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August 13, 2001

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Via U.S. Mail

Mr. Ching Pi Wang
Toxics Cleanup Program
Washington Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

Re: Kenmore Industrial Park Final Cleanup Action Plan

Dear Ching-Pi:

Please find enclosed two (2) copies of the Kenmore Industrial Park Final Cleanup Action Plan for the Department of Ecology. In accordance with your request, I am also sending a copy of the Final Cleanup Action Plan to the Office of the Attorney General and to the City of Kenmore. Thank you for your assistance with this project.

Very truly yours,

Madeline J. Kass

Enclosure
cc: Mr. Andrew Fitz, Assistant Attorney General
Mr. Steve Anderson, Kenmore City Manager
Mr. Gary Sergeant
Mr. John Hamilton
Mr. Mark Johns

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FINAL

CLEANUP ACTION PLAN
KENMORE INDUSTRIAL PARK
N.E. BOTHELL WAY AND JUANITA DRIVE N.E.
KENMORE, WASHINGTON

August 8, 2001

DECLARATIVE STATEMENT

This Final Cleanup Action Plan document presents the Washington State Department of Ecology's selected cleanup action for the Kenmore Industrial Park in Kenmore, Washington. Consistent with Chapter 70.105D RCW, "Model Toxics Control Act," as implemented by Chapter 173-340 WAC, "Model Toxics Control Act Cleanup Regulation," it is determined by Ecology that the selected cleanup actions are protective of human health and the environment, attain Federal and State requirements which are applicable or relevant and appropriate, comply with cleanup standards and provide for compliance monitoring. The cleanup actions satisfy the preference expressed in WAC 173-340-360 for the use of permanent solutions within a reasonable time frame, and consider concerns raised during public comment on the draft Cleanup Action Plan.

A determination of nonsignificance (DNS) was issued for the cleanup action on June 25, 2001, in accordance with the State Environmental Policy Act, Chapter 43,21C RCW. After the close of the comment period and review of all of the public comments, Ecology retained the DNS. Additional information can be found in the administrative record for this site on file at the Department of Ecology's Northwest Regional Office in Bellevue, Washington.

Thank you for your interest and participation in the cleanup of the Kenmore Industrial Park.

Ching-Pi Wang
Project Manager
Northwest Region
Toxics Cleanup Program
Washington Department of Ecology

August 8th, 2001
Date

Steve Alexander
Section Head
Northwest Region
Toxics Cleanup Program
Washington Department of Ecology

8-9-01
Date

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CLEANUP ACTION PLAN
KENMORE INDUSTRIAL PARK
N.E. BOTHELL WAY & 68TH AVENUE N.E.
KENMORE, WASHINGTON

1. INTRODUCTION

This Cleanup Action Plan (CAP) for the Kenmore Industrial Park was prepared in accordance with Washington Administrative Code (WAC) 173-340-360 and WAC 173-340-400 Model Toxics Control Act (MTCA) requirements for cleanup action plans.

2. SUMMARY

The site is located north of and adjacent to the mouth of the Sammamish River on an approximately 45-acre property. The property was used in the past as a demolition landfill between the late 1950s and early 1960s. An estimated 800,000 cubic yards of demolition debris underlie the southern two-thirds of the site. The demolition debris area is covered by an estimated 200,000 cubic yards (over 1 foot) of mineral soil cover. The property is currently industrial, but is slated for mixed-use redevelopment, including residential use.

The cleanup action will be implemented in conjunction with proposed redevelopment. The objectives of the cleanup action as described in the RI/FS are to prevent human contact with Contaminants of Concern (COCs) in the landfilled demolition debris and to reduce rainfall infiltration that might otherwise mobilize COCs above levels of concern to surrounding surface waters. The proposed cleanup action includes construction of an engineered cap on a portion of the upland area of the property, implementation of institutional controls, and performance of long-term groundwater monitoring at the points of compliance. The following presents a summary of the key elements of the Cleanup Action:

- Construction of an engineered cap will be phased with planned redevelopment such that the proposed new structures for the development will be designed as an engineered cap. The area between the proposed building footprint and the perimeter fire lane will also be covered with an engineered cap.

- Design and implementation of site modifications outside the engineered cap, between the proposed fire lane and the shoreline, will balance preservation and enhancement goals for natural habitat, public access, and stormwater swale functions.

- Surface deposits of roofing debris will be moved from the southern shoreline to the site interior and capped.

- Landfill gas and natural methane gas management will be implemented in conjunction with cap construction.

- The following institutional controls will be implemented in conjunction with site cleanup: filing a notice on the property deed to notify future owners of the presence of COCs under the property; recording of a restrictive covenant to limit inconsistent site uses, ensure that remedial measures are maintained, and prevent use of groundwater at the site; and preparation of a health and safety plan to address protective requirements for workers. Areas under construction and awaiting redevelopment will have access and erosion controls.

- Health and safety monitoring will be performed during construction activities.

- Groundwater performance and compliance monitoring will be performed during and after construction to verify that contaminants of concern meet cleanup standards at the conditional point of compliance.

If redevelopment is initiated, but is not completed to allow for commercial/residential use of the entire site, appropriate access restrictions and erosion controls will be implemented for the portions of the site that remain industrial. If the entire site remains industrial, deed notices, access restrictions, erosion controls and groundwater monitoring appropriate for continued industrial use and provided for in this Plan will be implemented as the cleanup action.

3. LOCATION AND FACILITY BACKGROUND

Kenmore Industrial Park is located southwest of the intersection of Bothell Way N.E. and 68th Avenue N.E. in Kenmore, King County, Washington, along the 6500 to 6800 blocks of N.E. 175th Street. The site comprises approximately 45 acres and its location is indicated on Figure 1, the Location Map. The southwestern portion of this property forms a peninsula that extends into Lake Washington. The site is currently utilized as an industrial park predominantly occupied by a sand and gravel stockpile yard, and several smaller storage and light industrial operations. The current owner is Pioneer Towing Company, Inc.

4. SUMMARY OF CLEANUP ALTERNATIVES

Based upon the RI, the following contaminants of concern (COC) were selected for evaluation in the FS: diesel- and oil-range petroleum hydrocarbons (DRPH, ORPH), arsenic, barium, lead and selenium in soil, and DRPH, ORPH, arsenic, barium, and lead in groundwater. These substances are randomly distributed within soils in the landfilled portion of the site. The affected media are soil, groundwater and surface water.

Five process options were developed in the FS: no action, institutional controls, groundwater monitoring, containment by engineered containment cap, and containment by permeable groundwater barrier. Various combinations of these process options were evaluated and developed into four viable cleanup action alternatives:

Alternative 1 -	No Action
Alternative 2 -	Institutional Controls and Monitoring
Alternative 3 -	Engineered Low Permeability Cap across a Portion of the Site
Alternative 4 -	Engineered Impermeable Cap with Permeable Groundwater Barrier

All these alternatives, except no action, include institutional controls and compliance monitoring.

In accordance with MTCA, each alternative was reviewed with respect to the following: protection of human health and the environment, compliance with cleanup standards, compliance with applicable state and federal laws, provision for compliance monitoring, short-term effectiveness, long-term effectiveness, permanent reduction of toxicity, mobility, and volume, ability to implement, cost, and provision for a reasonable restoration schedule.

Alternative 3 was selected in the FS process because it is protective of human health and the environment; is readily implementable in conjunction with property development; has a relatively low cost; will not exacerbate oxygen reducing conditions in groundwater at the site; is compatible with landfill gas management and surface water management; is compatible with proposed site redevelopment plans; and poses minimal impact to shoreline habitats.

4.1. Alternative 1 - No Remedial Action

Under the No Action alternative, site development would proceed without any required remedial action. Landfill gas mitigation and consolidation of roofing debris would occur as part of the development. A partial cap would also be constructed, but it would not be engineered to maximize its effectiveness.

4.2. Alternative 2 - Institutional Controls and Monitoring

Under this alternative, site development would proceed without any required remedial action. Landfill gas management and consolidation of roofing debris would occur as part of the development. A partial cap would also be constructed, but it would not be engineered to maximize its effectiveness. Notices would be attached to the existing deeds to prevent future owners from unknowingly intruding on potential subsurface contamination. Groundwater monitoring would be performed, in accordance with a Compliance Monitoring Plan approved by Ecology, to confirm long-term compliance.

4.3. Alternative 3 - Containment by an Engineered Cap on a Portion of the Site

Under Alternative 3 site development would occur in conjunction with installation of an engineered cap over a portion of the site to prevent human contact with the demolition debris and reduce the potential risk of contaminant migration in groundwater beneath the site. This alternative would include management of any landfill gases generated within the demolition debris layer below the cap and consolidation of roofing debris under the cap.

The engineered cap would extend to the proposed fire lane and generally be set back an average of 100 feet behind the shoreline along the river and the lake. The engineered cap would avoid impacting existing wetland, riparian and aquatic habitats around the southern and western site margin. The engineered cap would be extended in areas around the site margin where stormwater ponds/swales are constructed. Potential contact with the demolition debris by humans and the environment might result if excavation occurred in habitat areas designated for protection. Institutional controls would be implemented to limit human interference within those habitats and to require protection of workers performing any excavation activities. Notices and restrictions would be attached to the existing deeds to prevent future owners from unknowingly intruding on subsurface debris. Groundwater monitoring would be performed in accordance with a Compliance Monitoring Plan approved by Ecology.

This alternative assumes that proposed land use redevelopment would ultimately create an estimated 35 acres of engineered cap. The majority of the engineered cap will consist of new, concrete or asphalt structures supported upon structural piling. The landfilled area outside the building footprints that is not covered with concrete or asphalt paving (the "soil cover area") will have a soil cover overlain with landscaping. For purposes of this alternative, "soil cover" means at least 2 feet of soil or equivalent media. Consistent with WAC 173-304-461 specifications for closure of demolition waste landfills, the site was previously closed with a cover of at least 1 foot of soil. Although not required, up to one additional foot of soil or equivalent media will be added on top of the existing cover in the soil cover area where needed to bring the total cover to at least 2 feet in thickness. Soil for the cover may come from areas on-site where the existing cover currently exceeds 2 feet. The additional soil (or equivalent media) above the existing cover will provide an extra measure of protection at the site consistent with the overall goal of protection of human health and the environment. The structures, paved areas, and soil cover will prevent human contact with the demolition debris and reduce the risk of contaminant migration in groundwater beneath the site but without increasing the risk of landfill gas buildup or exacerbating the oxygen reducing conditions in groundwater under the site. A schematic of the non-structural landfill cap is shown in Detail B to figure 2. The area that would be capped under Alternative 3 is presented in Figure 4.

4.4. Alternative 4 - Engineered Impermeable Cap and Permeable Groundwater Barrier

Alternative 4 would include an engineered impermeable cap that encompassed the entire upland portion of the site. In addition, a groundwater barrier would be constructed around the site perimeter, extending out as close to the shoreline as feasible, to slow the rate of exchange between groundwater and adjacent surface water. The barrier would be permeable, to prevent the groundwater table from rising underneath the upland area.

