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September 30, 2016
File: 111477500

Attention: Della Berwanger, P.Geo., Manager Environmental Remediation
Canadian Pacific
2025 McCowan Road
Toronto, Ontario M1S 5K3

Dear Ms. Berwanger,

Reference: Remediation Plan for Former Scrap Yard and Fueling Areas Within the CP Weston Yard, Winnipeg, Manitoba

Stantec Consulting Ltd. (Stantec) recommends the following Remediation Plan for soil and groundwater impacts identified in former scrap yard and fueling areas within the CP Weston Yard.

BACKGROUND

CP's Weston Yard is located in the northwest quadrant of the City of Winnipeg, west of McPhillips Street, near the intersection of McPhillips Street and Jarvis Avenue. The former scrap yard and fueling areas were within the western portion of the CP Weston Yard (herein referred to as the "Site"; **Figure 1**). These areas have since been repurposed for the storage of track supplies (track panels, railway ties, etc.). The Weston Yard is surrounded in all directions by commercial and industrial land use and railway operations. Residential dwellings are located approximately 95 m south.

The Site is generally flat and at grade with adjacent properties. Based on an available topographic map (Baracos *et. al.* 1983) and the observed site topography, regional surface drainage (and anticipated shallow groundwater flow direction) appears to be to the east and southeast toward the Red and Assiniboine rivers, located approximately 4.3 km and 4.75 km from the Site, respectively. Omands Creek is located approximately 2.5 km southwest of the Site.

The following summarizes work completed at the Site and resultant findings to date. A list of the reports referenced is provided at the end of this letter.

2012/2013 SITE INVESTIGATION PROGRAMS

In late 2012/early 2013, Stantec was retained by CP to support the return of leased areas within the Weston Yard from Progress Rail back to CP. At this time, Stantec completed a focused subsurface intrusive investigation of areas used by Progress Rail and/or its third-party subcontractor(s). Additionally one area outside the Site was investigated (used as background).

Impacts to Site soils (i.e., chemical concentrations exceeding the stipulated regulatory guidelines) were found including PAHs in surface soils; PHCs in near-surface and subsurface soils (specifically



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adjacent to the aboveground storage tanks [since removed]); and metals impacts (particularly in surface soils in areas formerly used for metal scrapping). No volatile organic compounds exceeding regulatory guidelines were identified in soils analyzed at the locations investigated and no impacts to groundwater were identified.

Additional testing of five soil samples (specifically Toxicity Characteristic Leaching Procedure or TCLP metals analysis) was undertaken to understand the leachability of the detected metals in the soil. The soil sample with the highest total lead concentration of the submitted samples from the south-central area of one of the former metal-scrapping areas was found to contain a leachable lead concentration that exceeded the respective Manitoba leachate quality criterion.

In July 2013, following clean up and departure by Progress Rail, Stantec completed a follow-up environmental site assessment that included the advancement of 38 boreholes with the completion of 9 of the boreholes as monitoring wells. The purpose of the work was to better delineate the impacts identified by the earlier investigation. This work achieved lateral and vertical delineation of the soil impacts, confirming:

- Metal impacts in the former scrap yard areas, with the highest concentrations in the upper 0.5 metres below ground surface (mbgs) extending in a number of areas to up to 1.5 mbgs and extending in limited areas to 3.0 mbgs.
- Leachable lead with a concentration exceeding the TCLP criterion at only one sampling location (in the upper 0.5 mbgs), for a total of two locations identified within the former scrap yard areas.
- PAH impacts in sporadic locations in surface soils in all investigated areas; appearing limited to soil in the upper 1.0 to 1.5 mbgs.
- PHC impacts in surface soils in the former scrap yard areas; also appearing localized and limited in soil in the upper 1.0 to 1.5 mbgs.

Groundwater impacts (i.e., concentrations above non-potable groundwater standards) were also identified including a dissolved cadmium concentration marginally exceeding the Ontario Ministry of the Environment and Climate Change (MOECC) Table 3 site condition standards (SCS) at one location (MW07) and PHC F3 and F4 impacts at five locations (MW04, MW12, MW13, MW10 and MW11; **Figure 2**, attached).



