MEMORANDUM

Date: April 12, 2021 Project No.: 9019.01.14

To: Brian Paul, General Manager, Taiga Exterior Wood

cc: Mark Schneidereit, Chief Financial Officer & Vice-President, Finance and Administration, Taiga Building Products
Russ Permann, Co-President/CEO, Taiga Building Products

From: Steve Taylor



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RE: Ecology Memorandum, Exterior Wood Facility, Washougal, WA

Maul Foster & Alongi (MFA) provides this Technical Memorandum (memo) to Taiga Exterior Wood (Exterior) to support and facilitate Exterior and Ecology's discussions regarding the drip pad at Exterior's Washougal, Washington Index Street wood-treating facility (facility). This memo follows Exterior and Ecology staff discussions in late 2020 regarding the drip pad. Exterior appreciates Ecology's continuing willingness to collaborate with Exterior regarding the drip pad at the facility and we look forward to the parties' discussions to resolve the agency's concerns.

BACKGROUND

MFA understands that previous ownership built the facility in approximately the mid-1970s to conduct wood treating operations. Between the mid-1970s and the early 1990s, the owner installed

a reinforced concrete drip pad, which complied with state and federal regulations then in effect for drip pads.[1] Facility operations focused on the treatment of lumber products for commercial and residential customers. The drip pad allows treated lumber to dry after the treatment process is completed.

In approximately April 1993, Exterior completed soil and groundwater sampling at several locations around and near the drip pad. This sampling indicated no soil contamination but groundwater at some of the sampling locations were above the Model Toxics Control Act, RCW 70A.305 (MTCA) Method A cleanup level for arsenic.[2] This release was reported to Ecology and Exterior and Ecology met in May 1993 to discuss the sample results.[3] Additional soil samples collected in 1995 from beneath the drip pad showed concentrations of arsenic and chromium above MTCA Method A levels.[4] Soil samples collected near, but not beneath, the drip pad, were below MTCA Method A levels.[5] These data indicated that a release to soil beneath the drip pad had occurred and that soil contamination did not extend outside of the drip pad footprint. Concentrations of arsenic in groundwater were detected above MTCA Method A cleanup levels in one of the monitoring wells.[6] Observations of the drip pad indicated that weathered and/or abraded asphalt may have caused the release of wood-treating solution to the soil underneath the drip pad.[7] However, facility operations in the 1970s may have occurred before any drip pad was installed and releases may have occurred during that time period.

In August 1995, Exterior completed an independent cleanup action that involved breaching the drip pad in some locations and excavating impacted soil beneath the drip pad.[8] Exterior excavated 215 cubic yards of impacted soil from five areas of the drip pad. Post-excavation sampling indicated that arsenic and chromium in soil remained above MTCA Method A levels.[9]

In November 1995, Exterior completed additional soil and groundwater sampling associated with the drip pad. This additional sampling confirmed arsenic in soil and groundwater beneath the drip pad in several areas.[10] Based on these data, Exterior conducted a second independent remedial action that removed an additional 480 tons of impacted soil from several areas beneath the drip pad.[11] Confirmational sampling following excavation showed that a significant amount of soil above Method A levels was removed, but some contaminated soil above Method A remained in place due to structural limits presented by the drip pad and its infrastructure.[12] Exterior installed permanent

[1] Geraghty & Miller Drip Pad Investigation Report, March 1997, p. 4 ("GM 1997").
[2] GM 1997, pp. 7-8.
[3] GM 1997, p. 8.
[4] GM 1997, pp. 10-11.
[5] *Id*.
[6] *Id*.
[7] GM 1997, p. 52.
[8] GM 1997, pp. 12-13.
[9] *Id*.
[10] GM 1997, pp. 20-28.
[11] GM 1997, p. 39.
[12] GM 1997, pp. 41-46.

groundwater monitoring wells around the drip pad to continue to monitor concentrations of contaminants of concern.[13]

