

## SCHEDULE E

### Form of Completion Report for Studies

Please do not hesitate to contact your project officer to receive an electronic copy of the template of the Completion Report for Studies.

**Upon completion of the Feasibility Study, a copy of the Final Study must be submitted along with this Completion Report for Studies.**

FCM will post your report on the [Green Municipal Fund™ \(GMF\) website](#).<sup>1</sup> This is because one of FCM's mandates is to help municipal governments share their knowledge and expertise regarding municipal environmental projects, plans and studies. Before you submit a report to FCM, make sure you hold the copyright for the report (you own all the rights to the content and can decide who is allowed to reproduce and distribute the report) and that it does not contain any confidential information.

If the report contains confidential information, you need to submit two versions: one containing confidential information, to be read by FCM staff, and one that does not contain confidential information, which can be posted on the GMF website. Please contact FCM if you have any questions about copyright and confidentiality.

### How to complete the Completion Report for Studies

The purpose of the Completion Report for Studies is simple: to share the story of your community's experience in undertaking a Feasibility Study with others seeking to address similar issues in their own communities.

Please write the report in plain language that can be understood by people who are not specialists on the subject. A Completion Report for Studies is typically in the range of 5–10 pages, but may be longer or shorter, depending on the complexity of the Feasibility Study.

GMF grant recipients must enclose **final** copies of the Completion Report for Studies and the Final Study, both in electronic format, with their final Request for Contribution. The reports, including all attachments and appendices, must be submitted in PDF format with searchable text functionality. Reports that are not clearly identifiable as final reports, such as those displaying headers, footers, titles or watermarks containing terms like "draft" or "for internal use only," will not be accepted by GMF. Additionally, reports must be dated. If you have questions about completing this report, please consult GMF staff.

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<sup>1</sup> <http://www.fcm.ca/home/programs/green-municipal-fund.htm>

### Completion Report for Studies

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|--|--|
| <b>GMF number</b>  | 15123  |
| <b>Name of lead applicant (municipality or other partner)</b>  | Southpark Development GP Inc. as General Partner for the Southpark Development Limited Partner (Southpark)   |
| <b>Name, title, full address, phone, fax and e-mail address of lead technical contact for this study</b> | Miguel Marcoux<br>Professional Agrologist<br>Stantec Consulting Ltd.<br><a href="mailto:Miguel.Marcoux@Stantec.com">Miguel.Marcoux@Stantec.com</a> |
| <b>Date of the report</b>  | July 26, 2019  |

#### 1. Introduction

- a. Who was involved in doing the Feasibility Study, and what are their affiliations? Please include name, title and contact information. Those involved could include municipal staff, engineers and other consultants, a representative from a non-governmental organization, and others.

| <b>Name</b>               | <b>Title &amp; Contact Information</b>   | <b>Project Role</b>   |
|---------------------------|--|---|
| <b>Miguel Marcoux</b>     | Professional Agrologist<br>Stantec Consulting Ltd.<br><a href="mailto:Miguel.Marcoux@Stantec.com">Miguel.Marcoux@Stantec.com</a>     | Project Manager (Environmental Site Assessment & Remediation Planning)            |
| <b>Ruth Bonneville</b>    | Professional Geologist<br>Stantec Consulting Ltd.<br><a href="mailto:Ruth.Bonneville@Stantec.com">Ruth.Bonneville@Stantec.com</a>    | Environmental Geoscientist (Environmental Site Assessment & Remediation Planning) |
| <b>Cathy Kingdon</b>      | Professional Engineer<br>Stantec Consulting Ltd.<br><a href="mailto:Cathy.Kingdon@Stantec.com">Cathy.Kingdon@Stantec.com</a>         | Environmental Engineer (Remediation Planning)                                     |
| <b>Ken Grykuliak</b>      | Professional Technologist<br>Stantec Consulting Ltd.<br><a href="mailto:Ken.Grykuliak@Stantec.com">Ken.Grykuliak@Stantec.com</a>     | Senior Reviewer (Environmental Site Assessment)                                   |
| <b>Don McClymont</b>      | Professional Geologist<br>Stantec Consulting Ltd.<br><a href="mailto:Don.Mcclymont@Stantec.com">Don.Mcclymont@Stantec.com</a>        | Senior Reviewer (Environmental Site Assessment)                                   |
| <b>Charling Li</b>        | Grant Administrator<br>Stantec Consulting Ltd.<br><a href="mailto:Charling.Li@Stantec.com">Charling.Li@Stantec.com</a>               | Administration of FCM and City of Edmonton brownfield grants                      |
| <b>Lourette Swanepoel</b> | Grant Administrator<br>Stantec Consulting Ltd.<br><a href="mailto:Lourette.Swanepoel@Stantec.com">Lourette.Swanepoel@Stantec.com</a> | Administration of FCM and City of Edmonton brownfield grants                      |
| <b>Thomas Burr</b>        | Vice President, Multi-Family Development<br>One Properties<br><a href="mailto:tburr@oneproperties.com">tburr@oneproperties.com</a>   | Development Manager for Southpark On Whyte  |

