1180 NW Maple St., Suite 310
Issaquah, WA 98027
T 425.395.0010
TRCcompanies.com

February 3, 2021

Mr. Adam Harris, L.H.G.
Washington State Department of Ecology
Toxics Cleanup Program, Southwest Regional Office
300 Desmond Drive SE
Lacey, Washington 98503

Re: Response to Ecology Comments dated August 24, 2020
Supplemental Remedial Investigation Report
Former Brookdale Golf Club
1802 Brookdale Road E
Tacoma, Washington 98445
VCP Project ID: SW1672

TRC Project Number: 015397

Dear Mr. Harris:

TRC Environmental Corporation[1] (TRC) is pleased to submit the following response to comments (RTC) to the Washington State Department of Ecology's (Ecology's) August 24, 2020 letter regarding the Supplemental Remedial Investigation Report (SRI) for the Former Brookdale Golf Club located at 1802 Brookdale Road East in Tacoma, Washington (Site). TRC prepared this RTC on behalf of the current property owner, Ichijo USA Co., LTD (Ichijo). Included with the RTC are documents summarizing assessment activities completed at the Nicolina Meadows parcels adjacent to the eastern boundary of the Site and documentation summarizing the remedial activities completed in remedial area AOI-20 of the Site. Ecology's August 24, 2020 letter contained comments that related to both Nicolina Meadows and AOI-20.

It is our opinion that the additional enclosed information provided herein is fully responsive to Ecology's comments and serves to further document a completed Remedial Investigation (RI) of the Site.

EPI submitted a Remedial Investigation, Focused Feasibility Study, and Cleanup Action Plan (RI/FFS and CAP) for the entire Site in 2019. EPI received comments on the RI from Ecology in a letter dated December 10, 2019. The SRI was performed to address those Ecology comments on the northern portion of the Site, north of Clover Creek. The SRI was focused on the northern portion of the Site to facilitate the development of that portion of the property. The August 24, 2020 comments provide additional

[1] Environmental Partners, Inc. (EPI) performed prior work at the Site. EPI was acquired by TRC on December 27, 2019. For the purposes of this document TRC and EPI may be used interchangeably.

thoughts from Ecology regarding the full scope of assessment on the northern portion of the Site. Ichijo will implement a supplemental investigative task on the portion of the Site south of Clover Creek once we have established the full scope of necessary additional actions through the resolution of Ecology's comments.

It is TRC's opinion that the information provided herein and attached is fully responsive to Ecology's most recent comments and will support a determination that the RI of the northern portion of the Site is complete.

As indicated in prior communications with Ecology, the CAP has been implemented throughout the Site and previously identified pesticide contamination has been remediated. The SRI served to identify that no additional contaminants of concern were present at the Site. The small area of arsenic-impacted soil on the northern portion of the Site (AOI-20) was remediated and documentation of that work is included in Attachment A. Additional supplemental assessment of the southern portion of the Site, consistent with those actions performed on the northern portion of the Site are planned and may occur as soon as the fall of 2021. Upon completion of those additional assessment actions and any required additional remediation, a Cleanup Action Report (CAR) will be prepared documenting all of the remedial actions at the entire Site, both north and south of Clover Creek.

TRC's responses to the comments provided in the August 24, 2020 opinion letter are provided below. For ease of reference, Ecology's original comments are presented verbatim in italics followed by TRC's response.

Comment 1. ***Characterization of the Site***

This Site's ongoing characterization is described in the March 18, 2019, Remedial Investigation and Focused Feasibility Study Report. Since that report, you conducted additional remedial investigation contained in the May 29, 2020, Supplemental Remedial Investigation (the Report).

Ecology appreciates the significant remedial investigation and cleanup that you have conducted. We generally concur with your approach, based on our December 10, 2019, opinion, and agree with your assessment that additional remedial investigation is needed in the southern portion of the Site.

Ecology also will need to review additional remedial investigation results from the areas west [sic] [Clarification: Nicolina Meadows is east of the Site] of the former golf course in the wetlands of the proposed Nicolina Meadows housing development area to ensure that hazardous substances released from this toxic cleanup Site have not migrated to that location.

A MTCA Site can be thought of as the extent of contamination released to the environment, without regard to cleanup levels or property boundaries. Sufficient remedial investigation must be completed throughout the Site to delineate the Site, prior to setting cleanup standards or selecting a cleanup action for either the Site, or a property or properties within the Site.

We also concur with your assessment that if additional areas of contamination are detected, additional remediation may need to be conducted. Ecology will review the Site cleanup after the extent of contamination at the Site is determined in the ongoing remedial investigation. Ecology appreciates the significant remedial investigation you have conducted, and supports your continued efforts to delineate and clean up contamination.

Reported Groundwater Contamination. *You detected groundwater contamination, and report that groundwater contamination detected at monitoring well MW-1 was likely a result of turbidity from the drilling process. To empirically demonstrate compliance with groundwater cleanup standards, Ecology needs additional seasonally obtained groundwater sampling data demonstrating compliance with cleanup levels at this location at the Site. Seasonally-obtained groundwater monitoring demonstrating compliance with proposed cleanup standards is often acceptable for Ecology to concur that an empirical demonstration is sufficient. However, empirical demonstrations of groundwater compliance are not specifically supported in MTCA. We also refer you to the statistical methods in WAC 173-340-720(9) for evaluating groundwater compliance with cleanup standards.*

Ecology also needs additional groundwater monitoring results obtained from temporary or permanent groundwater monitoring wells near where you detected groundwater contamination. Ecology needs the additional groundwater monitoring results to determine if the contamination is laterally or vertically extensive. To avoid the turbidity that you hypothesize may have caused the groundwater contamination, we recommend installing and adequately developing additional permanent groundwater monitoring wells. Ecology looks forward to reviewing the necessary additional groundwater analytical results obtained from this area of the Site as part of the ongoing remedial investigation.

Comment Acknowledged. Ichijo will perform the necessary monitoring to demonstrate compliance with groundwater cleanup standards. Monitoring wells will be installed in locations surrounding MW-1 to evaluate if groundwater impacts are present. Groundwater samples will be collected for one year on a quarterly basis to demonstrate compliance. If compliance is demonstrated after four consecutive quarters, groundwater sampling will be terminated, and the results and findings will be documented and provided to Ecology.

Delineated Isopleth Maps. *In the supplemental investigation, you did not provide the delineated isopleth maps Ecology previously requested. While it is your choice how you provide information for the remedial investigation and cleanup, that information must be sufficient for Ecology's determination that the extents of contamination have been adequately delineated and remediated where necessary. Ecology again suggests you provide delineated isopleth maps, so that we can determine that the remedial investigation and cleanup is sufficient.*

Delineated isopleth maps can clearly show where your conclusions are supported by data, and where interpretations must be made between data results. While interpretations between data results are inevitable, Ecology prefers that you clearly illustrate where and how you made those interpretations. Whatever method you select, you will need to clearly depict both data results and the necessary interpretations between data results, and provide sufficient

information for Ecology's concurrence. We again suggest you develop isopleth maps to provide this information.

As discussed in TRC's RTC dated, May 29, 2020, the remediation of the Site has been completed in a manner consistent with the CAP. The remedial excavations were initially guided by the data provided in the RI/FFS Report dated March 18, 2019. All impacts at concentrations exceeding the selected cleanup levels have been excavated and disposed off-Site and the terminal sidewalls and bottoms of the remedial excavations have been sampled to demonstrate compliance with cleanup levels. The CAR will provide graphics presenting the final limits of the remedial excavation and both performance and confirmational samples throughout the excavation.

Preparation of isopleths documenting the pre-remedial extent of impacts would not be cost-effective and would not provide Ecology with useful data, since those graphics would demonstrate current Site conditions.

Ethylene Dibromide. *Your reported method detection limits for ethylene dibromide (EDB) exceed likely cleanup levels. Please ensure you provide data for EDB below cleanup levels throughout the Site.*

TRC requires additional information regarding this comment. In our review of the data, the method detection limit (MDL) for ethylene dibromide (EDB) did not exceed any applicable cleanup levels. EDB was not detected at a concentration exceeding a MDL in any of the soil, groundwater, surface water or sediment samples collected at the Site during the SRI. Table 1 below summarizes the MDLs and cleanup levels for EDB presented in the SRI.

Table 1
Summary of MDLs and Cleanup Levels for EDB

Matrix	MDL	Lowest Cleanup Level
Soil	<0.005 mg/kg	0.005 mg/kg[a]
Sediment	<0.005 mg/kg	NVE[b]
Groundwater	<0.01 µg/L	0.01 µg/L[c]
Surface Water	<0.01 µg/L	NVE[d]

Notes:

a	MTCA Method A cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4) and adjusted for the practical quantitation limit for soil.
b	Based on Washington State Department of Ecology Sediment Management Standards, WAC 173-204-563 Table VI, Freshwater Sediment Cleanup Objectives and Cleanup Screening Levels Chemical Criteria.
c	MTCA Method A cleanup level based on concentration derived using Equation 720-2, adjusted for the practical quantitation limit.
d	Based on the Cleanup Level and Risk Calculations (CLARC) Database.
mg/kg	Milligrams per kilogram.
µg/L	Micrograms per liter.
NVE	No value established.

> ***Indicator Hazardous Substances.*** *Without a detailed analysis showing how proposed indicator hazardous substances meet the specific criteria of WAC 173-340-703(2)(a-g), Ecology will need you to evaluate each hazardous substance detected throughout the Site, and compare it to proposed cleanup levels. If two or more hazardous substances remain at the Site, evaluate cumulative effects based on the details provided in Ecology's December 2019 opinion for the Site.*

Understood. However, no hazardous substances remain at the Site at a concentration exceeding a cleanup level and there is no potential for cumulative effects.

As discussed in Section 4.6.2 of the CAP, confirmational soil sampling at the terminal limits of the remedial excavations included analysis of 10 percent of samples for the full list of organochlorine pesticides, including all compounds detected during the RI. This approach was used to validate the selection of the indicator hazardous substance and this sampling and analysis was in fact performed during the implementation of the CAP. No compound other than dieldrin was detected at a concentration greater than an MDL. The attainment of cleanup levels throughout the Site eliminates the need for evaluating cumulative effects because no compounds remain at a concentration exceeding a cleanup level or even at a detectable concentration.

We acknowledge that Ecology has not yet been able to review these data to confirm the accuracy of the statement above. These data will first be provided to Ecology in the CAR after completion of additional assessment of the southern portion of the Site. Nonetheless, TRC can attest to the fact that no compounds were detected at the terminal limits of the remedial excavations throughout the Site at a concentration exceeding a cleanup level.

> ***EIM Results.*** *Ecology previously requested that prior to this review, you upload 4,4 DDE and 4,4 DDT results you obtained that are not currently in EIM. Ecology again requests you upload the following results. Please ensure you address the presence of these hazardous substances at the Site within the remedial investigation report.*
>
> - *4,4 DDE results obtained on January 25, 26, and 27, 2017.*
> - *4,4 DDT results obtained on January 25, 26, and 27, 2017.*

Acknowledged. This task is complete.

Comment 2. ***Establishment of Cleanup Standards.***

> ***Cleanup Standards:*** *Cleanup standards need to be updated in the completed remedial investigation, based on Ecology's suggestions in this and our December 19, 2019, opinion. Ensure you address all three components for establishing cleanup standards, including points of compliance, cleanup levels, and applicable state and federal laws.*
>
> a. ***Points of Compliance.*** *Points of compliance are the specific locations at the Site where cleanup levels must be attained. For clarity, Ecology provides the following table of standard points of compliance:*

Media	Points of Compliance
Soil-Direct Contact	Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.[14]
Soil- Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site.[15]
Soil-Protection of Plants, Animals, and Soil Biota	Based on ecological protection, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.[16]
Groundwater	Based on the protection of groundwater quality, the standard point of compliance is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.[17]
Groundwater-Surface Water Protection	Based on the protection of surface water, the standard point of compliance is all locations where hazardous substances are released to surface water.[18]
Air Quality	Based on the protection of air quality, the point of compliance is indoor and ambient air throughout the Site.[19]
Sediment	Based on the protection of sediment quality, compliance with the requirements of 173-204 WAC.[20]

b. ***Cleanup Levels.*** *Cleanup levels are the concentrations of a hazardous substance in soil, water, air, or sediment that are determined to be protective of human health and the environment. Additional evaluation requested in this opinion needs to be completed prior to Ecology concurring with the use of any proposed cleanup levels at the Site.*

c. ***Applicable Laws and Regulations.*** *In addition to establishing minimum requirements for cleanup standards, applicable local, state, and federal laws may also impose certain technical and procedural requirements for performing cleanup actions. Ecology's suggestions for including applicable laws and regulations for this cleanup were provided in our December 19, 2019, opinion for the Site. Ensure to adequately address this requirement in the completed remedial investigation.*

Achievable Practical Quantitation Limits. *The Washington State Sediment Management Standards (WAC 173-204) and the Sediment Cleanup User's Manual, Appendix D provide lower regularly-achievable laboratory practical quantitation limits than those you propose for Dieldrin. Please review and update proposed cleanup levels consistent with the information*

provided in Ecology regulations and guidance. Ecology provides the following additional chemical and media-specific information for establishing cleanup levels:

- ***Dieldrin in Soil.*** *The proposed value of 0.0625 milligrams per kilogram (mg/kg) does not appear to take into account the leaching pathway to groundwater. To be protective of the leaching pathway (vadose zone at 13º C), the value in Ecology's Cleanup Levels and Risk Calculation (CLARC) is 0.0028 mg/kg. Ecology's Manchester Lab reports a method reporting limit of 0.00025 mg/kg for Dieldrin in soil. The proposed cleanup level should be no greater than 0.0028 mg/kg. An empirical demonstration may be completed showing that soil concentrations will not cause an exceedance of the applicable groundwater cleanup level.*

The CAP, dated, March 18, 2019, indicated that the Site would be remediated to a MTCA Method B residential standard in soil, groundwater, surface water, and sediment. Ecology's opinion letter, dated, December 10, 2019, did not provide an opinion on using alternative cleanup standards other than what was described in the CAP. The CAP has been fully implemented at the Site based upon that feedback.

Additionally, the MDLs referenced above are not widely commercially available and are generally considered to be estimates by the Washington State-accredited laboratories with which TRC has spoken. The MDL and practical quantitation limits achieved by the laboratory used for the investigation are considered reasonable and appropriate. The laboratory used for the RI and confirmation testing of the remedial action is accredited by the State of Washington and Ecology to provide those analyses.

- ***Dieldrin in Groundwater/Surface Water.*** *The proposed <0.02 micrograms per liter (µg/L) is an order of magnitude higher than achievable method reporting limits. Manchester Lab reports 0.0025 µg/L as a Method Reporting Limit. The proposed cleanup level should be no higher than about 0.0055 µg/L for both groundwater and surface water. This value appears protective of groundwater, and is a realistic upward adjustment to the regulatory surface water practical quantitation limit.*

As discussed above, the referenced MDL listed for dieldrin in groundwater and surface water is not commercially utilized or available. The laboratory used by TRC is a Washington state-accredited laboratory and provided these analyses. While the stated MDLs may be theoretically achievable, our discussions with reputable laboratory directors indicates that they can only be achieved under ideal conditions and would be widely considered as estimates and potentially unreliable based on a formal MDL study.