Alternative 4 would cap the entire upland portion of the property. However, installation of the barrier would displace existing wetland, riparian and aquatic habitats in the vicinity of the southern and western site margins. Installation of the impermeable cap would potentially increase methane risk, exacerbate oxygen reducing conditions that could mobilize COCs in groundwater, and increase stormwater runoff. Expansion of the cap to the shoreline would also displace existing habitat areas in an effort to maximize coverage of the upland area. This alternative conflicts with existing shoreline management permit conditions for site development which require an uncapped buffer zone along the shoreline.

This alternative assumes that, over the course of phased development, impervious cover will be constructed across the landfilled portion of the 45-acre site up to the perimeter established by the groundwater barrier wall. Approximately 30 acres of impervious structure would be in the form of parking areas and buildings and the balance of property, extending out to the shoreline, would be cleared of all existing trees and vegetation, graded, and resurfaced with a landscaped impermeable cover. The new structures and cover would be engineered to serve as an impervious cap and prevent human contact with the demolition debris and to intercept rainfall infiltration that might otherwise mobilize COCs into the groundwater table or surface waters. The impermeable cap could increase the risk of methane buildup, exacerbate the oxygen reducing conditions in groundwater under the site, and increase stormwater runoff.

5. SITE CLEANUP LEVELS AND POINTS OF COMPLIANCE

Establishing cleanup standards involves the specification of cleanup levels (concentrations protective of human health and the environment) and points of compliance (the location on the site where cleanup levels must be attained). The cleanup levels and points of compliance for the COCs at the site are identified in the following paragraphs. The applicable cleanup levels and COC concentrations are shown on Tables 5-1 through 5-6.

5.1. Groundwater Cleanup Levels

As discussed in the RI/FS, the proposed groundwater cleanup levels are based on protecting beneficial uses of adjacent surface water. MTCA allows groundwater cleanup

levels based on protecting beneficial uses of adjacent surface water where, as here, the groundwater at the site is hydraulically connected to the adjacent lake and river waters, the surface water is not a suitable domestic water supply source, groundwater flows into surface waters do not exceed applicable surface water cleanup levels, institutional controls will prevent the use of contaminated ground water prior to entry into surface water, and it is unlikely that hazardous substances will be transported from the contaminated ground water to groundwater that is a current or potential future source of drinking water. WAC 173-340-720. MTCA regulation WAC 173-340-700(4)(d) provides that where natural background concentrations are greater than the cleanup level established by Methods A, B, or C, the cleanup level is set at the natural background concentration. The cleanup levels for groundwater are shown on Table 5-1.

5.1.1 TPH Groundwater Cleanup Levels

The proposed groundwater cleanup level for TPH (ORPH and DRPH) is based on MTCA Method A for groundwater. The MTCA Method A groundwater cleanup level is used because there is no applicable surface water cleanup level under MTCA Methods A, B, or C and there is no MTCA Method B groundwater cleanup level. Specifically, the *Water Quality Standards for the State of Washington* (WAC 173-201A) do not set cleanup limits for petroleum hydrocarbons and total petroleum hydrocarbons are not listed in the Method B CLARC II tables (February 1996). Based on MTCA Method A, the groundwater cleanup level for diesel and heavy oil range TPH is 1,000 µg/L. The TPH cleanup level is currently met at the conditional point of compliance based upon samples collected from the downgradient perimeter monitoring wells and analyzed using Ecology's proposed silica gel cleanup method. See Table 5-4.

5.1.2 Arsenic Groundwater Cleanup Levels

The proposed groundwater cleanup level for arsenic is based on the natural background concentration of arsenic. Application of the human health surface water quality criteria for protection of beneficial uses of adjacent surface water establishes a cleanup level for arsenic of 0.018 µg/l based on consumption of organisms that live in the water. However, where the MTCA method establishes a concentration that is below natural background concentrations, the cleanup level is adjusted to equal the natural background concentration. WAC 173-340-700(4)(d). Based on natural background concentrations for arsenic of 5 µg/l in groundwater in the state, the groundwater cleanup level for arsenic at the site is 5 µg/l. With the exception of a single anomalous exceedence in well AW-10, groundwater samples from downgradient perimeter wells tested in 1996 were all below natural background concentrations. Further, follow-up groundwater samples collected in 2001 from all of the existing downgradient perimeter wells are all below natural background concentrations. Therefore, the arsenic cleanup level is currently met at the conditional point of compliance. See Table 5-4

5.1.3 Lead Groundwater Cleanup Levels

The groundwater cleanup level for lead is based on protecting beneficial uses of adjacent surface water. The Water Quality Standards for Surface Waters of the State of Washington provide the relevant groundwater cleanup levels. The chronic aquatic life surface water lead standard is a dissolved standard based on a hardness dependent formula, rather than a single concentration. The formula is:

Lead Cleanup Level = (1.46203 - [(ln hardness)(0.145712)])(e(1.273[ln(hardness)]-4.705))

Based on the most conservative hardness measurement from the existing downgradient perimeter monitoring wells (524 mg/l CaCO3 equivalents), the current cleanup level is 14.4 µg/L. All of the site groundwater wells data, including all of the existing downgradient perimeter monitoring wells, are below the formula lead cleanup level. Therefore, the lead cleanup level is currently met at the conditional point of compliance. See Table 5-4.

5.1.4 Barium Groundwater Cleanup Levels

The groundwater cleanup level for barium is based on protecting beneficial use of adjacent surface water. Application of the surface water cleanup level from EPA's National Recommended Water Quality Criteria establishes a cleanup level for barium of 1,000 µg/L. Groundwater barium samples from downgradient perimeter wells tested in 1996 were all below the cleanup level, except a single anomalous exceedence in well AW-11. Follow-up groundwater samples collected from well AW-11 and from all other existing downgradient perimeter wells in 2001 are all below the cleanup level. Therefore, the barium cleanup level is currently met at the conditional point of compliance. See Table 5-4.

5.2. Soil Cleanup Levels

Organic and inorganic COC cleanup levels for soil are based on MTCA Method A and Method B residential soil values. The cleanup levels for soil are shown on Table 5-2. Based on MTCA Method A, the applicable residential cleanup levels for arsenic, lead and TPH (ORPH and DRPH) are 20.0, 250, and 200 mg/kg, respectively. Where no Method A cleanup level exists for a soil COC, applicable residential cleanup levels are based on the most stringent MTCA Method B soil values. Under MTCA Method B criteria, the most stringent soil cleanup levels are equal to 100 times the surface water standards, resulting in a barium cleanup level of 100 mg/kg and in a selenium cleanup level of 0.5 mg/kg. TPH soil concentrations exceed the cleanup standard throughout the landfilled areas of the site. See Table 5-5. Barium, selenium and lead soil concentrations exceed

cleanup levels at various locations throughout the site. See Table 5-5. However, existing groundwater concentrations meet the cleanup levels at the conditional point of compliance. Therefore, the existing soil concentrations at the site are protective of groundwater. There are no exceedences of the soil arsenic cleanup levels.

5.3. Points of Compliance

5.3.1 Groundwater Point of Compliance

In accordance with MTCA, compliance with the cleanup levels for TPH, lead, and arsenic in groundwater will be determined at a conditional point of compliance. Although typically MTCA requires that a point of compliance be established "throughout the site," conditional points of compliance are allowed at sites where hazardous substances remain onsite as part of the cleanup action or where the affected groundwater flows into nearby surface water. WAC 173-340-720(6)(c) and (d). In cases where the conditions listed in WAC 173-340-720(6)(d) are met, MTCA allows a conditional point of compliance "within the surface water as close as technically possible to the point or points where ground water flows into the surface water." WAC 173-340-720(6)(d).

Achieving groundwater cleanup levels throughout the site is not a reasonable expectation here because hazardous substances will be contained on site. Also, the groundwater flows to nearby surface water. Therefore, based on WAC 173-340-720(6)(c) and (d), Ecology has approved a conditional point of compliance for TPH, lead and arsenic at the shoreline of the site. Groundwater COC concentrations will be monitored at the existing downgradient perimeter monitoring wells AW-6, AW-10, AW-11, and AW-12 or similar replacements. These four shoreline wells are situated within the property boundary and within 100 feet of the existing lake and river shorelines. An estimate of attenuation between the monitoring wells and the shoreline may be considered, as provided in the Compliance Monitoring Plan to be submitted and approved by Ecology, in evaluating compliance with the TPH and lead cleanup levels because the cleanup levels for these COCs are based on the protection of adjacent surface water. Attenuation will not be considered for arsenic because the cleanup level is based on groundwater background concentrations. If future sampling data from the shoreline wells exceed cleanup standards, appropriate follow-up sampling will occur to confirm the data before further action is taken. All of the sampling will be performed in accordance with provisions of the MTCA regulations and the Compliance Monitoring Plans required to be submitted and approved by Ecology after entry of the Consent Decree.

5.3.2 Soil Point of Compliance.

In general, the point of compliance for soil cleanup standards is established in the soils throughout the site in accordance with WAC 173-340-740(6). However, WAC 173-340-740(6)(d) provides that in cases where containment is a component of the cleanup action,

"the cleanup action may be determined to comply with cleanup standards" where the compliance monitoring program ensures the long-term integrity of the containment system and related containment measures are implemented in accordance with WAC 173-340-360(8). All of the alternatives evaluated in the Remedial Investigation and Feasibility Study (RI/FS) and discussed in this Cleanup Action Plan, including the selected cleanup alternative, provide for the implementation of institutional controls and monitoring to achieve the Remedial Action Objectives (RAOs) for contaminated soil that will remain at the site. Also, the proposed containment and compliance program for this site, as discussed in detail in Section 11.0, satisfies the conditions in WAC 173-340-360(8). Therefore, in accordance with WAC 173-340-740(6)(d), the cleanup action at the site will comply with soil cleanup standards.

5.4. Industrial Cleanup Standards

If redevelopment does not occur and the site remains industrial, cleanup standards are based on continued industrial use of the site. Typically, industrial cleanup levels are equal to or less stringent than the cleanup levels for residential use. The applicable groundwater cleanup levels for continued industrial use are based on protection of surface water. The groundwater cleanup levels are 1,000 ug/l for TPH, 14.4 ug/l for lead, 1,000 ug/l for barium, and 5 ug/l for arsenic (based on natural background). These groundwater cleanup levels are the same as the cleanup levels for residential use. See Sections 5.1.1, 5.1.2, 5.1.3 and 5.1.4 above. The cleanup levels for groundwater are shown on Table 5-1.

For soil COCs, the proposed industrial soil cleanup levels for continued industrial use are based on the MTCA Method A Industrial Soil Table and MTCA Method C calculations. The applicable soil cleanup levels for continued industrial use are 200 mg/kg for TPH (diesel and heavy oil), 200 mg/kg for arsenic, and 1,000 mg/kg for lead based on the Method A cleanup levels for industrial soils. The applicable soil cleanup levels for continued industrial use are 100 mg/kg for barium and 0.5 mg/kg for selenium based on MTCA Method C (100 x the applicable groundwater cleanup level). These soil cleanup levels are equal to or less stringent than the soil cleanup levels for residential use. See Section 5.2. The industrial cleanup levels for soil are shown on Table 5-3.

The groundwater and soil points of compliance are the same as identified in Section 5.3.1 and Section 5.3.2 respectively.