|                     |   |   |
|---------------------|---|---|
| <b>Barbara Daly</b> | Senior Project Manager, City Environmental Strategies<br>City of Edmonton<br><a href="mailto:Barbara.Daly@Edmonton.ca">Barbara.Daly@Edmonton.ca</a> | City of Edmonton Brownfield Redevelopment Grant Manager |
|---------------------|---|---|

Other stakeholders involved in this feasibility study includes the City of Edmonton, Alberta Health Services (AHS), and Alberta Ministry of Environment and Parks (AEP). The City of Edmonton provided regulatory approval of the environmental site assessment and remediation work, in consultation with AHS and AEP.

## 2. The Feasibility Study

- a. Describe the process that you undertook to make this feasibility study a reality, from concept, to council approval, to RFP, to final deliverable.

The process that the lead applicant (Southpark) took to make this feasibility study a reality was to partner with the City of Edmonton through the Brownfield Redevelopment Grant Program. This allowed Southpark, as a private sector entity, to apply for FCM funding in addition to funding support from the City of Edmonton; this reduced the financial burden for the environmental work necessary for this site to be transformed into a mixed-use residential and commercial development, known as ‘Southpark on Whyte’.

In October 2016, the City of Edmonton approved Southpark’s application for Phase II grant funding under its Brownfield Redevelopment Grant. The City’s contribution was equivalent to at least 10% of the eligible costs for this feasibility study. Council approval for Edmonton’s Brownfield Redevelopment Grant for the site was not needed, as Council had previously given staff discretion to approve grant amounts below \$500,000.

Southpark then applied for FCM funding through the Green Municipal Fund (GMF) to conduct the necessary environmental investigation and remediation efforts to prepare the site for redevelopment. The GMF application was approved in 2017 and Southpark and its environmental consultant (Stantec) began the environmental investigation work on site and off site to fully delineate environmental impacts. Remediation action plans were created for Sites 3 and 4. The final deliverables of the Feasibility Study were the environmental site assessments and remediation action plans that received regulatory approval in 2017.

- b. What were the objectives of the Feasibility Study (what was it seeking to determine)?

The objective of the Feasibility Study was to gather additional onsite data to determine the horizontal and vertical extent of subsurface hydrocarbon impacts identified by previous environmental site assessments (ESA) completed in 2014, and to complete remediation action planning so that the site can be remediated in preparation for redevelopment activities. The overall site contained properties that were formerly home to a used car dealership and tire shop known as South Park Motors Ltd. (Site 3) and the Don Wheaton Chevrolet Oldsmobile dealership (Site 4) and associated vehicle storage lots. Contamination sources were due to the historical uses of the site for vehicle servicing; there were underground storage tanks and refueling equipment on site.

Based on the conclusion of the 2014 Phase II ESA, soil and groundwater hydrocarbon impacts were determined to be present within the subsurface of Sites 3 and 4. Further assessment was

recommended in order to determine the extent of the impacts on Sites 3 and 4 and to the south toward the alley parallel to 82 Ave. This feasibility sought to fully delineate these extents.

