STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
Washington State Department of Natural Resources	No. DE 13181

TO: Washington State Department of Natural Resources
C/o Mr. Kyle Blum
Deputy Supervisor for State Uplands
1111 Washington St. SE
Olympia, WA 98504

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I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and the State of Washington, Department of Natural Resources (DNR) under this Agreed Order (Order) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Order requires DNR to implement the requirements of the attached Cleanup Action Plan (Exhibit B). Ecology believes the actions required by this Order are in the public interest.

This Agreed Order No. DE 13181 fully supersedes and replaces Agreed Order No. DE 00 TCPSR-295.

II. JURISDICTION

This Agreed Order is issued pursuant to the Model Toxics Control Act (MTCA), RCW 70.105D.050(1).

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such party to comply with this Order. DNR agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter DNR's responsibility under this Order. DNR shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in RCW 70.105D and WAC 173-340 shall control the meanings of the terms in this Order.

A. Site: The Site is referred to as WA DNR Webster Nursery (Facility/Site ID 8786341 and Cleanup Site ID 3380) and is generally located at 9805 Blomberg Street SW in Tumwater, Washington, 98512-1044. The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. The Site is generally described in the Site Diagram (Exhibit A). The Site constitutes a facility under RCW 70.105D.020(8).

B. Parties: Refers to the State of Washington, Department of Ecology (Ecology) and the State of Washington, Department of Natural Resources (DNR).

C. Potentially Liable Person (PLP): Refers to DNR.

D. Agreed Order (AO) or Order: Refers to this Order and each of the exhibits to this Order. All exhibits are integral and enforceable parts of this Order. The terms "Agreed Order" or "Order" shall include all exhibits to this Order.

V. FINDINGS OF FACT

Ecology makes the following findings of fact, without any express or implied admissions of such facts by DNR:

A. DNR is the owner of the Webster Nursery facility located at 9805 Blomberg Street SW in Tumwater, Washington.

B. In 1978, a concrete underground storage tank (UST) was installed to receive effluent from pesticide mixing operations. In 1982, this UST was removed and replaced with a metal UST.

C. In July 1996, the metal UST was removed. Heptachlor epoxide (HE), heptachlor, and chlordane contamination of soil and groundwater was confirmed in the vicinity of the UST. Approximately 70 cubic yards of pesticide-contaminated soil was removed and later disposed of.

D. In August 1996, four monitoring wells were installed in the vicinity of the former pesticide UST. June 1997 sampling results from three of the four monitoring wells showed concentrations of heptachlor, HE, and/or chlordane above MTCA Method B Cleanup Levels .

E. In October 1996, DNR posted a public notice at the nursery explaining the pesticide release.

F. In April 1997, Thurston County was informed of the pesticide release during the process of DNR's application for construction permits for a new chemical mixing building. In two separate sampling events, Thurston County Health Department and Washington State Department of Health (DOH) sampled public water supply wells. No pesticides were detected above laboratory reporting limits.

G. In a letter dated October 24, 1997, DNR acknowledged its liability as a PLP under MTCA and requested Ecology's oversight of the cleanup process under an Agreed Order.

H. In October 1998, DNR and Ecology entered into Agreed Order No. DE 98TC-S175 to conduct a remedial investigation/feasibility study (RI/FS) for the contamination caused by the release from the former pesticide UST.

I. In January 1999, Thurston County Health Department completed a Site Hazard Assessment (SHA), which resulted in a relative hazard ranking of "3" for the Site, where "1" represents the highest risk and "5" is the lowest.

J. On June 30, 1999, DNR submitted a final RI/FS document to Ecology, which described the results of the investigation and presented cleanup options for the Site.

K. Based on the RI/FS, Ecology drafted a Cleanup Action Plan. Negotiations for Agreed Order DE 00TCPSR-295 (2001 AO) were initiated on June 27, 2000. Following a public comment period, the 2001 AO became effective on January 8, 2001. The work to be performed under the order required DNR to:

a. Prepare a groundwater monitoring plan and implement quarterly monitoring and reporting of results to Ecology. Quarterly groundwater monitoring occurred from February 2001 until April 2002, when Ecology agreed that the monitoring schedule could be reduced to semi-annual. In February 2015, Ecology agreed that groundwater monitoring could be further reduced to annual events.

b. Conduct an evaluation of engineering alternatives to reduce the amount of surface water runoff and infiltration in the area of the former pesticide UST and submit a summary report to Ecology for review that includes a schedule for implementing the preferred option. The *Webster Nursery – Evaluation of Hydraulic Controls* report was received by Ecology on December 4, 2000. Ecology responded via e-mail on January 24, 2001 that only minor revisions to the report were needed.

c. Implement the preferred option for reducing surface water runoff and infiltration. DNR sent an e-mail to Ecology on July 27, 2001 that documented that this work had been performed.

d. Implement institutional controls to restrict groundwater use in the area near the former pesticide UST to protect human health and the environment, including the preparation and recording of a Restrictive Covenant on the property. Covenant # 3336349 was recorded in Thurston County on February 15, 2001.

L. On January 9, 2014, Ecology sent DNR a letter recommending that the following additional work be included under the scope of the 2001 AO:

a. Collection of soil samples to further characterize the extent of residual HE soil contamination. This information would be used to help decide if there is enough residual contamination left to make a remedial action excavation worthwhile.

b. Preparation of a report summarizing the investigation results and recommended next steps.

M. DNR agreed to include the above work under the scope of the 2001 AO. Sampling was conducted in May 2014 and the results were submitted to Ecology on July 30, 2014.

N. Additional soil samples were collected in April 2015 to further delineate subsurface contamination to aid in evaluating remedial action alternatives. This work is summarized in the 2016 *Feasibility Study Report* (FS) prepared by Landau Associates dated June 2016. The FS was approved by Ecology as ready for public comment on June 30, 2016.

The draft Cleanup Action Plan (CAP), dated June 2016, was approved by Ecology as ready for public comment on June 30, 2016.

VI. ECOLOGY DETERMINATIONS

Ecology makes the following determinations, without any express or implied admissions of such determinations (and underlying facts) by DNR:

A. DNR is an "owner or operator" as defined in RCW 70.105D.020(22) of a "facility" as defined in RCW 70.105D.020(8). DNR owned and operated the facility at the time of a release of hazardous substance(s).

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(32) and (13), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a PLP status letter to DNR dated June 13, 2016, pursuant to RCW 70.105D.040, .020(26), and WAC 173-340-500. In a letter dated June 14, 2016, DNR voluntarily waived its rights to notice and comment and accepted Ecology's determination that DNR is a PLP under RCW 70.105D.040.

D. Pursuant to RCW 70.105D.030(1) and .050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

E. Under WAC 173-340-430, an interim action is a remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance, that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed, or that is needed to provide for completion of a site hazard assessment, remedial investigation/feasibility study, or design of a cleanup action plan. Either

party may propose an interim action under this Order. If the Parties are in agreement concerning the interim action, the Parties will follow the process in Section VII.E. If the Parties are not in agreement, Ecology reserves its authority to require interim action(s) under a separate order or other enforcement action under RCW 70.105D, or to undertake the interim action itself.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that DNR take the following remedial actions at the Site and that these actions be conducted in accordance with WAC 173-340 unless otherwise specifically provided for herein:

A. Within thirty (30) days of the effective date of the final CAP (Exhibit B), DNR shall submit the following documents for Ecology's review and approval:

a. A draft Remedial Action Work Plan (RAWP) that meets the requirements of WAC 173-340-400(4). The plan shall include the following: estimated excavation depths, confirmation soil sampling, health and safety monitoring, soil handling and disposal, sampling and analysis plan, groundwater monitoring plan, temporary erosion and sedimentation control plan, stormwater pollution prevention plan, and traffic control. This plan shall also include a schedule for implementing the cleanup. DNR shall incorporate Ecology's comments on the RAWP within thirty (30) days of receiving comments.

B. In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for contaminated site investigations and cleanups shall be submitted in both a written and electronic format. For additional information regarding electronic format requirements, see the website http://www.ecy.wa.gov/eim. All laboratory analyses shall be performed by a State of Washington certified laboratory for each analytical method used.

C. Preliminary data shall be also provided to Ecology for interim review as soon as it becomes available.

D. DNR shall submit a draft Cleanup Action Completion Report (CACR) for Ecology's review and approval within sixty (60) days of receipt of validated soil sample results or the completion of cleanup action excavation and contaminated soil transport and disposal (whichever is later). The draft CACR shall include the requirements for as built reports listed in WAC 173-340-400(6)(b)(ii). DNR shall incorporate Ecology's comments on the CACR within thirty (30) days of receiving comments.

E. All plans or other deliverables submitted by DNR for Ecology's review and approval under the Schedule of Deliverables below shall, upon Ecology's approval, become integral and enforceable parts of this Order.

F. If the Parties agree on an interim action under Section VI.E, DNR shall prepare and submit to Ecology an Interim Action Work Plan, including a scope of work and schedule, by the date determined by Ecology. Ecology will provide public notice and opportunity to comment on the Interim Action Work Plan in accordance with WAC 173-340-600(16). DNR shall not conduct the interim action until Ecology approves the Interim Action Work Plan. Upon approval by Ecology, the Interim Action Work Plan becomes an integral and enforceable part of this Order, and DNR is required to conduct the interim action in accordance with the approved Interim Action Work Plan.