With respect to groundwater, the industrial groundwater cleanup levels for the COCs are currently met at the conditional point of compliance. See discussion in Section 5.1 above and Table 5-4. As for soils, landfilled debris that exceed the soil cleanup levels for TPH, barium, lead and selenium will be left in place beneath the existing soil cover. See, Table 5-6. Institutional controls and a monitoring program appropriate for continued industrial use, as described in Section 7, will be implemented to achieve the RAO of preventing human contact with landfilled media.

6. SCHEDULE FOR IMPLEMENTATION, RESTORATION TIMELINE

Following submittal of the draft RI/FS, CAP, and Consent Decree documents for the 30-day public comment period, and issuance of a Final CAP and entry of the Consent Decree, the implementation time frame for the first phase would consist primarily of engineering design. A copy of the timeline is included as Attachment A. If development occurs, the cleanup action would be implemented in phases over seven to 15 years in conjunction with the proposed development. The following elements of the cleanup can be commenced shortly after issuance of the Final CAP:

- Preparation and filing of deed notices;
- Preparation of a health and safety plan in accordance with WAC 173-340-810;
- Preparation of a sampling and analysis plan in accordance with WAC 173-340-820 for groundwater compliance monitoring; and
- Preparation and submittal of Draft and Final Engineering Design Reports, including the Landfill Gas Design Report.

Once permits for the development are obtained, the following remedial tasks would begin in conjunction with City of Kenmore development time lines, and be completed over the course of development:

- Phased construction of the development, which will be engineered as a cap over the landfilled media.
- Access controls and implementation of erosion control BMPs for site areas that will not be developed in the first phase;
- Consolidation of roofing debris away from the southern shoreline to the site interior;
- Phased construction of the landfill gas management system, which will be incorporated in the building and pavement development footprint to control landfill gas beneath the development cap.

Phase specific Compliance Monitoring Plans will be prepared and submitted to Ecology for review and approval for each phase of the redevelopment. See Attachment A, Timeline. Ecology will also review the cleanup action, in accordance with WAC 173-340-420, no less frequently than every five years to assure that human health and the environment are being protected. Bimonthly progress reports on the status of the cleanup action will be submitted to Ecology. Semi-annual groundwater monitoring data will be submitted to Ecology for on-going review, and meetings may be scheduled at least every two years to discuss the status of the cleanup action and compliance monitoring program.

7. INSTITUTIONAL CONTROLS AND MONITORING

Several institutional controls (measures undertaken to limit or prohibit activities that may interfere with the integrity of a cleanup action or result in exposure to hazardous substances at the site) and monitoring programs will be implemented in conjunction with the site cleanup. These controls and monitoring programs include:

- Notice on the property deed to notify future owners of the presence of COCs under the property.

- A deed restriction with conditions to prohibit extraction and use of groundwater at the site, maintain the integrity of the cap; and require adherence to measures for protection of construction workers who may come into contact with landfilled media.

- Access controls to prohibit incompatible uses of areas under construction and awaiting development. Site access controls will include fencing of and signage at all areas under active construction. In addition, upon initiation of actual residential site use, the remaining industrial areas (areas upland of the fire lane that are neither in residential use nor under construction) will be fenced until the soil cover and erosion controls provided for in this Cleanup Action Plan are installed in such areas.

- Erosion controls for areas under construction and awaiting development.

- Health and safety monitoring during construction activities.

- Groundwater (and surface water if necessary) performance and compliance monitoring during and after construction as provided for in a Compliance Monitoring Plan deliverable subject to Ecology approval in accordance with the attached timeline. The Compliance Monitoring Plan will include verification sampling and consultation with Ecology as contingency steps in the case of non-compliance. All submittals pursuant to the Plan will include water levels, field parameters, and analytical parameters.

- Department of Ecology periodic review, in accordance with WAC 173-340-420.

- Periodic cap inspections and maintenance.

If site redevelopment does not occur, the following institutional controls and monitoring will be implemented:

- Notice on the property deed to notify future owners of the presence of COCs under the property.

- A deed restriction appropriate for continued industrial use with conditions to prevent extraction and use of groundwater at the site and prohibit soil excavation without proper health and safety procedures.

- Access controls to prohibit incompatible site uses. Fencing and prominent signage at site access points will constitute access control if redevelopment does not proceed.

- Erosion controls as appropriate for continued industrial use.

- Groundwater (and surface water if necessary) performance and compliance monitoring appropriate for continued industrial use as provided for in a Compliance Monitoring Plan deliverable subject to Ecology approval in accordance with the attached timeline. The Compliance Monitoring Plan will include verification sampling and consultation with Ecology as contingency steps in the case of non-compliance. All submittals pursuant to the Plan will include water levels, field parameters, and analytical parameters.

8. JUSTIFICATION

The selected alternative will attain the remedial action objectives (RAOs) over the long-term. The RAOs established in the draft RI/FS for the site are 1) prevention of human contact with landfilled media, and 2) reducing potential migration of COCs to surrounding surface waters. Groundwater COCs currently meet the cleanup levels for the site at the conditional point of compliance, therefore, the remainder of this Section focuses on the goal of preventing human contact with the landfilled media.

In the RI/FS, each alternative was evaluated by the following criteria: short-term effectiveness, long-term effectiveness, permanent reduction of mobility, ability to implement, and cost. The selected alternative will meet the short-term effectiveness goal through the implementation of health and safety procedures to protect workers during site construction. Long-term effectiveness will be achieved by the completion of the cap and the implementation of the groundwater compliance monitoring program. The selected alternative will reduce contaminant mobility, but not toxicity or volume. The cleanup action is readily implementable as part of the site redevelopment over an estimated time period of seven to 15 years. The cost of the remedial action is considered practicable relative to the risks reduced, when implemented in conjunction with planned redevelopment.

Institutional controls will be implemented at the outset that prohibit extraction and use of groundwater at the site and that provide access and erosion controls. Worker safety and health plans containing measures to protect workers during construction will also be implemented after review and approval by Ecology. See, Timeline, Attachment A. Periodic cap inspections and maintenance will occur in accordance with Operation and Maintenance Plans prepared and approved for each phase of the development.

Groundwater performance monitoring will take place to verify effectiveness of remediation efforts through each phase of planned development in accordance with Compliance Monitoring Plans to be submitted to and approved by Ecology. Due to the length of time anticipated to develop and cap the site in phases, protection, performance, and conformational monitoring schedules will proceed concurrently as development progresses. Meetings will be scheduled with Ecology at least every two years to review groundwater monitoring data, and review the goals and appropriateness of continued monitoring for each phase. Ecology will review the cleanup action, in accordance with WAC 173-340-420, no less frequently than every five years to assure that human health and the environment are being protected.

9. APPLICABLE STATE AND FEDERAL LAWS

Under MTCA, remedial actions must comply with the substantive requirements of applicable state and local laws and all requirements of applicable federal law. The applicable state and federal laws for the proposed cleanup action are set out in detail in the Applicable State and Federal Laws Table attached to this Cleanup Action Plan as Attachment B. Notification will be provided to Ecology as to any additional substantive requirements of state and local laws that are determined to apply.

10. COMPLIANCE WITH THRESHOLD AND OTHER REQUIREMENTS

The proposed cleanup action plan will comply with MTCA threshold and other requirements for protecting human health and the environment by preventing human contact with the landfilled media and by reducing the potential risk of contaminant migration in groundwater beneath the site.

10.1. MTCA Threshold Requirements

All cleanup actions conducted under MTCA must protect human health and the environment, comply with cleanup standards, comply with applicable state and federal laws, and provide for compliance monitoring. These "threshold requirements" are defined in WAC 173-340-360 (2). The remedial action will comply with these threshold requirements by preventing human contact with landfilled materials; reducing the potential risk of contaminant migration in groundwater beneath the site; complying with all applicable state and federal requirements listed in Section 9.0; and providing groundwater (and surface water if needed) compliance monitoring to verify that cleanup standards continue to be met at the conditional point of compliance. In addition, the engineered cap will not interfere with the southern or western shoreline habitat areas. The engineered cap will also be designed to incorporate landfill gas management, reduce stormwater flows associated with developed surfaces, and avoid exacerbating existing reducing conditions.

TPH concentrations currently exceed the soil cleanup standard at three locations, and lead and arsenic concentrations exceed the soil cleanup standard throughout the site. However, existing groundwater concentrations meet the groundwater cleanup standards at the conditional point of compliance. Therefore, the existing soil concentrations at the site are protective of groundwater and surface water for either proposed residential or continued industrial uses.

Temporary erosion and sedimentation control (TESC) measures and BMPs will be implemented during construction, on active and inactive phases of the development, to protect surface water quality in compliance with substantive requirements under the Clean Water Act and Water Pollution Control Act. Phasing is discussed further in Section 10.3.

The cleanup action provides for compliance and performance monitoring to verify that groundwater continues to meet cleanup standards, as described in Section 11.2.

10.2. MTCA Other Requirements

Other requirements are defined in WAC 173-340-360 (3) and include application of reasonable restoration timeframes, consideration of public comments, and use of permanent solutions to the maximum extent practicable. The selected alternative satisfies each of these requirements. First, the restoration time frame for the site will reasonably achieve the remedial action objectives within the time frame for the applicable property use. If the change in land use to mixed residential/commercial goes forward for any part of the site, an engineered cap and associated institutional controls will be in place prior to residential use of such areas. If the site remains industrial, institutional controls and monitoring appropriate for ongoing industrial uses will be implemented as soon as practical after entry of the consent decree. Second, public concerns will be addressed through the Public Participation Plan prepared concurrently for, and attached to, the project Consent Decree.

As part of the public participation process, a thirty day comment period is scheduled to begin on June 25, 2001 and run until July 24, 2001. An open house and public hearing is scheduled for July 11, 2001.

In addition, the selection of a partial engineered cap as the proposed cleanup action maximizes practicable use of permanent solutions. MTCA regulations provide that cleanup actions should use permanent solutions to the maximum extent practicable in order to minimize the amount of untreated hazardous substances remaining at a site. WAC 173-340-360(3)(a), (4)(a). The regulations also recognize that permanent solutions are not practicable for all sites. WAC 173-340-360(4)(d). The criteria for evaluating practicability include: overall protectiveness of human health and the environment; long term effectiveness; short-term effectiveness; permanent reduction of toxicity, mobility

and volume of the hazardous substance; ability to be implemented; cleanup costs; and the degree to which community concerns are addressed.

Alternative 3, the selected alternative, is permanent to the maximum extent practicable for the site and consistent with routine landfill cleanup actions. Installation of an engineered cap will prevent human contact with landfill demolition debris under the cap and reduce the potential risk of contaminant migration in groundwater beneath the site. Over the short term, health and safety procedures will protect workers that would be exposed to landfilled media during site construction activities. Over the long term, this alternative will reduce mobility of contaminants and effectively achieve the remedial action objectives. Moreover, the cost of this alternative is considered practicable relative to the risks reduced when implemented in conjunction with planned redevelopment. If site development does not occur under this alternative and the property remains in industrial use, the applicable deed notices, access restrictions, erosion controls and groundwater monitoring provided in this Cleanup Action Plan are permanent to the maximum extent practicable for the site and consistent with routine demolition debris landfill cleanup actions for industrial properties. If the site remains in industrial use, institutional controls and groundwater monitoring appropriate for such industrial use will achieve the Remedial Action Objective of limiting human contact with landfill demolition debris that will remain on site.