In addition to these remedial actions to address the release, Exterior also reconstructed and upgraded the drip pad in November 1995 to comply with WAC 173-303-675. The drip pad's structural integrity (its load-bearing ability) was tested and confirmed. A layer of CIM-1000 low-conductivity urethane seal was installed over the entire drip pad surface, meeting the conductivity requirement in WAC 173-303-675.[14] The layer of CIM-1000 was installed over a layer of reinforced asphalt-impregnated polyester geofabric (GeoTac) and a second layer of GeoTac was then placed over the CIM 1000 layer. The GeoTac layers also meet the conductivity requirement in WAC 173-303-675.[15]

In addition to the reconstruction of the drip pad, Exterior's use of chromated copper arsenate (CCA) wood treatment solution at the facility mostly ceased in approximately 2002.[16] Since that time, CCA is only used in a limited area of the drip pad, the west treating operation, known as plant 2, to support commercial products.

In March 2009, Exterior met with Ecology regarding the drip pad.[17] Ecology requested that Exterior develop and implement a plan to inspect the drip pad, and specifically, the liner. After Ecology review and approval of the inspection plan, Exterior implemented the inspection plan.[18] In May 2009, RSV collected a total of eight samples from two areas of the drip pad (areas C and E), as observed by Ecology (Figure 1). The samples were tested for puncture resistance, tear and tensile strength. Visual inspection and sample results showed the drip pad was functioning as designed.[19]

2012 AGREED ORDER

In April 2012, Ecology and Exterior entered into Agreed Order No. DE 7971 (AO). The AO was issued under Ecology's Hazardous Waste Management Act authority, RCW 70A.300, and the hazardous waste regulations, WAC 173-303. The AO stated that the drip pad was constructed prior to 1990 and (as discussed in the previous section) was modified in 1995. AO, Section 2.0.

The AO resolved issues regarding the assessment and inspection of the drip pad. AO, Section 2.1. The AO requires Exterior to maintain the drip pad and provides a robust system of inspections that include weekly inspections, inspections after storms, every six months (a comprehensive asphalt inspection), annually (an asphalt integrity assessment) and every ten years (a permanence evaluation

[13] GM 1997, p. 53.
[14] GM 1997, pp. 49-52.
[15] *Id*.
[16] GeoEngineers December 2019 Groundwater Monitoring & Sampling Report.
[17] RSV Engineering October 2009 Technical Memorandum re Interim Drip Pad Testing Results (RSV 2009 TM).
[18] RSV 2009 TM, p. 2.
[19] RSV 2009 TM, p. 4; 6-7.

and strength test). In 2015, the AO was amended to remove Section 3.1.5, the bi-annual Comprehensive Asphalt Inspection.[20]

2019 PERMANENCE EVALUATION AND STRENGTH TEST

Section 3.1.7 of the AO required Exterior to conduct the first Permanence Evaluation and Strength Test of the drip pad in 2019. Exterior submitted a plan for the inspection and testing of the drip pad to Ecology, and pursuant to the plan, in May 2019, took four samples from the drip pad, TB1 through TB4.[21] Sampling activities were observed by Ecology staff. One of the samples, TB4, located furthest to the north of the samples taken, indicated the sample lacked all three layers of the reconstructed drip pad.[22] In August 2019, Exterior repaired the drip pad to its three-layer design by first advancing exploratory cores to determine the extent of the missing layer elements. Exterior continued coring in all directions around the TB4 sampling area until the full protective liner system was observed.[23] Exterior then reinstalled the full liner system in the area the coring indicated lacked all three layers.[24] The reinstalled area consists of approximately 6% of the drip pad. During the May 2019 sampling event and the August 2019 reinstallation, Exterior staff observed no indications of any spills or releases in the area of TB4. No discoloration, staining or chemical odors were observed. Ecology staff were present during both events.[25]

The two drip pad sampling events, 2009 and 2019, collectively involved twelve samples from different areas of the drip pad, as shown in Figure 1 to this memo. Thus, with the two sampling events combined with the August 2019 coring work and reinstallation, the most active portions of the drip pad have been sampled for permanence and strength. Eleven of the twelve samples demonstrated that all three liner layers are intact and functioning as intended. The portion of the drip pad associated with the one sample showing the drip pad lacked all layers was repaired.