- ***Dieldrin in Sediment.*** *The Sediment Management Standards lists a freshwater sediment cleanup objective (SCO) of 0.0049 mg/kg, and a regulatory practical quantitation limit of 0.003 mg/kg. As a result, there should be no upward adjustment to the regulatory practical quantitation limit. The cleanup screening level (CSL) for sediments (freshwater) is 0.0093 mg/kg and the SCO for sediments (freshwater) is 0.0049 mg/kg. The proposed cleanup level should not be greater than 0.0049 mg/kg.*

The proposed cleanup level does not exceed 0.0049 mg/kg. The laboratory MDL for dieldrin in sediment is 0.006 mg/kg. A lower MDL is widely considered an estimate as mentioned previously. The findings of

the SRI demonstrate compliance with Ecology's Sediment Management Standards, WAC 173-204-563 Table VI, Freshwater Sediment Cleanup Objectives and Cleanup Screening Levels Chemical Criteria.

Comment 3. ***Selection of Cleanup Action***

Ecology has determined that additional remedial investigation is necessary at the Site before selecting a cleanup action.

The scope of the CAP has been completed at the Site. The SRI and additional assessment were performed in order to determine whether additional contaminants of concern are present and whether additional remedial action is necessary. The selection of excavation with off-Site disposal as a remedy was documented in the FFS, with the CAP documenting how that action would be performed. For the purposes of this RTC, Ecology may consider those prior remedial actions as an Interim Remedial Action (IRA).

It is fully expected that any additional assessment will demonstrate that the IRA has resulted in the complete cleanup of the Site. The exception to this statement would be the remediation of isolated areas of arsenic (AOI-20) and additional assessment of groundwater in the area of MW-1.

Documentation of the completion of additional Site assessment and the demonstration of complete cleanup of the entire Site will be provided in the CAR, which will be prepared upon completion of additional assessment of the southern portion of the Site and completion of any additional remediation that may be identified by that additional assessment. With the completion of those actions it is fully expected that the IRA can be reclassified as a full cleanup action in compliance with MTCA.

The SRI identified one remedial area (AOI-20) where arsenic concentrations in soil exceeded the cleanup level. Additional remedial excavation was performed in AOI-20, using the same procedures documented in the CAP that have been implemented throughout the Site. This includes the collection of performance and confirmational samples to document the attainment of cleanup levels. The remediation of the AOI-20 area is now complete. Attachment A presents summary tables of analytical results for the remediation at AOI-20 and graphical representations of all sampling locations and final confirmational sampling locations at the terminal limits of the remedial excavation. The data demonstrate compliance with the MTCA Method A soil cleanup level of 20 mg/kg throughout the remedial excavation.

Ecology requested additional data regarding the assessment of environmental conditions on the Nicolina Meadows development to the east of the Site. Nicolina Meadows includes six residential development lots immediately adjacent to the Site. The assessment of Nicolina Meadows included collection of soil samples at two locations on each of the six lots (12 samples total) and analysis for a broad scan of analytes. The analyte list or analysis was based on the findings at the Site and upon Ecology's prior comments. Attachment B presents a technical memorandum with summary tables presenting the results of those analyses and graphical representations of the sample locations. No compounds were detected in any samples on the Nicolina Meadows property at a concentration exceeding a potential cleanup level. Based on these data, it is reasonable to conclude that the Nicolina Meadows parcels are not impacted and in the absence of any impacts, are not a part of the Former Brookdale Golf Club Site.

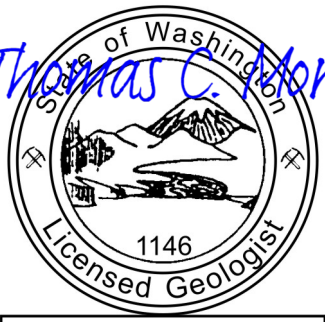
On behalf of Ichijo, TRC appreciates Ecology's attention to this matter. We request that Ecology review the enclosed documents and provide us with any additional comments. Prior to providing any additional written comments, TRC would appreciate the opportunity for a conference call to discuss those comments prior to preparation of a formal opinion. We would also like to extend an offer to make ourselves available for a Site inspection. Any such visit would require all parties to follow current statewide social distancing and personal protection guidance.

Sincerely,

NATHANIEL DAVID HINSPERGER

N Hinsperger

Prepared by:
Nathaniel D. Hinsperger, L.G.
Senior Geologist



Thomas C. Morin

THOMAS C. MORIN

signed electronically on 2/3/2021 at 2:16pm

Reviewed and approved by:
Thomas C. Morin, L.G.
Principal Geologist / PNW Area Practice Leader

cc: Mr. Randy Barnett – Ichijo USA Co., LTD
Mr. William Lynn – Gordon Thomas Honeywell LLP
Mr. Paul Green – Azure Green

Enclosures: Attachment A – AOI-20 Arsenic Remediation Interim Deliverable
Attachment B – Technical Memorandum RE: Nicolina Meadows Parcels Assessment

Attachment A
AOI-20 Arsenic Remediation Interim Deliverable

Table

Table 1
Summary of Soil Analytical Results
AOI-20 Arsenic Remediation Interim Deliverable
Former Brookdale Golf Course
1802 Brookdale Road East, Tacoma, Washington

Sample Location	Sample Depth (feet)	Sample Date	Arsenic[a]	1,2-Dibromo-ethane (EDB)[b]	Diazinon[c]	Nitrate (as N)[d]	Ortho-Phosphate (as P)[d]
B-7:Surface	Surface	1/16/2020	**55.0**	<0.005	<0.503	<1.07	<2.14
B-7:2	2	1/16/2020	**111**	--	--	--	--
B-7:4	4	9/28/2020	**28.2**	--	--	--	--
B-7:4.5	5	10/1/2020	**11.1**	--	--	--	--
AOI-20-1:3	3	1/23/2020	**95.4**	--	--	--	--
AOI-20-1:4	4	9/28/2020	**224**	--	--	--	--
AOI-20-1:4.5	4.5	10/1/2020	**9.91**	--	--	--	--
AOI-20-2:S	Surface	1/23/2020	**14.4**	--	--	--	--
AOI-20-3:S	Surface	1/23/2020	**11.8**	--	--	--	--
AOI-20-4:S	Surface	1/23/2020	**26.5**	--	--	--	--
AOI-20-4:2	2	1/23/2020	**34.6**	--	--	--	--
AOI-20-4:3	3	9/28/2020	**16.3**	--	--	--	--
AOI-20-5:S	Surface	1/24/2020	**10.4**	--	--	--	--
AOI-20-6:S	Surface	9/28/2020	**14.3**	--	--	--	--
AOI-20-7:S	Surface	9/28/2020	**30.0**	--	--	--	--
AOI-20-7:1	1	10/1/2020	**30.7**	--	--	--	--
AOI-20-7:2	2	10/1/2020	**44.8**	--	--	--	--
AOI-20-7:3	3	10/7/2020	**14.1**	--	--	--	--
AOI-20-8:S	Surface	9/28/2020	**19.8**	--	--	--	--
AOI-20-9:S	Surface	9/28/2020	**22.9**	--	--	--	--
AOI-20-9:1	1	10/1/2020	**34.9**	--	--	--	--
AOI-20-9:2	2	10/1/2020	**49.7**	--	--	--	--
AOI-20-9:3	3	10/7/2020	**107.0**	--	--	--	--
AOI-20-9:4	4	10/7/2020	**90.3**	--	--	--	--
AOI-20-9:5	5	10/7/2020	**5.59**	--	--	--	--
Soil Cleanup Level			**20[e]**	**0.005[e]**	**56[f]**	**130,000[f]**	**NVE**

Notes:

All results presented in milligrams per kilogram (mg/kg).

Bold Bold result exceeds laboratory detection limit.

Shaded result exceeds cleanup level.

< Less than laboratory method detection limit

a Analyzed by EPA Method EPA 6020B.

b Analyzed by EPA Method EPA 8260D Direct Sparge.

c Analyzed by EPA Method EPA 8270-SIM.

d Analyzed by EPA Method EPA 300.0.

e Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Uses taken from Table 740-1 of Washington Administrative Code Chapter 170-340-900.

f When no MTCA Method A established, MTCA Method B Soil Cleanup Levels (from Cleanup Levels and Risk Calculations [CLARC] spreadsheet) used.

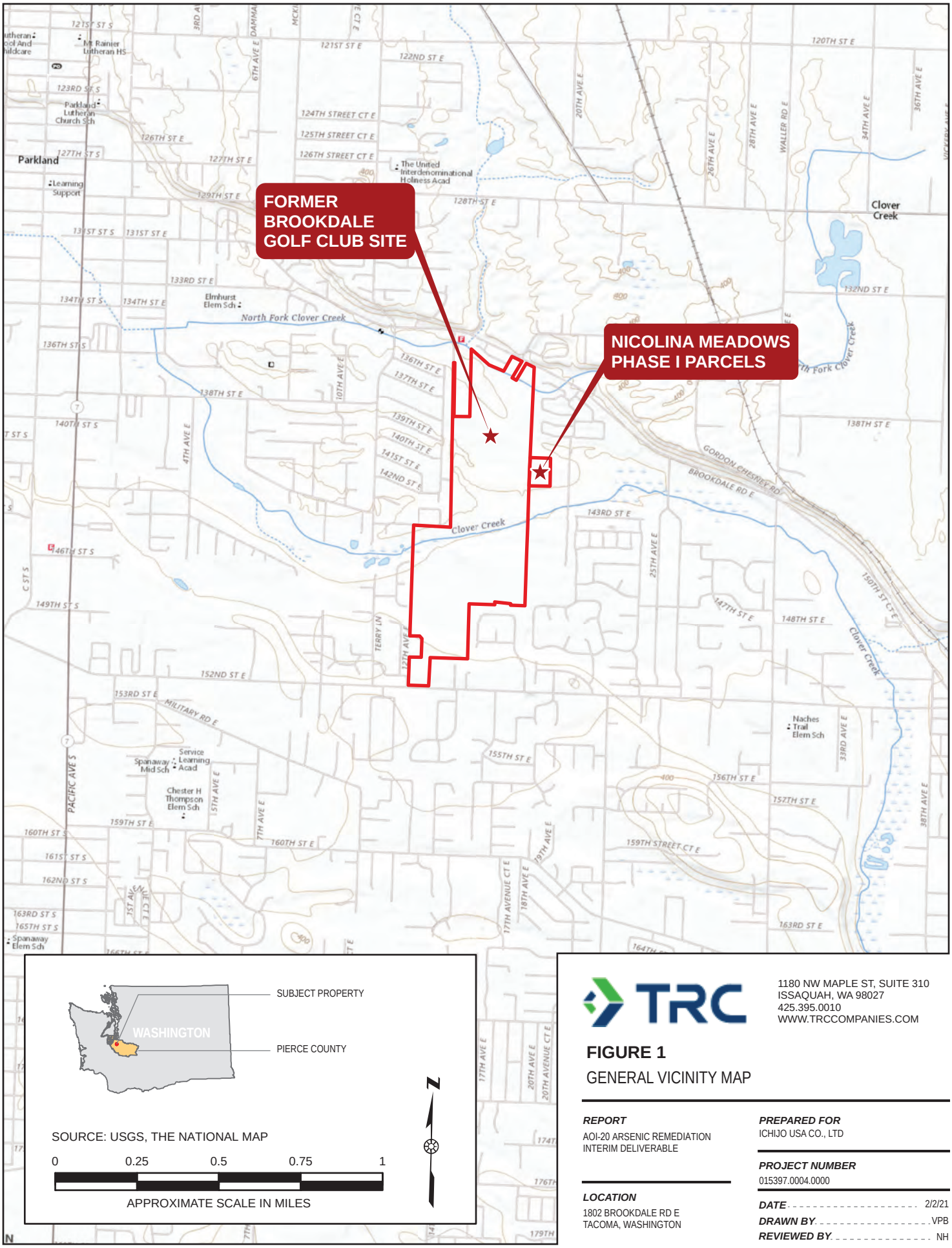
-- Sample was not analyzed for this compound.

NVE No value established.

Qualifier:

J The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

Figures



TRC

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425.395.0010
WWW.TRCCOMPANIES.COM

FIGURE 1

GENERAL VICINITY MAP

REPORT
AOI-20 ARSENIC REMEDIATION
INTERIM DELIVERABLE

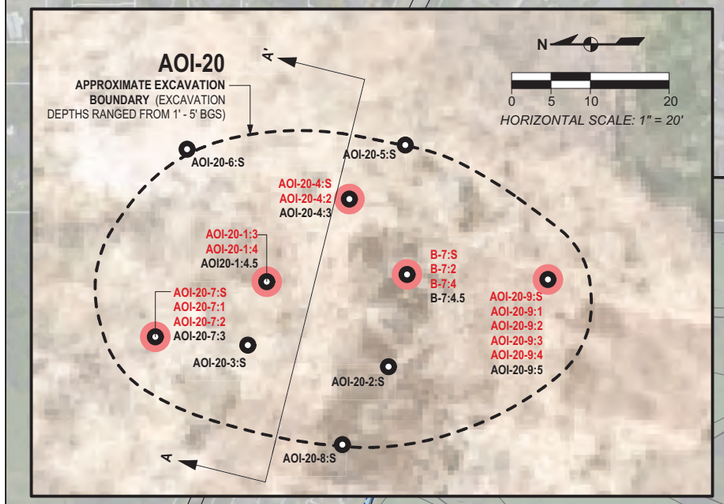
LOCATION
1802 BROOKDALE RD E
TACOMA, WASHINGTON