G. Schedule of Deliverables

Each deliverable, once approved by Ecology, becomes incorporated by reference and shall be an integral and enforceable part of the Order.

Cleanup Action Schedule of Deliverables

Deliverable	Schedule
Draft Remedial Action Work Plan	Submitted to Ecology within thirty (30) days from the effective date of the final CAP.
Final Remedial Action Work Plan	Submitted to Ecology within thirty (30) days of receiving Ecology's comments on the draft RAWP.
Draft Cleanup Action Completion Report	Submitted to Ecology within sixty (60) days of receipt of validated soil sample results or the completion of cleanup action

	excavation and contaminated soil transport and disposal (whichever is later).
Final Cleanup Action Completion Report	Submitted to Ecology within thirty (30) days of receiving Ecology's comments on the draft CACR.
Quarterly Groundwater Monitoring Reports	Following each groundwater monitoring event, submitted to Ecology within thirty (30) days of receipt of validated groundwater sample results and no later than ninety (90) days from the date of sampling.

H. If Ecology determines that DNR has failed to make sufficient progress or failed to implement the remedial action, in whole or in part, Ecology may, after notice to DNR, perform any or all portions of the remedial action or at Ecology's discretion allow the DNR opportunity to correct. DNR shall reimburse Ecology for the costs of doing such work in accordance with Section VII.A (Remedial Action Costs). Ecology reserves the right to enforce requirements of this Order under Section X (Enforcement).

I. Except where necessary to abate an emergency situation, DNR shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

VIII. TERMS AND CONDITIONS

A. Remedial Action Costs

DNR shall pay to Ecology costs incurred by Ecology pursuant to this Order and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under RCW 70.105D, including remedial actions and Order preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the issuance of this Order. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Ecology has accumulated $2,126.18 in outstanding remedial action costs related to this Site as of March 31, 2016. Payment for this amount shall be submitted within thirty (30) days of the effective date of this Order. For all costs incurred subsequent to March

31, 2016, DNR shall pay the required amount within thirty (30) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

In addition to other available relief, pursuant to RCW 19.16.500, Ecology may utilize a collection agency and/or, pursuant to RCW 70.105D.055, file a lien against real property subject to the remedial actions to recover unreimbursed remedial action costs.

B. Implementation of Remedial Action

If Ecology determines that DNR has failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to DNR, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of DNR's failure to comply with its obligations under this Order, DNR shall reimburse Ecology for the costs of doing such work in accordance with Section VIII.A (Remedial Action Costs), provided that DNR is not obligated under this section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Order.

Except where necessary to abate an emergency situation, DNR shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

C. Designated Project Coordinators

The project coordinator for Ecology is:

Steve Teel
Toxics Cleanup Program
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6247

The project coordinator for DNR is:

John Felder
Washington State Department of Natural Resources
Engineering Division - Environmental Services
1111 Washington ST SE
Olympia, WA 98504-7030

Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and DNR, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Order.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

D. Performance

All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction of a geologist or hydrogeologist licensed by the State of Washington or under the direct supervision of an engineer registered by the State of Washington, except as otherwise provided for by RCW 18.43 and 18.220.

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered by the State of Washington, except as otherwise provided for by RCW 18.43.130.

All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered by the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic, or engineering work shall be under the seal of an appropriately licensed professional as required by RCW 18.43 and 18.220.

DNR shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), contractor(s) and subcontractor(s), and others to be used in carrying out the terms of this Order, in advance of their involvement at the Site.

E. Access

Ecology or any Ecology authorized representative shall have access to enter and freely move about all property at the Site that DNR either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing DNR's progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by DNR. DNR shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by DNR where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by DNR unless an emergency prevents such notice. All persons who access the Site pursuant to this section shall comply with any applicable health and safety plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

F. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, DNR shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with Section VII (Work to be Performed), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, DNR shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by DNR pursuant to implementation of this Order. DNR shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow DNR and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII.E (Access), Ecology shall notify DNR prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under WAC 173-50 for the specific analyses to be conducted, unless otherwise approved by Ecology.

G. Public Participation

A Public Participation Plan is required for this Site. Ecology shall develop a Public Participation Plan alone or in conjunction with DNR.

Ecology shall maintain the responsibility for public participation at the Site. However, DNR shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop appropriate mailing lists and prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

2. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify DNR prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by

DNR that do not receive prior Ecology approval, DNR shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

3. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions or as a presenter.

4. When requested by Ecology, arrange and/or continue information repositories to be located at the following locations:

a. Tumwater Timberland Library
7023 New Market Street
Tumwater, WA 98501-6563
Library Manager: (360) 943-7790

b. Ecology's Southwest Regional Office
300 Desmond Drive
Lacey, WA 98503
(360) 407-6045

At a minimum, copies of all public notices, fact sheets, and documents relating to public comment periods shall be promptly placed in these repositories. A copy of all documents related to this Site shall be maintained in the repository at Ecology's Southwest Regional Office in Lacey, Washington.

H. Retention of Records

During the pendency of this Order, and for ten (10) years from the date of completion of work performed pursuant to this Order, DNR shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, DNR shall make all records available to Ecology and allow access for review within a reasonable time.

Nothing in this Order is intended to waive any right DNR may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the

attorney-client privilege. If DNR withholds any requested records based on an assertion of privilege, DNR shall provide Ecology with a privilege log specifying the records withheld and the applicable privilege. No Site-related data collected pursuant to this Order shall be considered privileged.

I. Resolution of Disputes

1. In the event that DNR elects to invoke dispute resolution DNR must utilize the procedure set forth below.

a. Upon the triggering event (receipt of Ecology's project coordinator's written decision or an itemized billing statement), DNR has fourteen (14) calendar days within which to notify Ecology's project coordinator in writing of its dispute ("Informal Dispute Notice").

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute informally. The parties shall informally confer for up to fourteen (14) calendar days from receipt of the Informal Dispute Notice. If the project coordinators cannot resolve the dispute within those 14 calendar days, then within seven (7) calendar days Ecology's project coordinator shall issue a written decision ("Informal Dispute Decision") stating: the nature of the dispute; the DNR's position with regards to the dispute; Ecology's position with regards to the dispute; and the extent of resolution reached by informal discussion.

c. DNR may then request regional management review of the dispute. This request ("Formal Dispute Notice") must be submitted in writing to the Southwest Region Toxics Cleanup Section Manager within seven (7) calendar days of receipt of Ecology's Informal Dispute Decision. The Formal Dispute Notice shall include a written statement of dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

d. The Section Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute ("Decision on Dispute") within thirty (30)

calendar days of receipt of the Formal Dispute Notice. The Decision on Dispute shall be Ecology's final decision on the disputed matter.

2. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

4. In case of a dispute, failure to either proceed with the work required by this Order or timely invoke dispute resolution may result in Ecology's determination that insufficient progress is being made in preparation of a deliverable, and may result in Ecology undertaking the work under Section VII.E (Work to be Performed) or initiating enforcement under Section X (Enforcement).

J. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

a. The deadline that is sought to be extended;

b. The length of the extension sought;

c. The reason(s) for the extension; and

d. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on DNR to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of DNR including delays caused by unrelated third parties or Ecology, such as

(but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by DNR;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

c. Endangerment as described in Section VIII.L (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of DNR.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give DNR written notification of any extensions granted pursuant to this Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a substantial change, it shall not be necessary to amend this Order pursuant to Section VIII.K (Amendment of Order) when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner;

b. Other circumstances deemed exceptional or extraordinary by Ecology; or

c. Endangerment as described in Section VIII.L (Endangerment).

K. Amendment of Order

The project coordinators may verbally agree to minor changes to the work to be performed without formally amending this Order. Minor changes will be documented in writing by Ecology within seven (7) days of verbal agreement.

Except as provided in Section VIII.M (Reservation of Rights), substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of both Ecology and DNR. DNR shall submit a written

request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to this Order represents a substantial change, Ecology will provide public notice and opportunity to comment. Reasons for the disapproval of a proposed amendment to this Order shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII.I (Resolution of Disputes).

L. Endangerment

In the event Ecology determines that any activity being performed at the Site under this Order is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct DNR to cease such activities for such period of time as it deems necessary to abate the danger. DNR shall immediately comply with such direction.

In the event DNR determines that any activity being performed at the Site under this Order is creating or has the potential to create a danger to human health or the environment, DNR may cease such activities. DNR shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction, DNR shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with DNR's cessation of activities, it may direct DNR to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this section, DNR's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in accordance with Section VIII.J (Extension of Schedule) for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

M. Reservation of Rights

This Order is not a settlement under RCW 70.105D. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any of Ecology's rights or authority. Ecology will not, however, bring an action against DNR to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against DNR regarding remedial actions required by this Order, provided DNR complies with this Order.