The 2019 samples were tested for permeance, permeability, puncture resistance, tear strength and tensile strength. Details of the testing results are provided in the October 2019 *Drip Pad Testing Results* from Maul Foster & Alongi, Inc. (MFA), previously provided to Ecology. The test results showed that the drip pad met all standards for these parameters.[26] Exterior also notes, as discussed in greater detail in MFA's 2019 Memo and in the RSV 2009 Technical Memo, that each of the three layers meets WAC 173-303-675 drip pad standards.

[20] 2015 Agreed Order Amendment.
[21] Maul, Foster, Alongi October 2019 Memorandum re Drip Pad Testing Results (MFA 2019 Memo), p. 2, Figure 2.
[22] MFA 2019 Memo, pp. 2, 5, Figure 2.
[23] *Id*.
[24] *Id*.; Figure 5 (showing area of reinstallation); Attachment 4 (photos showing same).
[25] MFA 2019 Memo, pp. 2, 6.
[26] MFA 2019 Memo.

GROUNDWATER MONITORING AND CONTAINMENT SYSTEM

As discussed above, operations at the facility going back to the mid-1970s, prior to the reconstruction and upgrades to the drip pad, led to releases of wood treating compounds and detections of arsenic in soil and groundwater from CCA use at that time. Since 1995 and the independent remedial actions conducted then, Exterior has continued to monitor groundwater through a network of monitoring wells at the facility.[27] Groundwater and hydrogeologic assessments conducted by Exterior since 1995 show that groundwater flow is to the north, southeast and east; groundwater flow is not towards the Columbia River.[28]

Arsenic concentrations in groundwater remained stable until approximately 2017, when Exterior's regular monitoring showed elevated levels of dissolved arsenic in MW-6, located in the southeast corner of the plant (Figure 2). Exterior collected additional groundwater and soil samples in 2017 to assess the MW-6 results. These data indicated that a localized increase in arsenic in the area of MW-6 is likely caused by shallow groundwater contacting the area of arsenic-contaminated soil beneath the drip pad in the retort area from the historical release in the 1990s.[29] Regular groundwater monitoring by Exterior indicated that groundwater elevations were notably higher than previous measurements and rising groundwater may have encountered this soil, creating the elevated sample results in MW-6.[30] Exterior concluded that the elevated sample results for arsenic in MW-6 could not have been caused by any new release from the drip pad because of this data showing shallow groundwater with higher elevation and because Exterior has not used CCA in any area near MW-6 for nearly 20 years (Figure 2).

The increased dissolved arsenic concentrations in MW-6 led Exterior to consider additional independent remedial action to capture and contain groundwater to prevent the migration of arsenic-contaminated groundwater.[31] Exterior implemented a shallow groundwater pumping system that serves as an independent interim remedial action consistent with Ecology's MTCA regulation, WAC 173-340-515. The purpose of the system is to contain contaminated groundwater on the property and prevent migration. Exterior completed an assessment of the system in the first quarter of 2021.[32] That assessment showed the system is successfully hydraulically isolating the localized groundwater contamination at the property by extracting groundwater from pumping wells placed near the downgradient property line. The system is controlling the migration of groundwater and prevents migration off the property.[33]

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[27] GeoEngineers April 2018 Remedial Alternatives Evaluation, pp. 1, 6. (GeoEngineers 2018 Remedial Alternatives Evaluation).
[28] MFA November 2020 Groundwater Capture Zone Analysis, pp. 2-4.
[29] GeoEngineers 2018 Remedial Alternatives Evaluation, p. 3.
[30] *Id*.
[31] E.g., GeoEngineers 2018 Remedial Alternatives Evaluation, MFA November 2020 Groundwater Capture Zone Analysis.
[32] MFA March 2021 Groundwater Monitoring Report & Capture Zone Analysis.
[33] MFA March 2021 Groundwater Monitoring Report & Capture Zone Analysis, pp. 4-8.