PREPARED FOR
ICHIJO USA CO., LTD

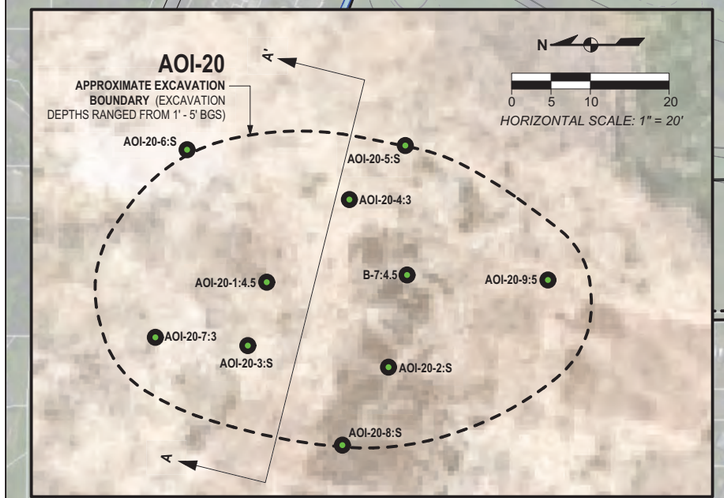
PROJECT NUMBER
015397.0004.0000

DATE 2/2/21
DRAWN BY VPB
REVIEWED BY NH

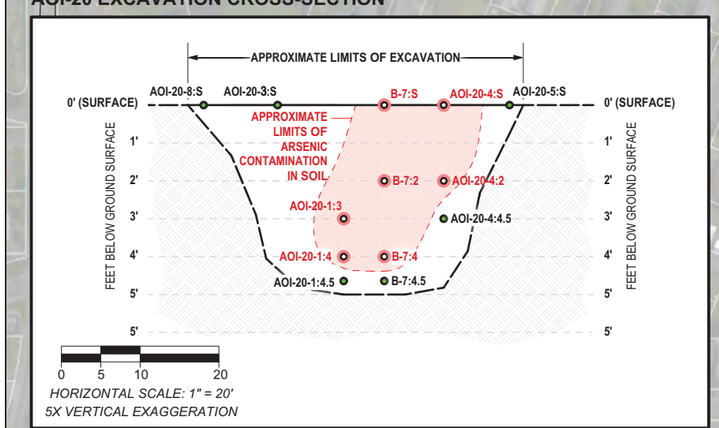
AOI-20 EXCAVATION BOUNDARY WITH PERFORMANCE SAMPLE LOCATIONS



AOI-20 EXCAVATION BOUNDARY WITH FINAL PERFORMANCE SAMPLE LOCATIONS



AOI-20 EXCAVATION CROSS-SECTION



NOTES:

- SOIL SAMPLE LOCATION (PERFORMANCE)
- SOIL SAMPLE LOCATION (FINAL PERFORMANCE)
- AOI-20-1:3 / AOI20-1:4 — EXCAVATION SAMPLE NAME, RED TEXT INDICATES ARSENIC EXCEEDS CLEANUP LEVEL FOR FOR SOIL
- INDICATES ARSENIC EXCEEDS CLEANUP LEVEL FOR FOR SOIL
- A — A' — CROSS-SECTION LOCATION
- GENERALIZED HOLE LOCATION
- APPROXIMATE FAIRWAY LOCATION
- APPROXIMATE WATER FEATURE
- APPROXIMATE TEE BOX LOCATION
- APPROXIMATE SUBJECT PROPERTY BOUNDARY
- BUILDING
- AREA 8 — FOCAL AREAS OF SOIL SAMPLING
- BGS — BELOW GROUND SURFACE

AERIAL PHOTO (WIDE AREA): GOOGLE EARTH (2017)

AERIAL PHOTO (EXCAVATION AREA): NEARMAP (AUGUST, 2020)

PARCEL BOUNDARIES: PIERCE COUNTY GIS

TRC

1180 NW MAPLE ST, SUITE 310
ISSAQUAH, WA 98027
425.395.0010

FIGURE 2

AOI-20 ARSENIC REMEDIATION AREA

REPORT

AOI-20 ARSENIC REMEDIATION INTERIM DELIVERABLE

LOCATION

1802 BROOKDALE RD E
TACOMA, WASHINGTON

PREPARED FOR

ICHIJO USA CO., LTD

PROJECT NUMBER

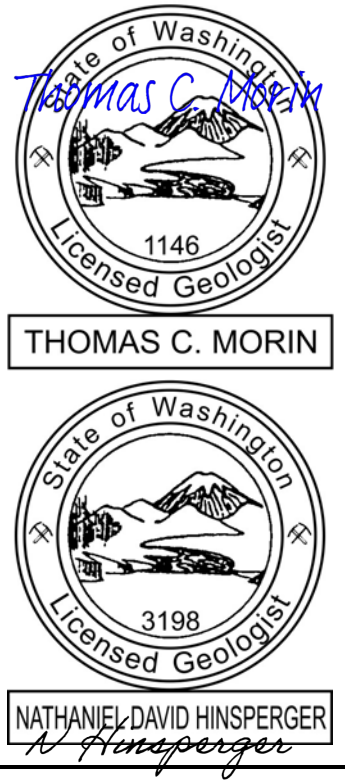
015397.0004.0000

DATE 2/2/21
DRAWN BY ..... VPB
REVIEWED BY ..... NH

Attachment B
Technical Memorandum RE:
Nicolina Meadows Parcels Assesment

1180 NW Maple St., Suite 310
Issaquah, WA 98027
T 425.395.0010
TRCcompanies.com

TECHNICAL MEMORANDUM



DATE: February 2, 2021

TO: Mr. Randy Barnett
Ichijo USA Co., Ltd.

CC: Mr. Paul Green, P.E.
Azure Green Consultants, LLC

FROM: Mr. Thomas C. Morin, L.G., Principal Geologist
Mr. Nate Hinsperger, L.G., Senior Geologist

RE: Nicolina Meadows Parcels Assessment
Nicolina Meadows Phase 1 Parcels
Pierce County Tax Parcels 0319154023 and 0319221059

TRC Project Number: 015397.0004

TRC Environmental Corporation (TRC)[1] is pleased to provide this Technical Memorandum presenting a summary of the assessment of the Nicolina Meadows Parcels located adjacent to the eastern boundary of the Former Brookdale Golf Club located at 1802 Brookdale Road East in Tacoma, Washington (Site). The Nicolina Meadows Parcels are currently owned by Ichijo USA Co. LTD (Ichijo) and is comprised of two tax parcels (Pierce County tax parcels 0319154023 and 0319221059) totaling approximately 29.2 acres. The assessment documented in this technical memorandum specifically addresses the six lots in Phase 1 (Pierce County tax parcel 0319154023) of the project which is approximately 2.46 acres (subject property). The subject property is in the process of redevelopment concurrent with the redevelopment of the Former Brookdale Golf Club. The Nicolina Meadows Parcels will be subdivided into sixty lots for single-family detached homes. The general location of the subject property is shown on Figure 1. The boundaries of the parcels shown relative to surrounding properties are depicted on Figure 2.

BACKGROUND

The Former Brookdale Golf Club Site is known to have been impacted with residual low-level pesticide impacts to shallow soil resulting from its historical golf course use. That Site has been enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) and has been given Site Number SW 1672. The VCP Site Manager is Mr. Adam Harris. The Site has undergone a Remedial Investigation (RI) and a Focused Feasibility Study (FFS), which led to the preparation of a Cleanup Action Plan (CAP). All documents

[1] Environmental Partners, Inc. (EPI) preformed prior work at the Site. EPI was acquired by TRC on December 27, 2019. For the purposes of this document TRC and EPI may be used interchangeably.

were submitted to the Ecology VCP for review and comment. Ecology provided comments in a letter dated August 24, 2020, which resulted in the performance of a Supplemental Remedial Investigation (SRI) at a portion of the Former Brookdale Golf Club Site. The results of the SRI have also been submitted to the Ecology VCP for review and comment.

The Nicolina Meadows Parcels were never part of the former golf course and were not used for any golf course activities. However, during a review of the permitting applications for the Nicolina Meadows Parcels, Pierce County requested to review comments from Ecology under the State Environmental Policy Act (SEPA). The Ecology SEPA review led Pierce County to request sampling and analysis of the Nicolina Meadows Parcels to assess the potential for impacts to those parcels that may have resulted from their proximity to the former golf course. The Ecology comments on which the assessment of the Nicolina Meadows Parcels is based are contained in Attachment A.

It is TRC's opinion that the information provided herein is fully responsive to Pierce County's request and Ecology's comments. Additionally, it is TRC's opinion that with the completion of this assessment the potential impacts to the Nicolina Meadows Parcels have been fully evaluated and no impacts have been identified. The basis for that opinion is provided below in the body of this technical memorandum. No further investigation at the remainder of the Nicolina Meadows project is necessary due to the lack of any impacts identified on the subject property.

OBJECTIVES AND SCOPE OF ASSESSMENT

The general objective of the assessment was to assess whether impacts associated with the Former Brookdale Golf Club Site may have impacted the subject property. This objective would be met through sampling and analysis of the subject property for the potential presence of all contaminants of potential concern (COPCs) that were also evaluated during the RI and SRI of the Former Brookdale Golf Club Site.

The scope of this assessment included:

- Collecting soil samples at two locations on each of the six lots (12 samples total) utilizing standard direct-push technology (DPT) drilling techniques;
- Analysis of soil samples for appropriate COPCs related to impacts that were present at the Former Brookdale Golf Club prior to prior to remediation; and
- Data analysis to determine if any impacts related to Former Brookdale Golf Club Site are present at the subject property.

METHODOLOGY

A total of 12 soil borings were advanced using DPT drilling and sampling methods. Soil sampling locations are indicated on Figure 3. All drilling was performed by a Washington-state licensed driller under the supervision and direction of an experienced environmental professional from TRC.

Prior to drilling, TRC notified Washington One-Call Service to identify publicly-owned subsurface utilities at the subject properties. The notification was initiated a minimum of 3 business days prior to scheduled field activities. In addition, TRC retained a private utility locator to clear each drilling location prior to advancing borings.

During drilling at each location, soil samples were collected and screened for the presence of volatile compounds using a photoionization detector (PID) and field methods such as visual and olfactory inspection.

Soil conditions encountered at each location were logged using the Unified Soil Classification System with visual-manual procedures (ASTM Method 2488D).

The 12 soil borings (DPT-1 through DPT-12) were advanced to a total depth of 10 feet below ground surface (bgs). One soil sample from each boring (12 total) was retained and submitted for laboratory analysis. All additional soil samples were retained and archived at the laboratory for potential future analysis. Additional analyses on those samples could be requested if the shallow soil samples contained a COPC concentration exceeding a potentially applicable cleanup level. Soil samples were submitted from a depth of 1-foot bgs. Soil boring locations are depicted on Figure 3.

This sampling methodology is based on the fact that the Nicolina Meadows Parcels are undisturbed and have never been a part of the Former Brookdale Golf Club Site and were never used or managed by the golf club. Impacts to the Former Brookdale Golf Club Site resulted from the surface application of pesticides. The Nicolina Meadows Parcels could only have been impacted by inadvertent over spraying of those compounds or some other type of surface application. Both types of releases would be detected by the sampling methodology. The samples were collected at the horizon below the biologically active soil horizon below the root zone.

Immediately upon collection the soil samples were labeled and placed in an iced cooler pending submittal to the analytical laboratory. Samples were transported to Friedman and Bruya, Inc, in Seattle, Washington, under standard chain-of-custody protocols.

The requested analyses reflect the compounds present on the Former Brookdale Golf Club Site and additional laboratory analyses requested by Ecology in its various comments and as part of the SRI. Soil samples were submitted for the following analyses:

- Arsenic analyzed by U.S. Environmental Protection Agency (EPA) Method 6020
- 1,2-Dibromoethane (EDB) analyzed by EPA Method 8260
- Dieldrin analyzed by EPA Method 8081
- Diazinon analyzed by EPA Method 8270 Selected Ion Measurement (SIM)
- Nitrate and phosphate analyzed by EPA Method 300.0

FINDINGS

The findings of the sampling and analysis of soil from the Nicolina Meadows Phase 1 Parcels are summarized below.

Surface and Natural Conditions

The subject property is generally flat, and the majority is covered with large coniferous trees and overgrown vegetation.

Surface soils generally consist of up to 2.5 feet of Silty Sand with Gravel (SM – Unified Soil Classification System) terminating at depths ranging from 1 to 2.5 feet bgs. The remaining soil profile consists of layers of loose Well-Graded Gravel (GW) with Sand to the terminal depth of drilling, 10 feet bgs. TRC noted no evidence of surface filling or regrading in any of the areas sampled.

Groundwater was not encountered during drilling to the maximum depth of exploration. The depth to the local water table is variable and strongly related to surface elevation and topography. Given the surface elevation of the subject property, it is anticipated that the regional groundwater table may first be present at a depth of 15 feet or greater.

Analytical Results

Table 1 summarizes the laboratory analytical results for soil samples collected at the subject property and compares the results against the applicable MTCA cleanup level (CUL). Laboratory analytical reports are included in Attachment B. A total of 12 samples were submitted for the analyses described above.

Arsenic was detected in all samples at concentrations ranging from 2.51 milligrams per kilogram (mg/kg) to 7.53 mg/kg. Arsenic is a naturally occurring element present in local soils. The observed arsenic concentrations are within the range of natural background concentrations and considerably less than the Model Toxics Control Act Regulation (MTCA, Washington Administrative Code [WAC] 173-340) Method A cleanup level (CUL) of 20 mg/kg.

EDB was not detected in any sample at a concentration exceeding the laboratory method detection limit (MDL) of 0.005 mg/kg. The MDL is equal to the MTCA Method A CUL.

Dieldrin was not detected in any sample at a concentration exceeding the laboratory MDL of 0.01 mg/kg. The MTCA Method B CUL for dieldrin is 0.0625 mg/kg.

Diazinon was not detected in any sample at a concentration exceeding the laboratory MDL, which ranged from 0.0444 mg/kg and 0.0556 mg/kg. The MDL was in all cases less than the MTCA Method B CUL of 56 mg/kg.

Nitrate as nitrogen was detected in only three of 12 samples at concentrations between 1.45 mg/kg to 2.54 mg/kg. The MTCA Method B CUL for nitrate as nitrogen is 130,000 mg/kg.

Orthophosphate as phosphorus was not detected in any sample at a concentration exceeding the laboratory MDL, which ranged from 2.06 to 2.27 mg/kg. No CUL has been established for orthophosphate as phosphorus.

CONCLUSIONS

The following conclusions are supported by the findings of the assessment of the subject property:

- The Nicolina Meadows Parcels are not a part of the Former Brookdale Golf Club Site. There are no observable impacts to the subject property that could be attributed to former golf course operations or practices. Additionally, there are no indications of any other potential impacts to the Nicolina Meadows Parcels.

- Based upon the demonstrated absence of impacts to the subject property it is unlikely that other properties adjacent to the Former Brookdale Golf Club Property have been impacted from the historical chemical uses on that property.

- No additional investigation of the Nicolina Meadows Parcels is recommended or necessary.

LIMITATIONS

To the extent that preparation of this technical memorandum has required the application of best professional judgment and the application of established scientific and engineering principles, certain results of this work were based on subjective interpretation. TRC makes no warranties, express or implied, including and without limitation warranties as to merchantability or fitness for a particular purpose. The information provided in this report is not to be construed as legal advice.

This Technical Memorandum was prepared solely for Ichijo and the contents herein may not be used or relied upon by any other person without the express written consent and authorization of TRC.

