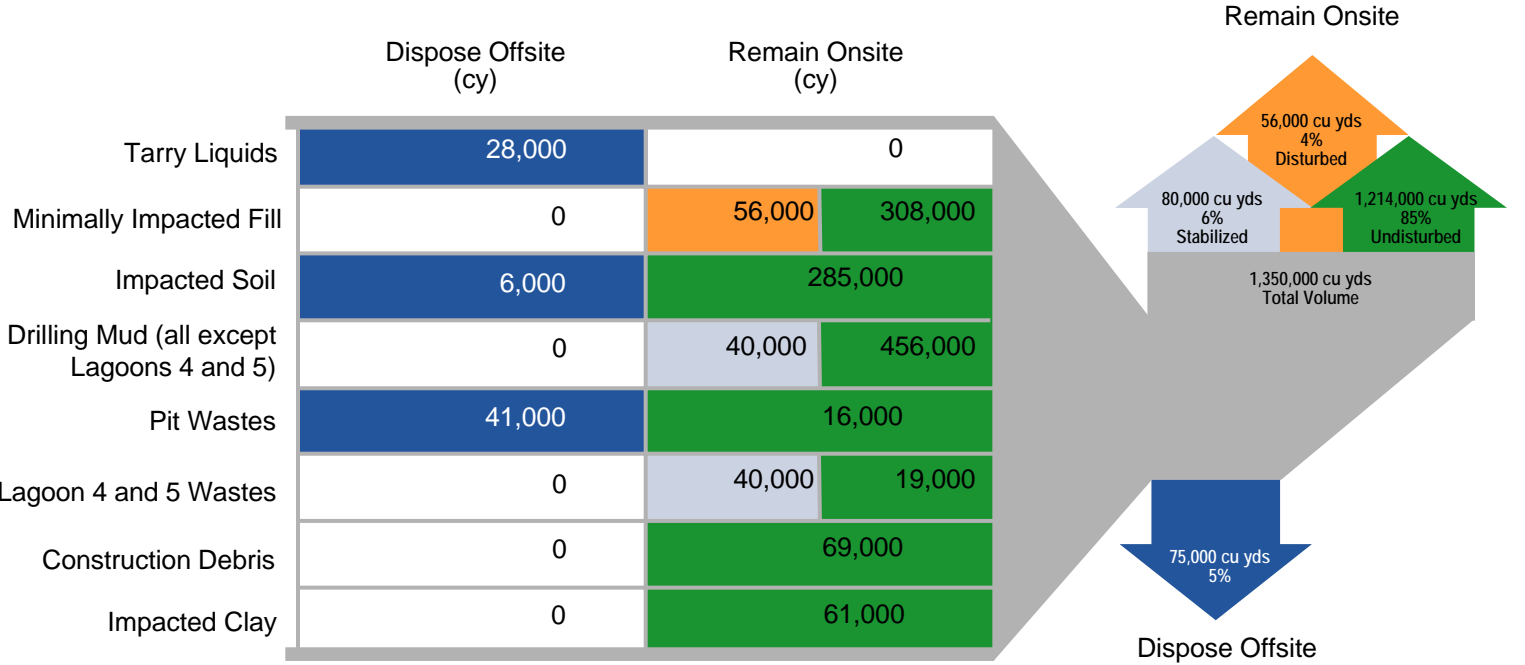
Alternative 2: Limited Waste Removal



Best Case



Conservative Case



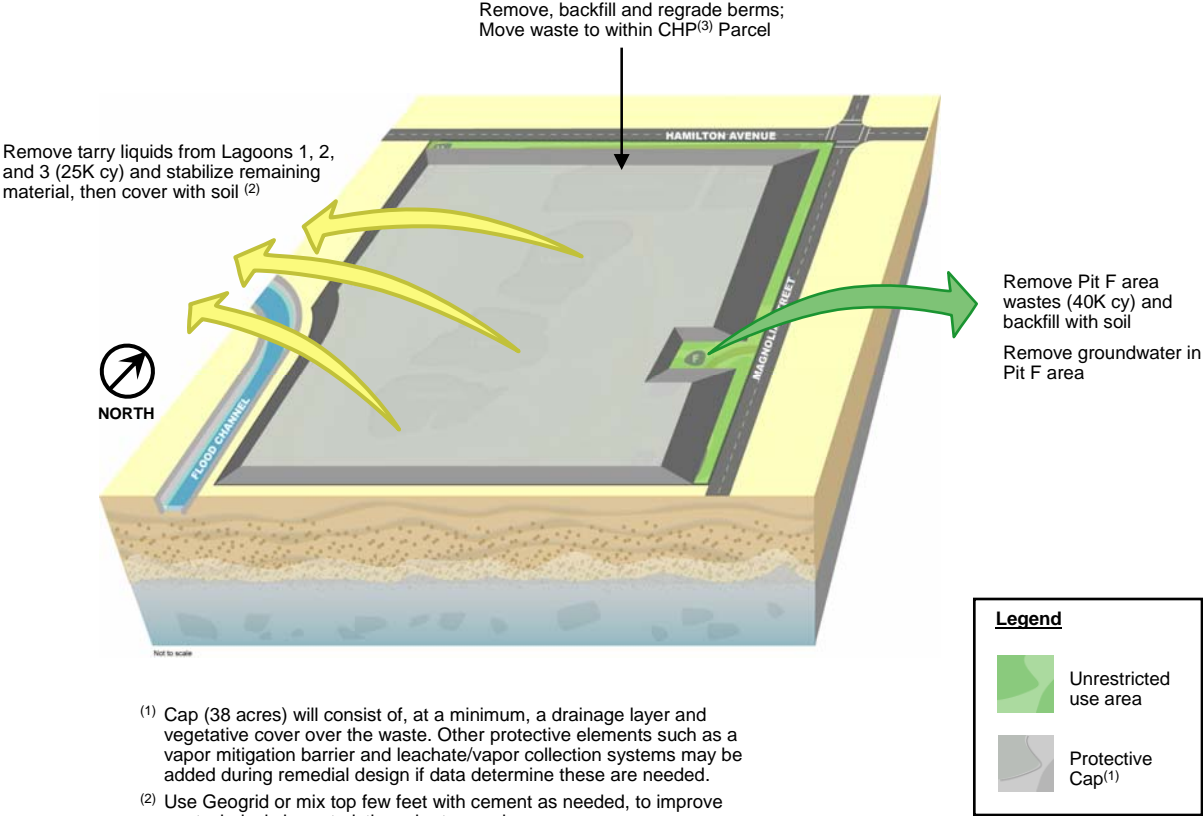
Legend

- Material disposed offsite – Landfill/waste recycler
- Partially disturbed materials left onsite
- Undisturbed material remaining *in situ*
- Stabilized material left onsite

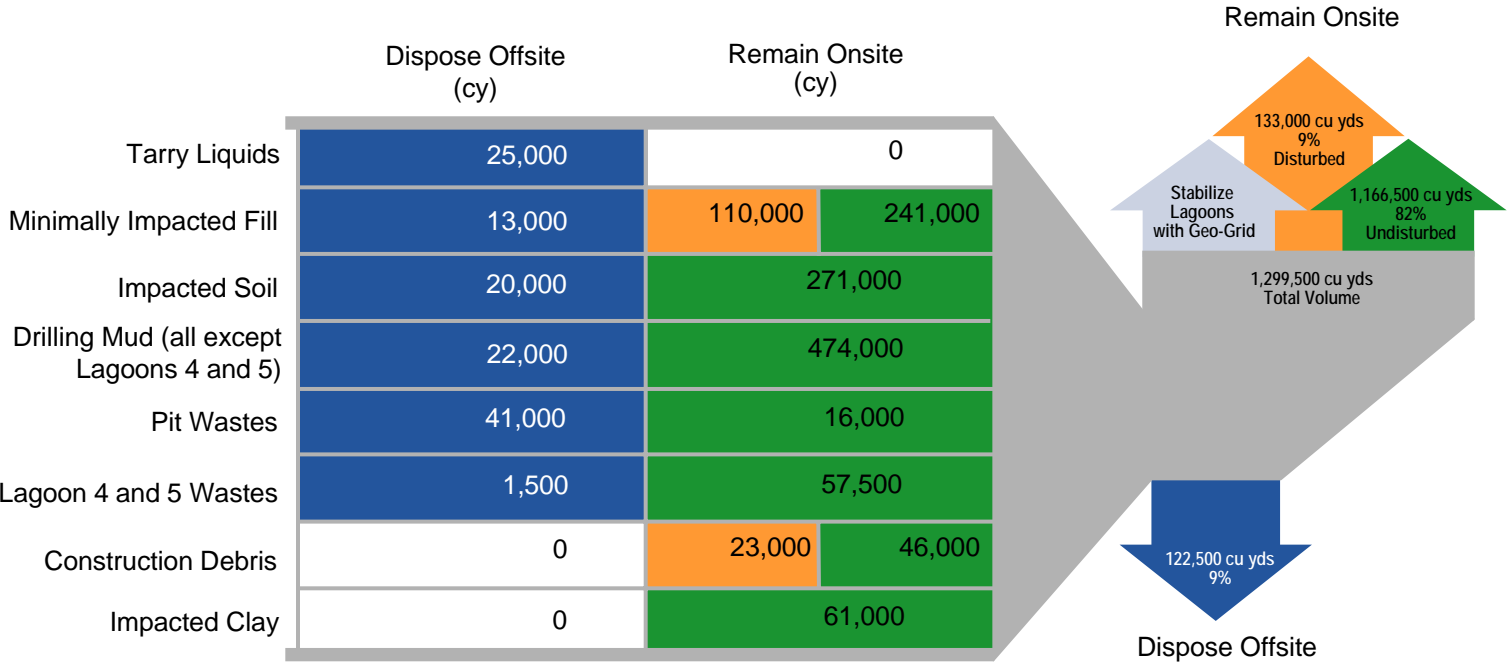
Note

Concrete around Lagoons 1, 2, and 3 will be disturbed during lagoon infilling (quantity undetermined)