With this background regarding the drip pad and the historical release, along with the AO and Exterior actions to address the release, we next discuss the current state of the drip pad.

THE RECONSTRUCTED DRIP PAD IS PROTECTIVE AND MEETS WAC 173-303-675

As discussed above, pursuant to the AO, the drip pad was inspected, sampled and repaired in 2019. *Each* layer of the GeoTac liner has a hydraulic conductivity rating nearly four orders of magnitude greater than the drip pad standard in WAC 173-303-675(4)(a)(iv)(A).[34] The layer of CIM-1000 on top of the GeoTac layers *also* has a hydraulic conductivity rating meeting WAC 173-303-675(4)(a)(iv)(A).[35]

The sampling results from the 2019 tests of the drip pad assessed permeance/permeability, puncture resistance, tear and tensile strength. Laboratory results from the samples demonstrated that the drip pad met applicable regulatory standards.[36]

And, where the 2019 inspection indicated that the drip pad lacked all three layers, the drip pad was repaired pursuant to a plan reviewed and approved by Ecology and the repair work was observed by Ecology. As discussed above, the repair encompassed the entire area of the drip pad that core sampling showed lacked all three layers.[37] The repaired drip pad thus more than meets the WAC 173-303-675 drip pad requirements as demonstrated by the 2019 tests and repair work. Pursuant to the AO, Exterior continues to robustly inspect the drip pad, including daily inspections. Any potential breaches, cracks, or depressions in the drip pad surface are rapidly and effectively addressed by the application of an epoxy polymer – BIO-GARD 258.

EXTERIOR'S ON-GOING ACTIONS TO MONITOR AND CONTAIN THE HISTORICAL RELEASE

Past investigations and over twenty years of groundwater monitoring show that groundwater contamination is the result of historical releases at the facility. While the soil cleanup work in 1995 removed a significant amount of contaminated soil, not all could be removed because the drip pad and its infrastructure prevented full excavation. Exterior has continuously monitored groundwater since that time and continues to monitor and contain groundwater contamination through the groundwater pumping system discussed above. Exterior will continue those independent remedial actions. There are no observations or data that indicate any release following the reconstruction of the drip pad in 1995. Observations of the drip pad during the May 2019 sampling and the August 2019 repair work showed no indication of any release. Other inspections conducted pursuant to the AO have all indicted the drip pad is functioning as intended.

[34] MFA 2019 Memo, p.1.
[35] *Id*.
[36] *Id*., pp. 3-5.
[37] *Id*., pp. 5-6.