ENCLOSURES

Tables

Table 1 Soil Analytical Results – Nicolina Meadows Parcels

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Figure 1 General Vicinity Map
Figure 2 Subject Property Representation
Figure 3 Nicolina Meadows Parcel Boundaries with Soil Sample Locations

Attachments

Attachment A Ecology Opinion Letters
Attachment B Laboratory Analytical Reports

Table

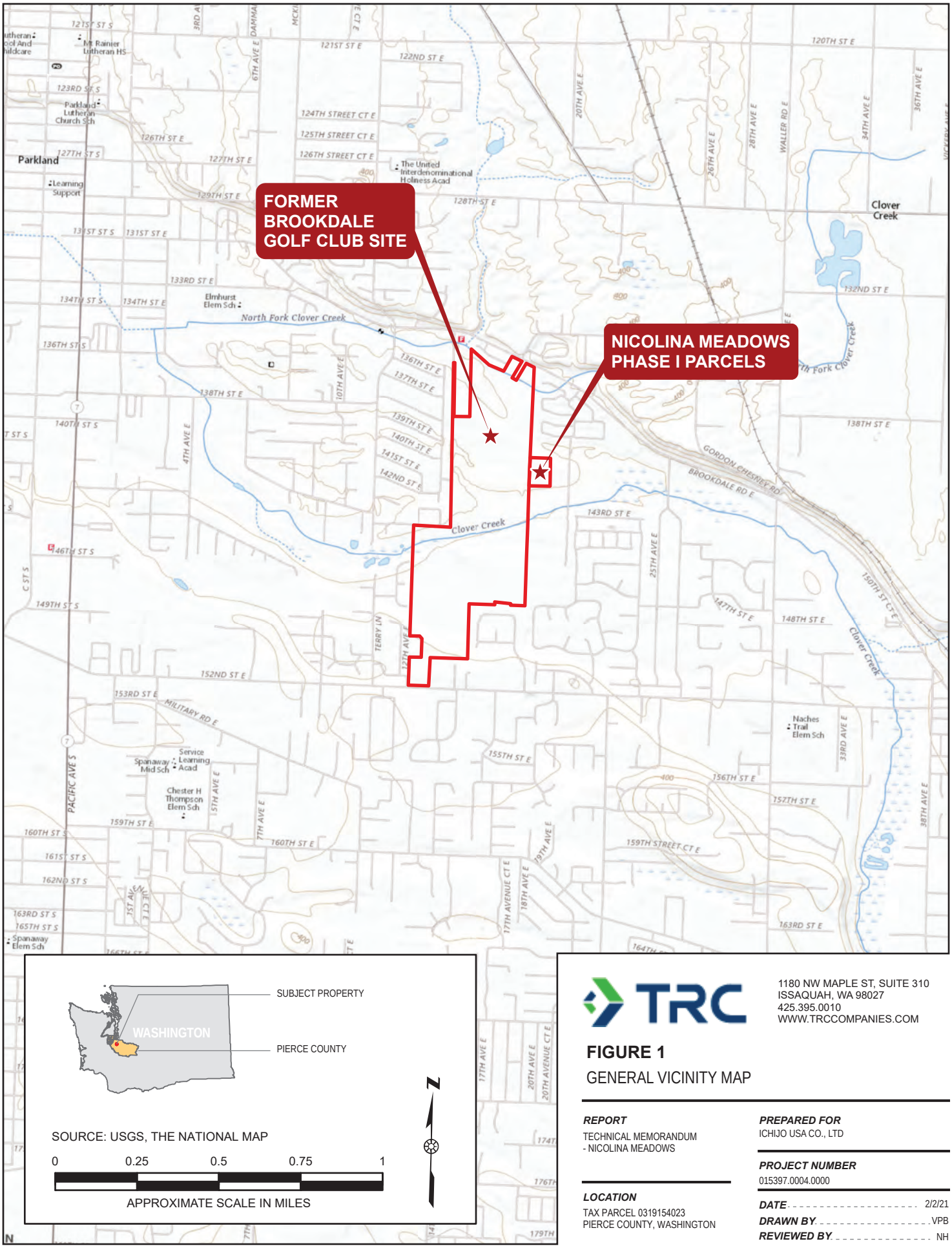
Table 1
Soil Analytical Results – Nicolina Meadows Parcels
Nicolina Meadows Parcels Assessment Technical Memorandum
Pierce County Tax Parcels 0319154023 and 0319221059

Sample Location	Sample Depth (in feet)	Sample Date	Arsenic[a]	1,2-Dibromo-ethane (EDB)[b]	Dieldrin[c]	Diazinon[d]	Nitrate (as N)[e]	Ortho-Phosphate (as P)[e]
DPT-1:1	1	7/30/2020	**2.59**	<0.005	<0.01	<0.0506	<1.07	<2.14
DPT-2:1	1	7/30/2020	**3.20**	<0.005	<0.01	<0.0505	<1.03	<2.06
DPT-3:1	1	7/30/2020	**6.45**	<0.005	<0.01	<0.0556	**2.54**	<2.27
DPT-4:1	1	7/30/2020	**3.20**	<0.005	<0.01	<0.0551	**1.84**	<2.19
DPT-5:1	1	7/30/2020	**4.94**	<0.005	<0.01	<0.0444	<1.04	<2.08
DPT-6:1	1	7/30/2020	**7.38**	<0.005	<0.01	<0.0477	<1.05	<2.11
DPT-7:1	1	7/31/2020	**7.53**	<0.005	<0.01	<0.0471	<1.07	<2.15
DPT-8:1	1	7/31/2020	**3.10**	<0.005	<0.01	<0.0500	<1.03	<2.07
DPT-9:1	1	7/31/2020	**3.15**	<0.005	<0.01	<0.0532	**1.45**	<2.14
DPT-10:1	1	7/31/2020	**2.51**	<0.005	<0.01	<0.0515	<1.03	<2.07
DPT-11:1	1	7/31/2020	**3.20**	<0.005	<0.01	<0.0519	<1.05	<2.10
DPT-12:1	1	7/31/2020	**3.39**	<0.005	<0.01	<0.0515	<1.06	<2.11
Soil Cleanup Level			**20[f]**	**0.005[f]**	**0.0625[g]**	**56[g]**	**130,000[g]**	**NVE**

Notes:
All results presented in milligrams per kilogram (mg/kg).

Bold Bold result exceeds the laboratory detection limit.
< Less than laboratory method detection limit.
a Analyzed by EPA Method 6020B.
b Analyzed by EPA Method 8260D Direct Sparge.
c Analyzed by EPA Method 8081B.
d Analyzed by EPA Method EPA 8270-SIM.
e Analyzed by EPA Method EPA 300.0.
f Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Uses taken from Table 740-1 of Washington Administrative Code Chapter 170-340-900.
g When no MTCA Method A established, MTCA Method B Soil Cleanup Levels (from Cleanup Levels and Risk Calculations [CLARC] spreadsheet) used.
NVE No value established.

Figures



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1180 NW MAPLE ST, SUITE 310
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WWW.TRCCOMPANIES.COM

FIGURE 1

GENERAL VICINITY MAP

REPORT
TECHNICAL MEMORANDUM
- NICOLINA MEADOWS

LOCATION
TAX PARCEL 0319154023
PIERCE COUNTY, WASHINGTON

PREPARED FOR
ICHIJO USA CO., LTD

PROJECT NUMBER
015397.0004.0000

DATE 2/2/21
DRAWN BY VPB
REVIEWED BY NH

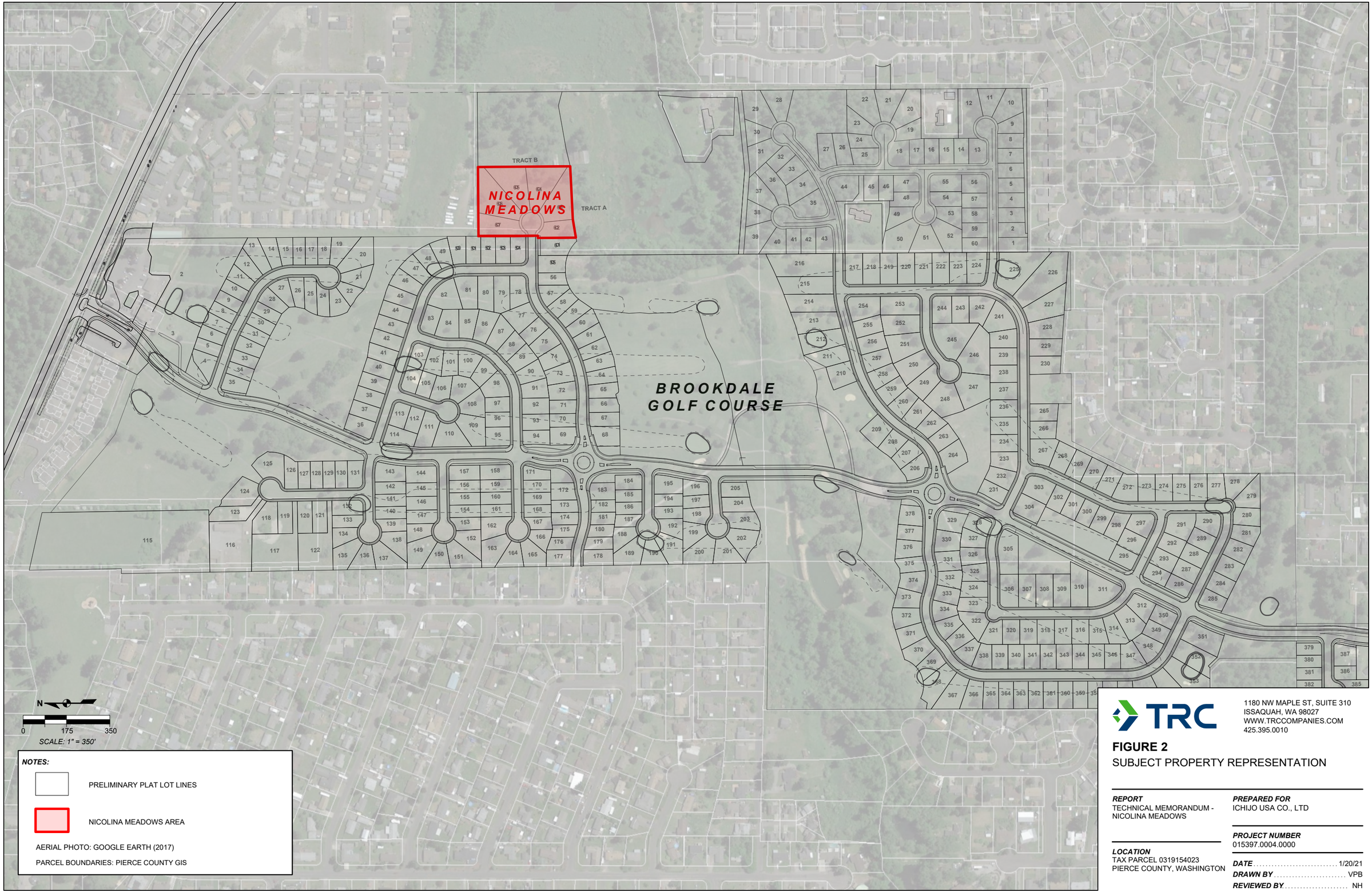

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FIGURE 2
SUBJECT PROPERTY REPRESENTATION

REPORT
TECHNICAL MEMORANDUM - NICOLINA MEADOWS

PREPARED FOR
ICHIJO USA CO., LTD

PROJECT NUMBER
015397.0004.0000

LOCATION
TAX PARCEL 0319154023
PIERCE COUNTY, WASHINGTON

DATE 1/20/21
DRAWN BY VPB
REVIEWED BY NH

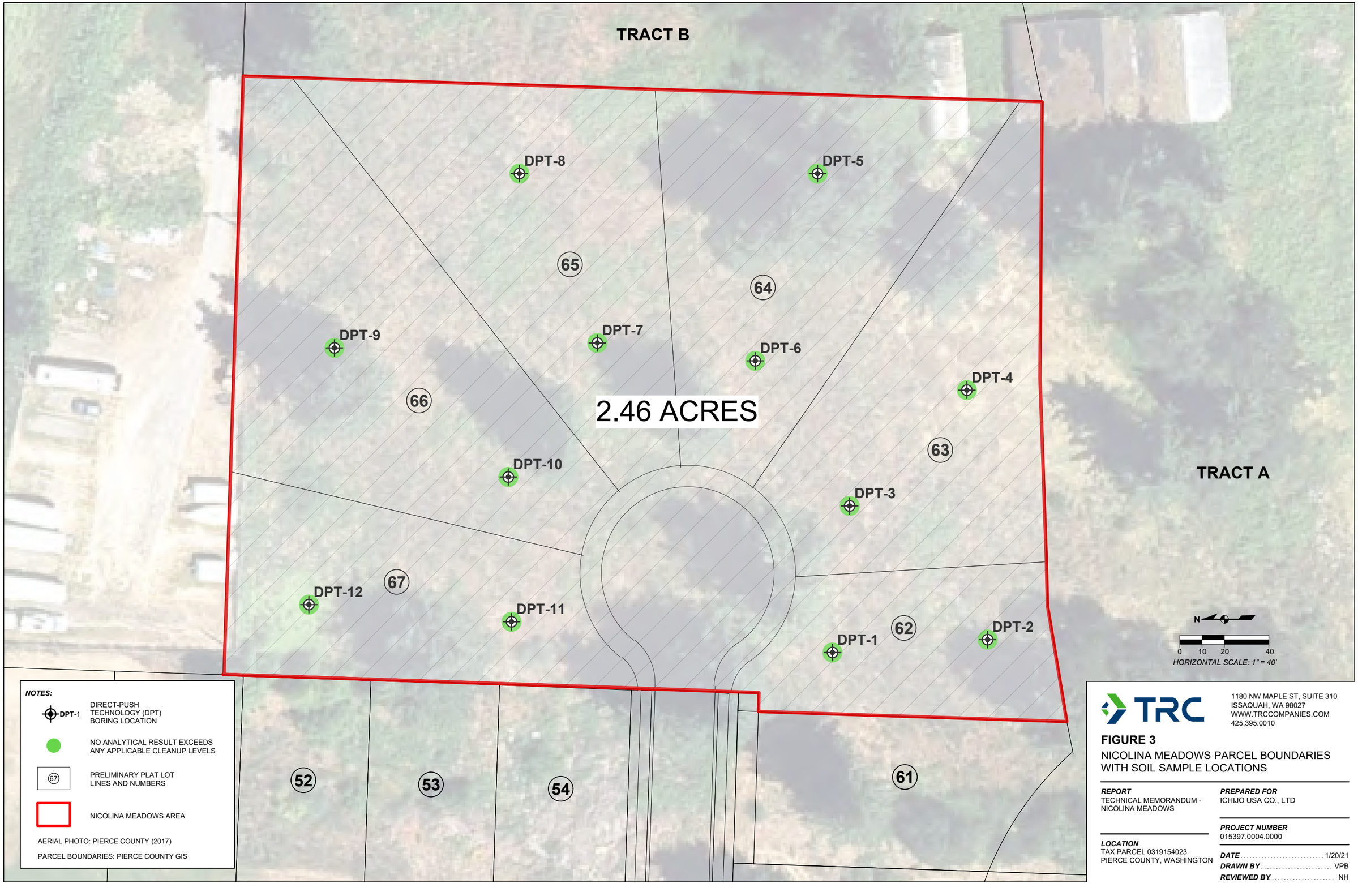

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FIGURE 3

NICOLINA MEADOWS PARCEL BOUNDARIES WITH SOIL SAMPLE LOCATIONS

REPORT
TECHNICAL MEMORANDUM - NICOLINA MEADOWS

LOCATION
TAX PARCEL 0319154023
PIERCE COUNTY, WASHINGTON

PREPARED FOR
ICHIJO USA CO., LTD

PROJECT NUMBER
015397.0004.0000

DATE 1/20/21
DRAWN BY VPB
REVIEWED BY NH

Attachment A
Ecology Opinion Letters

COPY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • 360-407-6300
Call 711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

December 10, 2019

Randy Barnett
Ichijo USA Co., LTD
1406 140th Pl NE, Ste 104
Bellevue, WA 98007

Re: Further Action at the following Site:

- **Site Name:** Former Brookdale Golf Club
- **Site Address:** 1802 Brookdale Rd E Tacoma, Pierce County, WA 98445
- **Cleanup Site ID:** 14894
- **Facility/Site ID:** 7758
- **VCP Project ID:** SW1672

Dear Randy Barnett:

On March 21, 2019, the Washington State Department of Ecology (Ecology) received your request for an opinion on the proposed independent cleanup of the Former Brookdale Golf Club (Site). On September 14, 2019, your request for opinion, including upload of electronic data, was complete and ready for our review. This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA),[1] chapter 70.105D Revised Code of Washington (RCW).