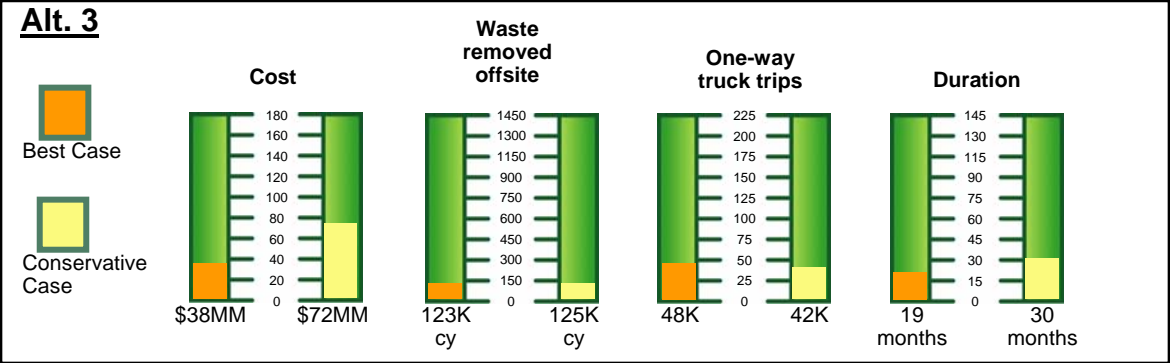
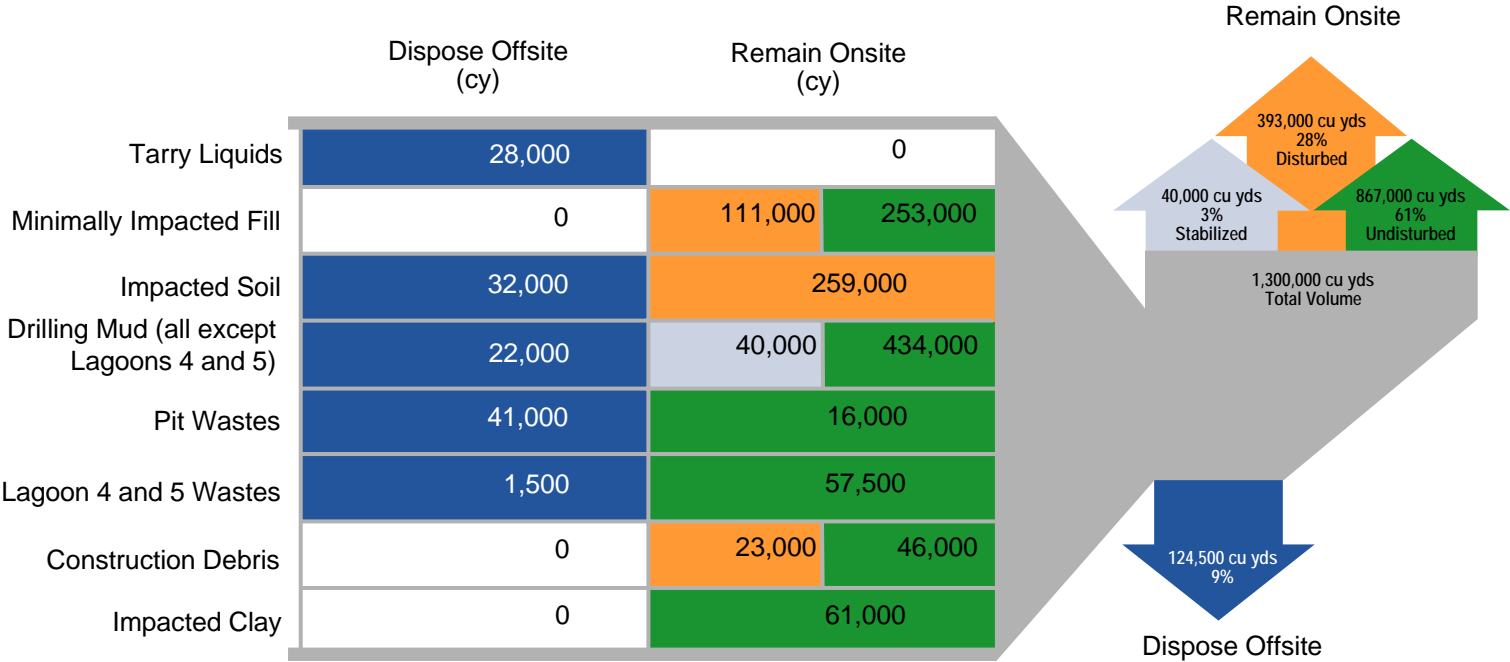
Alternative 3: Protective Cap



Best Case

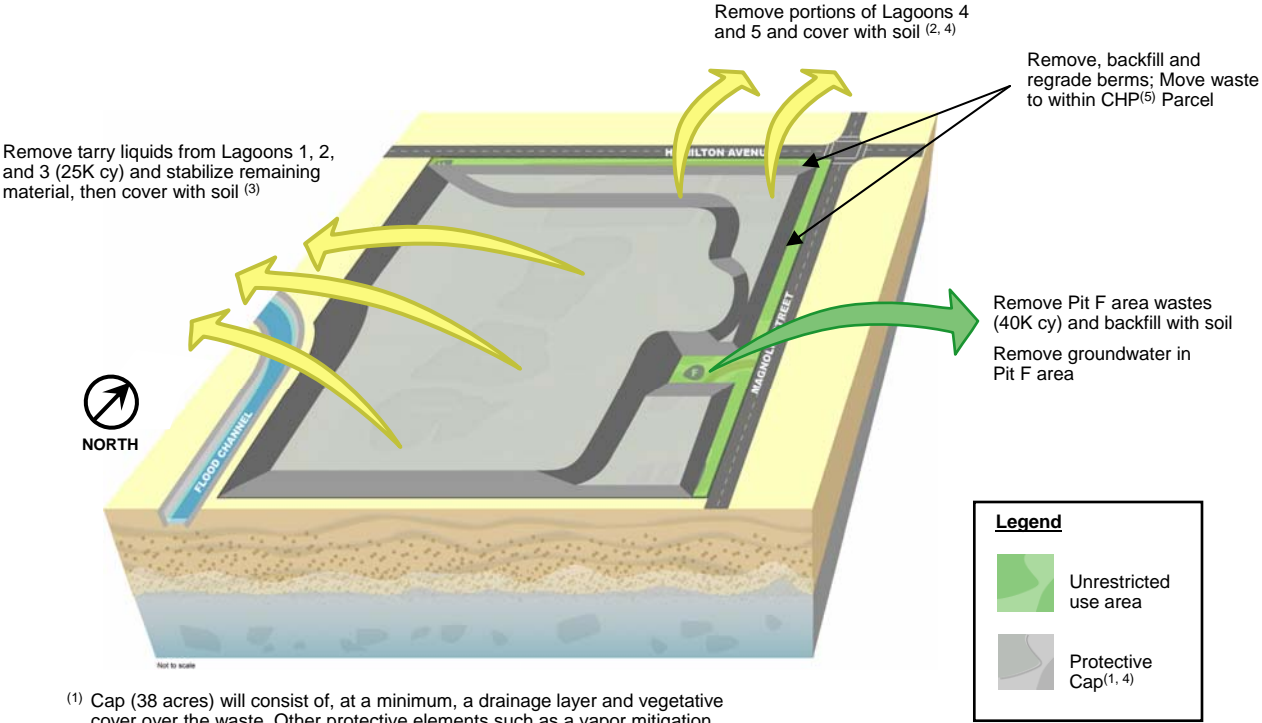


Conservative Case



- Legend
- Material disposed offsite – Landfill/waste recycler
  - Partially disturbed materials left onsite
  - Undisturbed material remaining *in situ*
  - Stabilized material left onsite

Alternative 4: Partial Source Removal with Protective Cap



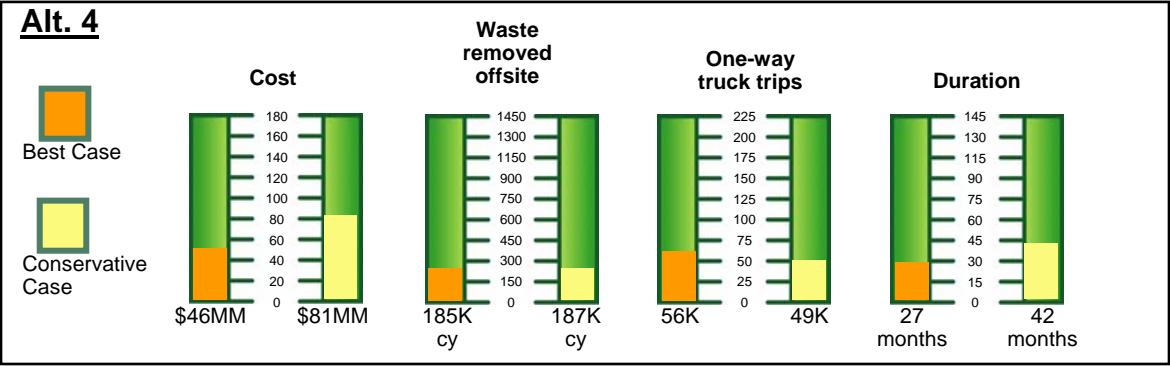
<sup>(1)</sup> Cap (38 acres) will consist of, at a minimum, a drainage layer and vegetative cover over the waste. Other protective elements such as a vapor mitigation barrier and leachate/vapor collection systems may be added during remedial design if data determine these are needed.

<sup>(2)</sup> Remove waste materials to approximate adjacent street elevation (exact elevation to be determined during remedial design).

<sup>(3)</sup> Use Geogrid or mix top few feet with cement, as needed, to improve geotechnical characteristics prior to capping.

<sup>(4)</sup> Exact dimension of cap will be determined during remedial design.