Remedies that might provide more permanent solutions than alternative 3 are not feasible at the site. The landfilled areas are characterized by low levels of contamination in landfill media dispersed over significant portions of the site. Due to the large area (approximately 35 acres) and significant depth (average 14 feet) of impacted landfilled media (approximately 24,393,600 cubic feet) and the varying groundwater levels due to lake fluctuations, excavation of soil would be difficult, prohibitively expensive, and could not be accomplished without impairing existing shoreline, wetland, and aquatic habitats. Removal, treatment, and subsequent replacement of affected soil would also impact surface water quality, require relocation of existing utilities, and impair adjacent facility operations. Finally, due to the low volatility of the contaminants at the site, the high groundwater recharge capacity of the adjacent surface water bodies, and the absence of free product, *in situ* treatment technologies are not considered feasible.

A detailed evaluation of all of the alternatives with respect to the practicability criteria is provided in the RI/FS. A more detailed discussion of the alternative selection process is presented in Section 8.0.

10.3. Compliance During Project Phasing and Continued Industrial Use

If redevelopment proceeds, construction of the engineered cap will be phased with development over a period of seven to 15 years. During this time interval, the majority of the site will either be undergoing construction or remain industrial. These areas are

shown on Figure 3 as Phases 1-6. Compliance with the RAOs will be met with provisions to protect site workers and the general public during and after the onset of site redevelopment.

Health and safety provisions to protect site workers will be implemented as part of a Worker Safety and Health Plan (per WAC 173-340-810) after review and approval of the Plan by Ecology. These provisions would also apply to site workers performing cap inspection, maintenance or repair duties. Areas under construction will be fenced for access control. These provisions will be implemented prior to the time of initial site clearing, and continue as phased development and cap construction proceed. Phasing of temporary erosion and sedimentation control measures, as they pertain to the RAOs, will involve implementation of measures at the outset of the project on active and inactive phases of development. The temporary erosion and sedimentation control measures may include hydro-seeding of inactive phase areas, maintenance of siltation fencing, and/or construction of temporary, construction-phase retention facilities. Phasing of temporary erosion and sedimentation control measures and the measures to be implemented are discussed further in Section 11.1.3. During the time period after commencement of on site residential use and prior to installation of a soil cover, industrial use areas upland of the firelane will be fenced to control incompatible uses.

If redevelopment is initiated but is not completed to allow for commercial/residential use of the entire site, institutional controls and groundwater monitoring appropriate for continued industrial use, as described in Section 7.0 of this plan, will be implemented for the portions of the site that remain industrial. If redevelopment does not proceed and the entire site remains industrial, institutional controls and groundwater monitoring appropriate for continued industrial use, as described in Section 7.0 of this plan, will be implemented for the entire site.

11. CONTAINMENT AND COMPLIANCE PROGRAM

The containment and compliance program will apply to the landfilled area as generally shown on figure 4. In addition to the site containment and compliance program, a Worker Safety and Health Plan (per WAC 173-340-810) with measures to protect the health and safety of workers during construction activities will be prepared in accordance with the Cleanup Action Plan Timeline and subject to Ecology review and approval.

11.1. Containment

The purpose of containment will be to prevent human contact with the landfilled debris and to reduce the potential risk of contaminant migration in groundwater beneath the site. The site containment program will consist of, or be integrated with, the following elements:

- Relocation of surficial roofing debris away from the southern shoreline to the site interior.
- Site grading.
- Surface water runoff management.
- An engineered cap covering approximately 68 percent of the site area, as generally shown on Figure 4. Construction of the engineered cap will be phased with redevelopment.
- Management of landfill gases that may accumulate beneath the engineered cap.
- Utility installations.
- Rehabilitation of the existing channel bulkhead.
- Construction of storm water treatment swales and grading outside the engineered cap.

Each of these elements is discussed below.

11.1.1 Relocation of Roofing Debris

Surface deposits of roofing debris will be relocated from the southern shoreline area and relocated to the lower elevations of the site interior for placement beneath the engineered cap during site grading.

11.1.2 Site Grading

Combinations of cuts and fills will occur as part of the cleanup and development. In addition, construction of planned stormwater pond/swales and utility trenches will involve excavations into the landfilled debris. Excavations will likely encounter two to three feet of existing soil cover over the landfilled media, which consists predominantly of demolition debris with concrete and asphalt rubble, and some soil. Excavated media will be relocated for placement beneath the engineered cap or to designated fill areas outside the engineered cap. Contaminated media will not be used as fill in areas outside the engineered cap without Ecology approval.

Relocation of landfilled media for placement under the engineered cap will take place, to the extent practicable, during the preliminary grading phase, prior to pile installations. Construction of the engineered cap is described in Section 11.1.4. Surface completion of stormwater pond /swales and other areas outside the development footprint is described in Section 11.1.8.

An array of four shoreline monitoring wells will constitute the conditional point of compliance. Site development or re-grading activities may necessitate replacement, or vertical extension, of the some wells. Modifications to the compliance wells would be resurveyed.

All site grading activities will comply with the substantive requirements of applicable state and local laws and with all requirements of applicable federal laws. The requirements of federal, state, and local laws applicable to the cleanup are described in Section 9.0. Notification will be provided to Ecology as to any additional substantive requirements that are determined to apply.

11.1.3 Surface Water Runoff Management

Temporary erosion and sedimentation control measures and BMPs will be implemented at the outset of the project on active and inactive phases of development in accordance with federal, state and municipal regulations at the onset of construction to protect surface water quality. Appropriate temporary erosion and sedimentation control measures may include hydro-seeding of inactive phase areas, maintenance of siltation fencing, and/or construction of temporary, construction-phase retention facilities. The existing stormwater collection and discharge system will be replaced and be diverted to temporary facilities during the construction phase.

Once each phase is constructed, rainfall that lands on or flows onto the developed surfaces (parking lots, buildings) will be intercepted by the stormwater collection and treatment systems before discharge to the Sammamish River or Lake Washington.

Storm retention/detention facilities will be lined with an impermeable membrane to prevent infiltration to the landfilled media. Preparation will include excavation and removal or cover of angular debris that could compromise the integrity of the membrane. All storm water management activities occurring on, or for control of runoff from, the engineered cap will be carried out in compliance with the substantive requirements of applicable laws. Discharge of collected storm runoff from the engineered cap will comply with the substantive municipal requirements contained in the 1998 King County Surface Water Management manual and any updates and revisions thereto applicable at the time of design plan approval. If contaminated sediments are discovered in the existing storm-water collection system, the sediments will also be managed in accordance with the substantive requirements of applicable laws.

Contingency procedures and design features to address and control spills and accidental discharges will be included in the Engineering Design Report and Operations and Maintenance Plan deliverables subject to Ecology review and approval and in the Contingency Plan submitted pursuant to the Shoreline Substantial Development Permit (File No. L96SH107).

11.1.4 Engineered Cap

The majority of the engineered cap will consist of new, concrete or asphalt structures supported upon structural piling. The landfilled area outside the building footprints that is not covered with concrete or asphalt paving (the "soil cover area") will have a soil cover overlain with landscaping. For purposes of this cleanup action, "soil cover" means at least two feet of soil or equivalent media. Consistent with WAC 173-304-461 specifications for closure of demolition waste landfills, the site was previously closed with a cover of at least one foot of soil. Although not required, up to one foot of soil or equivalent media will be added on top of the existing cover in the soil cover area to bring the total cover up to at least two feet in thickness. Soil for the cover may come from areas on-site where the existing cover currently exceeds two feet. The additional soil (or equivalent media) above the existing cover will provide an extra measure of protection at the site consistent with the overall goal of protection of human health and the environment. A schematic of the soil cover (non-structural landfill cap) is shown in Detail B to figure 2. The structures, paved areas, and soil cover will prevent human contact with the demolition debris and reduce the risk of contaminant migration in groundwater beneath the site but without increasing the risk of landfill gas buildup or exacerbating the oxygen reducing conditions in the groundwater at the site.

Redevelopment and cap construction will occur in several phases, beginning with the eastern portion of the subject property. The presently planned general phasing pattern is indicated on Figure 3.

Within the building footprint, pile installations for the new structures, and for the Lakepointe Way N.E. flyover, will use cranes to embed piling into dense sand and gravel soils found at depth beneath the site. Various types of driven piling suitable for use at the subject site are recommended in AGRA"s *Preliminary Geotechnical Engineering Report* dated 8 November 1996. Appropriate pile types include cast-in-place, driven grout, precast concrete, steel pipe, or steel H-piles. These pile types generally will not raise landfilled debris to the surface or generate excessive amounts of waste concrete during installation. In the event that piles are augered in place rather than driven, small quantities of landfilled debris brought to the surface, and any excess concrete or liquids, will be contained as described in Section 11.1.2. The lowest level of the pile supported structures will be situated at Elevation 25 feet and be utilized as parking space. The parking floor elevation will be established to achieve a balanced cut and fill and to accommodate a landfill gas management system, to the extent such a system is necessary. Figure 2 depicts conceptual profiles for structural (pile-supported) areas.

Outside of the building footprint, the engineered cap will extend out to a fire lane easement in the form of a soil cover. After installation, the cover will be overlain with topsoil to support appropriate vegetation, or concrete or asphalt to provide further protection from surface disturbance. Where used, appropriate landscape plantings will be

selected and installed in a manner consistent with maintaining the integrity of the engineered cap. Figure 2 depicts conceptual profiles for non-structural areas.

Operation and Maintenance Plan provisions, subject to review and approval by Ecology, and deed restrictions on the property will assure that the cap is protected during construction and occupation of the site. In addition, periodic inspections will be performed to evaluate the condition and performance of the engineered cap. Formal inspections of the entire site will be performed twice a year throughout construction of the engineered cap and redevelopment, and annually thereafter. Cap repairs will also be subject to reinspection. The scope of inspections will include, but not be limited to, cracks, deflections, seepage, drainage issues, landfill gas emissions, the effects of pile driving and construction activities, and movement of heavy equipment. Detailed provisions for periodic inspections will be included in the Operation and Maintenance plan deliverable that is subject to review and approval by Ecology.

11.1.5 Landfill Gas Management

Landfill gas mitigation will be addressed in the engineering design stage. A Landfill Gas Design Report will be a deliverable submitted during the design stage and subject to Ecology review and approval. The Landfill Gas Design Report will discuss gas characterization, distribution, constituents, probe installation, passive and active management options, and applicable requirements in Chapter 173-304 WAC. Landfill gas generated by decomposition of the landfilled media and of the underlying native peat soils will be managed to prevent unsafe or excessive accumulation underneath the development and engineered cap. Control and treatment of landfill gas accumulations, as appropriate, will be accomplished in accordance with the applicable substantive provisions of King County Solid Waste Regulations, Chapter 10.76.020 and Chapter 173-304 WAC.

11.1.6 Utility Installations

Utility installations will be buried underground or suspended through the lower building levels within utilidors. Watertight seals will be used where utilities pass into a utilidor from outside the building footprint. Flexible connections will be used to accommodate differential settlements where utilities extend beyond the pile-supported areas of the engineered cap. Fill materials excavated during utility installations will be placed under the cap in accordance with Site Grading, Section 11.1.2. Buried utility systems within the landfilled area that are not pile-supported will use flexible couplings to accommodate gradual shifting or settling of soil over time. No special environmental engineering requirements are anticipated for underground utilities installed north of the landfilled area.