Issue Presented and Opinion

You requested that Ecology review the Site's remedial investigation, feasibility study, and cleanup action plan. Ecology reviewed the remedial investigation, and has determined that additional remedial investigation is necessary at the Site to meet the requirements of WAC 173-340-350.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70.105D RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340 (collectively "substantive requirements of MTCA"). The analysis is provided below.

[1] https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Pesticides into the Soil, Groundwater, Surface Water, and Sediment.

The parcel(s) of real property associated with this Site are also located within the projected boundaries of the Tacoma Smelter Plume facility (FSID #89267963). At this time, we have no information that those parcel(s) are actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Environmental Partners, Inc., *Remedial Investigation and Focused Feasibility Study Report, Brookdale Golf Course*, March 18, 2019.

2. Environmental Partners, Inc., *Cleanup Action Plan, Brookdale Golf Course*, March 18, 2019.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining those records can be found on Ecology's public records requests web page.[2] Some site documents may be available on Ecology's Cleanup Site Search web page.[3]

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Site Characterization is described in the March 18, 2019, Remedial Investigation and Focused Feasibility Study Report (the Report).

[2] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests.
[3] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=14894.

***Ecology's Comments*:**

A. **Cleanup Already Underway.** For this opinion, you requested that Ecology evaluate a remedial investigation, feasibility study, and cleanup action plan. Ecology's comments in this opinion are focused on completing the remedial investigation sufficient for Ecology to determine that the requirements of WAC 173-340-350 are met. Ecology will review the feasibility study and cleanup action plan when there is sufficient information for Ecology to determine that the Site's remedial investigation is complete. Ecology has determined that characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action.

   We understand that the proposed cleanup action submitted for this review is already underway at the Site. Ecology suggests that you provide a remedial action report showing the results of the independent interim action currently underway and incorporating comments from this opinion, or provide a workplan addressing Ecology's comments.

B. **Exemptions to Release Notification Requirements at a Toxic Cleanup Site.** The Report states that because the chemicals at the property were used in a lawful manner consistent with their intended uses, those impacts are not considered a release under MTCA and do not require remediation.[4] MTCA does exempt some releases from regular release notification requirements. It is not clear how this release was exempt from release notification requirements, and this letter does not provide an opinion whether a release notification was required or timely done.

   In any case, an exemption from notification requirements does not create a release from liability under MTCA. A party is not liable for remedial action costs related to pesticides/fertilizers in very narrow circumstances, including limited domestic uses, acts of God, certain innocent owners, and for the purpose of growing food crops."[5] The former Brookdale Golf Course toxic cleanup Site includes a release of hazardous substances that requires evaluation under MTCA.

C. **Potentially Liable Person Determination.** Regarding the Report statement[6] that the current property owner is not a potentially liable person, Ecology has not yet determined potentially liable persons at this toxic cleanup Site. A potentially liable person includes any person that Ecology finds to be liable based on credible evidence.[7] The definition of potentially liable person also includes the owner of a facility and/or the operator of a facility at the time of release, unless that party can show they are not liable pursuant to RCW 70.105D.040.

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[4] For example Report Page 10, Page 1.
[5] RCW 70.105D.040(2).
[6] Report Page 2.
[7] RCW 70.105D.040.

D. **Additional Remedial Investigation Needed.** Ecology does not concur that sufficient remedial investigation has been completed at the Site. Ecology will need additional analytical data results and evaluation of:

i. **Additional Analytes.** Based on the location and use history of this Site, Ecology needs data evaluating the occurrence and distribution of the following additional chemicals in soil, groundwater, surface water, and sediment throughout the former Brookdale Golf Course toxic cleanup Site:

- Nitrates and phosphates.
- Arsenic from the possible prior application of arsenical-containing pesticides throughout the former golf course.
- Ethylene dibromide, from the possible prior application as a golf course turf fumigant.
- Diazinon from the possible prior application as a golf course insecticide.

ii. **Groundwater.** Groundwater as shallow as 2.5 feet below ground surface has been reported at the Site, and sections of the Site are located within the 5 and 10-year travel times of established wellhead protection zones. Ecology will need to review sufficient groundwater analytical sample results to geostatistically evaluate contaminant concentrations and extents throughout the Site.

Samples should be collected from all locations throughout the Site where soil samples were determined to exceed cleanup screening levels protective of groundwater quality for any hazardous substance in the remedial investigation or during the cleanup. Include groundwater data at the location of each remedial excavation.

Ecology will need to review analysis methods and data results for all hazardous substances detected at the Site for each groundwater sample. Please collect and report sufficient groundwater samples for Ecology to concur that hazardous substances in groundwater throughout the Site are not impacted by hazardous substances released to the environment.

iii. **Surface Water.** Ecology will need to review sufficient statistically significant analytical results from surface water samples obtained from Clover Creek and the North Fork Clover Creek Tributary for all chemicals detected at the Site, including the additional chemical analyses requested in this opinion.

iv. **Sediment.** The Washington State Sediment Management Standards (WAC 173-204) will need to be used to evaluate sediment contamination at the pond, and throughout Clover Creek and its tributaries. The first step in the sediment contamination evaluation is identifying sediment station clusters of potential concern using the criteria of WAC 173-204-510.

v. Clover Creek is reported to run across the southern half of the Site, and the North Fork Clover Creek Tributary 1 is reported to run across the north quarter of the Site. "Surface sediment" or "sediment" means settled particulate matter located at or below the ordinary high water mark, where the water is present for a minimum of six consecutive weeks, to which biota (including benthic infauna) or humans may potentially be exposed, including that exposed by human activity (e.g., dredging).[8]

vi. **Site Delineation.** At some locations of the Site, the extents of contamination delineated in Report figures are not bounded by data results. While this approach may be sufficient to evaluate potential remedial alternatives, it will not be sufficient to demonstrate that contamination above proposed cleanup levels was removed at all points of compliance. Collect sufficient analytical performance samples at the lateral and vertical extents of contamination at each excavation, and provide data results showing that hazardous substances have been removed to below cleanup levels at all points of compliance throughout the Site. The data should be sufficient to establish delineated boundaries with geostatistical confidence.

vii. **Conceptual Site Model.** The conceptual site model provided in the remedial investigation evaluates a 0-2 foot surficial soil layer. MTCA does not include a 0-2 foot surficial soil layer as a point of compliance. Please evaluate direct contact/incidental ingestion based on the MTCA standard point of compliance of 0-15 feet below ground surface. Please add migration to groundwater as a transport mechanism, and evaluate if groundwater is impacted. Also consider the additional requested analyses provided above.

viii. **Concentration Isopleth Maps.** Provide delineated concentration isopleth maps in plan view and geologic cross section showing remaining contamination at the Site based on data results. Indicate how the isopleths were determined sufficient for Ecology to recreate the figures. Include data results to background concentrations, and indicate where there are insufficient data to bound results. Include groundwater to surface water hyperheic zones and surfaces.

ix. **Historical Configuration of Golf Course.** Please provide evaluation supporting that the golf course has been in the same configuration since developed in the 1930s.

x. **EIM Results.** Please upload the following results not currently in EIM prior to Ecology's next Site review:

- 4,4 DDE results obtained on January 25, 26 and 27 2017.
- 4,4 DDT results obtained on January 25, 26 and 27 2017.

[8] WAC 173-204-505(22).

xi. **Adjustments to Cleanup Levels/Use of Indicator Hazardous Substances for the Project.** Additional information is needed for Ecology to concur that the proposed use of indicator hazardous substances is supported for this release of hazardous substances to the environment. That information includes analysis of how the cumulative effects of hazardous substances at the Site were evaluated based on MTCA requirements, and better demonstrating how the selected indicator hazardous substance meets MTCA criteria.

- **Cumulative Effects.** Ecology suggests that you review the requirements for soil contained in WAC 173-340-740(5) and groundwater contained in WAC 173-340-720(7) to determine if cleanup levels need to be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. Provide an analysis showing that without those adjustments, the hazard index does not exceed (1), and the total excess cancer risk is not greater than one in one hundred thousand (1×10^{-5}).

  To help evaluate this, an Ecology toxicologist conducted a forward risk calculation for the Site using this Site's remedial investigation maximum concentrations as a conservative assumption. Those risk calculations are available at the link below.[9] Ecology suggests reviewing the results and consider instead using a 95% upper confidence level on mean soil and groundwater concentrations, based on current conditions and incorporating any additional chemicals determined present in the remedial investigation.

- **Indicator Hazardous Substance.** Provide a detailed analysis showing how the proposed indicator hazardous substances meet the specific criteria of WAC 173-340-703(2)(a-g).

xii. **Terrestrial Ecological Evaluation:** Ecology's terrestrial ecological evaluation specialist reviewed the remedial investigation and provided cleanup screening levels based on protection of ecological receptors. Those cleanup screening levels are also provided in the link below. Please incorporate these screening levels into the remedial investigation.

[9] https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=87172.

2. Establishment of Cleanup Standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA.

Cleanup Standards. Under MTCA, cleanup standards consist of three primary components; (a) points of compliance,[10] (b) cleanup levels,[11] and (c) applicable state and federal laws.[12]

(a) Points of Compliance. Points of compliance are the specific locations at the Site where cleanup levels must be attained. For clarity, Ecology provides the following table of standard points of compliance:

Media	Points of Compliance
Soil-Direct Contact	Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.[13]
Soil- Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site.[14]
Soil-Protection of Plants, Animals, and Soil Biota	Based on ecological protection, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.[15]
Groundwater	Based on the protection of groundwater quality, the standard point of compliance is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.[16]
Groundwater-Surface Water Protection	Based on the protection of surface water, the standard point of compliance is all locations where hazardous substances are released to surface water.[17]
Air Quality	Based on the protection of air quality, the point of compliance is indoor and ambient air throughout the Site.[18]
Sediment	Based on the protection of sediment quality, compliance with the requirements of 173-204 WAC.[19]

(b) Cleanup Levels. Cleanup levels are the concentrations of a hazardous substance in soil, water, air, or sediment that are determined to be protective of human health and the environment. Additional evaluation requested in this opinion needs to be completed prior to Ecology concurring with the use of any proposed cleanup levels at the Site.

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[10] WAC 173-340-200 "Point of Compliance."
[11] WAC 173-340-200 "Cleanup level."
[12] WAC 173-340-200 "Applicable state and federal laws," WAC 173-340-700(3)(c).
[13] WAC 173-340-740 (6)(d).
[14] WAC 173-340-747.
[15] WAC 173-340-7490(4)(b).
[16] WAC 173-340-720(8)(b).
[17] WAC 173-340-730(6).
[18] WAC 173-340-750(6).
[19] WAC 173-340-760.

(c) Applicable Laws and Regulations. In addition to establishing minimum requirements for cleanup standards, applicable local, state, and federal laws may also impose certain technical and procedural requirements for performing cleanup actions. These requirements are described in WAC 173-340-710. An online tool is currently available to help you evaluate the local requirements that may be necessary.[20]

All cleanup actions conducted under MTCA shall comply with applicable state and federal laws.[21] The person conducting a cleanup action shall identify all applicable local, state, and federal laws. The department shall make the final interpretation on whether these requirements have been correctly identified and are legally applicable or relevant and appropriate.[22, 23]

There are three general groups of applicable local, state, and federal laws that need to be included:

i. **Chemical-Specific.** Examples of chemical-specific laws include promulgated concentrations from another rule that result in adjusting proposed cleanup levels. Method A is inclusive of these laws. For Methods B or C, additional evaluation of chemical-specific applicable state and federal laws is required.

ii. **Action-Specific.** Examples of action-specific laws include requirements for obtaining local permits to excavate and/or dispose of contaminated soil, stormwater construction permits, or the requirement to notify in case human remains are discovered during excavation. All MTCA cleanups require evaluation of action-specific applicable state and federal laws.

iii. **Location-Specific.** Examples of location-specific laws include specific requirements for working near wetlands or archeologically important areas. All MTCA cleanups require evaluation of location-specific applicable state and federal laws.

Enclosed with this opinion is a list of some of the potentially applicable laws and regulations for this cleanup for your review. After you have identified appropriate applicable local, state, and federal laws, report to Ecology the applicable local, state, and federal laws applicable to this cleanup, and how those laws and regulations specifically effect the proposed cleanup.

3. Selection of Cleanup Action.

Ecology has determined that additional remedial investigation is necessary at the Site before selecting a cleanup action.

---

[20] Washington State Governors Office for Innovation and Assistance Project Questionnaire, accessible at: https://apps.oria.wa.gov/opas/index.asp.
[21] WAC 173-340-710(1).
[22] WAC 173-340-710(2).
[23] Note – MTCA Method A includes ARARs and concentration-based tables (WAC 173-340-700(5)(a)) If MTCA Method A remains in use as proposed Site cleanup levels, identify non-concentration based technical and procedural requirements. If Method B cleanup levels are proposed, also include concentration-based requirements.

Limitations of the Opinion

1. **Opinion Does Not Settle Liability with the State.**

   Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

   - Resolve or alter a person's liability to the state.
   - Protect liable persons from contribution claims by third parties.

   To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. **Opinion Does Not Constitute a Determination of Substantial Equivalence.**

   To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. **State is Immune from Liability.**

   The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our Voluntary Cleanup Program web site.[24] If you have any questions about this opinion, please contact me at (360) 407-6528 or adam.harris@ecy.wa.gov.

Sincerely,

Adam Harris, LHG
Toxics Cleanup Program
Southwest Regional Office

AH: tm

cc: Thomas Morin, Environmental Partners
Sharon Bell, Tacoma Pierce County Health District
Robert Jenkins, Senior Planner, Pierce County Planning and Land Services
Michael M. McCarthy, Deputy Hearing Examiner, Office of the Pierce County Hearing Examiner
Nicholas Acklam, Ecology (by email)
Ecology Site File

[24] https://www.ecy.wa.gov/vcp.

Enclosure A

List of Some Applicable Local, State, and Federal Laws

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for double-sided copying.

Partial List of Possible Applicable Local, State, and Federal Laws, Permits, and Regulations.