ATTACHMENT

FIGURES

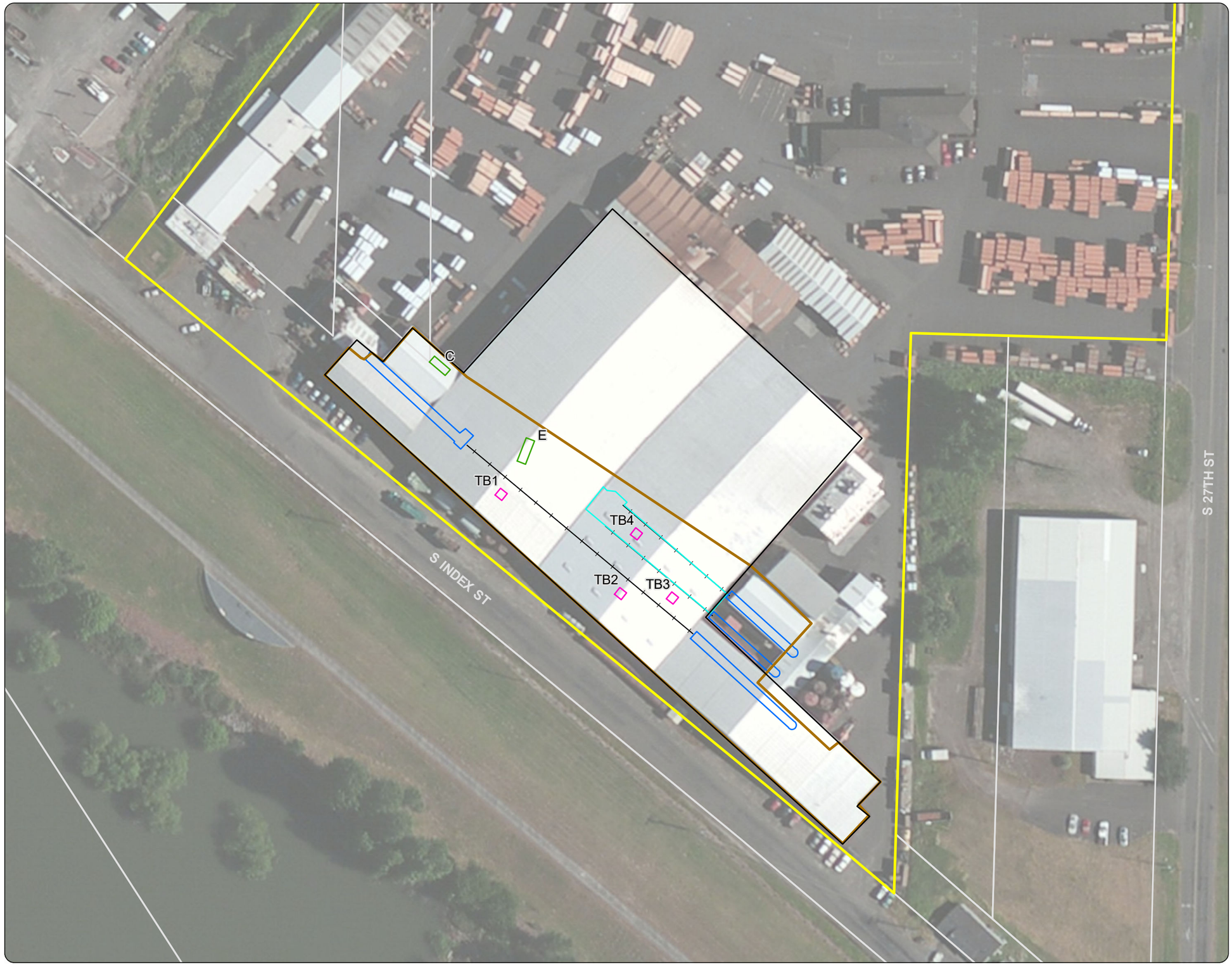


Figure 1
Site Features and Sampling Locations

Exterior Wood, Inc.
Washougal, Washington

Legend

- Site Boundary
- Retort
- Drip Pad
- Main Building
- Tax Lot Boundary
- Railroad Tracks
- 2009 Sample Location and Drip Pad Restoration Area
- 2019 Sample Location and Drip Pad Restoration Area
- Drip Pad Restoration Area

NOTES:
Site feature locations are approximate.
US Geological Survey (1990) 7.5-minute topographic quadrangle: Washougal Northwest quarter of Section 17, Township 1 North, Range 4 East.
TB = Test Boring

0 50 100
Feet

Source:
Aerial photograph obtained from ArcGIS Online.
Tax lots and roads obtained from Clark County GIS.
Drip pad and 2009 sample location boundaries obtained from RSV Engineering Technical Memorandum, October 2009.