11.1.7 Bulkhead Rehabilitation

The existing bulkhead facing the Kenmore Navigation Channel will be rehabilitated by placing a new sheet pile bulkhead immediately landward of the existing bulkhead or by placing a new sheet pile bulkhead immediately waterward of the existing bulkhead. The new sheet pile bulkhead will be engineered so tie-backs are not required, thereby allowing any contaminated material present behind the existing bulkhead to remain undisturbed. This will require the use of interlocking sheet pile section, or "Z-piling" with a deep section and may move the front face of the bulkhead a maximum of three feet waterward. Along some portions of the existing bulkhead voids are presumed to be present and will be filled with either granular fill or fill material excavated from other areas on site. Contaminated media excavated from other areas of the site will not be used as fill material for bulkhead rehabilitation unless approved by Ecology. The backside of the new sheet pile bulkhead will be lined with a membrane to create an impermeable barrier between the lake and the fill material. The final design of the bulkhead will be an element of the Engineering Design Report that is subject to review and approval by Ecology as a deliverable required under the Cleanup Action Plan Timeline.

All bulkhead rehabilitation activities will comply with the substantive requirements of applicable state and local laws and with all requirements of applicable federal laws, including any applicable Army Corps of Engineer permitting requirements. The federal, state, and local laws applicable to the cleanup are described in Section 9.0. Notification will be provided to Ecology as to any additional substantive requirements that are determined to apply.

11.1.8 Stormwater and Utility Construction

Construction of the site stormwater system will manage rain runoff from the building footprint area, including parking lots and roof areas. The stormwater collection system will discharge to vaults/pond/swales and/or to storm outfalls that discharge runoff to the Sammamish River. An impermeable layer will be installed beneath the vault/pond/swale areas.

Grading associated with vaults/ponds/swales construction and utility trenching will include both cuts and fills. In areas where grading is planned, existing vegetation will be grubbed out and the land surface will be reshaped. Where fill placement is called for in the landscaping plan, landfilled demolition debris relocated from adjacent cuts may provide lightweight fill material, provided that it is surfaced with cap material. Following grading activities, the graded area will be capped to prevent human contact with landfill debris. The area will be sloped to discourage ponding of rain runoff in topographic depressions.

All planned stormwater vaults/ponds/swales and utility trenches will comply with the substantive requirements of all applicable laws. The substantive requirements of federal, state, and local laws applicable to the cleanup are described in Section 9.0.

11.1.9 Shoreline Habitat Enhancement and Preservation

Shoreline habitat enhancement and preservation will take place between the proposed fire lane and the shoreline. Enhancement will occur in areas to be reconfigured, as well as in areas with new stormwater vaults/ponds/swales or utility trenches. Public access would be allowed in the enhanced areas. Areas of existing shoreline habitat will also be preserved. In the preservation areas, features that manage human access such as interpretive trails and viewing platforms will be provided. Viewing platforms will be constructed to allow views of the southern shoreline. Within both enhancement and preservation areas, riparian/slope plantings are planned along the shoreline. Riparian plantings will be accomplished by hand labor, with minimal disturbance to the existing soil profile. Throughout these areas, existing healthy and safe trees will be preserved where feasible and appropriate; diseased and unsafe trees will be removed under the direction of a qualified arborist.

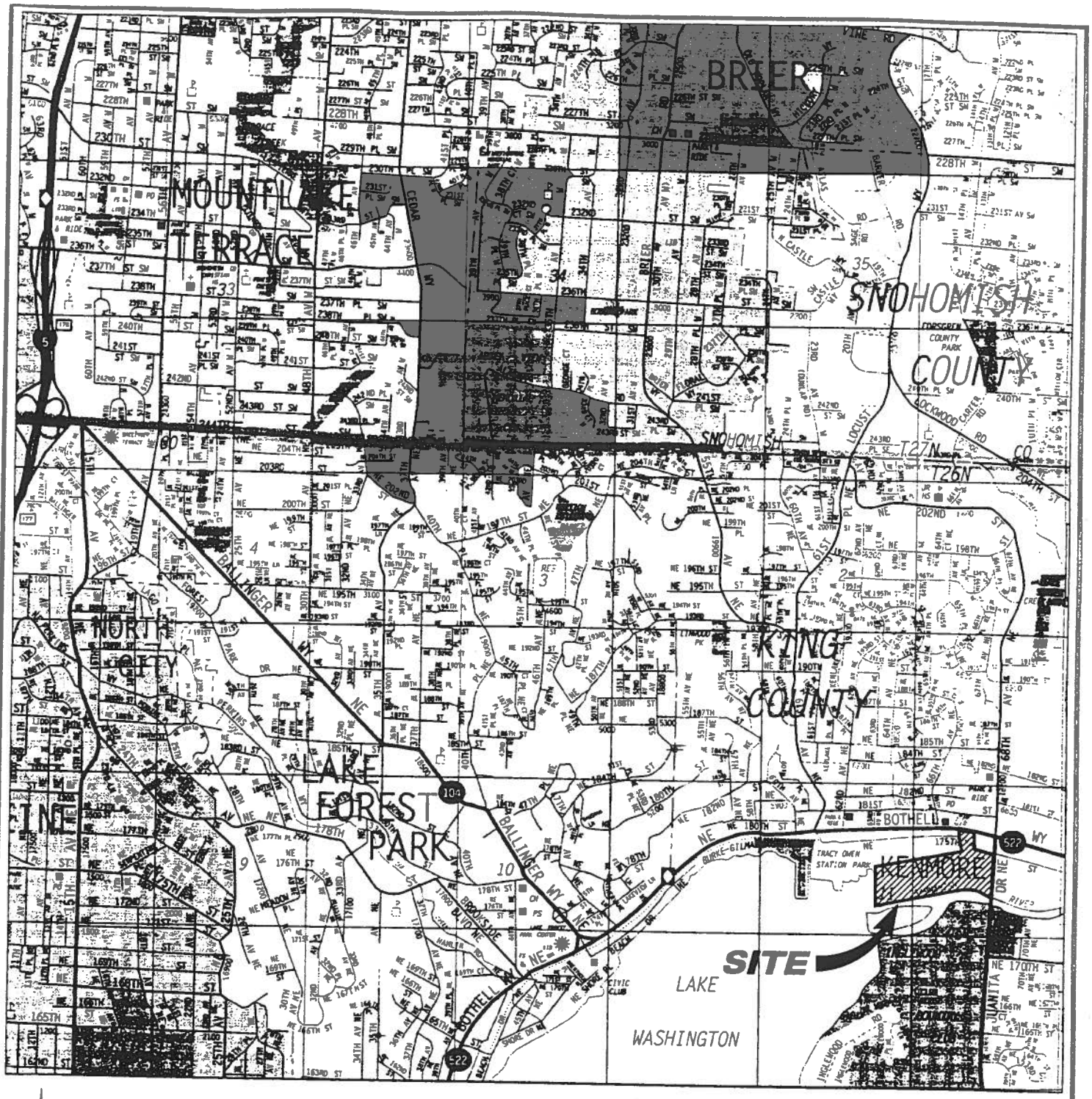
All planned habitat enhancement activities will comply with the substantive requirements of all applicable laws. The substantive requirements of federal, state, and local laws applicable to the cleanup are described in Section 9.0.

11.2. Compliance

The selected cleanup action will meet the remedial action objectives. As described in Section 2.0, an estimated 800,000 cubic yards of landfilled media comprised primarily of wood, concrete and asphalt rubble, and soil, will remain on site following construction of the engineered cap. The COCs identified in the RI/FS are TPH, arsenic and lead, and proposed cleanup standards for the COCs are presented in Sections 5.1 and 5.2 of this Plan.

In the soil or landfilled media, TPH concentrations currently exceed cleanup levels at three locations and arsenic and lead concentrations in the soil exceed cleanup levels throughout the landfilled areas of the site. Human contact with the soil COCs, which will remain at the site as part of the proposed cleanup action, will be prevented by the construction of the engineered cap and by institutional controls.

Groundwater COC concentrations currently meet cleanup standards at the conditional point of compliance as detailed in Sections 5.1 and 5.4 of this Plan. Groundwater compliance monitoring will verify that standards continue to be met. The point of compliance wells listed in Section 5.3 will be included in the monitoring program. A Compliance Monitoring Plan will be prepared for review and approval by Ecology after entry of the Consent Decree.



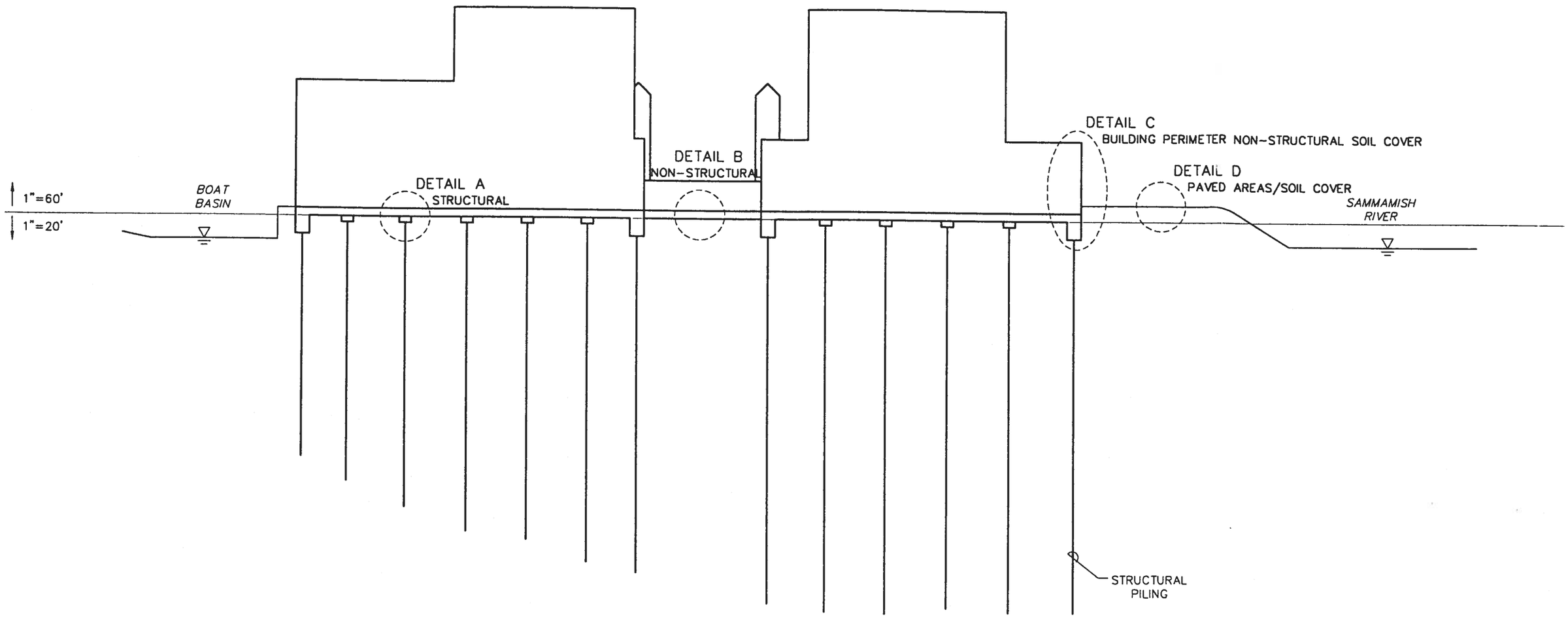
N.T.S.

amec AMEC EARTH AND ENVIRONMENTAL, INC. 11335 N.E. 122nd Way, Suite 100 Kirkland, WA, U.S.A. 98034-6918	LOCATION MAP KENMORE INDUSTRIAL PARK KING COUNTY, WASHINGTON	FIGURE 1

JOB NO.: 7-91M-10459-D-CAP | DWG DATE: 04-10-2001 | SCALE: N.T.S. | DESIGN BY: DHG | FILE NAME: LOCATION-CAP.DWG

NW

SE



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SCALE IN FEET

SOURCE: SECTION 5, SHEET A3.2, LAKEPOINTE CDSP PLAN SET.