Model Toxics Control Act (chapter 173.105D RCW), and Model Toxics Control Act Regulation (chapter 173-340 WAC).

Sediment Management Standards (chapter 173-204 WAC).

State Water Pollution Control Act (chapter 90.48 RCW).

Water Quality Standards for Surface Waters of the State of Washington (chapter 173-201A WAC).

Shoreline Management Act (chapter 90.58 RCW and chapter 173-14-28 WAC).

State Environmental Policy Act (chapter 43.21C RCW and chapter 197-11 WAC).

Washington Hydraulic Code (chapter 220-660 WAC).

Washington State Hazardous Waste Management Act (chapter 70.105 RCW).

State Dangerous Waste Regulation (chapter 173-303 WAC).

Hazardous Waste Operations (chapter 296-843 WAC).

Solid Waste Management-Reduction and Recycling (chapter 70.95 RCW).

Solid Waste Handling Standards (chapter 173-350 WAC).

Municipal Solid Waste Landfills (chapter 173-351 WAC).

Minimum Standards for Construction and Maintenance of Wells (chapter 173-160 RCW).

Washington State Clean Air Act (chapter 70.94 WAC).

Construction Stormwater General Permit, Sustentative Requirements.

Regional Clean Air Agency Regulations.

Underground Storage Tank Statue & Regulations (chapter 90-76 RCW and chapter 173-360 WAC).

Federal Clean Water Act and the Surface Water Quality Criteria promulgated hereunder (33 U.S.C 1251 et. Seq).

Section 401 and 404 of Clean Water Act-Water Quality Certification and Dredge and Fill Requirements (USC 1340, 1344; 33 CFR Parts 320 through 330, and 40 CFR Parts 230 and 231), also State Program under chapter 173-225 WAC.

Section 10 of the Rivers and Harbors Appropriations Act (33 USC 403; 33 CFR Part 320 and 322).

National Toxics Rule (40 CFR Subpart 131.36).

Federal Endangered Species Act (16 USC 1802 et seq., 50 CFR, Part 600).

Federal Coastal Zone Management Act (16 USC 145 1 et seq., 33 CFR Part 325).

Fishery Conservation and Management Act (Magnuson FCMA, 16 USC 1801 et seq.).

Resource Conservation Recovery Act (RCRA), 42 USC 321 et seq.).

State Hydraulic Code (chapter 77.20 RCW; chapter 2210-110 WAC).

Corps of Engineers JARPA Permit.

Puget Sound Dredged Material Management Program

Occupational Safety and Health Act (OSHA), 29 CFR Subpart 1910.120

Washington State Industrial Safety and Health Act (WISHA), chapter 296-843 WAC and also chapter 896-62 WAC.

Archaeological and Cultural Resources Act (chapter 43.53 RCW).

Archaeological and Historic Preservation Act (chapter 43.334 RCW).

Indian Graves and Records (chapter 27.44 RCW).

Archeological Sites and Resources (chapter 27.53 RCW).

Cemeteries and Human Remains (chapter 68 RCW).

National Historic Preservation Act (NHPA) 16 USC 470 et seq.).

Uniform Environmental Covenants Act (chapter 64.70 RCW).

Local Requirements (City and County).

Electronic Copy

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • 360-407-6300
Call 711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

August 24, 2020

Randy Barnett
Ichijo USA Co., LTD
1406 140th Pl NE, Ste 104
Bellevue, WA 98007
randyj@ichijousa.net

Re: Further Action at the following Site:

- **Site Name:** Former Brookdale Golf Club
- **Site Address:** 1802 Brookdale Rd E Tacoma, Pierce County, WA 98445
- **Cleanup Site ID:** 14894
- **Facility/Site ID:** 7758
- **VCP Project ID:** SW1672

Dear Randy Barnett:

On June 1, 2020, the Washington State Department of Ecology (Ecology) received your request for an opinion on the proposed independent cleanup of the Former Brookdale Golf Club (Site). Ecology has decided to provide this opinion without all necessary electronic data for this project accepted to Ecology's Electronic Information Management (EIM) database. We will review the electronic data for our next opinion. This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA),[1] chapter 70.105D Revised Code of Washington (RCW).

Issue Presented and Opinion

You requested that Ecology review the Site cleanup and additional remedial investigation you have conducted at the Site. Ecology appreciates the significant efforts you have made to address our December 19, 2019, further action opinion. Ecology has reviewed the ongoing remedial investigation you have performed, and concurs with your assessment that additional remedial investigation is necessary at the Site to meet the requirements of WAC 173-340-350.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70.105D RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340 (collectively "substantive requirements of MTCA"). The analysis is provided below.

[1] https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Pesticides into the soil, groundwater, surface water, and sediment.
- Metals into the soil, groundwater, surface water and sediment.

The parcel(s) of real property associated with this Site are also located within the projected boundaries of the Tacoma Smelter Plume facility (FSID #89267963). At this time, we have no information that those parcel(s) are actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Environmental Partners, Inc., *Remedial Investigation and Focused Feasibility Study Report, Brookdale Golf Course*, March 18, 2019.

2. Environmental Partners, Inc., *Cleanup Action Plan, Brookdale Golf Course*, March 18, 2019.

3. Environmental Partners, Inc., Re: *Response to Ecology Comments dated December 10, 2019*, May 29, 2020.

4. Environmental Partners, Inc., *Supplemental Remedial Investigation*, May 29, 2020.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining those records can be found on Ecology's public records requests web page.[2] Some site documents may be available on Ecology's Cleanup Site Search web page.[3]

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

This Site's ongoing characterization is described in the March 18, 2019, Remedial Investigation and Focused Feasibility Study Report. Since that report, you conducted additional remedial investigation contained in the May 29, 2020, Supplemental Remedial Investigation (the Report).

[2] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[3] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=14894

Ecology appreciates the significant remedial investigation and cleanup that you have conducted. We generally concur with your approach, based on our December 10, 2019, opinion, and agree with your assessment that additional remedial investigation is needed in the southern portion of the Site.

Ecology also will need to review additional remedial investigation results from the areas west of the former golf course in the wetlands of the proposed Nicolina Meadows housing development area to ensure that hazardous substances released from this toxic cleanup Site have not migrated to that location.[4,5]

A MTCA Site can be thought of as the extent of contamination released to the environment, without regard to cleanup levels or property boundaries. Sufficient remedial investigation must be completed throughout the Site to delineate the Site, prior to setting cleanup standards or selecting a cleanup action for either the Site, or a property or properties within the Site.[6]

We also concur with your assessment that if additional areas of contamination are detected, additional remediation may need to be conducted.[7] Ecology will review the Site cleanup after the extent of contamination at the Site is determined in the ongoing remedial investigation. Ecology appreciates the significant remedial investigation you have conducted, and supports your continued efforts to delineate and clean up contamination.

Reported Groundwater Contamination. You detected groundwater contamination, and report that groundwater contamination detected at monitoring well MW-1 was likely a result of turbidity from the drilling process. To empirically demonstrate compliance with groundwater cleanup standards, Ecology needs additional seasonally obtained groundwater sampling data demonstrating compliance with cleanup levels at this location at the Site. Seasonally-obtained groundwater monitoring demonstrating compliance with proposed cleanup standards is often acceptable for Ecology to concur that an empirical demonstration is sufficient. However, empirical demonstrations of groundwater compliance are not specifically supported in MTCA. We also refer you to the statistical methods in WAC 173-340-720(9) for evaluating groundwater compliance with cleanup standards.

Ecology also needs additional groundwater monitoring results obtained from temporary or permanent groundwater monitoring wells near where you detected groundwater contamination. Ecology needs the additional groundwater monitoring results to determine if the contamination is laterally or vertically extensive. To avoid the turbidity that you hypothesize may have caused the groundwater contamination, we recommend installing and adequately developing additional permanent groundwater monitoring wells. Ecology looks forward to reviewing the necessary additional groundwater analytical results obtained from this area of the Site as part of the ongoing remedial investigation.

---

[4] Letter from Department of Ecology Southwest Regional Office, To Robert Jenkins, Pierce County Planning and Public Works, September 12, 2019, available at: https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=91905.

[5] Letter from Stephen R. Shelton, Office of the Pierce County Hearing Examiner, Re: Major Amendment to Approved Preliminary Plat, available at: https://apps.ecology.wa.gov/gsp/DocViewer.ashx?did=93053

[6] Regulations pertaining to remedial investigations for upland investigations are provided in WAC 173-340-350. Selecting a cleanup action is provided in WAC 173-340-360 through 390 for upland investigations. For sediment, refer to the requirements for determining a sediment site of potential concern contained in WAC 173-204-510.

[7] Report pages 2-3.

Delineated Isopleth Maps. In the supplemental investigation, you did not provide the delineated isopleth maps Ecology previously requested. While it is your choice how you provide information for the remedial investigation and cleanup, that information must be sufficient for Ecology's determination that the extents of contamination have been adequately delineated and remediated where necessary. Ecology again suggests you provide delineated isopleth maps, so that we can determine that the remedial investigation and cleanup is sufficient.

Delineated isopleth maps can clearly show where your conclusions are supported by data, and where interpretations must be made between data results. While interpretations between data results are inevitable, Ecology prefers that you clearly illustrate where and how you made those interpretations. Whatever method you select, you will need to clearly depict both data results and the necessary interpretations between data results, and provide sufficient information for Ecology's concurrence. We again suggest you develop isopleth maps to provide this information.

Ethylene Dibromide. Your reported method detection limits for ethylene dibromide (EDB) exceed likely cleanup levels. Please ensure you provide data for EDB below cleanup levels throughout the Site.

Indicator Hazardous Substances. Without a detailed analysis showing how proposed indicator hazardous substances meet the specific criteria of WAC 173-340-703(2)(a-g), Ecology will need you to evaluate each hazardous substance detected throughout the Site, and compare it to proposed cleanup levels. If two or more hazardous substances remain at the Site, evaluate cumulative effects based on the details provided in Ecology's December 2019 opinion for the Site.

EIM Results. Ecology previously requested that prior to this review, you upload 4,4 DDE and 4,4 DDT results you obtained that are not currently in EIM. Ecology again requests you upload the following results. Please ensure you address the presence of these hazardous substances at the Site within the remedial investigation report.

- 4,4 DDE results obtained on January 25, 26, and 27, 2017.
- 4,4 DDT results obtained on January 25, 26, and 27, 2017.

2. Establishment of Cleanup Standards.

Cleanup Standards: Cleanup standards need to be updated in the completed remedial investigation, based on Ecology's suggestions in this and our December 19, 2019, opinion. Ensure you address all three components for establishing cleanup standards, including points of compliance,[8] cleanup levels,[9] and applicable state and federal laws.[10].

Under MTCA, cleanup standards consist of three primary components; (a) points of compliance,[11] (b) cleanup levels,[12] and (c) applicable state and federal laws.[13]

(a) Points of Compliance. Points of compliance are the specific locations at the Site where cleanup levels must be attained. For clarity, Ecology provides the following table of standard points of compliance:

Media	Points of Compliance
Soil-Direct Contact	Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.[14]
Soil- Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site.[15]
Soil-Protection of Plants, Animals, and Soil Biota	Based on ecological protection, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.[16]
Groundwater	Based on the protection of groundwater quality, the standard point of compliance is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.[17]
Groundwater-Surface Water Protection	Based on the protection of surface water, the standard point of compliance is all locations where hazardous substances are released to surface water.[18]
Air Quality	Based on the protection of air quality, the point of compliance is indoor and ambient air throughout the Site.[19]
Sediment	Based on the protection of sediment quality, compliance with the requirements of 173-204 WAC.[20]

(b) Cleanup Levels. Cleanup levels are the concentrations of a hazardous substance in soil, water, air, or sediment that are determined to be protective of human health and the environment. Additional evaluation requested in this opinion needs to be completed prior to Ecology concurring with the use of any proposed cleanup levels at the Site**.**

[8] WAC 173-340-200 "Point of Compliance."
[9] WAC 173-340-200 "Cleanup level."
[10] WAC 173-340-200 "Applicable state and federal laws," WAC 173-340-700(3)(c)
[11] WAC 173-340-200 "Point of Compliance."
[12] WAC 173-340-200 "Cleanup level."
[13] WAC 173-340-200 "Applicable state and federal laws," WAC 173-340-700(3)(c)
[14] WAC 173-340-740 (6)(d)
[15] WAC 173-340-747
[16] WAC 173-340-7490(4)(b)
[17] WAC 173-340-720(8)(b)
[18] WAC 173-340-730(6)
[19] WAC 173-340-750(6)
[20] WAC 173-340-760

(c) Applicable Laws and Regulations. In addition to establishing minimum requirements for cleanup standards, applicable local, state, and federal laws may also impose certain technical and procedural requirements for performing cleanup actions. Ecology's suggestions for including applicable laws and regulations for this cleanup were provided in our December 19, 2019, opinion for the Site. Ensure to adequately address this requirement in the completed remedial investigation.

Achievable Practical Quantitation Limits. The Washington State Sediment Management Standards (WAC 173-204) and the Sediment Cleanup User's Manual, Appendix D provide lower regularly-achievable laboratory practical quantitation limits than those you propose for Dieldrin. Please review and update proposed cleanup levels consistent with the information provided in Ecology regulations and guidance.[21] Ecology provides the following additional chemical and media-specific information for establishing cleanup levels:

- **Dieldrin in Soil.** The proposed value of 0.0625 milligrams per kilogram (mg/kg) does not appear to take into account the leaching pathway to groundwater. To be protective of the leaching pathway (vadose zone at 13º C), the value in Ecology's **Cleanup Levels and Risk Calculation (CLARC)** is 0.0028 mg/kg. Ecology's Manchester Lab reports a method reporting limit of 0.00025 mg/kg for Dieldrin in soil. The proposed cleanup level should be no greater than 0.0028 mg/kg. An empirical demonstration may be completed showing that soil concentrations will not cause an exceedance of the applicable groundwater cleanup level.

- **Dieldrin in Groundwater/Surface Water.** The proposed <0.02 micrograms per liter (µg/L) is an order of magnitude higher than achievable method reporting limits. Manchester Lab reports 0.0025 µg/L as a Method Reporting Limit. The proposed cleanup level should be no higher than about **0.0055 µg/L for both groundwater and surface water.** This value appears protective of groundwater, and is a realistic upward adjustment to the regulatory surface water practical quantitation limit.

- **Dieldrin in Sediment.** The Sediment Management Standards lists a freshwater sediment cleanup objective (SCO) of 0.0049 mg/kg, and a regulatory practical quantitation limit of 0.003 mg/kg. As a result, there should be no upward adjustment to the regulatory practical quantitation limit. The cleanup screening level (CSL) for sediments (freshwater) is 0.0093 mg/kg and the SCO for sediments (freshwater) is 0.0049 mg/kg. The proposed cleanup level should not be greater than 0.0049 mg/kg.

3. Selection of Cleanup Action.

Ecology has determined that additional remedial investigation is necessary at the Site before selecting a cleanup action.