Ecology nevertheless reserves its rights under RCW 70.105D, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

By entering into this Order, DNR does not admit to any liability for the Site. Although DNR is committing to conducting the work required by this Order under the terms of this Order, DNR expressly reserves all rights available under law, including but not limited to the right to seek cost recovery or contribution against third parties, and the right to assert any defenses to liability in the event of enforcement.

N. Transfer of Interest in Property

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by DNR without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to DNR's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, DNR shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, DNR shall notify Ecology of said transfer. Upon transfer of any

interest, DNR shall notify all transferees of the restrictions on the activities and uses of the property under this Order and incorporate any such use restrictions into the transfer documents.

O. Compliance with Applicable Laws

1. All actions carried out by DNR pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090. At this time, no federal, state, or local requirements have been identified as being applicable to the actions required by this Order;

2. Pursuant to RCW 70.105D.090(1), DNR is exempt from the procedural requirements of RCW 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 and of any laws requiring or authorizing local government permits or approvals. However, DNR shall comply with the substantive requirements of such permits or approvals. The exempt permits or approvals and the applicable substantive requirements of those permits or approvals, as they are known at the time of the execution of this Order, consist of:

(a) City of Tumwater Traffic Control Plan and/or Grading/Erosion Control Plan.

(b) Any Site-specific requirements identified by the City.

DNR has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or DNR determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or DNR shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, DNR shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by DNR and on how DNR must meet those requirements. Ecology shall inform DNR in writing of these requirements. Once established by Ecology, the additional requirements shall be

enforceable requirements of this Order. DNR shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

3. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the state to administer any federal law, the exemption shall not apply and DNR shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

P. Land Use Restrictions

Following the remedial excavation and off-Site disposal of contaminated soil, institutional controls shall be implemented to prevent exposure to remaining contaminated soil (if contamination is still present) and groundwater. These institutional controls shall be described in an Environmental (Restrictive) Covenant (EC). In consultation with DNR, Ecology will prepare the EC consistent with WAC 173-340-440 and RCW 64.70. After approval by Ecology, DNR shall record the EC for Thurston County Assessor's Parcel Number 12720130000 with the office of the Thurston County Auditor within ten (10) days of Ecology's approval. The EC shall restrict future activities and uses of the Site as agreed to by Ecology and DNR. DNR shall provide Ecology with the original recorded EC within thirty (30) days of the recording date. Once the EC is recorded, it shall supersede and replace Covenant # 3336349.

Q. Periodic Review

As remedial action, including groundwater monitoring, continues at the Site, the Parties agree to review the progress of remedial action at the Site, and to review the data accumulated as a result of monitoring the Site as often as is necessary and appropriate under the circumstances. At least every five (5) years after the initiation of cleanup action at the Site the Parties shall meet to discuss the status of the Site and the need, if any, for further remedial action at the Site. At least ninety (90) days prior to each periodic review, DNR shall submit a report to Ecology that

documents whether human health and the environment are being protected based on the factors set forth in WAC 173-340-420(4). Ecology reserves the right to require further remedial action at the Site under appropriate circumstances. This provision shall remain in effect for the duration of this Order.

R. Hold Harmless

Each Party shall be responsible for the actions and inactions of itself and its own officers, employees, and agents acting within the scope of their authority. Ecology and DNR, as state agencies, are insured under the self-insurance program of Washington State.

DNR shall defend, protect, and hold Ecology harmless from and against any and all claims, suits, or actions arising from the negligent acts or omissions of DNR's employees and/or authorized representatives while performing under the terms of this Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon DNR's receipt of written notification from Ecology that DNR has completed the remedial activity required by this Order, as amended by any modifications, and that DNR has complied with all other provisions of this Agreed Order.

X. ENFORCEMENT

Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site.

C. A liable party who refuses, without sufficient cause, to comply with any term of this Order will be liable for:

1. Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply.

2. Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

Effective date of this Order: August 9, 2016

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Kyle Blum
Deputy Supervisor for State Uplands

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Rebecca S. Lawson, P.E., LHG
Section Manager
Toxics Cleanup Program
Southwest Regional Office

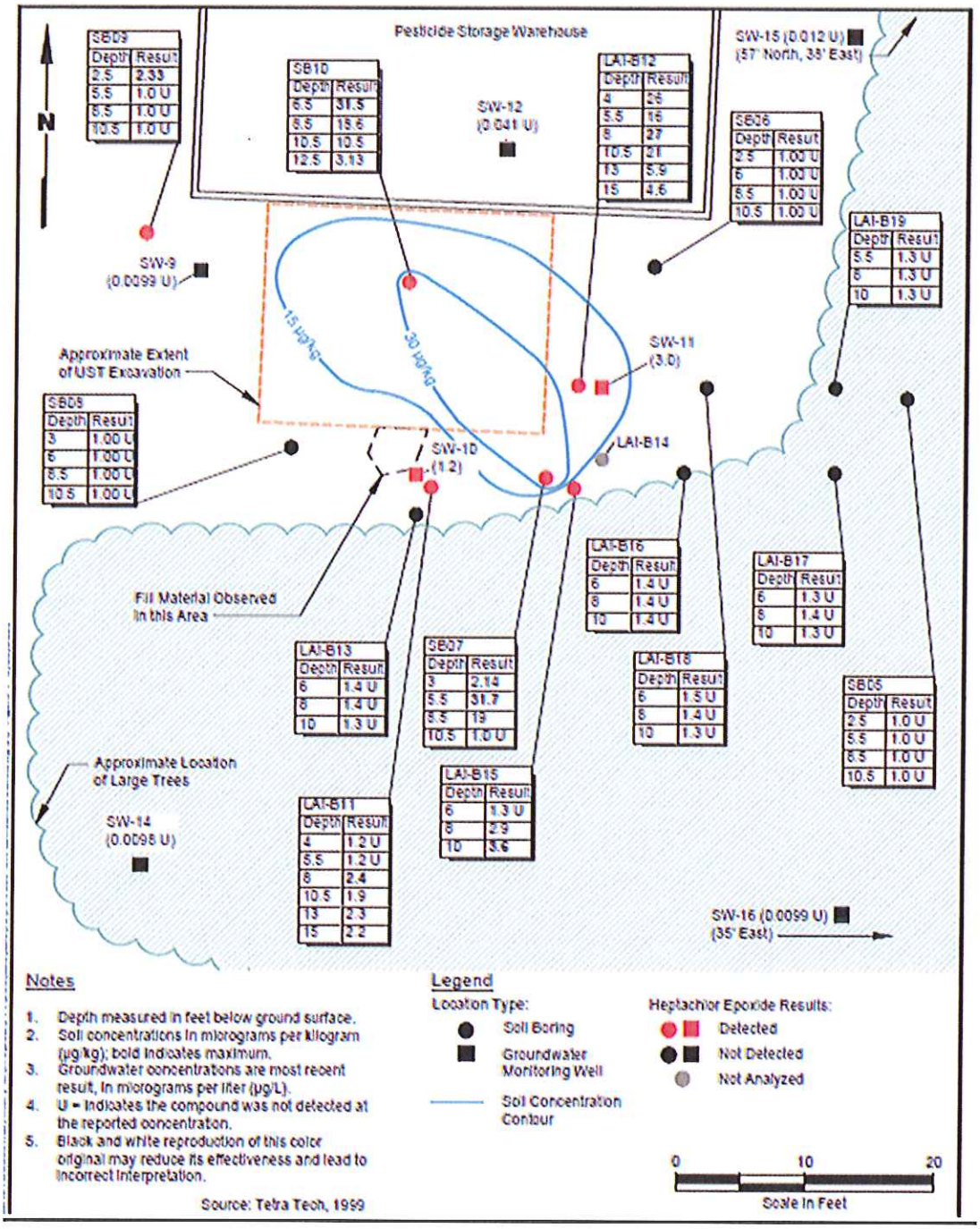

EXHIBIT A

SITE DIAGRAM

EXHIBIT B

CLEANUP ACTION PLAN

2016 Draft Cleanup Action Plan
WA DNR Webster Nursery Site
CS ID# 3380
Tumwater, Washington

June 2016

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FIGURES

TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

AO ..... Agreed Order
bgs ..... below ground surface
CAO ..... Cleanup Action Objectives
CAP ..... cleanup action plan
CUL ..... cleanup level
cy ..... cubic yard
DNR ..... Washington State Department of Natural Resources
Ecology ..... Washington State Department of Ecology
FS ..... Feasibility Study
ft ..... feet/foot
HASP ..... Health and Safety Plan
HE ..... Heptachlor epoxide
LAI ..... Landau Associates, Inc.
µg/kg ..... micrograms per kilogram
µg/L ..... micrograms per liter
MTCA ..... Model Toxics Control Act
RAWP ..... Remedial Action Work Plan
RCRA ..... Resource Conservation and Recovery Act of 1976
RCW ..... Revised Code of Washington
RI ..... Remedial Investigation
SAP ..... Sampling and Analysis Plan
SEPA ..... State Environmental Protection Agency
UST ..... underground storage tank
WAC ..... Washington Administrative Code

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1.0 INTRODUCTION

This Cleanup Action Plan (CAP) describes the conceptual design of the recommended cleanup alternative identified in the 2016 Feasibility Study (FS; LAI 2016) for implementation at the Washington State Department of Natural Resources' (DNR) Webster Nursery site (Site; Site ID 3380). The Site is an operating nursery that includes a former pesticide storage warehouse located at 9805 Blomberg Street Southwest in Tumwater, Washington. Soil and groundwater at the Site are affected by a historical release of organochlorine pesticides from an underground storage tank (UST). Heptachlor epoxide (HE) is the primary constituent of concern detected above applicable cleanup levels (CULs) in groundwater at the Site. The Site location and vicinity map is shown on Figure 1.