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2014 AND 2015 GROUNDWATER MONITORING PROGRAMS

In 2014 and 2015, CP retained Stantec to provide further environmental services comprising groundwater monitoring and sampling, collection of well inventory data, well surveying, and data interpretation in the former scrapping and aboveground storage tank areas.

In 2014, several wells were found to be damaged, including MW10 which could not be repaired and was filled to grade with bentonite. The remaining wells were repaired for a total of 12 active monitoring wells on the Site (see **Figure 2**, attached). In 2015, however, track supplies were stored in some areas, covering some wells and ultimately precluding access to one well (MW01).

In both 2014 and 2015, groundwater flow appeared variable, depending on the location on the Site. In 2014, the apparent off-site flow direction closest to the site boundaries appeared to be to the south or southeast. In 2015, an overall easterly groundwater flow direction was interpreted for the Site. Using a range of assumed parameters to calculate groundwater flow, the estimated groundwater velocity has been estimated to range from approximately 0.01 m/year to 0.5 m/year.

No petroleum hydrocarbon sheen was observed during the purging and sampling of the monitoring wells in 2014 or 2015. Benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations in the collected groundwater samples from the Site in both years were all below the MOECC Table 3 SCS. Concentrations of PHC F2 in groundwater samples collected from MW02 and MW03 in 2014 (see **Figure 2**, attached) exceeded the MOECC SCS in 2014 but not in 2015. The absence of PHC F3 and F4 exceedances in both 2014 and 2015 relative to 2013 groundwater sampling was attributed to the decanting of samples at the laboratory for analysis, which reduced the amount of sediment present. The heavier PHC F3 and F4 parameters tend to adsorb to particles suspended in the water, which was suspected of accounting for the observed higher concentrations of these parameters in 2013.

Concentrations of PAHs (specifically benzo(a)pyrene, benzo(b/j)fluoranthene, benzo(g,h,i)perylene, chrysene, and indeno(1,2,3-cd)pyrene) in groundwater samples collected from MW07 in September 2015 exceeded the MOECC SCS. These parameters did not exceed the SCS in groundwater in 2013 or 2014. Resampling in November 2015 did not reproduce the September 2015 results suggesting sediment interference in the September 2015 samples. PAHs are accordingly not suspected to be present in the shallow groundwater beneath the Site based on sampling to date.

Metals are also generally not an issue at the Site. The cadmium concentration in the groundwater at MW07, which exceeded the MOECC SCS in 2013, did not exceed this standard in 2014 but did in 2015 suggesting concentration variability at this one location on the Site.



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PROPOSED SITE ACTIVITIES

As the Site is currently in operation and will remain in operation for the foreseeable future, it is proposed that no remediation action be completed at this time in relation to the surface and near-surface soil impacts identified at the Site. At such time as operations cease, appropriate re-evaluation and action will be taken (e.g., in association with Site redevelopment).

With regards to the groundwater impacts, which have been inconsistent in persistence to date, completion of the following activities is proposed:

- Completion of an annual monitoring well inventory or condition check of the installed and accessible monitoring wells (see **Figure 2**, attached).
 - o This action is proposed on account of the ongoing Site activities, to make sure the wells are maintained in a good and serviceable condition and do not become over time a potential conduit for contaminant migration from the surface into the subsurface.
 - o This activity will include documentation of the following for each well:
 - Security and protection of monitoring wells.
 - Condition of monitoring well casings and caps.
 - Condition of surface seals around casings.
 - Labeling of monitoring wells.
 - Visibility and accessibility of monitoring wells.
 - Drainage or ponding around monitoring well casings.
 - Presence and condition of dedicated sampling devices (if any).
 - o Minor repairs, such as well cut-downs and bolt replacements, will be completed at the time of inventory, where required.
- Completion of a monitoring and sampling program of the installed monitoring wells every three years to track changes (if any) to the groundwater chemistry.