- c. What approach (or methodology) was used in the Feasibility Study to meet these objectives?

The approach taken was to retain an environmental consultant (Stantec Consulting Ltd.) to conduct further environmental site assessment on the four sites that comprise the Southpark on Whyte development, as recommended by the 2014 Phase II ESA work, to meet regulatory requirements to prepare the site for redevelopment.

The referenced guidelines used for this feasibility study were the Alberta Environment and Parks Tier 2 Soil and Groundwater Remediation Guidelines for Residential/Parkland land use for coarse grained soils, excluding the protection of the freshwater aquatic life (FAL) exposure pathway and groundwater ecological soil contact, where applicable (Alberta Tier 2 Guidelines). Given that the feasibility study was completed over several years, various versions of Alberta Tier 2 Guidelines were used, as amended by the regulatory agency.

Subsequent remediation planning was also completed based on the Alberta Environment and Parks Tier 1 and Tier 2 Soil and Groundwater Remediation Guidelines.

- d. Please describe any public consultations conducted as part of the Feasibility Study and their impact on the Study.

During the rezoning process for the Southpark On Whyte development at this site, extensive public consultation was completed to solicit public input to the future vision of the urban realm at this site. The public consultation process did not focus on this feasibility study, although the community was made aware that the site is a brownfield that required remediation prior to redevelopment. Community stakeholders such as community leagues, surrounding property owners, business association, design and planning committees were engaged directly through the rezoning and consultation process. The project team made a commitment to on-going updates as the redevelopment project progressed. Public updates were provided through meetings, project website ([www.southparkonwhyte.com](http://www.southparkonwhyte.com)), newspaper, mailed notices, or through the City of Edmonton website.

The public was provided assurance that the site will be remediated to applicable environmental regulations prior to the redevelopment.

### **3. Feasibility Study Findings and Recommendations**

- a. What were the environmental findings related to the options explored in the Feasibility Study? Please provide quantitative results and summary tables of these results (or the page numbers from the Feasibility Study report).

Detailed environmental investigations revealed hydrocarbon impacted soil and/or groundwater in the subsurface at various locations and depths within the sites and offsite on Whyte Avenue and 106 Street and neighbouring properties. Volatile organic compounds were also identified within the soil on Site 4. There were no active sources on contamination on site. Refer to the following executive summaries of the following reports (see Appendices) for details of contamination impacts:

- Stantec. (2016). Phase II Environmental Site Assessment (Off-site Drilling Assessment) – South Park Lands, Edmonton, Alberta. September 2016.
- Stantec. (2017). Phase II Environmental Site Assessment (Site 3) – Southpark Lands, Edmonton, AB. June 2017.
- Stantec. (2017). Phase II Environmental Site Assessment (Site 4) – Southpark Lands, Edmonton, AB. August 2017
- Stantec. (2017). Phase II Environmental Site Assessment, 8105-106 Street NW and 10570 -81 Avenue NW, Edmonton, AB. December 2017
- Stantec. (2018). Phase II Environmental Site Assessment, 10549-82 Avenue (Lot 12) – Southpark Lands. May 2018

Please note the above listed reports are considered confidential until they are publicly posted to Alberta Environment and Parks website (refer to Question 6a). For the purposes of sharing findings from this study, the executive summaries of each report can be found the Appendices of this Completion Report.

- b. What were the financial findings related to the options explored in the Feasibility Study (for example, results of a cost-benefit analysis, financial savings identified, and so on)? Please provide quantitative results and summary tables of these results (or the page numbers from the Feasibility Study report).

Financial analysis of the remediation options was completed in 2014, prior to the detailed delineation of environmental investigations that is part of this Feasibility Study scope. The financial analysis completed in 2014 indicated that excavation was the best option, given that the construction of an underground parkade was planned and would require some excavation, and is the fastest method of remediation to bring the land back to productive use. The findings from this Feasibility Study further confirmed that excavation was the best option for the site.