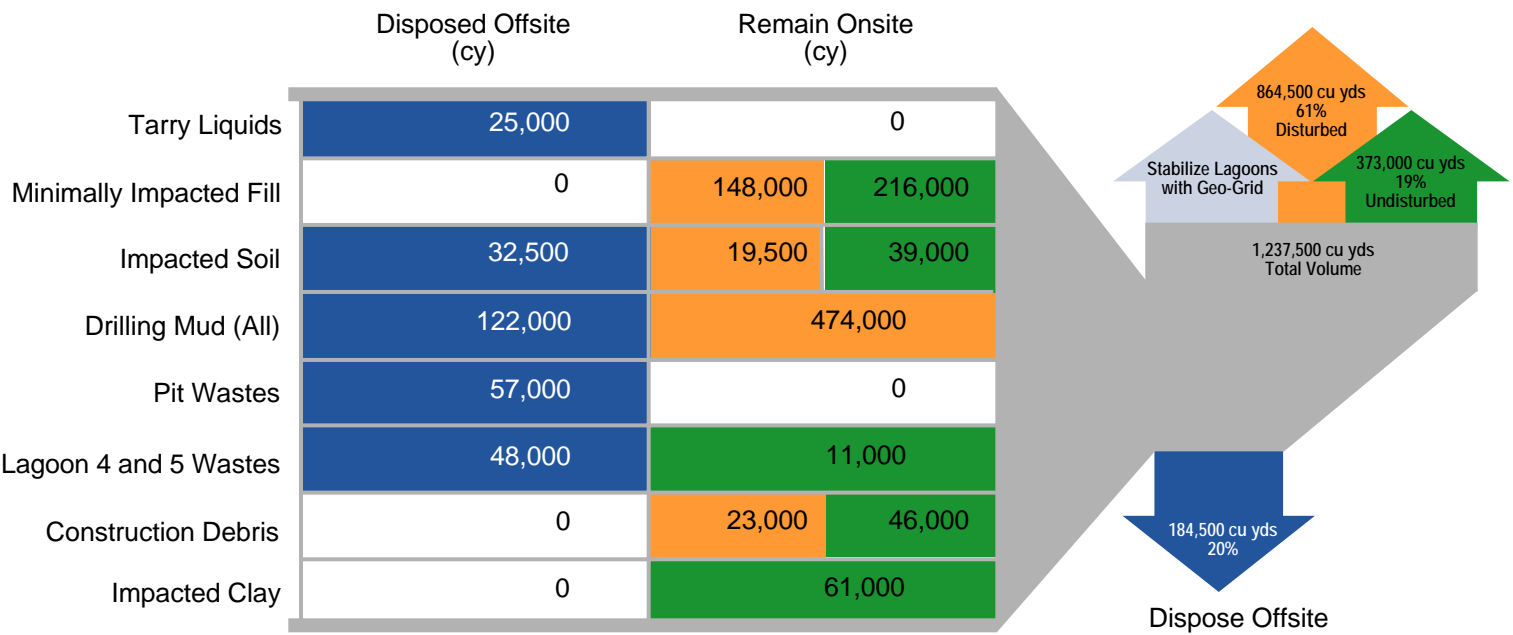
<sup>(5)</sup> CHP is Cannery Hamilton Properties, LLC.



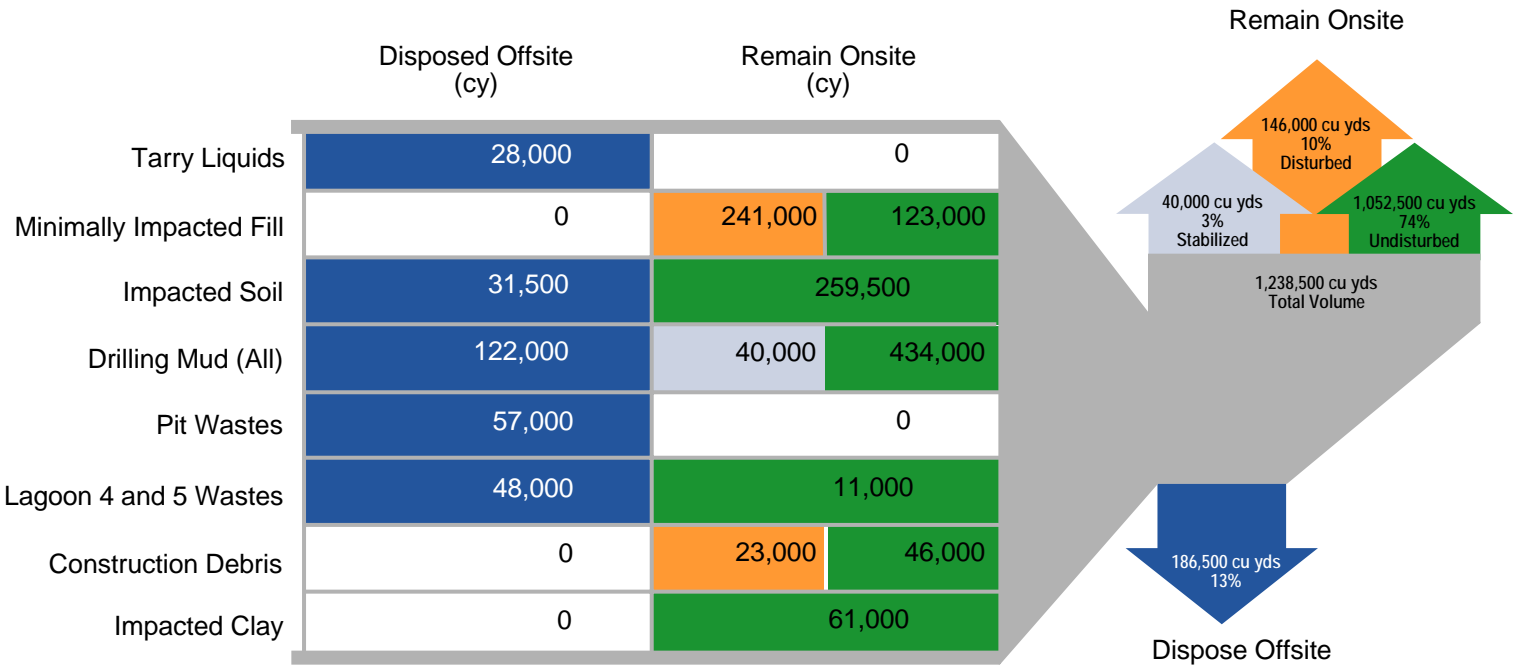
Legend

- Material disposed offsite – Landfill/waste recycler
- Partially disturbed materials left onsite
- Undisturbed material remaining *in situ*
- Stabilized material left onsite

Best Case



Conservative Case

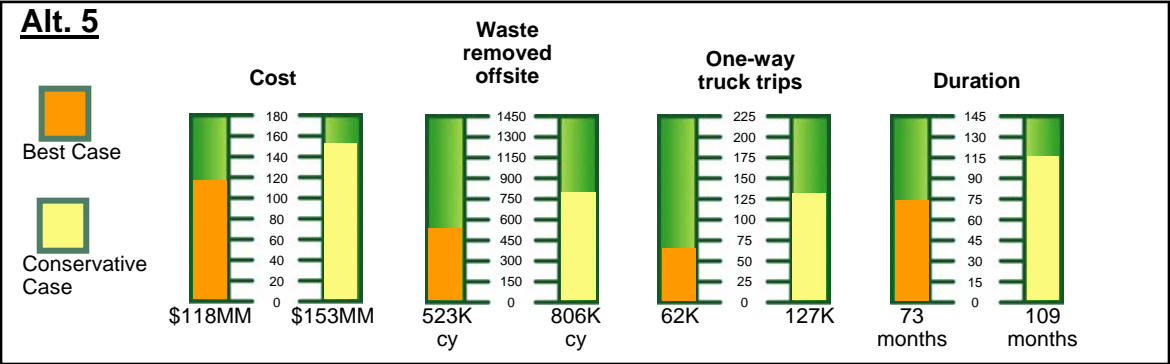
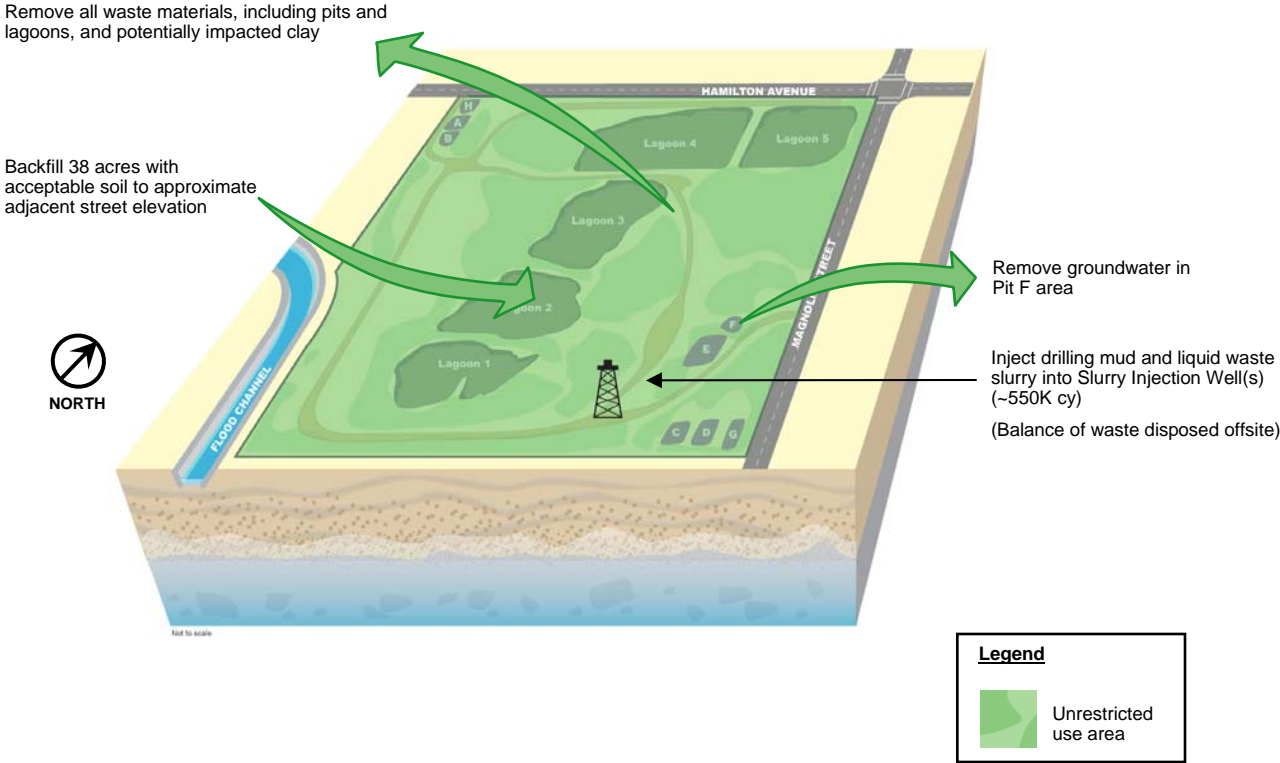


Material Disposition for Alternative 4 – Partial Source Removal with Protective Cap