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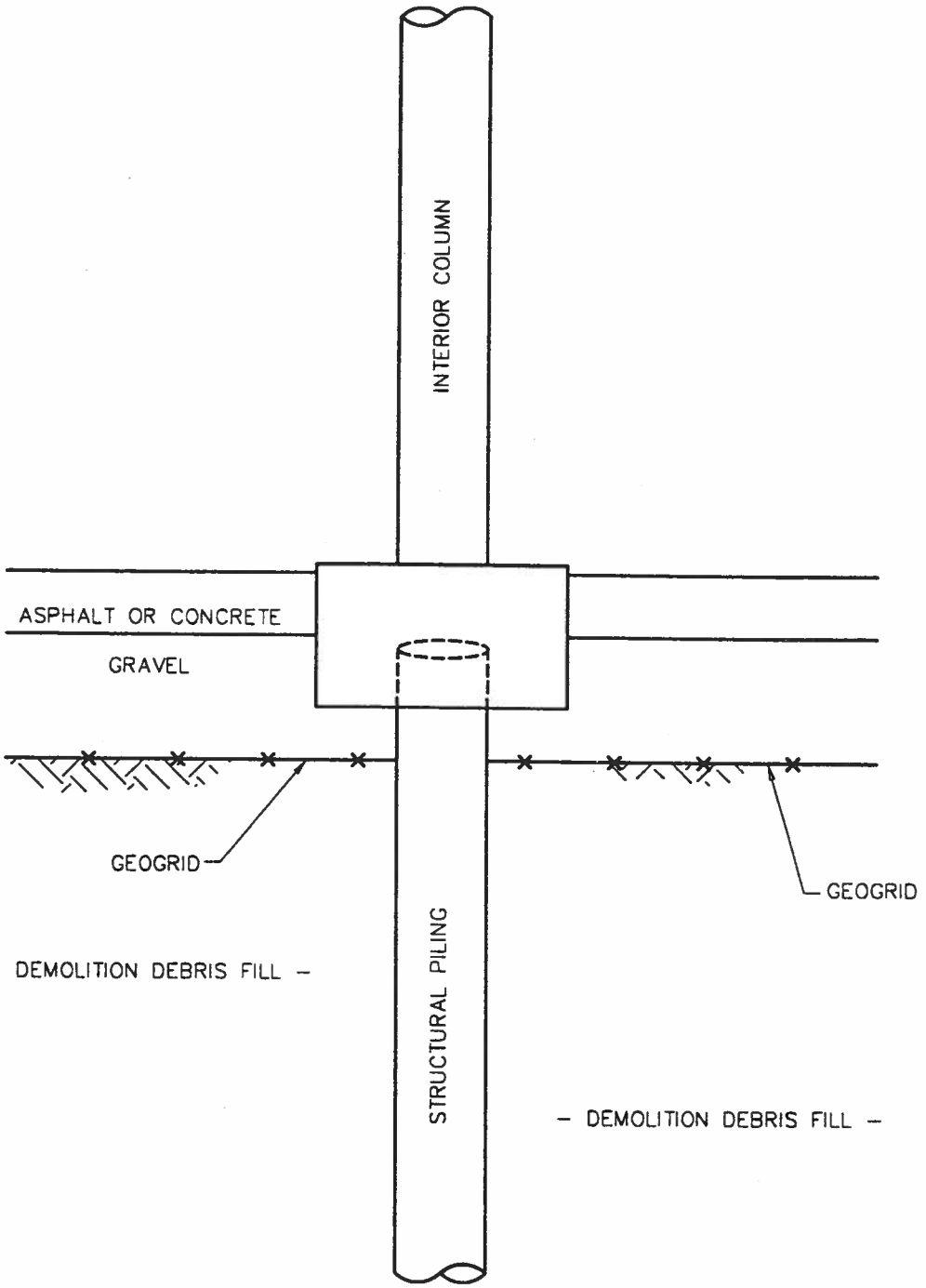
SCHEMATIC CROSS SECTION

KENMORE INDUSTRIAL PARK

KENMORE, WASHINGTON

FIGURE 2



JOB NO.: 0-91M-10459-D-CAP | DWG DATE: 04-10-2001 | SCALE: N.T.S. | DESIGN BY: DHG | FILE NAME: DETAIL A-CAP.DWG

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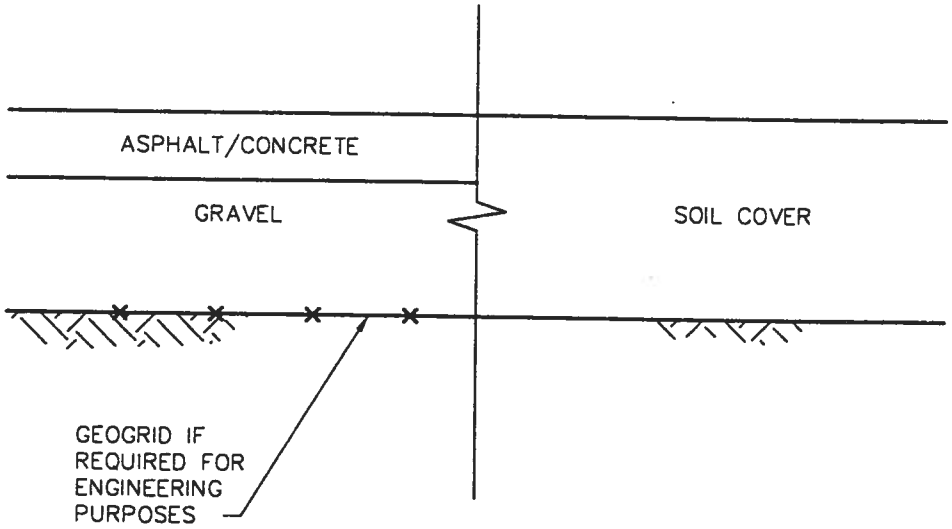
DETAIL A/FIGURE 2

STRUCTURAL PROFILE
KENMORE INDUSTRIAL PARK

KENMORE, WASHINGTON



– DEMOLITION DEBRIS FILL –

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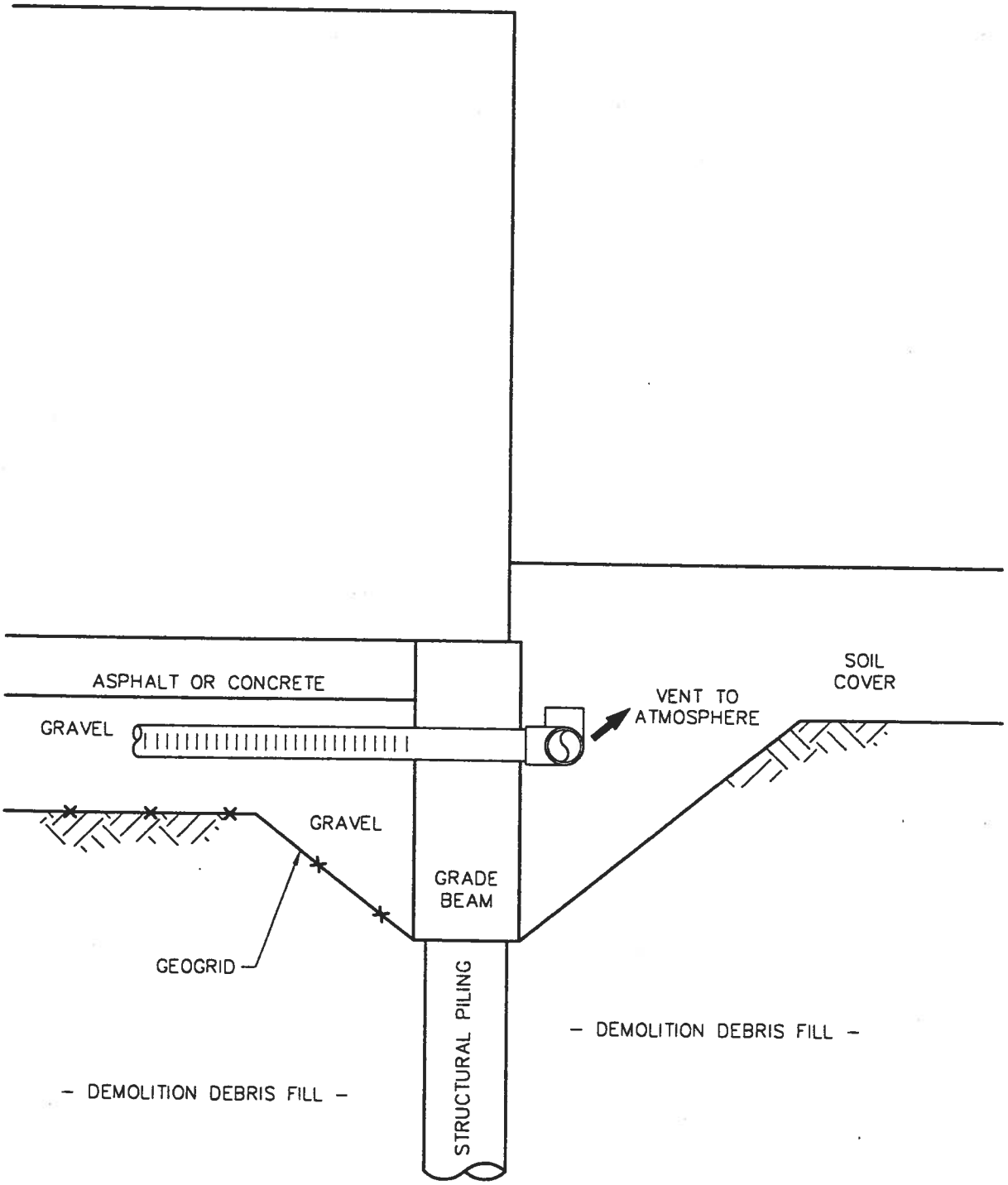
DETAIL B/FIGURE 2