Contamination of soil and groundwater was identified at the Site in 1996. On June 30, 1999, DNR completed a Remedial Investigation/Feasibility Study (RI/FS) under an initial Agreed Order (AO; No. DE 98TC-S175, effective October 1998) with the Washington State Department of Ecology (Ecology). The 1999 RI/FS documented Site investigations and evaluated cleanup options for the Site. In October 2001, Ecology presented a CAP based on conclusions of the 1999 RI/FS (Ecology 2001). Subsequently, DNR undertook a cleanup action at the Site under AO No. DE 00 TCPSR-295, signed into effect January 8, 2001 (Ecology 2001).

Per the 2001 CAP, a component of the selected cleanup action is monitored natural attenuation, which requires monitoring of pesticide concentrations in groundwater. According to the CAP, the long-term timeframe for the Site remedy is 5 to 10 years. However, groundwater concentrations of HE above the Model Toxics Control Act (MTCA) Method B groundwater CUL have been observed for more than 10 years. The persistence of HE concentrations in groundwater has caused Ecology to question the presence of residual pesticide contamination in soil (Ecology 2014a).

Recent Site investigations characterized the extent of residual soil contamination and determined that HE concentrations are present in soil on site to the south and east of the release area, at depths near the water table (LAI 2014a). A recent FS recommended excavation and disposal as the preferred alternative for expediting cleanup at the Site (LAI 2016). Preliminary results of the FS were discussed with Ecology at a meeting with DNR and LAI (consultant to DNR) on June 17, 2015.

The CAP follows substantive requirements under MTCA, as codified in state regulation (Revised Code of Washington [RCW] 70.105D, Washington Administrative Code [WAC] 173-340-380). This report assumes the reader is generally familiar with the Site history, results of previous investigations, and current Site conditions. For further detail, the reader is referred to the 2016 Feasibility Study (LAI 2016), and other site documents referenced therein.

1.1 Site Background

In 1978, a concrete underground storage tank (UST) was installed south of the former pesticide storage warehouse. The UST was historically used to contain wash water and spills from pesticide mixing operations at the nursery. The original concrete UST was replaced with a metal UST in 1982. During removal of the metal UST in July 1996, soil and groundwater pesticide contamination was confirmed and a remedial excavation was planned and completed in 1996. Groundwater seepage in the bottom of the excavation limited the horizontal and vertical extent of the excavation, so a smaller volume of soil was removed than planned. According to the Site CAP, approximately 70 cubic yards (cy) of contaminated soil was removed for disposal. The excavation depth was approximately 7 feet (ft) below ground surface (bgs). Field screening during excavation indicated soil contamination was left in place. The location of the excavation area is shown on Figure 2.

In August 1996, four shallow groundwater monitoring wells (SW-9, SW-10, SW-11, and SW-12) were installed around the excavation area to characterize groundwater as part of the long-term groundwater monitoring plan. From January 2010 until February 2014, groundwater sampling and water level monitoring were conducted by DNR staff. In February 2014, LAI performed sampling and water level monitoring under contract to DNR staff. Monitoring activities were not completed in 2015 due to budget constraints. Recent and historical groundwater quality analytical results were summarized in semiannual reports (LAI 2014b,c).

In April 1999, six shallow (i.e., 12.5 ft deep) soil borings (SB05 through SB10) were drilled around the excavation area to characterize residual pesticide contamination in soil (Tetra Tech 1999). Additional soil borings were completed by LAI in 2014 (LAI-B11 and LAI-B12; LAI 2014a) and 2015 (LAI-B13 through LAI-B19; Section 1.2.1 of present document). Soil boring locations are shown on Figure 2.

HE (daughter product of heptachlor[1]) is the primary constituent of concern at the Site. Groundwater HE exceeds the MTCA Method B groundwater CUL (0.0048 micrograms per liter [µg/L]) at two monitoring wells, SW-10 and SW-11, located approximately 5 ft from the excavation area margin to the south and east, respectively (LAI 2014b,c). Soil investigations in 1999 and 2014 identified HE in soil beneath and southeast of the excavation area, with the highest concentrations occurring between about 4 and 10 ft bgs (Tetra Tech 1999; LAI 2014a, 2015a). This depth interval corresponds with the seasonal range in groundwater elevations (LAI 2014a,c). In addition, soil HE detections are above the current[2] MTCA Method B soil CUL for protection of groundwater in the saturated zones (4.02 micrograms per kilogram [µg/kg]). The presence of HE in soil appears to correspond with groundwater contamination (LAI 2014a, 2015a).

[1] Soil investigations at the Site have only detected heptachlor in soil below the center of the excavation area in boring SB10, between 6.5 and 10.5 ft bgs. Concentrations were below the MTCA Method B soil CUL (Tetra Tech 1999).
[2] Current as of March 2016.

Alpha- and gamma-chlordane have also been detected at the Site. Most recent groundwater sampling results indicate that total chlordane (the sum of alpha- and gamma-chlordane) come close to, but do not exceed, the CUL (0.25 µg/L). Although concentrations of total chlordane were detected in soil during the 1999 subsurface investigation (pre-excavation), concentrations detected in 2014 were well below the saturated zone CUL (103 µg/kg); therefore, alpha- and gamma-chlordane are not considered constituents of concern.

1.2 Current Site Conditions

As HE is not mobile and has a low potential to leach (Syracuse Research Corporation 2007), the extent of HE in soil is interpreted from soil analytical results obtained in 1999, 2014, and 2015. HE has been detected in soil below the excavation area and adjacent to the south and southeastern margins of the excavation area. Soil HE concentrations exceeding applicable MTCA Method B soil CULs occur between 5.5 and 15 ft bgs (Figure 2)[3].

Concentrations of HE above the MTCA Method B groundwater CUL (0.0048 µg/L) have been detected consistently in groundwater at monitoring wells SW-10 and SW-11. These wells are located about 5 ft south and east of the excavation area margin, respectively, and are screened from approximately 6 to 16 ft bgs. During the wet season (i.e., spring,) groundwater HE concentrations are relatively low (February 2014 maximum of 0.67 µg/L at SW-11), while dry season concentrations are typically higher (September 2014 maximum of 3.0 µg/L at SW-11).

Groundwater below the Site is shallow and unconfined, ranging from 4.19 to 11.28 ft bgs in 2014. Groundwater levels fluctuate approximately 6 ft seasonally in response to surface conditions and precipitation. Although regional groundwater flow is likely west/northwest toward Salmon Creek (LAI 2014c; Ecology 2001; Tetra Tech 1999), shallow groundwater is influenced by local surface conditions, runoff, and infiltration. Groundwater mounding has been interpreted in wells near the excavation area (Ecology 2001; LAI 2014c). Seasonal depths to groundwater observed during 2014, including the minimum observed depth to water (4.19 ft bgs) are presented in Table 1[4].

1.3 Conceptual Site Model

The conceptual site model (CSM) provides a conceptual understanding of a site that identifies sources, types, and concentrations of hazardous substances, potentially contaminated environmental media, and potential exposure pathways for human and ecological receptors (WAC 173-340-200). It considers current conditions and future land use in assessing potential exposure pathways; only complete

[3] Current MTCA Method B soil CULs for protection of groundwater in the vadose and saturated zones are 80.2 µg/kg and 4.02 µg/kg, respectively. As the highest water table observed in 2014 was 4.19 ft bgs, saturated zone soil CULs will be applied at and below a depth of 4.19 ft bgs, and vadose zone CULs will be applied above 4.19 ft bgs.

[4] Table 1 contains depth to water observations from 2014. Additional depth to water data are available for the dry season (August 2009); however, it was not tabulated as it does not improve understanding of historical maximum water table depths during the wet season.

pathways result in exposure. A complete pathway includes a source and a mechanism of release, an exposure medium, and an exposure route by which contact can occur.

The primary release mechanism to soil is the release of pesticide compounds from a UST source. Soil contamination above MTCA Method B soil CULs is observed adjacent to the UST excavation area (i.e., within approximately 5 ft). Based on the distribution of HE in groundwater described above, the primary release mechanism to groundwater appears to be limited back diffusion of HE from soil pore water into shallow groundwater. Media of concern at the Site include soil and groundwater due to HE detections exceeding applicable CULs (Section 2.2). The limited extent of groundwater HE (adjacent to the UST excavation area) suggests that concentrations of HE are back diffusing into groundwater from soil near the water table.