Based on the current market outlook in Edmonton for mixed-use development, Southpark conducted internal financial analysis and found that Site 4 remediation and redevelopment was feasible to carry out immediately. Site 3 will be on hold until the market demand for new retail and residential units increases to the point where remediation and redevelopment is financially justifiable.

- c. Based on the environmental and financial findings above, what does the Feasibility Study recommend?

Based on the extent and nature of impacts on the site, remedial action plans were created for Site 3 and 4. For both sites, excavation and disposal of impacted materials was recommended. As the remedial action plans are confidential, details of the recommendations are summarized below.

- **Stantec. (2017). Letter, Reference: Remedial Action Plan (Site 3) Southpark Lands Edmonton, Alberta. June 27, 2017.**

For Site 3, excavation is recommended to mitigate the hydrocarbon impacts and is expected to include the following:

- Develop a health and safety precautions plan to mitigate potential exposure to hydrocarbon vapours during excavation activities. This will include air monitoring within and around the excavation.
- Excavation along or near the property lines, including shoring to address safety concerns during remedial activities, and to accommodate the future parkade.

- To include approximately 7,400 m<sup>3</sup> of impacted material, and backfilling up to approximately 4.0 m BGS to allow for a parkade structure. Dimensions of the excavation are approximately 30m by 50m and 10.5 m in depth.
- Where possible, clean overburden will be excavated and temporarily stockpiled for re-use as backfill.
- Install soldier piles around the Site to facilitate excavation activities. Should adjacent structures, such as power poles and buildings, interfere with the installation of the soldier piles, soil nails and shotcrete may also be used.
- Impacted soil will be loaded directly onto the trucks for disposal and will be hauled to the Leduc Regional Landfill.
- During the excavation, soil samples will be collected for screening of combustible headspace vapour (CHV) concentrations using an RKI Eagle (or equivalent) organic vapour analyzer, calibrated with hexane and operation in the methane elimination mode. The measured CHV concentrations will be used to guide the excavation in order to separate impacted vs non-impacted soil and to determine if it's to be used as clean fill or impacted cover at the landfill. Select samples will also be collected and submitted for analysis to validate the distinction between impacted and non-impacted soil.
- Confirmatory soil samples will also be collected from the final extents of the excavation, where feasible and safe to do so, in an approximately 5m x 5m grid pattern from the floor and every 5m horizontally and 1m vertically from the walls of the excavation. Select soil samples will be submitted for analysis of BTEX and PHC F1 to F4. Collect one field duplicate soil sample per approximately every ten soil samples (10%) for quality assurance and quality control (QA/QC) purposes.
- Installing a hydrocarbon resistant barrier along the sidewalls of the final excavation around the property lines from surface to 10.5m BGS to reduce the potential for migration of impacted vapours or groundwater from offsite impacted materials back onto the Site.
- Backfill excavation to approximately 4m BGS with suitable fill in compacted 0.3m lifts. Imported clean fill that may be required will be tested for contaminants prior to use onsite.
- Should dewatering be required as part of remedial activities, the groundwater will be collected and disposed at an approved facility or treated onsite and discharged on the City of Edmonton's storm system (subject to approval from City of Edmonton).

Post remediation monitoring program may be required but the need will be evaluated after remedial activities have been completed.

Onsite remedial activities for Site 3 are expected to take two months to complete starting in the summer of 2017. A breakdown of the schedule for the remedial activities is summarized below.

#### **Remediation Schedule**

| <b>Activity</b>  | <b>Duration</b> |
|--|-----------------|
| <b>Site preparation</b>                                  | 5 days          |
| <b>Excavation of overburden including shoring</b>        | 12 days         |
| <b>Excavation of contaminated soil including shoring</b> | 18 days         |
| <b>Backfilling</b>                                       | 25 days         |
| <b>Remediation Reporting</b>                             | 2 weeks         |
| <b>Regulatory review</b>                                 | 3 weeks         |



- **Stantec. (2017). Letter, Reference: Remedial Action Plan (Site 4) Southpark Lands Edmonton, Alberta. August 18, 2017.**