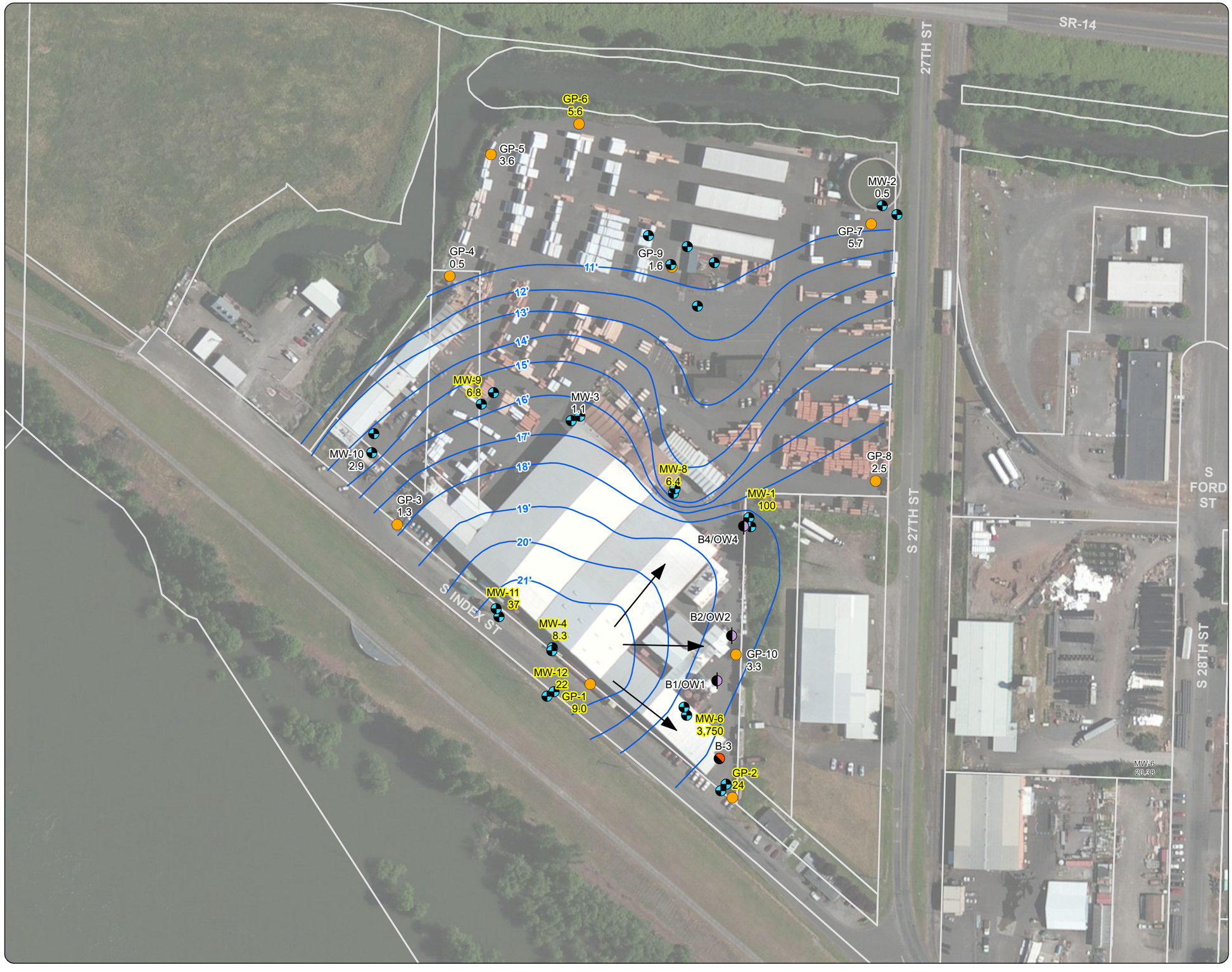
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Figure 2
Water Level Elevations and Well Locations as of March 9, 2017

Exterior Wood, Inc.
Washougal, Washington



Legend

- GP-1 9.0 — Borehole with dissolved arsenic concentration in ug/L[a]
- MW-1 100 — Monitoring well with dissolved arsenic concentration in ug/L[a]

Proposed Locations

- Boring
- Boring completed as an observation well
- Groundwater contours (ft)
- Groundwater Flow Direction
- Tax lot boundary

NOTES:
Groundwater elevations are based on an assumed site elevation of 20 ft above mean sea level.
Source of groundwater contours and arsenic concentration data: SLR Figures 4 and 7 provided by Exterior Wood, March 9, 2017.

[a]Yellow-shaded label indicates arsenic concentration measured above MTCA Cleanup Level of 5 ug/L.

ft = feet.
MTCA = Model Toxics Control Act.
ug/L = micrograms per liter.

0 60 120
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; tax lots and roads obtained from Clark County GIS.

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