It is anticipated that the Site will retain its current rural character and that future land uses will be consistent with the current use (forest nursery) as well as zoning and land use regulations. There are no likely potential ecological receptors on the Site. Although MTCA requires consideration of terrestrial plants and animals that may be exposed to hazardous substances, the Site qualifies for exclusion from further terrestrial ecological evaluation under WAC 173-340-900. Table 749-3 of this section presents Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals, which are provided for use in eliminating hazardous substances from further consideration under WAC 173-340-7493(2)(a)(i); the total heptachlor/HE[5] CUL protective of wildlife is 400 µg/kg and the chlordane CULs protective of soil biota and wildlife are 1,000 µg/kg and 2,700 µg/kg, respectively. Soil HE and chlordane concentrations do not exceed these protective levels. Furthermore, institutional controls are in place via deed restrictions on the property[6].

Although there is a low potential for exposure at the Site, the complete exposure pathways and potential human receptors identified include:

- Potential exposure of Site employees via ingestion of, or dermal contact with, groundwater.
- Potential exposure of offsite residents via ingestion of, or dermal contact with, groundwater. Groundwater monitoring at the Site conducted since 1995 (20 years) indicates exposure via this pathway is unlikely.

An institutional control may continue to be required under WAC 173-304-440 if hazardous substances remain at the Site at concentrations that exceed the applicable CUL, or if Ecology determines such control is required to assure continued protection of human health and the environment or the integrity of the cleanup action.

[5] Heptachlor and HE are the only constituent detected at the Site listed in Table 749-3.

[6] This restrictive covenant will remain in place only until the new agreed order to implement the 2016 CAP is issued; then a new environmental covenant will be placed on the property.

2.0 CLEANUP STANDARDS

MTCA requires that cleanup standards be protective of human and ecological receptors for the affected media, based on the reasonable maximum exposures expected to occur under current and future site use. CAOs and cleanup standards were initially established in the 2001 CAP. However, cleanup levels been revised by Ecology since the 2001 CAP took effect. The current cleanup levels provided in Ecology's Cleanup Levels and Risk Calculation database will be applicable to the 2016 CAP.

2.1 Cleanup Action Objectives

Site CAOs were outlined in the 2001 CAP include (Ecology 2001):

- Human Health: Prevent exposure to groundwater exceeding contaminant-specific applicable or relevant and appropriate requirements; in accordance with WAC 173-340-360 and WAC 173-340-700.
- Environmental Protection: Prevent migration of groundwater contamination at levels that could negatively impact Salmon Creek.

Supplemental to the existing CAOs, DNR has expressed a further goal of expediting attainment of cleanup standards to the greatest extent practicable.

Execution of the 2001 CAP removed 70 cy of the most highly pesticide-contaminated soil from the Site. To date, no human exposures to contaminated soil or groundwater have occurred, and groundwater monitoring data indicate that groundwater contamination has not migrated away from the area immediately adjacent to the soil excavation (Figure 2); and therefore, has not negatively impacted Salmon Creek. However, HE concentrations in soil and groundwater exceed applicable CULs locally. Soil and groundwater data indicate that the 1996 excavation left soil contamination in place, and that low concentrations of HE are back-diffusing into groundwater near the water table from the remaining affected soil. The objective of the 2016 CAP will be to more completely remove contaminated soil in order to attain currently applicable CULs at the point of compliance (Section 2.3).

2.2 Cleanup Levels

The 2001 and current[7] CULs are presented below.

[7] MTCA Method B groundwater CULs are from Ecology's Cleanup Levels and Risk Calculation database (accessed March 28, 2016).

	Cleanup Level (CUL) Summary					
			Leaching Soil to Groundwater Pathway			
Contaminant	2001 Soil Direct Contact (µg/kg)	2016 Soil Direct Contact (ug/kg)	2016 Soil (Vadose Zone (µg/kg)	2016 Soil (Saturated Zone) (µg/kg)	2001 Groundwater (µg/L)	2016 Groundwater (µg/L)
Total Chlordane	2,860	2,860	2,060	103	0.25	0.25
Heptachlor	222	222	37.8	1.90	0.019	0.19
Heptachlor epoxide	110	110	80.2	4.02	0.009	0.0048
2,4,D	800,000	800,000	NA (a)	NA (a)	160	160
2,4,5,T	8,000,000	800,000	NA (a)	NA (a)	160	160
2,4,5,TP	640,000	640,000	NA (a)	NA (a)	128	128
Dicamba	2,400,000	2,400,000	NA (a)	NA (a)	240	480
Picloram	5,600,000	5,600,000	NA (a)	NA (a)	1,120	1,120
Atrazine	4,550	4,350	NA (a)	NA (a)	0.398	0.380
Simazine	8,330	8,330	NA (a)	NA (a)	0.729	0.729

(a) CLARC does not report a CUL for this constituent.
µg/kg = microgram per kilogram
µg/L = microgram per liter
NA = Not available
Highlighting = Selected CUL

Where available, 2016 CULs will be used. A detailed table showing the selection of current CULs is shown on Table 2.

2.3 Point of Compliance

The point of compliance represents the locations at which CULs are to be attained. The 2001 CAP defined the point of compliance as “throughout the site.” The site was defined as “that portion of the parcel of property owned by DNR where Webster Nursery is located that has been impacted by the release from the pesticide storage tank” (Ecology 2001). Consequently, the 2016 CAP will seek to attain applicable CULs for soil, groundwater, and ecological receptors throughout that portion of the DNR Webster Nursery property impacted by leakage from the pesticide UST.

3.0 PROPOSED CLEANUP ACTION

The recommended cleanup alternative identified in the 2016 FS involves excavation and disposal of HE-affected soil within the zone of seasonal groundwater fluctuation. The following sections provide a conceptual design for the recommended supplemental cleanup action. Further detail regarding implementation of the recommended cleanup action will be provided separately in a Remedial Action Work Plan (RAWP) after Ecology has approved a final CAP.

3.1 Summary of Selection and Rationale

The 2016 FS considered general response actions and process options evaluated in the 2001 CAP (Ecology 2001) in terms of current site conditions. Three cleanup alternatives were selected and evaluated on the basis of selected criteria including: effectiveness in attaining cleanup action objectives, implementability at the Site, restoration timeframe, permanence of the cleanup, and cost. A summary of MTCA criteria rankings are included in Table 3. Specifically, cleanup alternatives evaluated in the 2016 FS included:

- Alternative 1: Status Quo
- Alternative 2: Physical Barrier/Containment
- Alternative 3: Excavation and Offsite Disposal.

It was concluded that Alternative 1, though implementable, was unlikely to be effective at permanently achieving cleanup goals and standards in the desired restoration timeframe, and the estimated costs were high given the long period of monitoring. The probability of Alternative 2 providing long-term effectiveness or timely, permanent attainment of cleanup standards or CAOs was found to be low; implementability was uncertain; and the costs high. Alternative 3 was determined to comply with MTCA requirements (WAC 173-340-360), and presented the most implementable and effective alternative for permanently achieving stated cleanup standards and objectives in a timely and cost-effective manner. Consequently, Alternative 3 was selected as the recommended cleanup alternative.

3.2 General Description

The proposed cleanup action involves excavation and offsite disposal of soil containing HE concentrations within the zone of seasonal groundwater fluctuation. Because two existing monitoring wells are located within the proposed excavation area, they will be decommissioned and replaced with two new monitoring wells. A conceptual design of the proposed excavation area and proposed monitoring well locations is shown on Figure 2. A cross section of the proposed excavation area is shown on Figure 3. Further specifics regarding cleanup procedures will be presented in the RAWP.

3.2.1 Excavation

Excavation will target soil between 4 ft and 15 ft bgs in the area enclosed by boring locations in which HE has been detected, as well as the previous excavation area where HE-affected soil was left in place below 7 ft bgs. After excavating and stockpiling the upper 4 ft of soil, remaining soil from 4 ft to 15 ft bgs will be excavated and loaded into trucks for transportation and disposal. For maximum efficiency and safety, and to minimize the need to remove and dispose of groundwater, it is recommended that excavation occur when the water table is near the seasonal low elevation (likely during September). To protect the integrity of the building, it may be advisable to conduct excavation by sequential "slot-cutting" perpendicular to the building's south wall.

Clean soil excavated from 0 to 4 ft bgs will be sampled, stockpiled, and used as backfill. The remaining excavated area will be backfilled with imported clean, fine- to medium-grained material comparable to surrounding soil. The source and cleanliness of imported fill will be confirmed with the supplier. Backfill will be compacted in short lifts and graded to match the density and topography of the surrounding soil.

3.2.2 Hauling and Disposal

The estimated volume of soil to be excavated and disposed of is approximately 125 cy. It is anticipated that HE-affected soil will be loaded into trucks and disposed offsite at a Resource Conservation and Recovery Act of 1976 (RCRA) Subtitle D landfill. If the soil designates as a dangerous waste, treatment prior to disposal or disposal at a RCRA Subtitle C landfill would be required. A previous determination from Ecology indicates that soil excavated from the cleanup area may not be designated as a dangerous waste (Ecology 1998). DNR plans to apply to Ecology for a waste designation prior to excavation.