For Site 4, excavation is recommended to mitigate the hydrocarbon and VOC (vinyl chloride) impacts. The work plan is expected to include the following:

- Develop a health and safety precautions plan to mitigate potential exposure to hydrocarbon vapours during excavation activities. This will include air monitoring within and around the excavation.
- Excavation along or near the property lines, including shoring to address safety concerns during remedial activities, and to accommodate the future parkade.
- Northeast portion of Site 4 – Excavate 1,200 m<sup>3</sup> of impacted material. and backfilling up to approximately 4.0 m BGS to allow for a parkade structure. The excavation is triangular in shape and the dimensions are approximately 22m wide X 15m long X 10.0 m in depth (Note: the majority of the top 3 metres is a former basement).
- North-central portion of Site 4 – Excavate 50m<sup>3</sup> of overburden and 150m<sup>3</sup> of impacted material, and backfilling up to approximately 4.0 m BGS. Dimensions of the excavation are approximately 6m X 6m x 5.5m in depth.
- Former Repair bays within Site 4 building – Complete 2 smaller excavations within the repair bays to remove a total of 150 m<sup>3</sup> of impacted soil. One excavation is approximately 6.0m X 9.0m to 1.0m in depth and the second excavation is approximately 6.0m X 6.0m to 2.0 m in depth.
- Install soldier piles around the Site to facilitate excavation activities. Should adjacent structures, such as power poles and buildings, interfere with the installation of the soldier piles, soil nails and shotcrete may also be used.
- Impacted soil will be loaded directly onto the trucks for disposal and will be hauled to the Leduc Regional Landfill.
- During the excavation, soil samples will be collected for screening of combustible headspace vapour (CHV) and volatile headspace vapour (VHV) concentrations, as applicable, using an RKI Eagle (or equivalent) organic vapour analyzer, calibrated with hexane and operation in the methane elimination mode. The measured vapour concentrations will be used to guide the excavation in order to separate impacted vs non-impacted soil and to determine if it is to be used as clean fill at the Site or impacted cover at the landfill. Select samples will also be collected and submitted for analysis to validate the distinction between impacted and non-impacted soil. The segregated soils will be stockpiled and not used until the soil analytical results confirm the field screening results.
- Confirmatory soil samples will also be collected from the final extents of the excavation, where feasible and safe to do so, in an approximately 5m x 5m grid pattern in the base of the excavation and every 5m horizontally and 1m vertically from the walls of the excavation. Select soil samples will be submitted for analysis of BTEX and PHC F1 to F4 and VOCs. Collect one field duplicate soil sample per approximately every ten soil samples (10%) for quality assurance and quality control (QA/QC) purposes.
- Where impacts exist, install a hydrocarbon resistant barrier along the sidewalls of the final excavation around the property lines from surface to 10.0m BGS to reduce the potential for migration of impacted vapours or groundwater from offsite impacted materials back onto the Site.
- Backfill excavation to approximately 4m BGS with suitable fill in compacted 0.3m lifts to the base of the parkade structure. Imported clean fill that may be required will be tested for contaminants prior to use onsite.
- Should dewatering be required as part of remedial activities, the groundwater will be collected and disposed at an approved facility or treated onsite and discharged on the City of Edmonton's storm system (subject to approval from City of Edmonton).

A post remediation monitoring program may be required but is not included within this workplan. The need for post remediation monitoring will be evaluated after remedial activities have been completed.

Onsite remedial activities for Site 4 are expected to take 30 days to complete starting in the fall of 2017. A breakdown of the schedule for the remedial activities is summarized below.

#### Remediation Schedule

| Activity  | Duration |
|---|----------|
| Site preparation                                  | 5 days   |
| Excavation of overburden including shoring        | 10 days  |
| Excavation of contaminated soil including shoring | 10 days  |
| Backfilling                                       | 5 days   |
| Remediation Reporting                             | 2 weeks  |
| Regulatory review                                 | 3 weeks  |

#### 4. Lead Applicant's Next Steps

- a. Taking the Feasibility Study's recommendations into account, what next steps do you as the municipality plan to take? What potential benefits or internal municipal improvements would result from these next steps?