[21] https://test-fortress.wa.gov/ecy/publications/summarypages/documents/documents/1209057.html

Limitations of the Opinion

1. Opinion Does Not Settle Liability with the State.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion Does Not Constitute a Determination of Substantial Equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination.
See RCW 70.105D.080 and WAC 173-340-545.

3. State is Immune from Liability.

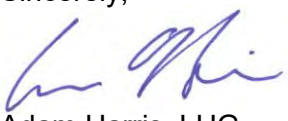
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion.
See RCW 70.105D.180.

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our Voluntary Cleanup Program web site.[22] If you have any questions about this opinion, please contact me at (360) 407-6527 or adam.harris@ecy.wa.gov.

Sincerely,



Adam Harris, LHG
Toxics Cleanup Program
Southwest Regional Office

AH/tm

cc by email: Thomas Morin, Environmental Partners tmorin@trccompanies.com
Sharon Bell, Tacoma Pierce County Health District sbell@tpchd.org
Robert Jenkins, Pierce County Planning and Land Services rob.jenkins@piercecountywa.gov
Nicholas Acklam, Ecology nicholas.acklam@ecy.wa.gov
Arthur Buchan, Ecology arthur.buchan@ecy.wa.gov
Ecology Site File

[22] https://www.ecy.wa.gov/vcp

Attachment B
Laboratory Analytical Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
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August 11, 2020

Nate Hinsperger, Project Manager
TRC Environmental
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: Brookdale Ichijo 015397.0004, F&BI 007547

Dear Mr Hinsperger:

Included are the results from the testing of material submitted on July 31, 2020 from the Brookdale Ichijo 015397.0004, F&BI 007547 project. There are 45 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Cynthia Moon
TRC0811R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 31, 2020 by Friedman & Bruya, Inc. from the TRC Environmental Brookdale Ichijo 015397.0004, F&BI 007547 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	TRC Environmental
007547-01	DPT-1:1
007547-02	DPT-1:2.5
007547-03	DPT-1:10
007547-04	DPT-2:1
007547-05	DPT-2:2.5
007547-06	DPT-2:10
007547-07	DPT-3:1
007547-08	DPT-3:2.5
007547-09	DPT-3:6
007547-10	DPT-3:10
007547-11	DPT-4:1
007547-12	DPT-4:2.5
007547-13	DPT-4:10
007547-14	DPT-5:1
007547-15	DPT-5:2.5
007547-16	DPT-5:6
007547-17	DPT-5:10
007547-18	DPT-6:1
007547-19	DPT-6:2.5
007547-20	DPT-6:10
007547-21	DPT-7:1
007547-22	DPT-7:2.5
007547-23	DPT-7:6
007547-24	DPT-7:10
007547-25	DPT-8:1
007547-26	DPT-8:2.5
007547-27	DPT-8:6
007547-28	DPT-8:10
007547-29	DPT-9:1
007547-30	DPT-9:2.5
007547-31	DPT-9:6
007547-32	DPT-9:10
007547-33	DPT-10:1
007547-34	DPT-10:2.5
007547-35	DPT-10:6

CASE NARRATIVE (Continued)

Laboratory ID	TRC Environmental
007547-36	DPT-10:10
007547-37	DPT-11:1
007547-38	DPT-11:2.5
007547-39	DPT-11:6
007547-40	DPT-11:10
007547-41	DPT-12:1
007547-42	DPT-12:2.5
007547-43	DPT-12:6
007547-44	DPT-12:10

Samples DPT-1:1, DPT-2:1, DPT-3:1, DPT-4:1, DPT-5:1, DPT-6:1, DPT-7:1, DPT-8:1, DPT-9:1, DPT-10:1, DPT-11:1, and DPT-12:1 were sent to Fremont Analytical for diazinon, nitrate, and phosphate analyses. The report is enclosed.

All quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-1:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-01
Date Analyzed:	08/05/20	Data File:	007547-01.117
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.59

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-2:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-04
Date Analyzed:	08/05/20	Data File:	007547-04.155
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.20

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-3:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-07
Date Analyzed:	08/05/20	Data File:	007547-07.156
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.45

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-4:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-11
Date Analyzed:	08/05/20	Data File:	007547-11.157
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.20

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-5:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-14
Date Analyzed:	08/05/20	Data File:	007547-14.158
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.94

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-6:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-18
Date Analyzed:	08/05/20	Data File:	007547-18.159
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	7.38

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-7:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-21
Date Analyzed:	08/05/20	Data File:	007547-21.160
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	7.53

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-8:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-25
Date Analyzed:	08/05/20	Data File:	007547-25.161
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.10

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-9:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-29
Date Analyzed:	08/05/20	Data File:	007547-29.164
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.15

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-10:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-33
Date Analyzed:	08/05/20	Data File:	007547-33.165
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.51

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-11:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-37
Date Analyzed:	08/05/20	Data File:	007547-37.166
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.20

Analysis For Total Metals By EPA Method 6020B

Client ID:	DPT-12:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	007547-41
Date Analyzed:	08/05/20	Data File:	007547-41.167
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.39

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	TRC Environmental
Date Received:	Not Applicable	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/05/20	Lab ID:	I0-451 mb
Date Analyzed:	08/05/20	Data File:	I0-451 mb.115
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-1:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-01
Date Analyzed:	08/03/20	Data File:	080317.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	109	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-2:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-04
Date Analyzed:	08/03/20	Data File:	080315.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	131	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-3:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-07
Date Analyzed:	08/03/20	Data File:	080318.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	50	150
Toluene-d8	92	50	150
4-Bromofluorobenzene	125 J	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-4:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-11
Date Analyzed:	08/03/20	Data File:	080319.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	107	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-5:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-14
Date Analyzed:	08/03/20	Data File:	080320.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	131	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-6:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-18
Date Analyzed:	08/03/20	Data File:	080321.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	50	150
Toluene-d8	91	50	150
4-Bromofluorobenzene	132 J	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-7:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-21
Date Analyzed:	08/03/20	Data File:	080322.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	115	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-8:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-25
Date Analyzed:	08/03/20	Data File:	080323.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-9:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-29
Date Analyzed:	08/03/20	Data File:	080324.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	106	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-10:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-33
Date Analyzed:	08/03/20	Data File:	080325.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-11:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-37
Date Analyzed:	08/03/20	Data File:	080326.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	DPT-12:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-41
Date Analyzed:	08/03/20	Data File:	080327.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	TRC Environmental
Date Received:	Not Applicable	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	00-1722 mb
Date Analyzed:	08/03/20	Data File:	080314.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)
1,2-Dibromoethane (EDB)	<0.005

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-1:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-01 1/6
Date Analyzed:	08/03/20	Data File:	080312.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	64	41	106
DBC	75	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-2:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-04 1/6
Date Analyzed:	08/03/20	Data File:	080313.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	41	106
DBC	78	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-3:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-07 1/6
Date Analyzed:	08/03/20	Data File:	080314.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	58	41	106
DBC	64	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-4:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-11 1/6
Date Analyzed:	08/03/20	Data File:	080315.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	65	41	106
DBC	79	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-5:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-14 1/6
Date Analyzed:	08/03/20	Data File:	080316.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	67	41	106
DBC	84	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-6:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-18 1/6
Date Analyzed:	08/03/20	Data File:	080317.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	68	41	106
DBC	79	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-7:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-21 1/6
Date Analyzed:	08/03/20	Data File:	080320.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	64	41	106
DBC	78	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-8:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-25 1/6
Date Analyzed:	08/03/20	Data File:	080321.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	57	41	106
DBC	71	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-9:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-29 1/6
Date Analyzed:	08/03/20	Data File:	080322.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	53	41	106
DBC	65	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-10:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-33 1/6
Date Analyzed:	08/03/20	Data File:	080323.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	57	41	106
DBC	79	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-11:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-37 1/6
Date Analyzed:	08/03/20	Data File:	080324.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	52	41	106
DBC	63	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	DPT-12:1	Client:	TRC Environmental
Date Received:	07/31/20	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	007547-41 1/6
Date Analyzed:	08/03/20	Data File:	080325.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	53	41	106
DBC	70	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	TRC Environmental
Date Received:	Not Applicable	Project:	Brookdale Ichijo 015397.0004
Date Extracted:	08/03/20	Lab ID:	00-1759 mb 1/6
Date Analyzed:	08/03/20	Data File:	080308.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	81	41	106
DBC	91	32	150

Compounds:	Concentration mg/kg (ppm)
Dieldrin	<0.01

Date of Report: 08/11/20
Date Received: 07/31/20
Project: Brookdale Ichijo 015397.0004, F&BI 007547

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 007547-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	84	80	75-125	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	83	80-120

Date of Report: 08/11/20
Date Received: 07/31/20
Project: Brookdale Ichijo 015397.0004, F&BI 007547

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE

Laboratory Code: 007547-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet wt)	Duplicate Result (Wet wt)	RPD (Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	<0.005	<0.005	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.025	93	95	70-130	2

Date of Report: 08/11/20
Date Received: 07/31/20
Project: Brookdale Ichijo 015397.0004, F&BI 007547

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: 007545-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dieldrin	mg/kg (ppm)	0.1	<0.01	79	80	45-130	1

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dieldrin	mg/kg (ppm)	0.1	91	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

007547

SAMPLE CHAIN OF CUSTODY

ME 07-31-20 VSS

Report To NATE DINSPERGER

Company TRC

Address 1180 NW MAPLE ST. SUITE 310

City, State, ZIP

Phone (425) 395-0010 Email

SAMPLERS (*signature*) NFD

PROJECT NAME: BROADACRE ICHIJO 015397.0004

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

Page # 1 of 3

TURNAROUND TIME BD4

[X] Standard turnaround

[ ] RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

[ ] Archive samples

[ ] Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	DIELDRIN	ARSENIC	EDB/DIAZINON	NITRATE/PHOSPHATE	SULFATE	Notes
DPT-1:1	01A-F	07/30/20	940	SOIL	6								X	X	X	X		
DPT-1:2.5	02		945															HOLD
DPT-1:10	03		950															HOLD
DPT-2:1	04		1005										X	X	X	X		
DPT-2:2.5	05		1010															HOLD
DPT-2:10	06		1015															HOLD
DPT-3:1	07		1050										X	X	X	X		
DPT-3:2.5	08		~~1035~~ 1130															HOLD
DPT-3:6	09		1145															HOLD
DPT-3:10	10		1150															HOLD

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	NATE DORFNER	TRC	7/31/20	1430
Received by:	Tauna Bruya	F&B	7/31	1430
Relinquished by:				
Received by:				

Samples received at 4°C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

007547

SAMPLE CHAIN OF CUSTODY

ME 07-31-20 USS

Page # 2 of 5 BI4

Report To NATE HINSPERGER

Company TRC

Address 1180 NW Maple St, Ste. 310

City, State, ZIP Issaquah, WA 98027

Phone 425-395-0010 Email

SAMPLERS (*signature*) NTH

PROJECT NAME BROOKDALE ICHIJO 015397.0004

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☐ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dieldrin	Arsenic	EDB/Diazinon	Nitrate/Phosphate	Notes
DPT-4:1	11	7/30/20	1210	soil	6								X	X	X	X	
DPT-4:2.5	12		1220														HOLD
DPT-4:10	13		1230														HOLD
DPT-5:1	14		1315										X	X	X	X	
DPT-5:2.5	15		1325														HOLD
DPT-5:6	16		1340														HOLD
DPT-5:10	17		1350														HOLD
DPT-6:1	18		1420										X	X	X	X	
DPT-6:2.5	19		1425														HOLD
DPT-6:10	20	↓	1435	↓	↓										•		HOLD

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: NTH	NATE DORFNER	TRC	7/31/20	1430
Received by:	JAMES BRUYA	F&B	7/31	1430
Relinquished by:				
Received by:				

Samples received at 4°C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SAMPLE CHAIN OF CUSTODY

007547

ME 07-31-20

VSS

Report To Nate Hinspergen

Company TRC

Address 1180 NW Maple St, Ste. 310

City, State, ZIP Issaquah, WA 98027

Phone 425-395-0010 Email

SAMPLERS (*signature*) NFD

PROJECT NAME Brookdale Ichijo 015397.0004

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME

X Standard turnaround B24

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Archive samples

☐ Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dieldrin	Arsenic	EDB/Diazinon	Nitrate/Phosphate	Notes
DPT-7:1	21 A-F	7/31/20	0735	soil	6								X	X	X	X	
DPT-7:2.5	22		0740														HOLD
DPT-7:6	23		0750														HOLD
DPT-7:10	24		0755														HOLD
DPT-8:1	25		0835										X	X	X	X	
DPT-8:2.5	26		0840														HOLD
DPT-8:6	27		0845														HOLD
DPT-8:10	28		0850														HOLD
DPT-9:1	29		0935										X	X	X	X	
DPT-9:2.5	30	↓	0940	↓	↓												HOLD

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	NFD	NATE DORFNER	TRC	7/31/20	1430
Received by:	James Bruya	James Bruya	F&B	7/31	1430
Relinquished by:					
Received by:			Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SAMPLE CHAIN OF CUSTODY

007547

ME 07-31-20

VSS 5 BY

Report To Nate Hinsperger

Company TRC

Address 1180 NW Maple St, Ste. 310

City, State, ZIP Issaquah, WA 98027

Phone 425-395-0010 Email

SAMPLERS (*signature*) NFD

PROJECT NAME: Brookdale Ichijo 015397.0004

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

Page # 2 of 5

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [ ] Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dieldrin	Arsenic	EDB/Dioxin	Nitrate/Phosphate	Notes
DPT-9:6	31 A F	7/31/20	0945	soil	6												HOLD
DPT-9:10	32		0950														HOLD
DPT-10:1	33		1005										X	X	X	X	
DPT-10:2.5	34		1010														HOLD
DPT-10:6	35		1015														HOLD
DPT-10:10	36		1020														HOLD
DPT-11:1	37		1100										X	X	X	X	
DPT-11:2.5	38		1105														HOLD
DPT-11:6	39		1110														HOLD
DPT-11:10	40	↓	1115	↓	↓												HOLD

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: NFD	NATE DORFNER	TRC	7/31/20	1430
Received by:	James Bruya	F&B	7/31	1430
Relinquished by:				
Received by:				

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SAMPLE CHAIN OF CUSTODY

007547

ME 07-31-20

Report To Nate Hinsperger

Company TRC

Address 1180 NW Maple St, Ste. 310

City, State, ZIP Issaquah, WA 98027

Phone 425-395-0010 Email

SAMPLERS (*signature*)

PROJECT NAME: Brookdale Ichijo 015397.0004

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

VSS

TURNAROUND TIME BI 4

[X] Standard turnaround

[ ] RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

[ ] Archive samples

[ ] Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Dieldrin	Arsenic	EDB/Dibromo	Nitrate/Phosphate	Notes
DPT-12:1	41 A-F	7/31/20	1130	soil	6								X	X	X	X	
DPT-12:2.5	42		1135														HOLD
DPT-12:6	43		1140														HOLD
DPT-12:10	44		1145														HOLD

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	NATE DORFNER	TRC	7/31/20	1430
Received by:	James Bruya	F&B	7/31	1430
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 007547
Work Order Number: 2008013

August 10, 2020

Attention Michael Erdahl:

Fremont Analytical, Inc. received 12 sample(s) on 8/3/2020 for the analyses presented in the following report.