3.2.3 Replacement Wells

Because onsite monitoring wells SW-10 and SW-11 are screened within the defined cleanup area, they will be decommissioned according to regulation (WAC 173-160-381) prior to excavation. Two new monitoring wells would be installed to replace SW-10 and SW-11; the new wells will be developed at least 24 hours after installation. To be comparable to the existing wells, the replacement wells will be located south and east of the new excavation and screened from approximately 6 to 16 ft bgs. The replacement wells will be identified as SW-17 and SW-18. The approximate locations of proposed SW-17 and SW-18 are presented on Figure 2.

3.2.4 Dewatering

Soil exceeds CULs below dry season water levels at one location (LAI-B12). A trench box will be used to allow for excavation below the water table; groundwater will be pumped (using a sump pump) to an area of the excavation where concentrations in soil and groundwater already exceed CULs.

Depending on site conditions, additional dewatering may be needed to allow the excavation to reach 10 ft bgs. Due to limited resources, it is anticipated that dewatering would be attempted by passive means (e.g., temporary trenching/drains and sump pit within excavation). If generated, discharge water would likely be directed to a primary settling container to allow sedimentation, then pumped to a wastewater container for sampling and appropriate disposal.

3.2.5 Confirmation Sampling

Soil samples will be collected from the finished, open excavation to ascertain soil concentrations of contaminants of concern left in place. Sampling methods, analysis, and further details will be presented in the RAWP and Sampling and Analysis Plan (SAP).

3.2.6 Environmental Covenant

A restrictive covenant is in place as part of the existing site remedy. This covenant will remain in place until the new agreed order is issued to implement this CAP. With the issuance of the new agreed order, a new environmental covenant (EC) will be placed on the property. The EC will be prepared by Ecology consistent with WAC 173-340-440 and RCW 64.70. Once the EC is recorded with the Thurston County Auditor, it shall supersede the existing restrictive covenant.

4.0 GROUNDWATER MONITORING AND REPORTING

Once cleanup and site restoration is complete, four consecutive quarters of groundwater sampling will be conducted at water quality monitoring wells including new wells SW-17 and SW-18. Following receipt and processing of results from the fourth quarterly event, DNR will submit a data report to Ecology. The report will provide recommendations for future monitoring. Monitoring data will also be uploaded to Ecology's Environmental Information Management database annually by DNR (or contractor to DNR) per existing protocol.

5.0 PUBLIC PARTICIPATION AND COMMUNICATION

Consideration of public concerns is an inherent part of the Site cleanup process under MTCA (WAC 173-340-600). Ecology is responsible for providing public notice and the opportunity for public comments on this CAP per WAC 173-340-600(13). The formal public review and comment period will be 30 days. After review and consideration of public comments, the contents of the CAP may be revised accordingly. Ecology will then issue a final CAP and will publish it via the Site Register and by other appropriate methods per WAC 173-340-380(3).

6.0 APPLICABLE LAWS

Under RCW 70.105D.090, remedial actions conducted under an AO are exempt from the procedural requirements of certain laws and local government permits, but must comply with substantive requirements of state and federal laws (WAC 173-340-710). It is expected that the proposed cleanup action would not require coverage under the construction stormwater general permit because less than 1 acre will be disturbed, and because the Site does not discharge to surface water of the state (Ecology 2015). Nonetheless, cleanup activities will generally observe elements of construction stormwater pollution prevention as described in the Western Washington Stormwater Management Manual (Ecology 2014b), including flow, sediment, and pollution control measures. If generated, water produced from dewatering will be contained for appropriate offsite disposal. Pursuant to applicable State Environmental Protection Agency (SEPA) rules (WAC 197-11-960), DNR, as a state agency, is required to complete a SEPA checklist for the project that will be submitted concurrent with this CAP.

7.0 HEALTH AND SAFETY

A health and safety plan (HASP) will be developed for construction activities at the Site that will be consistent with MTCA requirements in WAC 173-340-810. The HASP will be provided as an attachment to the RAWP. The purpose of the HASP will be to limit worker exposure and minimize dust generation during construction. Elements of the HASP will include:

- Development of a dust control plan. The dust control plan will be consistent with Puget Sound Clean Air Agency regulations for controlling fugitive dust emissions with the goal of "no visible dust" leaving the project area.
- Requirements for worker education and safety.
- Procedures for decontamination and maintaining personal hygiene and associated facility requirements (e.g. hand and boot wash stations).
- Identification of areas where the HASP applies.

8.0 RESPONSIBILITY

DNR is responsible for authorizing, conducting, and funding cleanup actions at the Site. LAI has been retained by DNR as a consultant to conduct sampling and prepare reports including the FS and CAP. It is anticipated that LAI will assist DNR with planning, coordination, construction oversight, and reporting related to the proposed cleanup action.

Ecology will be responsible for reviewing and ultimately approving a final FS and CAP. Ecology will draft an AO and public notice from the approved FS and CAP, and will oversee the public notification and comment process. Ecology will incorporate public comments into a final AO.

Once a final CAP and AO are issued, DNR will prepare a RAWP. The RAWP will include a SAP and a HASP.

After the cleanup action is complete, DNR will prepare a final Construction Completion Report for Ecology review. Ecology will evaluate the overall success of the cleanup and, at its discretion, may issue a letter of satisfaction to nullify the AO.

9.0 IMPLEMENTATION SCHEDULE

Implementation of the recommended cleanup alternative can be initiated after issuance of the final AO by Ecology. Excavation and associated site cleanup work should be performed in early October to minimize the need for water table lowering. At this time, DNR plans to perform the proposed cleanup action in October 2016. Once approved, the schedule is anticipated to include the following milestones (dates are approximate):

1. 2016
    a. June
        i. June 13: Ecology provides draft AO and approved FS, CAP and SEPA to DNR
        ii. June 16: FS, CAP, SEPA and AO finalized
        iii. June 29: DNR submits signed AO to Ecology
    b. July
        i. July 7: Ecology posts publication and allows 30-day public comment period
    c. August
        i. August 8: Public comment period ends.
        ii. August 8: DNR submits draft RAWP, SAP, and HASP
        iii. August 8: DNR advertises specifications for contractor bidding (3 weeks)
        iv. August 22: Ecology addresses public comments and issues final, signed AO
        v. August 26: Ecology provides comments on draft RAWP, SAP and HASP
        vi. August 29: Contractor bids received
    d. September
        i. September 6: DNR submits final RAWP, SAP and HASP
        ii. September 26: DNR Contractor selection
    e. October
        i. October 3: DNR prepares site, coordinates contractors and implements cleanup action (2 weeks)
        ii. October 17: Cleanup action complete
    f. November
        i. November 30: DNR submits Draft Cleanup Action Completion Report for Ecology review
    g. December
        i. December 15: Ecology provides comments on Draft Cleanup Action Completion Report
        ii. DNR conducts first quarterly groundwater sampling event

2. 2017

    a. January

        i. DNR submits first quarterly groundwater monitoring report for Ecology review.

        ii. DNR submits final Cleanup Action Completion Report.

    b. March: DNR conducts second quarterly groundwater sampling event

    c. April: DNR submits second quarterly groundwater monitoring report for Ecology review

    d. June: DNR conducts third quarterly groundwater sampling event

    e. July: DNR submits third quarterly groundwater monitoring report for Ecology review

    f. September: DNR conducts fourth quarterly groundwater sampling event

    g. October: DNR submits fourth quarterly report and recommendations for Ecology review.

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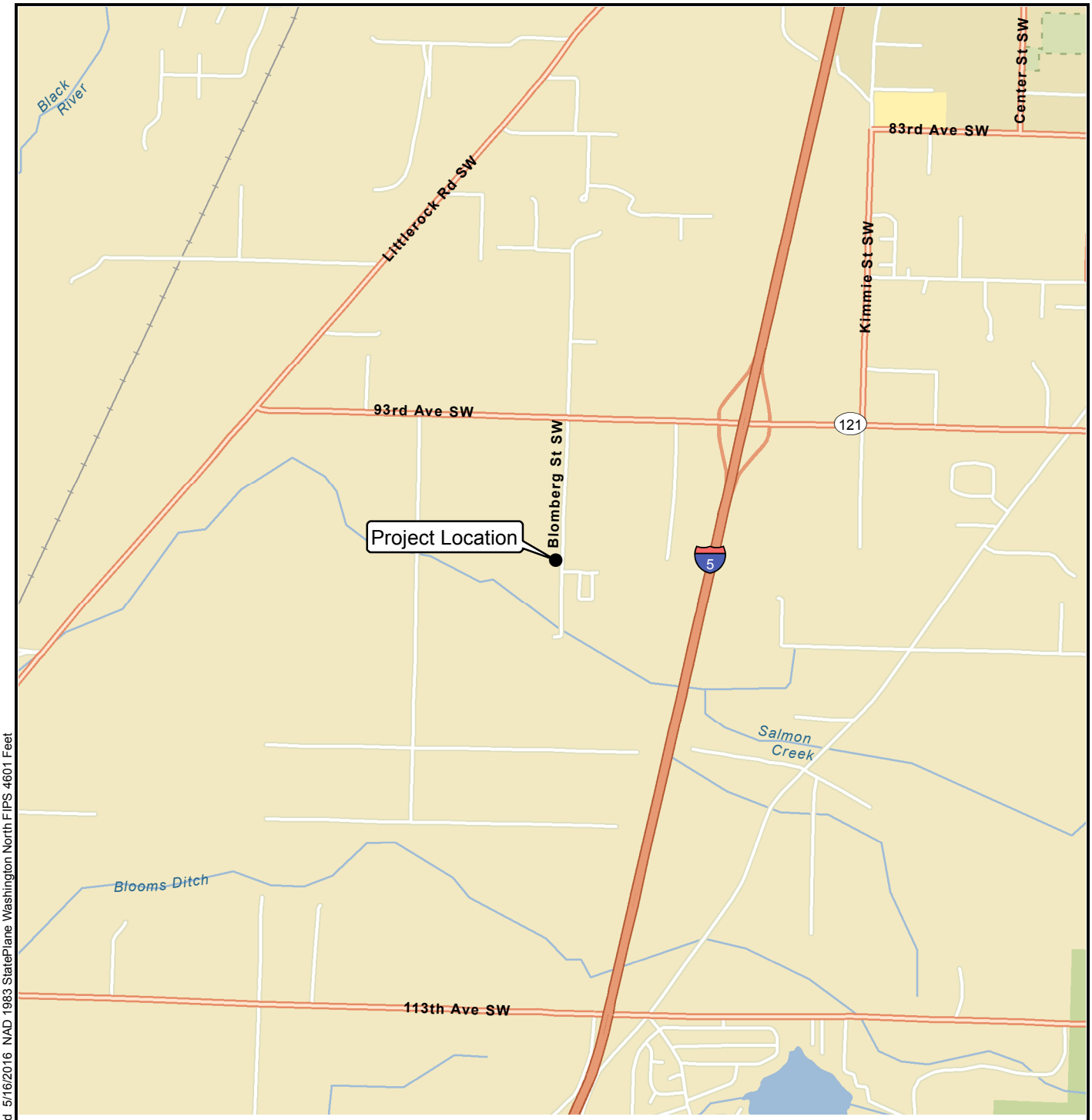