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- o This action is proposed to track groundwater chemistry as a result of the identified surface and near-surface soil impacts, with a proposed frequency considered appropriate given the absence of persistent contaminants of concern to date in the shallow groundwater beneath the Site.
 - o This activity will include the collection of:
 - Monitoring data including organic vapour measurements, depth to groundwater, total monitoring well depth, and thickness of light non-aqueous phase liquid (if present).
 - Groundwater analytical data for BTEX, PHC F1-F4, PAHs and dissolved metal concentrations from each well. Sampling methodology will be conducted following appropriate purging of each well and in accordance with industry standards. Quality assurance/quality control field samples will also be collected for laboratory analysis, representing approximately 10% of the groundwater samples collected.
 - o Analytical data will be compared to the appropriate regulatory guidelines with the findings of the groundwater monitoring program summarized in a report provided to CP and shared with Manitoba Sustainable Development.
- Review of appropriate action (if required) following the annual monitoring well inventory and triennial monitoring and sampling program. For example:
 - o Should a well(s) be found to be damaged and unable to be appropriately repaired, the well(s) will be decommissioned and replaced (if deemed important to the well monitoring network).

SCHEDULE OF ACTIVITIES

The last monitoring and sampling campaign occurred in 2015. On this basis, the following short-term schedule is proposed for the Remediation Plan actions identified above:

Proposed Activity	Proposed Timeline
Groundwater monitoring well inventory	Completed annually between June 1 and August 30 following consultation and Site access arrangements with CP.



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Proposed Activity	Proposed Timeline
Groundwater monitoring and sampling program	Completion between June 1 and August 30 in 2018 (and every three years thereafter until such a time as the groundwater chemistry results support further alteration [e.g., a further reduced sampling frequency]) in conjunction with the annual groundwater well inventory.
Follow-up activities	Reviewed following each inventory and program as required.

CLOSURE

This Remediation Plan is prepared for the sole benefit of Manitoba Sustainable Development and Canadian Pacific. The plan may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd. and Canadian Pacific.

Any use which a third party makes of this plan, or any reliance on decisions made based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this plan.

We trust that the enclosed information is sufficient and request your approval of this Remediation Plan after which the outlined activities will be completed following the proposed schedule. If you have any questions or concerns, please do not hesitate to contact us.

Regards,

STANTEC CONSULTING LTD.

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Attachments: Figure 1 – Site Location Plan

Figure 2 – Monitoring Well Location Plan

Referenced Reports:

Stantec Consulting Ltd. 2013. Focused Environmental Assessment of Lease Area Within the CP Weston Yard in Winnipeg, MB, File No. 111440143, dated March 27, 2013

Stantec Consulting Ltd. 2013. Follow-up Environmental Assessment of the CP Weston Yard In Winnipeg, Manitoba, File No. 111440161, dated November 18, 2013

Stantec Consulting Ltd. 2014. 2014 Groundwater Monitoring and Sampling, Canadian Pacific Weston Yard In Winnipeg, Manitoba, File No. 111440242, dated November 28, 2014

Stantec Consulting Ltd. 2016. 2015 Groundwater Monitoring and Sampling in Former Scrap Yard and Fueling Areas at Canadian Pacific Weston Yard in Winnipeg, Manitoba, File No. 111440322, dated July 13, 2016

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Legend

-  Site Location
-  Major Road
-  Minor Road
-  Railway
-  Waterbody

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada

0 200 400 Metres
1:20,000 (at original document size of 8.5x11)