Figure 9.4-4

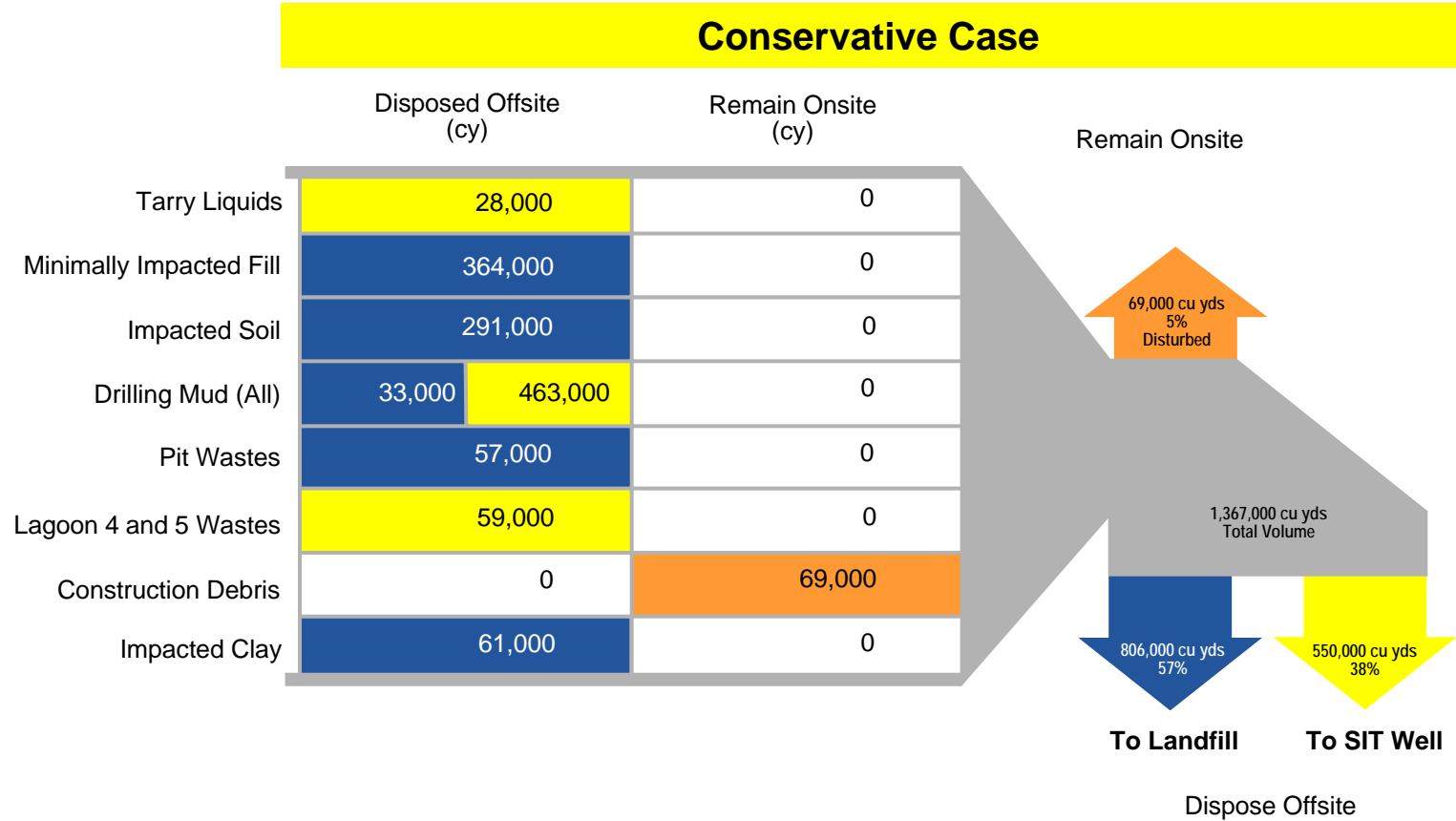
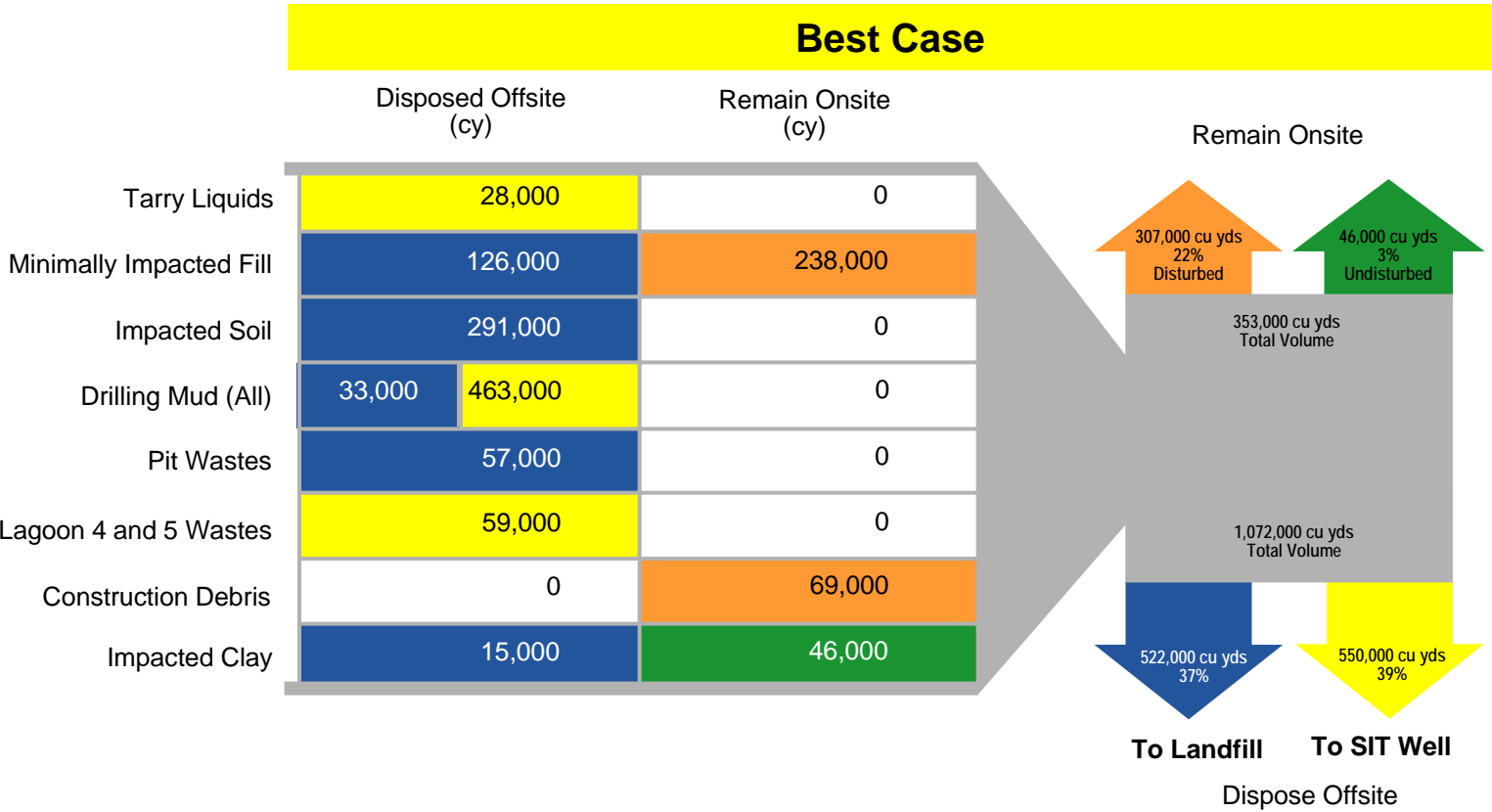


Alternative 5: Source Removal  
(with Offsite Disposal and SIT)

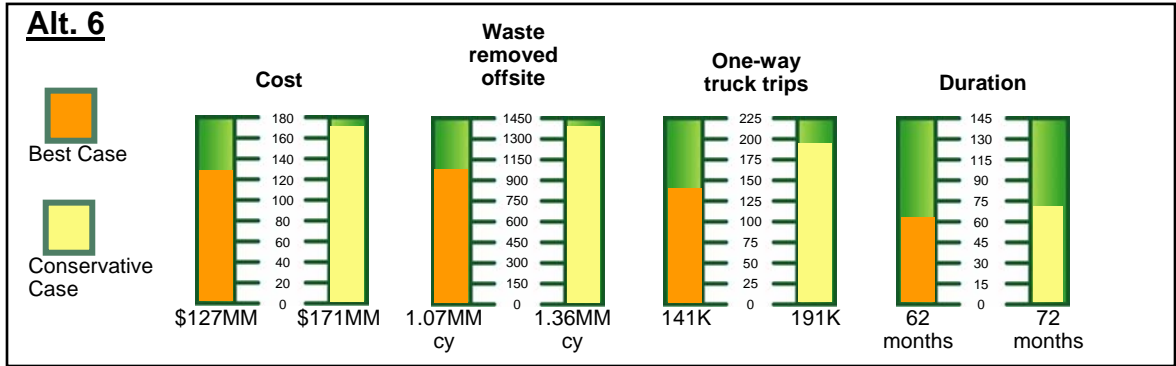
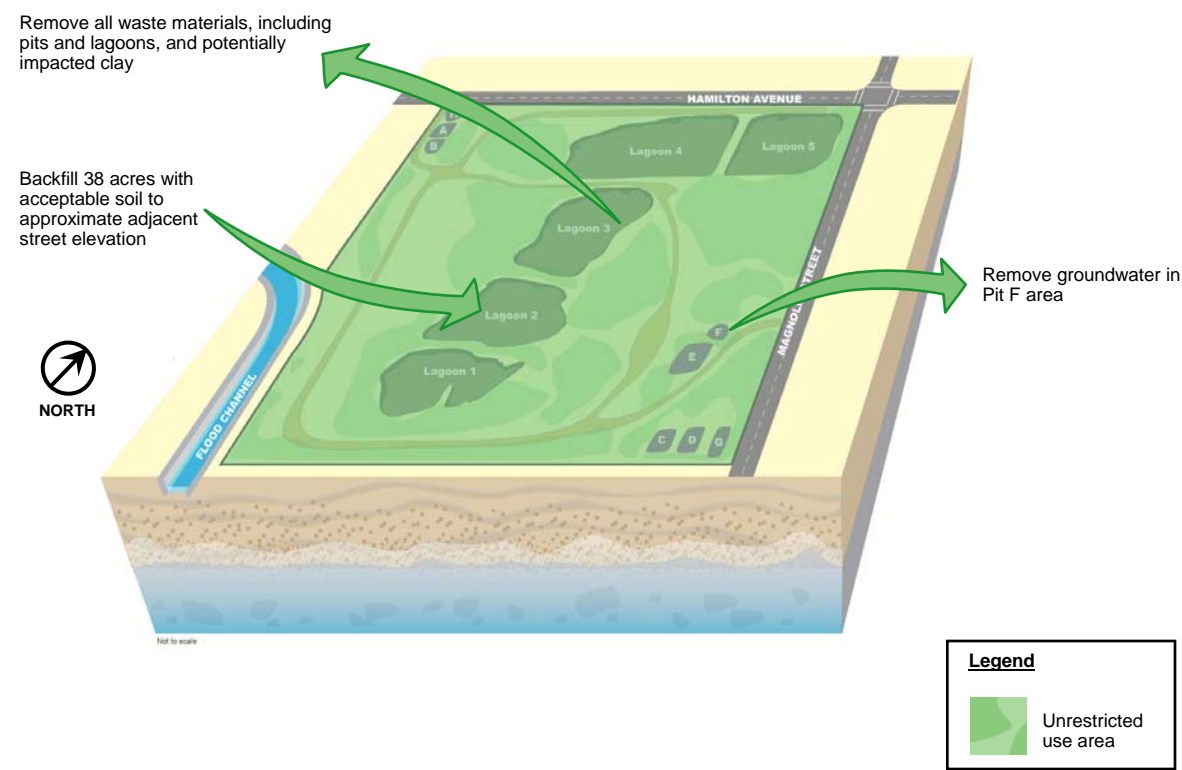