After the conclusion of the Feasibility Study, Southpark worked with its consulting and contracting teams (Stantec and Ledcor, respectively) to remediate Site 4 to regulatory requirements. Site 4 is in the final stages of environmental approvals as of June 2019. The issuance of a building permit is expected to follow shortly after and construction will begin on a 5-storey commercial and rental residential building. Scheduled completion of this building is July 2020. Remediation and redevelopment of Site 3 is currently on hold.

The construction of the mixed-use building at Site 4 is in alignment with the City's policies regarding developments located on high capacity transportation nodes, for maximizing underutilized and underdeveloped sites, and the use of existing infrastructure, municipal facilities, and servicing. The proposed South Park on Whyte redevelopment will extend the pedestrian zone and integrate with the residential and commercial developments along 82<sup>nd</sup> Avenue and expand pedestrian mobility in the vicinity of the vibrant and historic Old Strathcona area to the east. The site is also located on a public transit route on 82<sup>nd</sup> Avenue and planned future bike routes along 83<sup>rd</sup> Avenue.

#### 5. Lessons Learned

In answering the questions in this section, please consider all aspects of undertaking the Study — from the initial planning through each essential task until the Final Study was prepared.

- a. What would you recommend to other municipalities interested in doing a similar Feasibility Study? What would you do differently if you were to do this again?
- b. What barriers or challenges (if any) did you encounter in doing this Feasibility Study? How did you overcome them?

The City's partnership with Southpark provided valuable feedback to the City of Edmonton's Brownfield Redevelopment Grant Program by testing the program's eligibility requirement based on the definition of 'underutilized' brownfield sites. Although the City supported the



redevelopment of the Southpark sites, the sites did not meet the City's original definition of 'underutilized' brownfield as it was technically an active business as a storage lot for the automotive dealerships. Without the grant support from the City of Edmonton, Southpark would not have been eligible for an FCM grant for the remediation investigations which would have made redevelopment of these sites unfeasible. The site would likely have remained as unsightly parking lots in an otherwise vibrant commercial downtown area known as Old Strathcona.

This partnership helped the City refine and expand their definition of 'underutilized' brownfields and made their Brownfield Redevelopment Grant program more accessible to various brownfield sites around Edmonton to enable wider uptake of the incentive program. Ultimately, upon further discussions with the City, Southpark was deemed eligible for the City's grant program which allowed it to access FCM funding to help offset the remediation burden of the site.

Southpark engaged a planning team specialized in grant management (Stantec) to navigate both the City of Edmonton and FCM grants, from the beginning stages of exploring program eligibility, to grant application and the administration and reporting for the grants. This role was especially instrumental in helping Southpark gain eligibility to the City's grant program.

From the technical feasibility perspective, challenges arose from the logistics of the environmental investigative work, both onsite and offsite. As the existing buildings on Sites 3 and 4 were to be demolished prior to onsite drilling activities, unanticipated hazardous materials were found which incurred delays in the drilling program. For offsite work, the challenge lay in coordination of drilling work on a busy thoroughfare (Whyte Avenue). Through careful planning and monitoring by the environmental consultant, costs associated with these challenges were managed. The environmental team also found the use of 3-dimensional modelling of below ground contamination impacts helped to visualize the extent of contamination which gave the team better data to plan remediation activities efficiently. Overall, the environmental team found that managing effective communication with the City and the developer was helpful in ensuring expectations were met.

## 6. Knowledge Sharing

- a. Is there a website where more information about the Feasibility Study can be found? If so, please provide the relevant URL.

There is no website with information specifically about the Feasibility Study. Alberta Environment and Parks maintains an online, searchable database, containing scientific and technical information about the Province's assessed and reclaimed brownfield sites at <http://www.esar.alberta.ca/esarmain.aspx>. The environmental site assessments completed as part of this Feasibility Study will be made available on this database by the Province in the future. The timeline for posting this information is unknown.