NON–STRUCTURAL PROFILE

KENMORE INDUSTRIAL PARK

KENMORE, WASHINGTON

JOB NO.: 0-91M-10459-D-CAP | DWG DATE: 04-10-2001 | SCALE: N.T.S. | DESIGN BY: DHG | FILE NAME: DETAIL B-CAP.DWG



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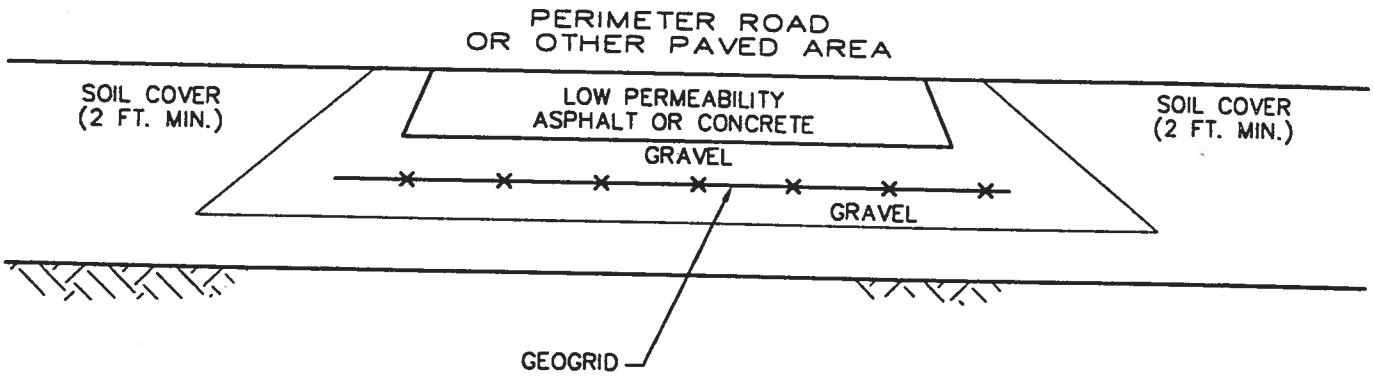
DETAIL C/FIGURE 2

BUILDING PERIMETER PROFILE
KENMORE INDUSTRIAL PARK

KENMORE, WASHINGTON



– DEMOLITION DEBRIS FILL –

JOB NO.: 0-91M-10459-D-CAP | DWG DATE: 04-10-2001 | SCALE: N.T.S. | DESIGN BY: DHG | FILE NAME: DETAIL D-CAP.DWG

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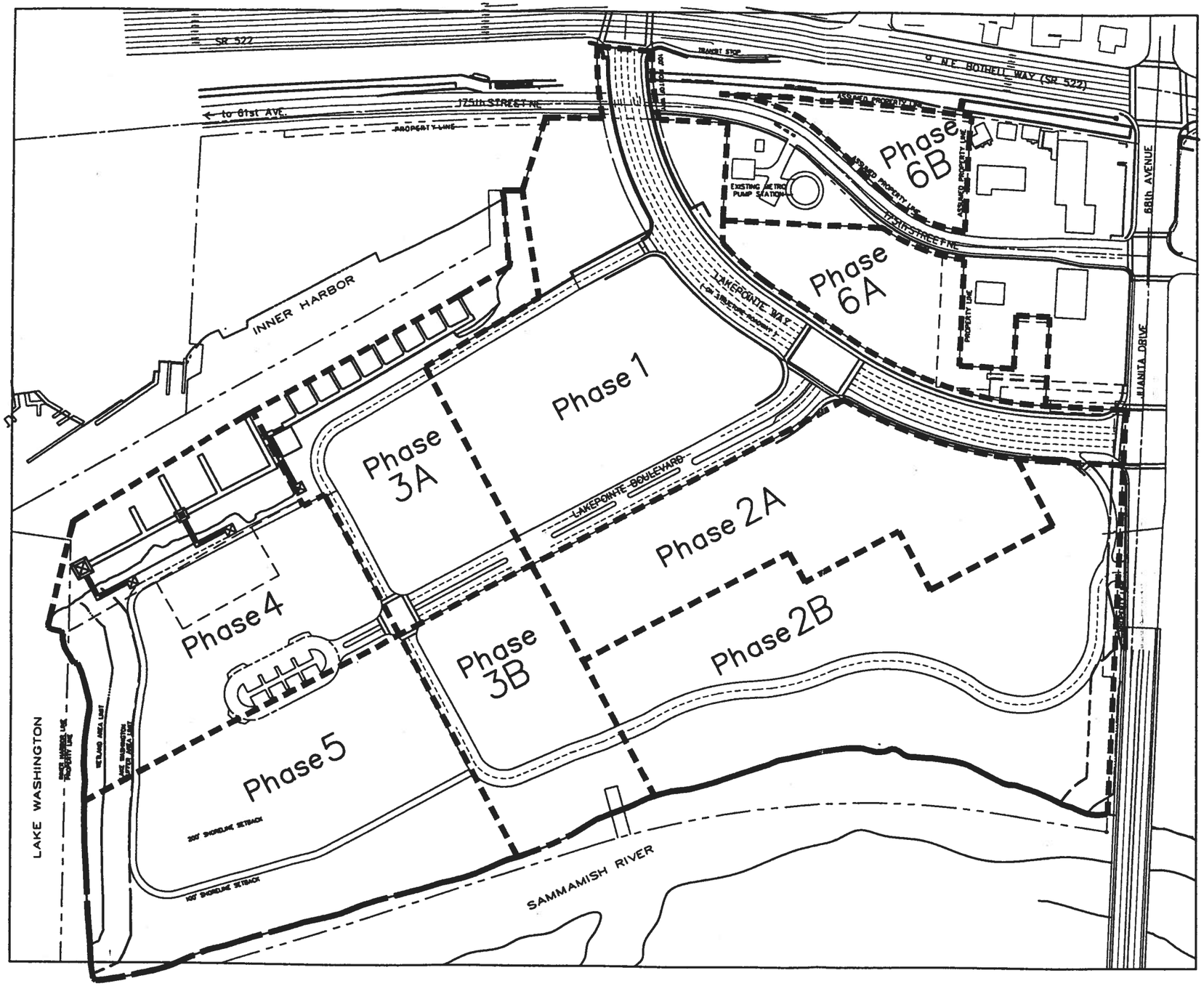
DETAIL D/FIGURE 2

PAVED AREAS/SOIL COVER
KENMORE INDUSTRIAL PARK

KENMORE, WASHINGTON



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SOURCE: DRAWING BASED ON A PLAN BY ABUGOV-KASPER

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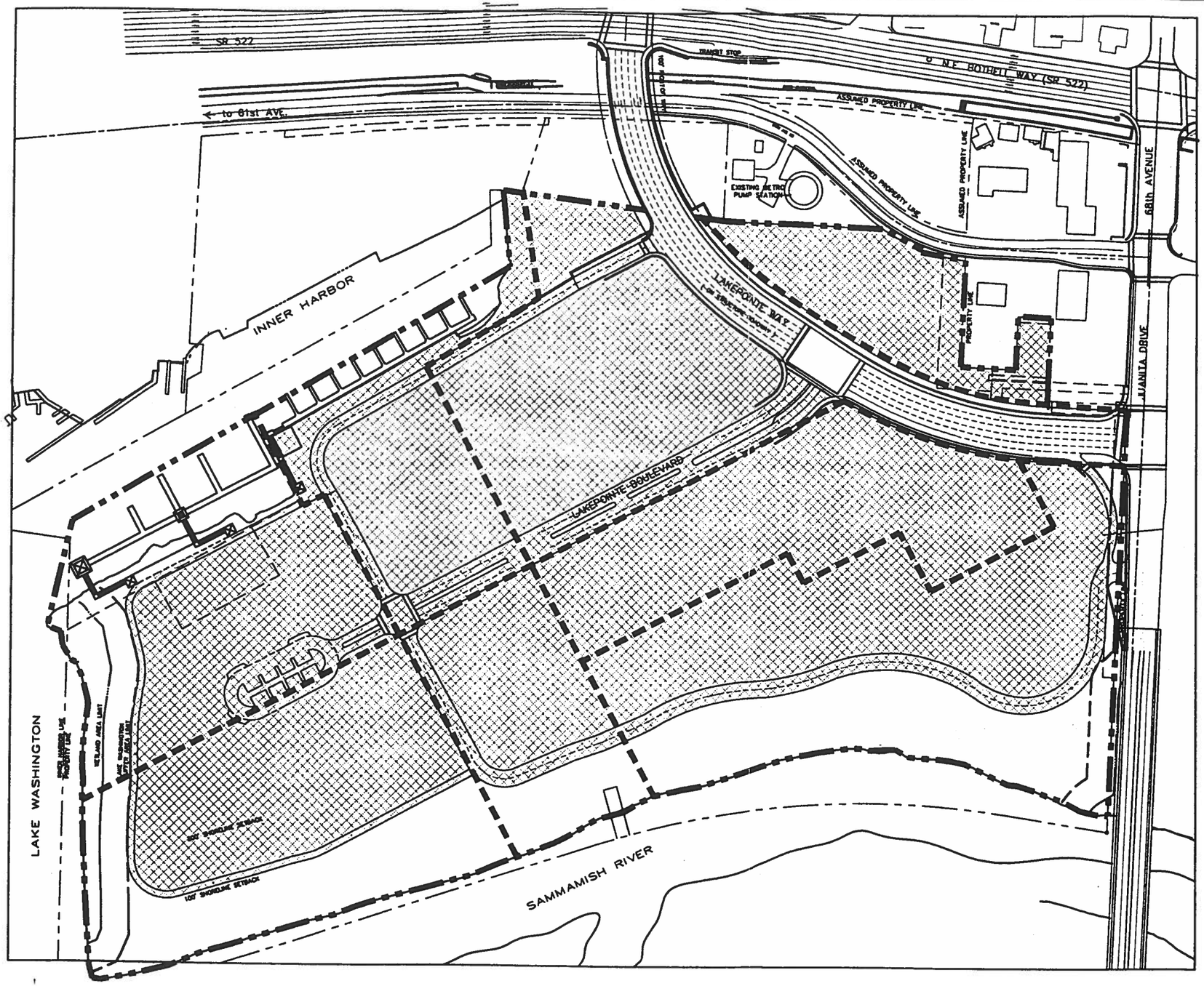
CONCEPTUAL PHASING PLAN

KENMORE INDUSTRIAL PARK

KENMORE, WASHINGTON

FIGURE 3



LEGEND

APPROXIMATE EXTENT OF ENGINEERED CAP

SITE BOUDARY

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SCALE IN FEET

SOURCE: DRAWING BASED ON A PLAN BY ABUGOV-KASPER

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COVERAGE OF ENGINEERED CAP

KENMORE INDUSTRIAL PARK

KENMORE, WASHINGTON

FIGURE 4

ATTACHMENT A

TIMELINE

Kenmore Industrial Park
Kenmore, Washington

ACTIVITY			CALENDAR DAYS
A	**Entry of Consent Decree**		1 day
	1	DRAFT Remedial Engineering Design Report	180 days
	2	Ecology Review & Issue Remedial Engineering Design Report	60 days
	3	DRAFT Health & Safety Plan	20 days
	4	Ecology Review & Issue Health & Safety Plan	30 days
B	**Phase 1**		
	1	Development Permits Received for Phase 1	1 day
	2	Bid Process	60 days
	3	Select Contractor	15 days
	4	Cleanup Preparation	
		a Fence Construction Areas and Phases 2-5	15 days
		b Demolish Existing Structures	20 days
		c Erosion Control Phases 2-5	15 days
	5	Preliminary Grading	
		a TESC Measures and Access	20 days
		b Relocate Roofing Debris	30 days
		c Lakepointe Drive	180 days
	6	Cap Construction	
		a Install Piling	120 days
		b Cap Construction	60 days
		c Building Construction	300 days
	7	Finish Grading	
		a Complete Utility and Vent Connections	60 days
		b Landscape	40 days
	8	Plan Preparation	
		a DRAFT Compliance Monitoring Plan	20 days
		b DRAFT Operations and Maintenance Plan	20 days
		c Ecology Review & Issue Final Plans	20 days
	9	Certificate of Completion – Phase 1	30 days