Legend

- Material disposed offsite – Landfill/waste recycler
- Partially disturbed materials left onsite
- Undisturbed material remaining *in situ*
- Material disposed offsite - SIT



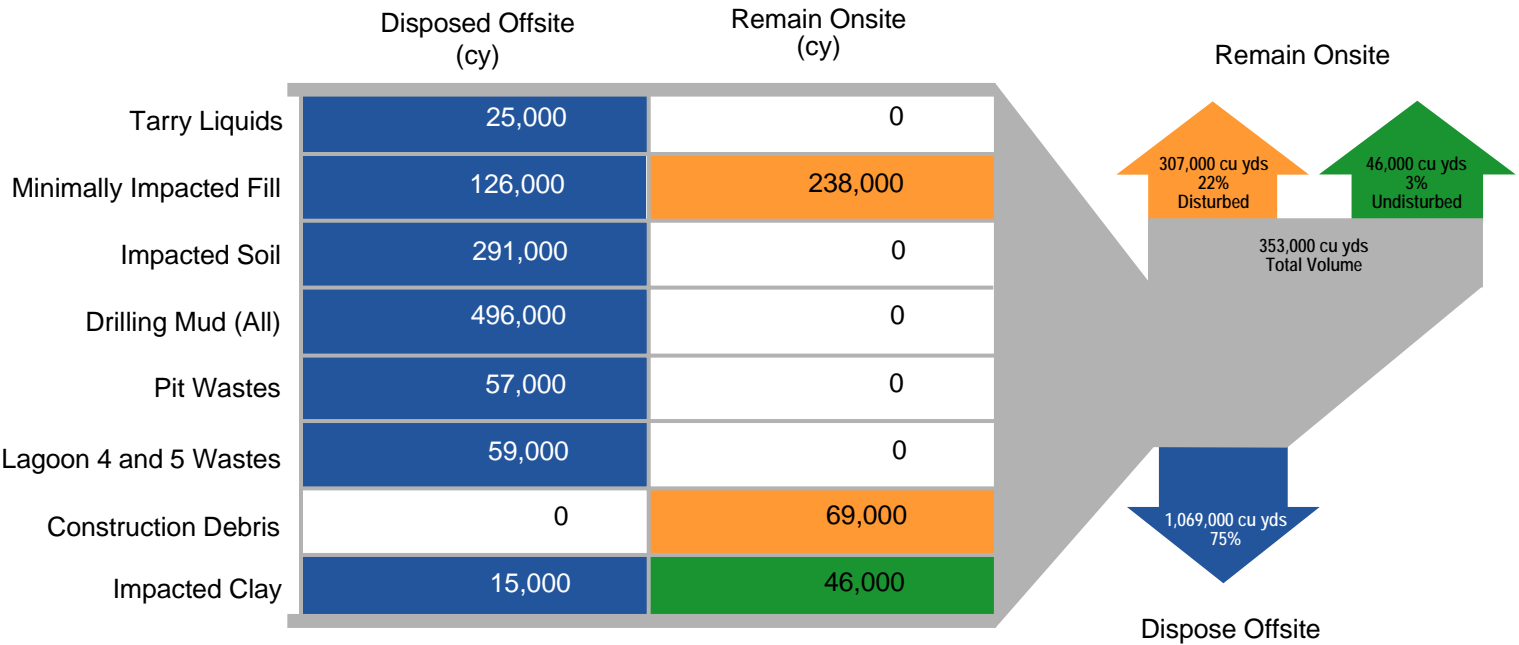
Alternative 6: Source Removal  
(with Offsite Disposal)



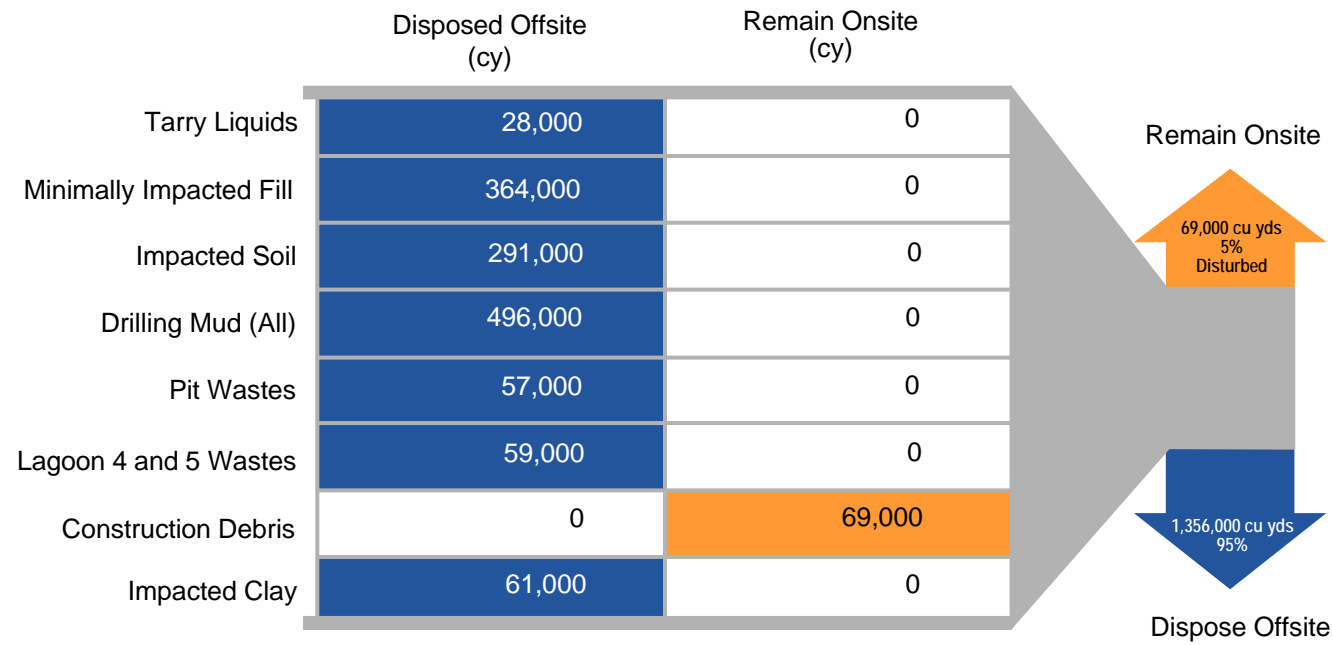
Legend

- Material disposed offsite – Landfill/waste recycler
- Partially disturbed materials left onsite
- Undisturbed material remaining *in situ*

Best Case



Conservative Case



Material Disposition for Alternative 6 – Source Removal with Offsite Disposal


Figure 9.4-6



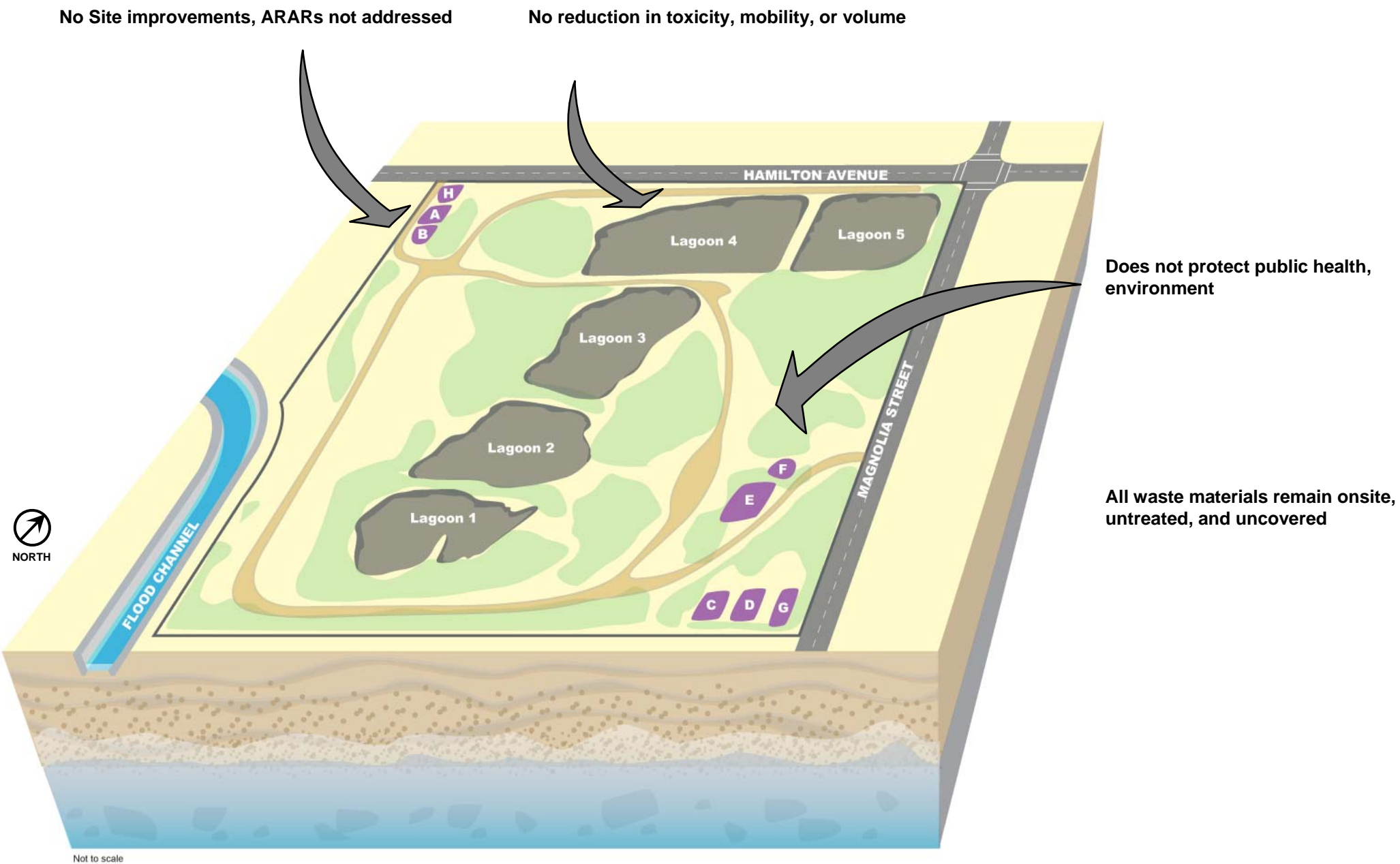
Remedial Alternative	Remedy Description	Remedy Construction Cost (\$ MM)	Operational and Maintenance (\$ MM)	Total Present Worth Cost (\$ MM)	Volume of Waste Removed from Site (1,000cy) <sup>(1)</sup>	Estimated # of One Way Truck Trips (1,000 trucks) – Waste and Import	Estimated Duration of Remedy Construction (months)
Alt. 1	No Action	\$0	\$0	\$0	0	0	0
Alt. 2	Limited Waste Removal	\$14.4 - \$27.3	\$9.9	\$24.3 - \$37.2	75 - 79	20 - 24	10 - 16
Alt. 3 <sup>(2)</sup>	Protective Cap	\$27.1 - \$51.6	\$11.2 - \$20.6	\$38.3 - \$72.2	123 - 125	42 - 48	19 - 30
Alt. 4 <sup>(3)</sup>	Partial Source Removal with Protective Cap	\$34.8 - \$60.4	\$11.2 - \$20.6	\$46.0 - \$80.9	185 - 187	49 - 56	27 - 42
Alt. 5	Source Removal with Offsite Disposal and Slurry Injection Technology	\$114 - \$148	\$4.6	\$118 - \$153	523 - 806	62 - 127	73 - 109
Alt. 6	Source Removal with Offsite Disposal	\$122 - \$167	\$4.6	\$127 - \$171	1,070 – 1,355	141 - 191	62 - 72