A website with updates on the general development of the Southpark on Whyte sites is available at <http://southparkonwhyte.com/>.

- b. In addition to the Feasibility Study results, has your Feasibility Study led to other activities that could be of interest to another municipality (for example, a new policy for sustainable community development, a series of model by-laws, the design of a new operating practice, a manual on public consultation or a measurement tool to assess progress in moving toward greater sustainability)? If so, please list these outcomes, and include copies of the relevant documents (or website links).

The City of Edmonton's Brownfield Redevelopment Grant program has won the following awards as a municipal incentive program:

- Canadian Urban Institute's Brownie Award for Reinvestment (2015)
- Minister's Award for Municipal Excellence for Larger Municipalities (2015)
- FCM Sustainable Communities Award for Brownfields Plan (2016)

The partnership with Southpark on this Feasibility Study helped to refine the program's eligibility criteria as described previously. For more information on this program, refer to the website [https://www.edmonton.ca/programs\\_services/funding\\_grants/brownfield-redevelopment-grant-program.aspx](https://www.edmonton.ca/programs_services/funding_grants/brownfield-redevelopment-grant-program.aspx), or contact the Brownfield Coordinator, 780-944-0316, [brownfield.coordinator@edmonton.ca](mailto:brownfield.coordinator@edmonton.ca).

## Appendices

### List of Appendices

Appendix A – Executive Summary, Phase II Environmental Site Assessment (Off-site Drilling Assessment) – South Park Lands, Edmonton, Alberta. September 2016.

Appendix B – Executive Summary, Phase II Environmental Site Assessment (Site 3) – Southpark Lands, Edmonton, AB. June 2017.

Appendix C – Executive Summary, Phase II Environmental Site Assessment (Site 4) – Southpark Lands, Edmonton, AB. August 2017

Appendix D – Executive Summary, Phase II Environmental Site Assessment, 8105-106 Street NW and 10570 -81 Avenue NW, Edmonton, AB. December 2017

Appendix E- Executive Summary, Phase II Environmental Site Assessment, 10549-82 Avenue (Lot 12) – Southpark Lands. May 2018

## **Appendix A – Executive Summary, Phase II Environmental Site Assessment (Off-site Drilling Assessment) – South Park Lands, Edmonton, Alberta. September 2016.**

### **Executive Summary**

Stantec Consulting Ltd. (Stantec) was retained by WAM Development Group (WAM) to conduct a Phase II Environmental Site Assessment (Off-site Drilling Assessment) on The City of Edmonton property (106 St. and 82 Ave.) adjacent to South Park Lands located in Edmonton, Alberta ( “the Site”).

The objective of the Phase II ESA was to evaluate off-site soil and groundwater conditions with respect to potential contaminants of concern (PCOC) associated with historical and adjacent land uses.

The assessment was done through borehole drilling, soil sampling and analysis, the completion of groundwater monitoring wells, groundwater monitoring, and the collection and analysis of groundwater samples. The referenced guidelines used for the Site were the Alberta Environment and Parks (AEP) 2016 Tier 2 Soil and Groundwater Remediation Guidelines for residential land use with coarse grained soils, excluding the protection of the freshwater aquatic life (FAL) exposure pathway (Alberta 2016 Tier 2 Guidelines).

The concentrations of one, or more, hydrocarbon parameters in soil exceeded the referenced guidelines in samples collected from MW16-203, MW16-207, and MW16-209. Identified soil impacts ranged from 5.2 meters below ground surface (m BGS) to 8.4 m BGS. The hydrocarbon impacts have been laterally delineated off-site to the east, north, west and south of MW16-207, MW16-209, and MW16-203. Soil impacts have also been vertically delineated at 9.0 m BGS.

The concentrations of one or more of hydrocarbon parameters for the groundwater samples from MW16-207 and MW16-209 exceeded the referenced guidelines. Dissolved hydrocarbons in groundwater have been laterally delineated off-site to the east, west, north and south of MW16-207 and MW16-209. Monitoring well MW16-203 had a measured light non-aqueous phase liquid (LNAPL) thickness of approximately 0.09 m.