Project Location 111477500
Winnipeg, Manitoba

Client/Project
CANADIAN PACIFIC
Weston Yard
Winnipeg, Manitoba

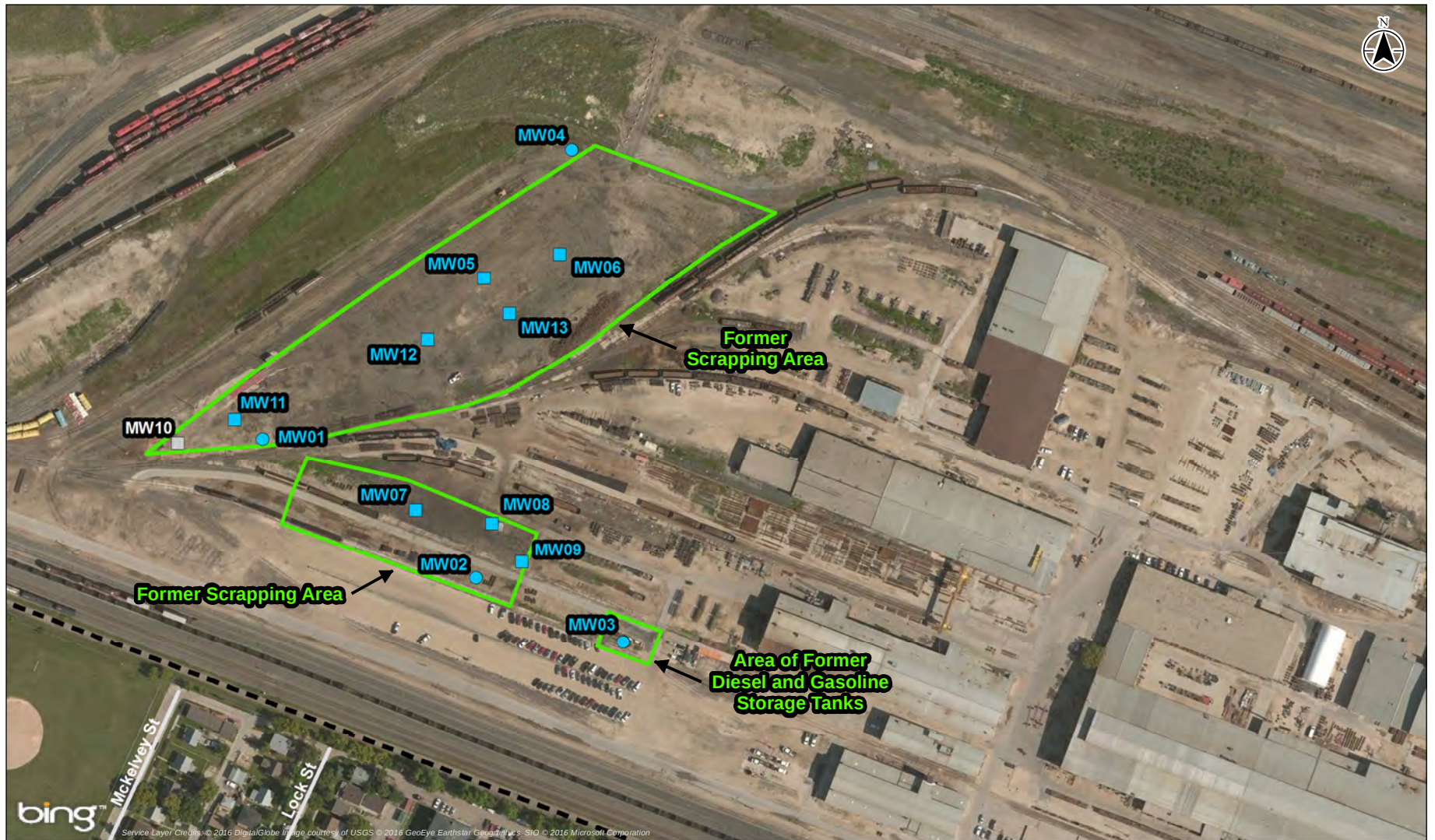
Figure No.

1

Title

Site Location Plan

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Legend

- Monitoring Well Location (Winter 2013)
- Monitoring Well Location (Summer 2013)
- Decommissioned Monitoring Well Location (Summer 2014)
- Site Areas within Weston Yard
- Yard Boundary (Approximate)

0 50 100
metres
1:3,000 (At original document size of 8.5x11)

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features courtesy of Manitoba Land Initiative and CANVEC.
3. Imagery source: Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.



Project No. 111477500

Prepared by AC on 2016-07-21
Technical Review by SC on 2016-07-21

Client/Project

CANADIAN PACIFIC
Weston Yard
Winnipeg, Manitoba

Figure No.

1

Title

Monitoring Well
Location Plan

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