**Notes**


- <sup>(1)</sup> For Alt. 5 - Includes only solid material disposed offsite - not liquid waste injected via slurry injection well(s).
- <sup>(2)</sup> Metrics for Alt. 3 – Protective Cap based on a range from estimates developed for installing a 38-acre Monolithic Soil Cap and Multilayer Cap (Appendix R).
- <sup>(3)</sup> Metrics for Alt. 4 – Protective Cap based on a range from estimates developed for installing a 38-acre Monolithic Soil Cap and Multilayer Cap (Appendix R).

Cost Estimates, Volumes, Truck Trips, Durations for Remedial Alternatives		Figure 9.4-7
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	

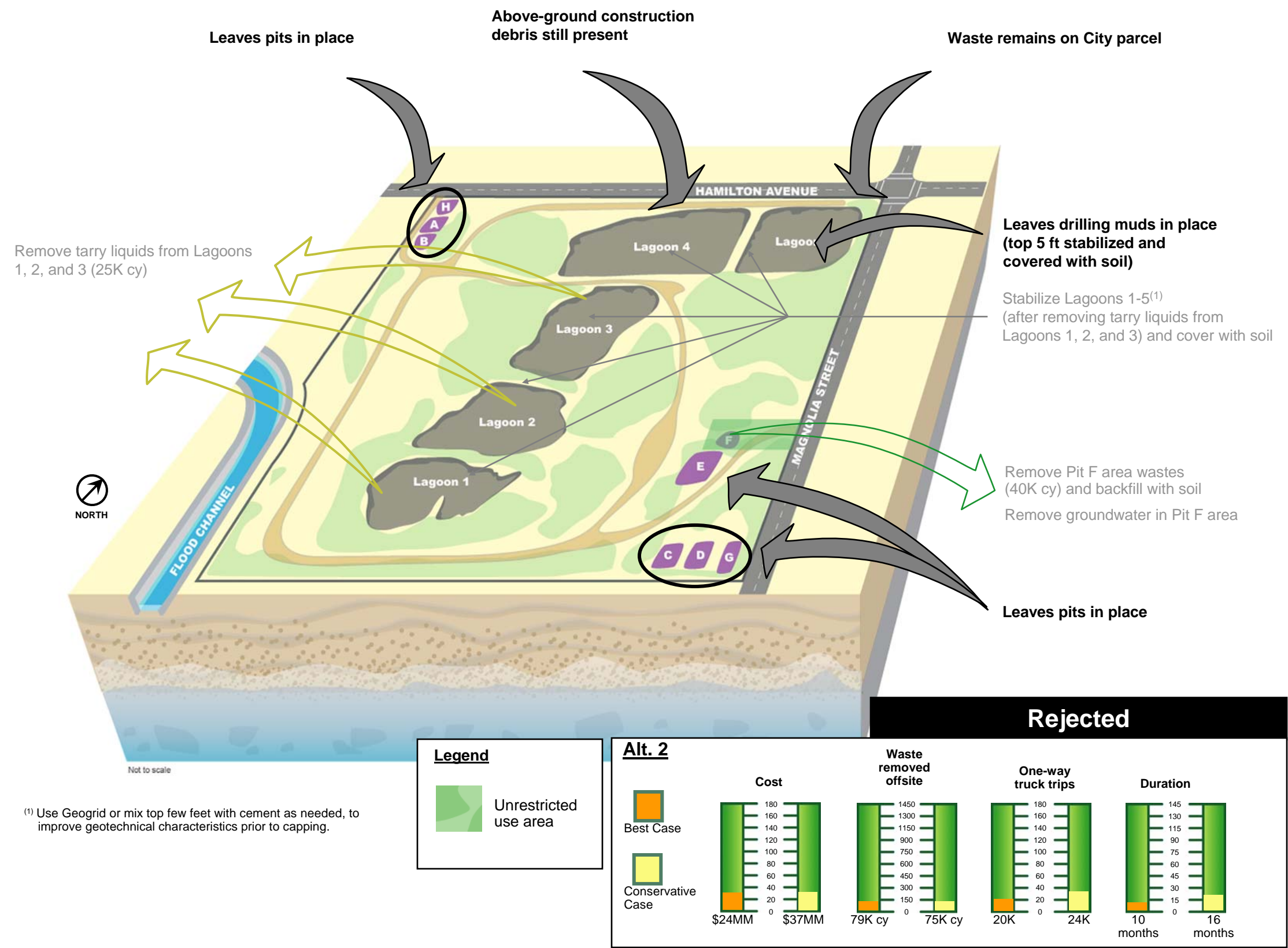
Detailed Evaluations Criteria		Alternative 1
Nine NCP Criteria	Considerations	No Action
Overall Protection of Human Health and the Environment	Protection of human health	Does not provide
	Protection of the environment	Does not provide
Compliance with ARARs	Compliance with chemical-specific ARARs	Does not comply
	Compliance with action-specific ARARs	Does not apply
	Compliance with location-specific ARARs	Does not apply
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Does not apply
Long-term Effectiveness and Permanence	Magnitude of residual risk	
	Adequacy and reliability of controls	
	Approximate volume of wastes remaining at the Site	
Reductions in Toxicity, Mobility, and Volume through Treatment	Treatment process used and materials treated	
	Amount of hazardous substances destroyed or treated	
	Expected reductions in toxicity, mobility and volume	
	Degree to which treatment is irreversible	
	Type and quantity of residuals remaining after treatment	
Short-term Effectiveness	Protection of community during remedial actions	
	Protection of workers during remedial actions	
	Environmental impacts	
	Time until remedial action objectives are achieved	
	Approximate # of truck trips required (waste + imported soil)	
	Levels of air emissions control during removal and handling	
Implementability	Ability to construct and operate the technology	
	Availability of goods and services	
	Reliability of the technology	
	Ease of undertaking additional remedial actions	
	Ability to monitor effectiveness of remedy	
	Ability to obtain approval from agencies	
	Coordination with other agencies	
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities	
Cost	Present worth costs	
State Acceptance	DTSC acceptance of preferred remedy for the Site	
Community Acceptance	Community acceptance of preferred remedy for the Site	




Rejected

Evaluation of Alternative 1 – No Action		Figure 9.5-1
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	

Detailed Evaluations Criteria		Alternative 2
Nine NCP Criteria	Considerations	Limited Waste Removal
Overall Protection of Human Health and the Environment	Protection of human health	Does not provide
	Protection of the environment	Does not provide
Compliance with ARARs	Compliance with chemical-specific ARARs	Does not comply
	Compliance with action-specific ARARs	Remedy construction and waste management activities will be in compliance.
	Compliance with location-specific ARARs	Remedy construction and waste management activities will be in compliance.
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Remedy construction and waste management activities will be in compliance.
Long-term Effectiveness and Permanence	Magnitude of residual risk	
	Adequacy and reliability of controls	
	Approximate volume of wastes remaining at the Site	
Reductions in Toxicity, Mobility, and Volume through Treatment	Treatment process used and materials treated	
	Amount of hazardous substances destroyed or treated	
	Expected reductions in toxicity, mobility and volume	
	Degree to which treatment is irreversible	
	Type and quantity of residuals remaining after treatment	
Short-term Effectiveness	Protection of community during remedial actions	
	Protection of workers during remedial actions	
	Environmental impacts	
	Time until remedial action objectives are achieved	
	Approximate # of truck trips required (waste + imported soil)	
	Levels of air emissions control during removal and handling	
Implementability	Ability to construct and operate the technology	
	Availability of goods and services	
	Reliability of the technology	
	Ease of undertaking additional remedial actions	
	Ability to monitor effectiveness of remedy	
	Ability to obtain approval from agencies	
	Coordination with other agencies	
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities	
Cost	Present worth costs	
State Acceptance	DTSC acceptance of preferred remedy for the Site	
Community Acceptance	Community acceptance of preferred remedy for the Site	