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0 0.5 1

Miles

Data Source: Esri 2012

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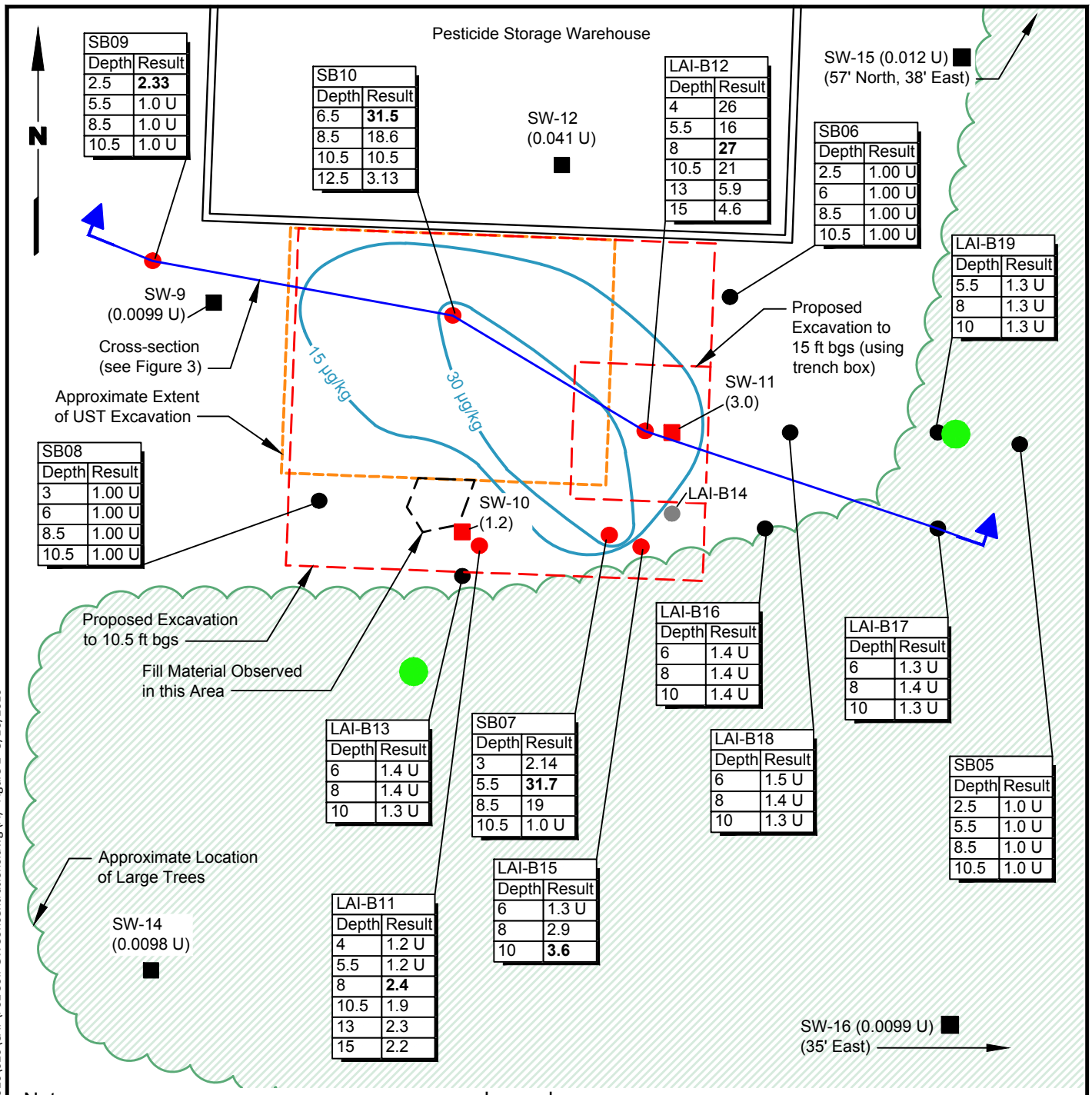
Webster Nursery Site Tumwater, Washington	**Vicinity Map**	Figure 1



Notes

1. Depth measured in feet below ground surface.
2. Soil concentrations in micrograms per kilogram (µg/kg); bold indicates maximum.
3. Groundwater concentrations are most recent result, in micrograms per liter (µg/L).
4. U = indicates the compound was not detected at the reported concentration.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Legend

Location Type:

- Soil Boring
- Groundwater Monitoring Well
- Soil Concentration Contour
- Proposed Monitoring Well Location

Heptachlor Epoxide Results:

- Detected
- Not Detected
- Not Analyzed

0 10 20

Scale in Feet

Source: Tetra Tech, 1999

LANDAU ASSOCIATES, INC. | G:\Projects\774\006\020\026\CAP\F02 Soil-GWConcentrations.dwg (A) "Figure 2" 5/16/2016

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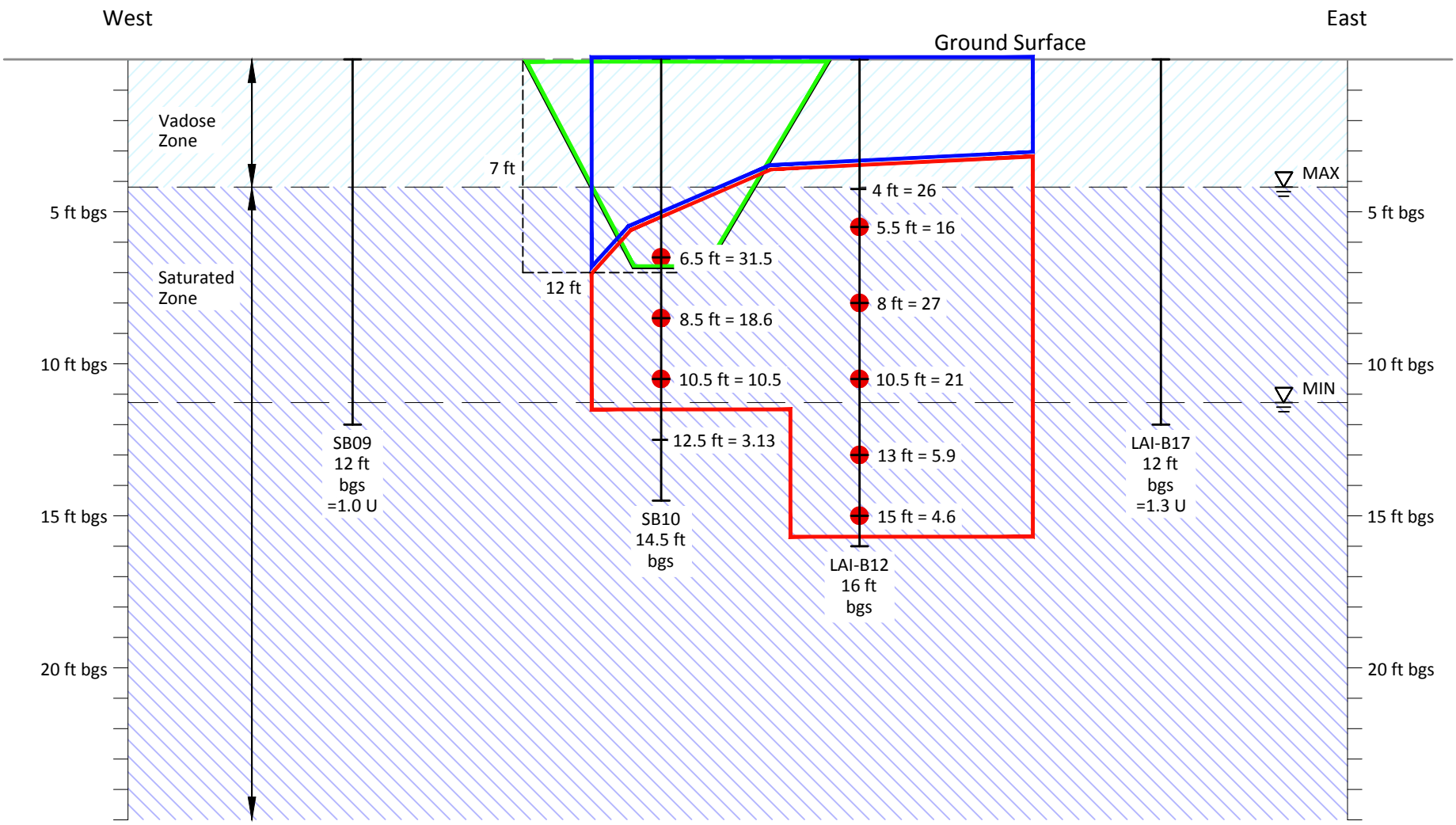
Webster Nursery Site
Tumwater, Washington