Ion Chromatography by EPA Method 300.0
Organophosphorus Pesticides by EPA Method 8270-SIM
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *08/10/2020*

CLIENT: Friedman & Bruya
Project: 007547
Work Order: 2008013

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2008013-001	DPT-1:1	07/30/2020 9:40 AM	08/03/2020 10:27 AM
2008013-002	DPT-2:1	07/30/2020 10:05 AM	08/03/2020 10:27 AM
2008013-003	DPT-3:1	07/30/2020 10:50 AM	08/03/2020 10:27 AM
2008013-004	DPT-4:1	07/30/2020 12:10 PM	08/03/2020 10:27 AM
2008013-005	DPT-5:1	07/30/2020 12:15 PM	08/03/2020 10:27 AM
2008013-006	DPT-6:1	07/30/2020 2:20 PM	08/03/2020 10:27 AM
2008013-007	DPT-7:1	07/31/2020 7:35 AM	08/03/2020 10:27 AM
2008013-008	DPT-8:1	07/31/2020 8:35 AM	08/03/2020 10:27 AM
2008013-009	DPT-9:1	07/31/2020 9:35 AM	08/03/2020 10:27 AM
2008013-010	DPT-10:1	07/31/2020 10:05 AM	08/03/2020 10:27 AM
2008013-011	DPT-11:1	07/31/2020 11:00 AM	08/03/2020 10:27 AM
2008013-012	DPT-12:1	07/31/2020 11:30 AM	08/03/2020 10:27 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2008013**
Date: **8/10/2020**

CLIENT: Friedman & Bruya
Project: 007547

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Project: 007547
Lab ID: 2008013-001
Client Sample ID: **DPT-1:1**

Collection Date: 7/30/2020 9:40:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	50.6		µg/Kg-dry	1	8/7/2020 5:20:14 PM
Surr: Triphenylphosphate	75.1	10.7 - 154		%Rec	1	8/7/2020 5:20:14 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.07		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.14		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	7.75	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Collection Date: 7/30/2020 10:05:00 AM
Project: 007547
Lab ID: 2008013-002
Matrix: Soil
Client Sample ID: DPT-2:1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	50.5		µg/Kg-dry	1	8/7/2020 6:50:09 PM
Surr: Triphenylphosphate	69.0	10.7 - 154		%Rec	1	8/7/2020 6:50:09 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.03		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.06		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	4.38	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Collection Date: 7/30/2020 10:50:00 AM
Project: 007547
Lab ID: 2008013-003
Matrix: Soil
Client Sample ID: **DPT-3:1**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	55.6		µg/Kg-dry	1	8/7/2020 7:12:38 PM
Surr: Triphenylphosphate	83.6	10.7 - 154		%Rec	1	8/7/2020 7:12:38 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	2.54	1.13		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.27		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	11.8	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Project: 007547
Lab ID: 2008013-004
Client Sample ID: **DPT-4:1**

Collection Date: 7/30/2020 12:10:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	55.1		µg/Kg-dry	1	8/7/2020 7:35:04 PM
Surr: Triphenylphosphate	82.3	10.7 - 154		%Rec	1	8/7/2020 7:35:04 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	1.84	1.09		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.19		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	9.60	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Collection Date: 7/30/2020 12:15:00 PM
Project: 007547
Lab ID: 2008013-005
Matrix: Soil
Client Sample ID: DPT-5:1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	44.4		µg/Kg-dry	1	8/7/2020 7:57:32 PM
Surr: Triphenylphosphate	83.0	10.7 - 154		%Rec	1	8/7/2020 7:57:32 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.04		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.08		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	3.64	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Collection Date: 7/30/2020 2:20:00 PM
Project: 007547
Lab ID: 2008013-006
Matrix: Soil
Client Sample ID: DPT-6:1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	47.7		µg/Kg-dry	1	8/7/2020 8:19:51 PM
Surr: Triphenylphosphate	95.8	10.7 - 154		%Rec	1	8/7/2020 8:19:51 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.05		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.11		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	5.57	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Project: 007547
Lab ID: 2008013-007
Client Sample ID: **DPT-7:1**

Collection Date: 7/31/2020 7:35:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	47.1		µg/Kg-dry	1	8/7/2020 8:42:15 PM
Surr: Triphenylphosphate	93.6	10.7 - 154		%Rec	1	8/7/2020 8:42:15 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.07		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.15		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	7.00	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Project: 007547
Lab ID: 2008013-008
Client Sample ID: **DPT-8:1**

Collection Date: 7/31/2020 8:35:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	50.0		µg/Kg-dry	1	8/7/2020 9:04:45 PM
Surr: Triphenylphosphate	105	10.7 - 154		%Rec	1	8/7/2020 9:04:45 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.03		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.07		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	3.87	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Project: 007547
Lab ID: 2008013-009
Client Sample ID: **DPT-9:1**

Collection Date: 7/31/2020 9:35:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	53.2		µg/Kg-dry	1	8/7/2020 9:27:09 PM
Surr: Triphenylphosphate	63.2	10.7 - 154		%Rec	1	8/7/2020 9:27:09 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	1.45	1.07		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.14		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	8.19	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Collection Date: 7/31/2020 10:05:00 AM
Project: 007547
Lab ID: 2008013-010
Matrix: Soil
Client Sample ID: DPT-10:1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	51.5		µg/Kg-dry	1	8/7/2020 9:49:34 PM
Surr: Triphenylphosphate	102	10.7 - 154		%Rec	1	8/7/2020 9:49:34 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.03		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.07		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61013		Analyst: CA
Percent Moisture	4.95	0.500		wt%	1	8/6/2020 11:12:54 AM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Collection Date: 7/31/2020 11:00:00 AM
Project: 007547
Lab ID: 2008013-011
Matrix: Soil
Client Sample ID: DPT-11:1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	51.9		µg/Kg-dry	1	8/7/2020 10:11:59 PM
Surr: Triphenylphosphate	97.3	10.7 - 154		%Rec	1	8/7/2020 10:11:59 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.05		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.10		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61060		Analyst: CA
Percent Moisture	5.59	0.500		wt%	1	8/7/2020 2:50:30 PM

Analytical Report

Work Order: **2008013**
Date Reported: **8/10/2020**

Client: Friedman & Bruya
Collection Date: 7/31/2020 11:30:00 AM
Project: 007547
Lab ID: 2008013-012
Matrix: Soil
Client Sample ID: DPT-12:1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by EPA Method 8270-SIM				Batch ID: 29241		Analyst: IH
Diazinon	ND	51.5	I	µg/Kg-dry	1	8/7/2020 10:34:21 PM
Surr: Triphenylphosphate	102	10.7 - 154	I	%Rec	1	8/7/2020 10:34:21 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 29254		Analyst: TN
Nitrate (as N)	ND	1.06		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Orthophosphate (as P)	ND	2.11		mg/Kg-dry	1	8/6/2020 12:43:52 AM
Sample Moisture (Percent Moisture)				Batch ID: R61060		Analyst: CA
Percent Moisture	5.40	0.500		wt%	1	8/7/2020 2:50:30 PM

NOTES:
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria. Sample duplicate recovered within range and was also non-detect.

Work Order: 2008013
CLIENT: Friedman & Bruya
Project: 007547

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **LCS-29254**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **8/5/2020**			RunNo: **61004**	
Client ID: **LCSS**	Batch ID: **29254**					Analysis Date: **8/6/2020**			SeqNo: **1223314**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	7.60	0.990	7.426	0	102	90	110				

Sample ID: **2008013-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **8/5/2020**			RunNo: **61004**	
Client ID: **DPT-1:1**	Batch ID: **29254**					Analysis Date: **8/6/2020**			SeqNo: **1223318**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	ND	1.09						0		30	

Sample ID: **2008013-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **8/5/2020**			RunNo: **61004**	
Client ID: **DPT-1:1**	Batch ID: **29254**					Analysis Date: **8/6/2020**			SeqNo: **1223319**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	8.61	1.08	8.098	0.7391	97.1	80	120				

Sample ID: **2008013-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **8/5/2020**			RunNo: **61004**	
Client ID: **DPT-1:1**	Batch ID: **29254**					Analysis Date: **8/6/2020**			SeqNo: **1223320**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	8.27	1.09	8.147	0.7391	92.4	80	120	8.605	4.02	30	

Sample ID: **2008013-011ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **8/5/2020**			RunNo: **61004**	
Client ID: **DPT-11:1**	Batch ID: **29254**					Analysis Date: **8/6/2020**			SeqNo: **1223333**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	ND	1.06						0		30	
Orthophosphate (as P)	ND	2.12						0		30	

Work Order: 2008013
CLIENT: Friedman & Bruya
Project: 007547

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **2008013-011AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/5/2020** RunNo: **61004**
Client ID: **DPT-11:1** Batch ID: **29254** Analysis Date: **8/6/2020** SeqNo: **1223334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	8.16	1.06	7.913	0.8285	92.6	80	120				
Orthophosphate (as P)	ND	2.11	13.19	0	0	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID: **MB-29254** SampType: **MBLK** Units: **mg/Kg** Prep Date: **8/5/2020** RunNo: **61004**
Client ID: **MBLKS** Batch ID: **29254** Analysis Date: **8/6/2020** SeqNo: **1224119**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	ND	1.00									
Orthophosphate (as P)	ND	2.00									

Sample ID: **LCS-29254** SampType: **LCS** Units: **mg/Kg** Prep Date: **8/5/2020** RunNo: **61004**
Client ID: **LCSS** Batch ID: **29254** Analysis Date: **8/6/2020** SeqNo: **1224120**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Orthophosphate (as P)	12.4	1.98	12.38	0	100	90	110				

Sample ID: **2008013-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/5/2020** RunNo: **61004**
Client ID: **DPT-1:1** Batch ID: **29254** Analysis Date: **8/6/2020** SeqNo: **1224122**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Orthophosphate (as P)	ND	2.18						0		30	

Sample ID: **2008013-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/5/2020** RunNo: **61004**
Client ID: **DPT-1:1** Batch ID: **29254** Analysis Date: **8/6/2020** SeqNo: **1224123**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Orthophosphate (as P)	ND	2.16	13.50	0	0	80	120				S

Work Order: 2008013
CLIENT: Friedman & Bruya
Project: 007547

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **2008013-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/5/2020** RunNo: **61004**
Client ID: **DPT-1:1** Batch ID: **29254** Analysis Date: **8/6/2020** SeqNo: **1224123**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID: **2008013-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **8/5/2020** RunNo: **61004**
Client ID: **DPT-1:1** Batch ID: **29254** Analysis Date: **8/6/2020** SeqNo: **1224124**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Orthophosphate (as P)	1.89	2.17	13.58	0	13.9	80	120	0		30	S

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 2008013
CLIENT: Friedman & Bruya
Project: 007547

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: **MB-29241**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **8/4/2020**	RunNo: **61080**
Client ID: **MBLKS**	Batch ID: **29241**		Analysis Date: **8/7/2020**	SeqNo: **1224828**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	ND	50.0									
Surr: Triphenylphosphate	63.1		100.0		63.1	10.7	154				

Sample ID: **LCS-29241**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **8/4/2020**	RunNo: **61080**
Client ID: **LCSS**	Batch ID: **29241**		Analysis Date: **8/7/2020**	SeqNo: **1224829**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	14.4	50.0	20.00	0	71.9	37.1	132				.
Surr: Triphenylphosphate	80.1		100.0		80.1	10.7	154				

Sample ID: **2008013-001ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **8/4/2020**	RunNo: **61080**
Client ID: **DPT-1:1**	Batch ID: **29241**		Analysis Date: **8/7/2020**	SeqNo: **1224831**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	ND	50.0						0		30	
Surr: Triphenylphosphate	70.4		100.1		70.3	10.7	154		0		

Sample ID: **2008013-001AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **8/4/2020**	RunNo: **61080**
Client ID: **DPT-1:1**	Batch ID: **29241**		Analysis Date: **8/7/2020**	SeqNo: **1224832**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	13.0	52.3	20.91	0	62.2	9.74	142				
Surr: Triphenylphosphate	73.6		104.5		70.4	10.7	154				

Sample ID: **2008013-001AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **8/4/2020**	RunNo: **61080**
Client ID: **DPT-1:1**	Batch ID: **29241**		Analysis Date: **8/7/2020**	SeqNo: **1224833**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	12.7	51.9	20.75	0	61.0	9.74	142	0		30	

Work Order: 2008013
CLIENT: Friedman & Bruya
Project: 007547

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: **2008013-001AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **8/4/2020**	RunNo: **61080**
Client ID: **DPT-1:1**	Batch ID: **29241**		Analysis Date: **8/7/2020**	SeqNo: **1224833**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Triphenylphosphate	76.7		103.7		74.0	10.7	154		0		

Sample ID: **2008013-012ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **8/4/2020**	RunNo: **61080**
Client ID: **DPT-12:1**	Batch ID: **29241**		Analysis Date: **8/7/2020**	SeqNo: **1224845**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	ND	50.8						0		30	
Surr: Triphenylphosphate	86.2		101.6		84.8	10.7	154		0		

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**2008013**
Logged by:	**Carissa True**	Date Received:	**8/3/2020 10:27:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present ☐
2.	How was the sample delivered?	FedEx				

Log In

3.	Coolers are present?	Yes	☑	No	☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes	☑	No	☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No	☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes	☑	No	☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes	☑	No	☐	
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐	
10.	Are samples properly preserved?	Yes	☑	No	☐	
11.	Was preservative added to bottles?	Yes	☐	No	☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes	☐	No	☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No	☐	
14.	Does paperwork match bottle labels?	Yes	☑	No	☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐	
16.	Is it clear what analyses were requested?	Yes	☑	No	☐	
17.	Were all holding times able to be met?	Yes	☑	No	☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☑	No	☐	NA ☐

Person Notified:	Michael Erdahl	Date:	8/3/2020
By Whom:	Carissa True	Via:	☑ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	Total Phos or Orthophos		
Client Instructions:	Orthophos		

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler 1	0.0
Sample 1	3.7

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

2008013

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 3012 16th Ave W
City, State, ZIP Seattle, WA 98119
Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
007547	A-307

REMARKS

Please Email Results

TURNAROUND TIME
☒ Standard TAT
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH	VPH	Nitrate	Phosphate	Diazinon					Notes
DPT-1:1		7/20/20	940	Soil	1				X	X	X					
DPT-2:1		"	1005						X	X	X					
DPT-3:1			1050						X	X	X					
DPT-4:1			1210						X	X	X					
DPT-5:1			1215						X	X	X					
DPT-6:1			1420						X	X	X					
DPT-7:1		7/21/20	0735						X	X	X					
DPT-8:1			0835						X	X	X					
DPT-9:1			0935						X	X	X					
DPT-10:1			1005						X	X	X					
DPT-11:1			1100						X	X	X					
DPT-12:1			1130						X	X	X					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	8/3/20	08:11
Received by:		Emma Holmes	FAI	8/3/2020	10:27
Relinquished by:					
Received by:					