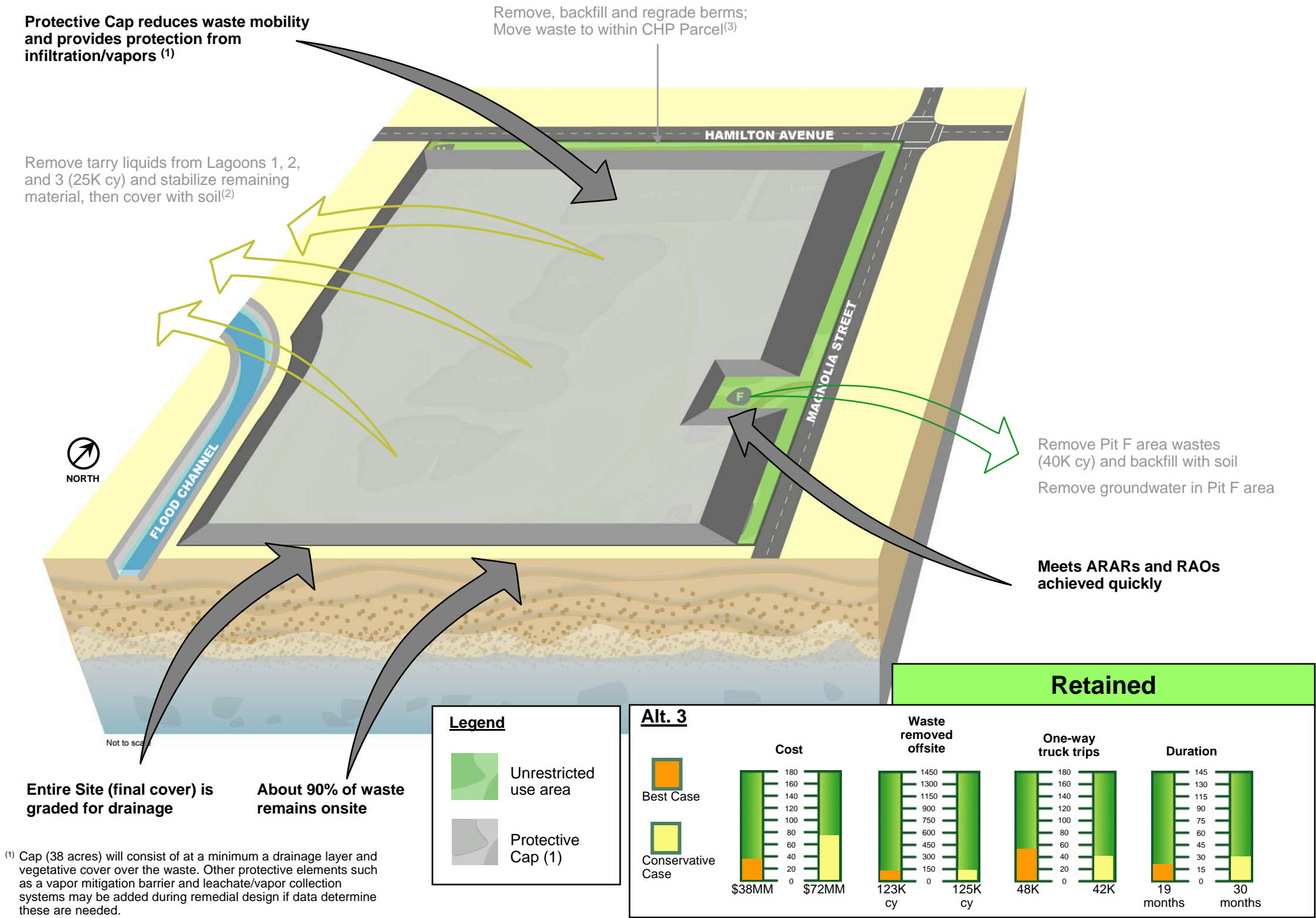


Evaluation of Alternative 2 – Limited Waste Removal		Figure 9.5-2
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	




Detailed Evaluations Criteria		Alternative 3
Nine NCP Criteria	Considerations	Protective Cap
Overall Protection of Human Health and the Environment	Protection of human health	Encapsulation of waste minimizes the mobility and transport of contaminants and potential for human contact.
	Protection of the environment	Encapsulation of waste minimizes the mobility and transport of contaminants and potential for impacts to the external environment.
Compliance with ARARs	Compliance with chemical-specific ARARs	Will comply. A portion of waste will be removed offsite and remaining impacted materials will be encapsulated. Groundwater remediation/vapor mitigation as required.
	Compliance with action-specific ARARs	Remedy construction and waste management activities will be in compliance.
	Compliance with location-specific ARARs	Remedy construction and waste management activities will be in compliance.
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Remedy construction and waste management activities will be in compliance.
Long-term Effectiveness and Permanence	Magnitude of residual risk	High
	Adequacy and reliability of controls	Moderate to High
	Approximate volume of wastes remaining at the Site	High
Reductions in Toxicity, Mobility, and Volume through Treatment	Treatment process used and materials treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.
	Amount of hazardous substances destroyed or treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.
	Expected reductions in toxicity, mobility and volume	High reduction in mobility due to encapsulation. Slight (about 10%) reduction in volume due to offsite disposal.
	Degree to which treatment is irreversible	Stabilization treatment has a high degree of irreversibility since metals are bounded in a matrix that is resistant to chemical and physical changes.
	Type and quantity of residuals remaining after treatment	Quantity of residuals is low due to encapsulation. Encapsulated waste includes impacted native and fill materials, drilling muds, and construction debris.
Short-term Effectiveness	Protection of community during remedial actions	Yes – use of foam suppressants water spray, and/or tent structures will be used as needed. Also, perimeter air monitoring will be conducted to mitigate offsite impacts.
	Protection of workers during remedial actions	Yes. Workers will use proper PPE, receive Health and Safety and site-specific training, and air monitoring (at work face and Site perimeter) will be conducted.
	Environmental impacts	Above measures will be taken to minimize offsite air emissions and releases; clay layer will not be breached during excavation of Lagoon 4 and 5.
	Time until remedial action objectives are achieved	1.5 to 2 years
	Approximate # of truck trips required (waste + imported soil)	Moderate
	Levels of air emissions control during removal and handling	Low
Implementability	Ability to construct and operate the technology	Moderate, depending on availability of cap materials, trucks and potential need for shoring. Technologies are proven, off-the-shelf.
	Availability of goods and services	Moderate – due to cap materials, trucks.
	Reliability of the technology	High
	Ease of undertaking additional remedial actions	Moderate – would need to remove cap for complete source removal.
	Ability to monitor effectiveness of remedy	Moderate to High
	Ability to obtain approval from agencies	Moderate
	Coordination with other agencies	Moderate
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities	Moderate to High
Cost	Present worth costs	Moderate
State Acceptance	DTSC acceptance of preferred remedy for the Site	TBD
Community Acceptance	Community acceptance of preferred remedy for the Site	TBD

Protection of public health and environment, meets ARARS



- <sup>(1)</sup> Cap (38 acres) will consist of at a minimum a drainage layer and vegetative cover over the waste. Other protective elements such as a vapor mitigation barrier and leachate/vapor collection systems may be added during remedial design if data determine these are needed.
- <sup>(2)</sup> Use Geogrid or mix top few feet with cement as needed, to improve geotechnical characteristics prior to capping.
- <sup>(3)</sup> CHP is Cannery Hamilton Properties, LLC.

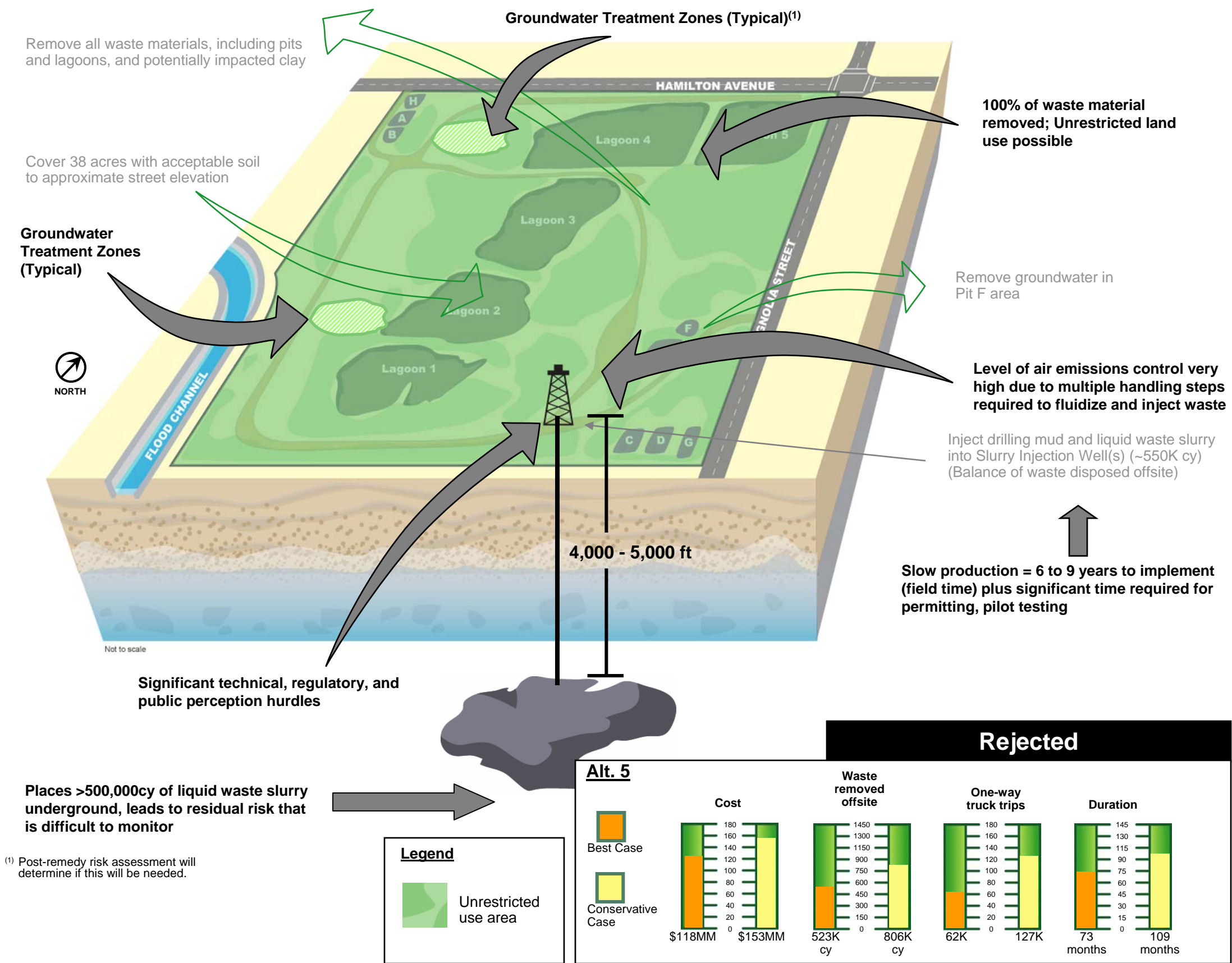
**Note:**  
Metrics based on a range of costs for installation of a Monolithic Soil Cap to a Multilayer Cap.