Conceptual Cleanup Action Design

Figure 2



Notes

1. Maximum Water Level = 4.19 bgs (Feb 2014), Minimum Water Level = 11.28 bgs (Sept 2014).
2. Surface elevation approx. 193 ft.
3. Ground surface elevations obtained from GoogleEarth, vertical datum unknown.
4. U = indicates the compound was not detected at the reported concentration.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Legend

- Exceedances; MTCA Method B
- Historical Excavation Area
- Clean Overburden
- Proposed Soil Excavation Area

0 10 20

Horizontal Scale: 1" = 10'
Vertical Scale: 1" = 5'
2x vertical exaggeration

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Webster Nursery Site
Tumwater, Washington

Cross Section of Cleanup Action

Figure 3

Table 1
Seasonal Groundwater Levels
Webster Nursery
Tumwater, Washington

Well ID	Top of PVC Elevation (ft, msl)	Depth to Water (ft) 02/24/14	Depth to Water (ft) 09/10/14	Groundwater Fluctuation (ft)
SW-9	192.12	4.19	9.98	5.79
SW-10	193.37	5.37	11.28	5.91
SW-11	192.19	4.19	10.12	5.93
SW-12	192.9	5.17	10.71	5.54
Maximum/Minimim		4.19	11.28	

ft = feet
msl = mean sea level

Table 2
2016 Cleanup Level Selection
Webster Nursery
Tumwater, Washington

Chemical Name	CAS #	Soil Direct Contact Method B Non cancer (mg/kg)	Soil Direct Contact Method B Cancer (mg/kg)	Soil Protective of Groundwater Vadose @ 25 degrees C (mg/kg)	Soil Protective of Groundwater Saturated (mg/kg)	Soil TEE Soil Biota (mg/kg)	Soil TEE Wildlife (mg/kg)	Soil CUL in Final Units Vadose Zone (µg/kg)	Soil CUL in Final Units Saturated Zone (µg/kg)	Ground Water Method B Non cancer (µg/L)	Ground Water Method B Cancer (µg/L)
atrazine	1912-24-9	2.80E+03	4.35E+00					4.35E+03	4.35E+03	5.60E+02	3.80E-01
chlordane	57-74-9	4.00E+01	2.86E+00	2.06E+00	1.03E-01	1.00E+00	2.70E+00	2.06E+03	1.03E+02	8.00E+00	2.50E-01
dicamba	1918-00-9	2.40E+03						2.40E+06	2.40E+06	4.80E+02	
heptachlor	76-44-8	4.00E+01	2.22E-01	3.78E-02	1.90E-03		0.4 (a)	3.78E+01	1.90E+00	8.00E+00	1.94E-02
heptachlor epoxide	1024-57-3	1.04E+00	1.10E-01	8.02E-02	4.02E-03		0.4 (a)	8.02E+01	4.02E+00	1.04E-01	4.81E-03
picloram	1918-02-1	5.60E+03						5.60E+06	5.60E+06	1.12E+03	
simazine	122-34-9	4.00E+02	8.33E+00					8.33E+03	8.33E+03	8.00E+01	7.29E-01
tp;2,4,5-	93-72-1	6.40E+02						6.40E+05	6.40E+05	1.28E+02	
2,4-D	94-75-7	8.00E+02									
2,4,5 T	93-76-5	8.00E+02									

All cleanup criteria are from the Washington State Department of Ecology's Cleanup Levels and Risk Calculation Database, except for the TEE values which are from WAC 173-340-900, Table 749-3

Selected cleanup level (CUL)

(a) Total heptachlor and heptachlor epoxide

Table 3
Summary of MTCA Alternatives Evaluation and Ranking
Webster Nursery
Tumwater, Washington

Alternative Number	**Alternative 1**	**Alternative 2**	**Alternative 3**
Alternative Name	**Status Quo**	**Physical Barrier/Containment**	**Excavation and Offsite Disposal**
Alternative Description	Continuation of the present action, including groundwater monitoring, and MNA as the primary remedial technology, and institutional controls as the secondary remedial technology.	Construction of physical barriers including an impervious cap, vertical impermeable barriers, and drainage control. Two new monitoring wells and 30 years of compliance monitoring.	Excavation of HE contaminated soils and offsite disposal, including dewatering and site restoration. Two new monitoring wells and 1 year of compliance monitoring.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
-Protect human health and the environment	Yes	Yes	Yes
-Comply with cleanup standards	Yes	Yes	Yes
-Comply with applicable state/federal laws	Yes	Yes	Yes
-Provide for compliance monitoring	Yes	Yes	Yes
3 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	30 years	1 year
-Potential risk to human health and environment	Low	Low	Low
-Practicability of achieving shorter restoration time	See DCA below	See DCA below	See DCA below
-Current use of site, surrounding area, and resources	Unrestricted/Commercial - no offsite migration	Unrestricted/Commercial - no offsite migration	Unrestricted/Commercial - no offsite migration
-Future use of site, surrounding area, and resources	Unrestricted/Commercial - no offsite migration	Unrestricted/Commercial - no offsite migration	Unrestricted/Commercial - no offsite migration
-Availability of alternative water supplies	Yes	Yes	Yes
-Likely effectiveness/reliability of institutional controls	High	High	High
-Ability to monitor migration of hazardous substances	High	High	High
-Toxicity of hazardous substances at the site	Moderate	Moderate	Moderate
-Natural processes that reduce concentrations	Yes	Yes	Yes
-Overall Reasonable Restoration Time Frame	Yes	Yes	Yes
4 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
Comparative Overall Benefit	Comparative Benefit Rating / Score / Weighting Factor / Weighted Score	Comparative Benefit Rating / Score / Weighting Factor / Weighted Score	Comparative Benefit Rating / Score / Weighting Factor / Weighted Score
-Overall Protectiveness	Medium / 6 / 0.3 / 1.8	Medium High / 8 / 0.3 / 2.4	Medium High / 8 / 0.3 / 2.4
-Permanence	Medium / 6 / 0.2 / 1.2	Medium High / 7 / 0.2 / 1.4	High / 9 / 0.2 / 1.8
-Long Term Effectiveness	Medium High / 8 / 0.2 / 1.6	Medium High / 8 / 0.2 / 1.6	High / 9 / 0.2 / 1.8
-Manageability of Short Term Risk	Medium High / 8 / 0.1 / 0.8	Medium High / 8 / 0.1 / 0.8	Medium High / 7 / 0.1 / 0.7
-Implementability	High / 10 / 0.1 / 1	Medium Low / 4 / 0.1 / 0.4	Medium High / 8 / 0.1 / 0.8
-Consideration of Public Concerns	High / 10 / 0.1 / 1	High / 10 / 0.1 / 1	High / 10 / 0.1 / 1
Overall Weighted Benefit Score	**7.4**	**7.6**	**8.5**
5 Disproportionate Cost Analysis			
Overall Weighted Benefit Score	7.4	7.6	8.5
Estimated Remedy Cost	$336,000	$542,000	$143,000
Most practicable permanent solution	No	No	**Yes**
Lowest Cost Alternative	No	No	**Yes**
Relative Benefit/Cost Ratio*	6.6	4.2	17.8
Incremental Increase/Decrease in Relative Benefit to Most Permanent Alternative	-13%	-11%	0%
Incremental Increase/Decrease in Relative Benefit to Next Most Expensive Alternative	-3%	0%	12%
Incremental Increase/Decrease in Cost Compared to Most Permanent Alternative	135%	279%	0%
Incremental Increase/Decrease in Cost Compared to Next Most Expensive Alternative	0%	135%	-57%
Costs Disproportionate to Incremental Benefits	No	Yes	No
Remedy Permanent to the Maximum Extent Practicable?	No	No	Yes
Preferred Alternative	**No**	**No**	**Yes**