TIMELINE

Kenmore Industrial Park
Kenmore, Washington

ACTIVITY	CALENDAR DAYS
C Next & Subsequent Phases	
1 Development Permits Received for Relevant Phase	1 day
2 Bid Process	60 days
3 Select Contractor	15 days
4 Preliminary Grading	
a Reference to Separate Construction from TESC Area	15 days
b TESC Measures and Access	10 days
5 Cap Construction	
a Install Piling	60 days
b Cap Construction	60 days
c Building Construction	270 days
6 Finish Grading	
a Complete Utility and Vent Connections	30 days
b Shoreline Enhancement (if applicable)	60 days
c Landscaping	30 days
7 Plan Preparation	
a DRAFT Compliance Monitoring Plan	20 days
b DRAFT Operations and Maintenance Plan	10 days
c Ecology Review & Issue Final Plans	10 days
8 Certificate of Completion – Current Phase	30 days

ATTACHMENT B

APPLICABLE STATE AND FEDERAL LAWS TABLE

STATUTE, REGULATION, OR ORDINANCE	REQUIREMENT	COMMENTS
Federal Clean Water Act, 33 USC 1344, 33 CFR 325-330	Section 404 (Dredge and Fill) permit or Nationwide permit issued by Army Corps of Engineers for dredge or fill activities in navigable waters (including wetland areas).	Potentially applicable to bulkhead rehabilitation; and activity in/near site wetlands
Federal Clean Water Act, 33 USC 1341	State Water Quality Certification issued by State Department of Ecology for activities subject to Section 404 permit.	Potentially applicable if Section 404 (dredge and fill) permit required
Federal Rivers and Harbors Act, 33 USC 403	Section 10 Permit issued by Army Corps of Engineers for activities that obstruct navigational waterways.	Potentially applicable to bulkhead rehabilitation
Federal Endangered Species Act (ESA) 16 USC 1531 *et. seq.*	Consultation with NMFS required where there is a federal nexus and potential impact on endangered or threatened species.	Potentially applicable to bulkhead rehabilitation
Federal Occupational Safety and Health Act (OSHA), 29 CFR 1910.120	Site worker health and safety requirements.	Potentially applicable to remedial action construction activities.
State Water Pollution Control Act, RCW 90.48, NPDES Permit Program, Ch. 173-220 WAC (implementing Federal Clean Water Act, 33 USC 1342)	National Pollutant Discharge Elimination System (NPDES) permit issued by the Department of Ecology for point source discharges to surface waters. [1]	Substantive requirements potentially applicable to point source discharges to adjacent surface waters
State Water Pollution Control Act, RCW 90.48, State General Permit Program, Ch. 173-226 WAC (implementing Federal Clean Water Act, 33 USC 1342)	Baseline General Stormwater Permit issued by Ecology for construction activities impacting more than 5 acres. [1]	Substantive requirements potentially applicable to remedial action construction activities.

APPLICABLE STATE AND FEDERAL LAWS TABLE (CONT.)

STATUTE, REGULATION, OR ORDINANCE	REQUIREMENT	COMMENTS
State Water Pollution Control Act, RCW 90.48, WAC 173-201A	Compliance with state surface water quality standards issued by the Department of Ecology.[1]	Substantive requirements potentially applicable for Lake Washington/Sammamish River classifications.
State Hydraulics Act, RCW 75.20, Ch. 220-110 WAC	Hydraulic Project Approval from the State Department of Fish and Wildlife for activities that affect the natural flow or bed of any water body.[1]	Substantive requirements potentially applicable to bulkhead rehabilitation, temporary bypass culverts, outfall structures, and stormwater pond facilities.
State Noise Control Act, RCW 70.107, Ch. 173-60 WAC	Establishes noise levels.	Potentially applicable to remedial action construction activities.
Washington Clean Air Act, RCW 70.94 RCW, WAC 173-400 through 492 (implementing the Federal Clean Air Act, 42 USC 7401 et.seq.) Puget Sound Clean Air Authority (PSCAA) Regulation I	Requirements applicable for control of fugitive dust emissions, Regulation I, Article 9.	Substantive requirements potentially applicable to construction of engineered cap.
State Environmental Policy Act (SEPA), 43.21 RCW, Ch. 197-11 WAC	Project environmental review.	Potentially applicable to the remedial action. *Note: A SEPA checklist has been submitted to Ecology for the remedial action*
State Shoreline Management Act, RCW 90.58; King County Code, Title 25 (as adopted by the City of Kenmore)	City of Kenmore shoreline management provisions for activities within 200 feet of State shorelines.	Potentially applicable to remedial actions within shoreline areas. *Note: King County issued a Shoreline Substantial Development Permit (File No. L96SH107) for the site in August 1998.*[2]

APPLICABLE STATE AND FEDERAL LAWS TABLE (CONT.)

STATUTE, REGULATION, OR ORDINANCE	REQUIREMENT	COMMENTS
Washington Minimum Functional Standards for Solid Waste Handling, RCW 70.95, Ch. 173-304 WAC	Closure requirements for demolition waste landfills.	The standards of WAC 173-304-405 through 173-304-490 do not apply to this site because it was closed prior to the date of the regulations in accordance with WAC 173-304-400. However, the demolition waste landfilling facility closure requirements in WAC 173-304-461 are relevant and appropriate requirements.
Washington Industrial Safety and Health Act (WISHA), Ch. 296-62 WAC	Site worker health and safety requirements.	Potentially applicable to remedial action construction activities.
King County Board of Health Code, Regulation 10.76.020	Construction standards for methane control.	Substantive requirements potentially applicable to methane control elements of remedial action.
City of Kenmore Provisions[3]	Local land use and development requirements.[1]	Substantive requirements potentially applicable to land use and construction elements of remedial action. *Note: King County approved a Master Site Plan and issued a Commercial Site Development Permit (File No. B96CS005) for the site in August 1998.*[2]

Notes:

1. The substantive requirements of chapters 70.94, 70.95, 70.105, 75.20, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals for the remedial action that are known to be potentially applicable and for which Pioneer Towing is exempt from the procedural requirements pursuant to RCW 70.105D.090(1) are set out in detail in Exhibit G to the Consent Decree.

2. The Commercial Site Development Permit (CSDP) and Shoreline Substantial Development Permit (SSDP) issued for the redevelopment may address and/or stand in lieu of certain listed requirements. However, the substantive requirements of the King County Code as adopted by the City of Kenmore supercede

specific conditions in these permits. Therefore, implementation of the Cleanup Action Plan in conformance with applicable substantive code standards may not comply with all of the conditions identified in the CSDP and SSDP.

3. The City of Kenmore has adopted King County's Code provisions subject to certain modifications. The City plans to codify its own development provisions some time in 2001.

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TABLES

TABLE 5-1
CLEANUP LEVELS FOR GROUNDWATER,
KENMORE INDUSTRIAL PARK

Contaminant	Cleanup Level (Φg/L)	Standard/Criteria
TPH (ORPH and DRPH)	1,000	MTCA Method A (based on protection of groundwater because no applicable surface water cleanup level exists under MTCA Methods A, B, or, C, and there is no MTCA Method B groundwater cleanup level)
Arsenic	5	MTCA Method A (based on natural background concentrations for the State of Washington)
Lead (dissolved)	14.4	MTCA Method A and B (based on hardness dependent formula in WAC 173-201A-040. Calculation was based on lowest observed groundwater hardness of 524 mg. eq./L)
Barium	1,000	MTCA Method A and B (based on EPA National Recommended Water Quality Criteria)

TABLE 5-2
CLEANUP LEVELS FOR SOIL

Contaminant	Cleanup Level (mg/kg)	Standard/Criteria
TPH (ORPH and DRPH)	200.0	Method A Residential
Arsenic	20.0	Method A Residential
Barium	100	Method B Residential
Lead	250	Method A Residential
Selenium	0.5	Method B Residential

TABLE 5-3 CLEANUP LEVELS FOR SOIL FOR CONTINUED INDUSTRIAL USE		
Contaminant	**Cleanup Level (mg/kg)**	**Standard/Criteria**
TPH (ORPH and DRPH)	200.0	Method A Industrial
Arsenic	200.0	Method A Industrial
Barium	100	Method C Industrial
Lead	1000	Method A Industrial
Selenium	0.5	Method C Industrial

TABLE 5-4 COMPARISON OF CURRENT COC CONCENTRATIONS TO GROUNDWATER CLEANUP LEVELS FOR PROTECTION OF SURFACE WATER AT CONDITIONAL POINT OF COMPLIANCE, KENMORE INDUSTRIAL PARK			
Contaminant	**2001 Measured Groundwater Concentration Range at Shoreline Compliance Wells (Φg/L)**	**Cleanup Level (Φg/L)**	**Exceedance of Cleanup Levels at the Conditional Point of Compliance**
TPH (ORPH and DRPH)	<250 to <750	1,000	None
Arsenic	1.02 to 4.75	5	None[1]
Barium	68.9 to 889	1,000	None[2]
Lead	<1 to 13	14.4	None
Notes: [1]A single anomalous exceedance of 12 Φg/L occurred in 1996 in the no longer operable well AW-10. [2]A single anomalous exceedance of 1,090 Φg/L occurred in 1996 in the well AW-11.			

TABLE 5-5
COMPARISON OF COC CONCENTRATIONS TO RESIDENTIAL SOIL MEDIA CCLs, KENMORE INDUSTRIAL PARK

Contaminant	Measured Soil Concentration Range (mg/kg)	Cleanup Level (mg/kg)	Exceedance Of CCL
TPH (ORPH and DRPH)	15 to 4,800	200	Throughout
Arsenic	<1.2 to 7.7	20	None
Barium	22 to 441	100	3 exceedances
Lead	<10 to 1,510	250	3 exceedances
Selenium	<0.5 to 0.6	0.5	2 exceedances

TABLE 5-6
COMPARISON OF COC CONCENTRATIONS TO INDUSTRIAL SOIL MEDIA CCLs, KENMORE INDUSTRIAL PARK

Contaminant	Measured Soil Concentration Range (mg/kg)	Cleanup Level (mg/kg)	Exceedance Of CCL
TPH (ORPH and DRPH)	15 to 4,800	200	Throughout
Arsenic	<1.2 to 7.7	200	None
Barium	22 to 441	100	3 exceedances
Lead	<10 to 1,510	1,000	1 exceedance
Selenium	<0.5 to 0.6	0.5	2 exceedances