Evaluation of Alternative 3 – Protective Cap		Figure 9.5-3
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	





Detailed Evaluations Criteria		Alternative 5
Nine NCP Criteria	Considerations	Source Removal with Offsite Disposal and SIT
Overall Protection of Human Health and the Environment	Protection of human health	Potential waste migration and human exposure greatly reduced by complete source removal of all waste materials except those that can be recycled onsite. Groundwater remediation/vapor mitigation as required.
	Protection of the environment	Potential waste migration and ecological exposure greatly reduced by complete source removal of all waste materials except those that can be recycled onsite. Groundwater remediation/vapor mitigation as required.
Compliance with ARARs	Compliance with chemical-specific ARARs	Will comply. Complete source removal of unacceptable waste materials and groundwater remediation/vapor mitigation as required.
	Compliance with action-specific ARARs	Remedy construction and waste management activities will be in compliance
	Compliance with location-specific ARARs	Remedy construction and waste management activities will be in compliance
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Remedy construction and waste management activities will be in compliance
Long-term Effectiveness and Permanence	Magnitude of residual risk	Low
	Adequacy and reliability of controls	Moderate to High
	Approximate volume of wastes remaining at the Site	Low
Reductions in Toxicity, Mobility, and Volume through Treatment	Treatment process used and materials treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.
	Amount of hazardous substances destroyed or treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.
	Expected reductions in toxicity, mobility and volume	High reduction in volume due to offsite disposal in deep injection wells and landfill/recycling facilities.
	Degree to which treatment is irreversible	Stabilization treatment has a high degree of irreversibility since metals are bounded in a matrix that is resistant to chemical and physical changes.
	Type and quantity of residuals remaining after treatment	Quantity of residuals is low due to source removal through offsite disposal. Residuals will include some minimally impacted native materials and fill.
Short-term Effectiveness	Protection of community during remedial actions	Yes – use of foam suppressants water spray, and/or tent structures will be used as needed. Also, perimeter air monitoring will be conducted to mitigate offsite impacts.
	Protection of workers during remedial actions	Yes. Workers will use proper PPE, receive Health and Safety and site-specific training, and air monitoring (at work face and Site perimeter) will be conducted.
	Environmental impacts	Above measures will be taken to minimize offsite air emissions and releases. Clay layer will not be breached in source removal areas.
	Time until remedial action objectives are achieved	6 to 9 years
	Approximate # of truck trips required (waste + imported soil)	High
	Levels of air emissions control during removal and handling	High – due to additional steps required to slurry waste.
Implementability	Ability to construct and operate the technology	Low implementability due to significant technical, regulatory, and public perception hurdles.
	Availability of goods and services	Relatively low – requires permitting, siting and installation of deep injection wells, significant makeup water and amendments for slurrying wastes, etc.
	Reliability of the technology	High
	Ease of undertaking additional remedial actions	None required except minimal long-term O&M.
	Ability to monitor effectiveness of remedy	Moderate to High
	Ability to obtain approval from agencies	Low to Very Low
	Coordination with other agencies	Low to Very Low
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities	Moderate to High
Cost	Present worth costs	High
State Acceptance	DTSC acceptance of preferred remedy for the Site	TBD
Community Acceptance	Community acceptance of preferred remedy for the Site	TBD

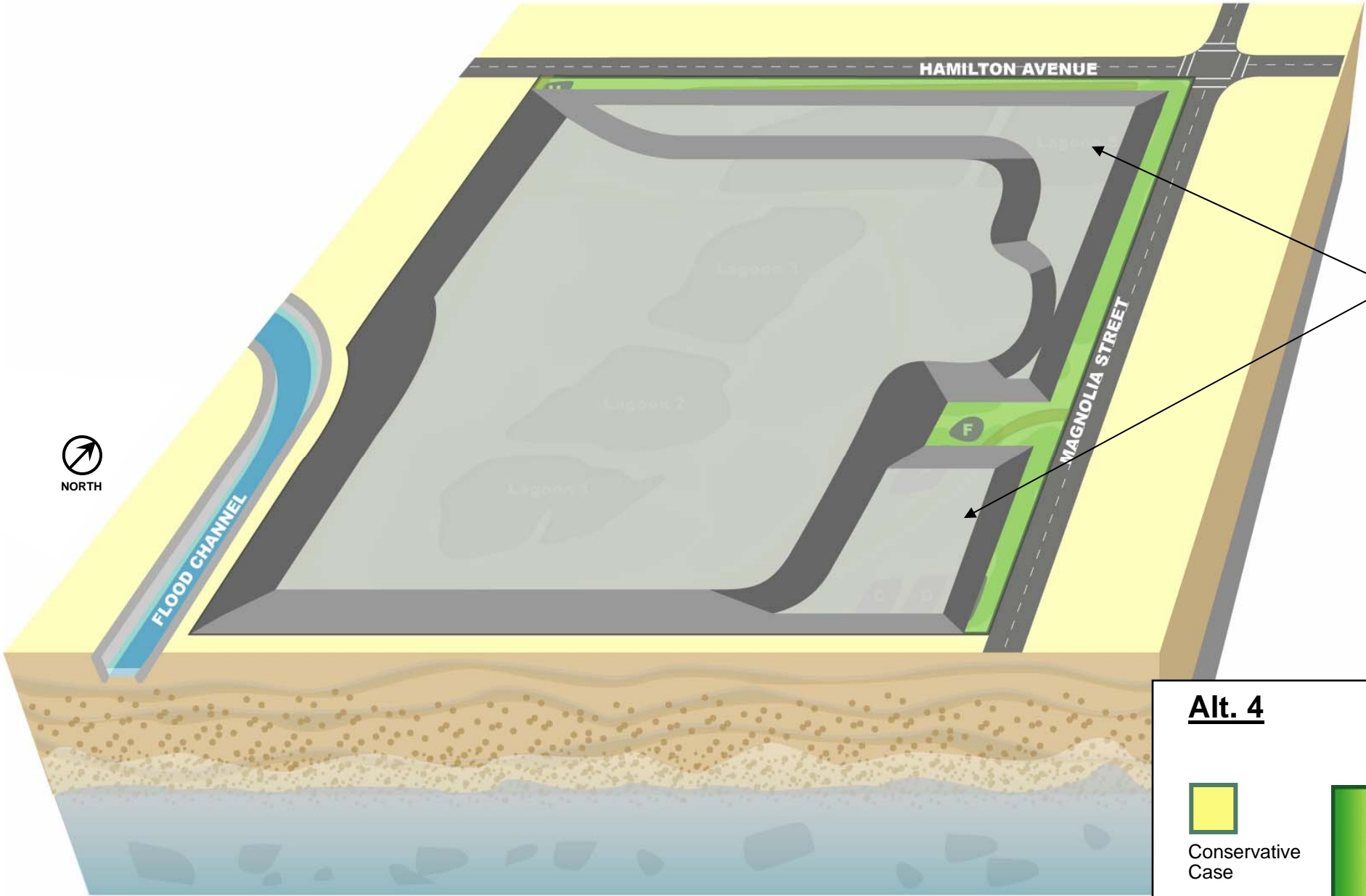


Evaluation of Alternative 5 – Source Removal with Offsite Disposal and Slurry Injection Technology		Figure 9.5-5
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	





Removes nearly 46,000 more cubic yards of waste from Lagoons 4 and 5 than does Alternative 3.



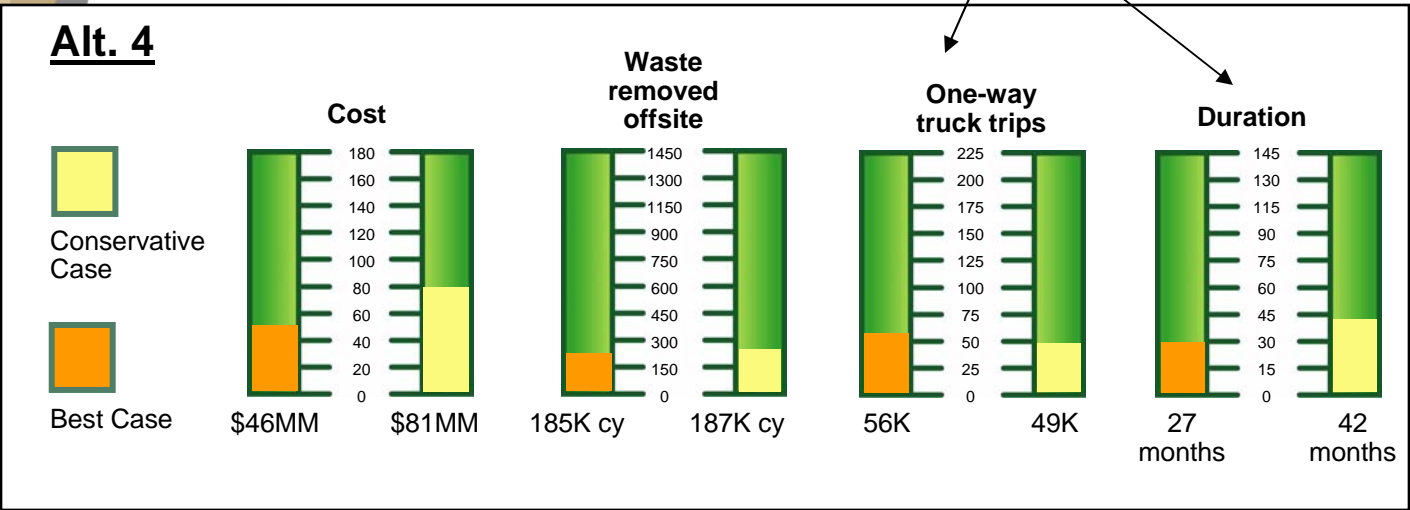
Creates cap that is lower profile near Site perimeter and offsite receptors than that of Alternative 3.

Alternative 4 requires approximately 114,000 fewer truck trips than Alternative 6 and is completed approximately 3 years faster than Alternative 6.

Not to scale

Legend

- Unrestricted use area
- Protective Cap



Benefits of Alternative 4 – Partial Source Removal with Protective Cap		Figure 10.2-1
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	