Based on the results of this assessment, hydrocarbon impacts in soil and groundwater were identified off-site near the southwest corner of the intersection of Whyte Avenue and 106 Street but appear to be relatively localized. In addition, there does not appear to be any off-site impacts associated with the former dry cleaning facility historically located near the new car show room on the South Park Lands property.

Additional groundwater monitoring and sampling is recommended to determine if the hydrocarbon concentrations, and LNAPL thickness in monitoring well MW16-203, are increasing or decreasing, and to assess if seasonal groundwater level fluctuations are affecting groundwater quality.

The statements made in this Executive Summary are subject to the same limitations included in Stantec’s Statement of Limitations, presented in Section 6.0, and are to be read in conjunction with the remainder of this report.

## **Appendix B – Executive Summary, Phase II Environmental Site Assessment (Site 3) – Southpark Lands, Edmonton, AB. June 2017.**

### **Executive Summary**

Stantec Consulting Ltd. (Stantec) was retained by Southpark Development LP (Southpark) to conduct a Phase II Environmental Site Assessment (ESA) on Southpark Lands located at 10565 – 82 Avenue (Site 3) and the portion to the south adjacent to the alleyway (Site 2) of the former residential property 10570 – 81 Avenue (east half of Lot 20 and Lot 21, Block 63, Plan I) described herein as “the Site”, in Edmonton, Alberta.

The objective of the Phase II ESA was to further delineate on-site soil and groundwater impacts with respect to potential contaminants of concern (PCOC) associated with historical Site and adjacent land uses.

The assessment was conducted through borehole drilling, soil sampling and analysis, the completion of groundwater monitoring wells, groundwater monitoring, and the collection and analysis of groundwater samples. The referenced guidelines used for the Site, as previously determined (Stantec, 2014), were the Alberta Environment and Parks (AEP) 2016 Tier 2 Soil and Groundwater Remediation Guidelines for residential/Parkland land use for coarse grained soils, excluding the protection of the freshwater aquatic life (FAL) exposure pathway and groundwater ecological soil contact (Alberta 2016 Tier 2 Guidelines).

Based on the results of this assessment, hydrocarbon impacts in soil and groundwater are present in the northwest portion of Site 2. This indicates that hydrocarbon impacts extend south of Site 3 across the alleyway and onto Site 2. Due to the location of MW17-300 and MW17-302 near to the west boundary of Site 2, it is likely that hydrocarbon impacts extend further to the south on Site 2, and west of Site 2 onto the adjacent property. Further soil and groundwater investigation in this area is required to determine the extent of the hydrocarbon impacts.

Hydrocarbon impacts were also identified in the eastern portion of Site 3, beneath the former service bay (tire shop). Delineation of hydrocarbon impacts on the east side of Site 3 has not been established. Historical analysis of soil and groundwater samples conducted indicate that the extent of impacts may be variable, with regard to vertical and lateral extent, in this area. The extent of soil and groundwater hydrocarbon impacts in this area requires further delineation.

The statements made in this Executive Summary are subject to the same limitations included in Stantec’s Statement of Limitations, presented in Section 6.0, and are to be read in conjunction with the remainder of this report.

## **Appendix C – Executive Summary, Phase II Environmental Site Assessment (Site 4) – Southpark Lands, Edmonton, AB. August 2017**

### **Executive Summary**

Stantec Consulting Ltd. (Stantec) was retained by Southpark Development LP (Southpark) to conduct a Phase II Environmental Site Assessment (ESA) on Southpark Lands located at 10615 and 10631 - 82 Avenue, Edmonton, Alberta (Site 4), described herein as “the Site.

The objective of the Phase II ESA was to further delineate on-site soil and groundwater impacts with respect to potential contaminants of concern (PCOC) associated with historical Site and adjacent land uses.

The assessment was conducted through borehole drilling, test pitting, soil sampling and analysis, the completion of groundwater monitoring wells, groundwater monitoring, and the collection and analysis of groundwater samples. The referenced guidelines used for the Site were the Alberta Environment and Parks (AEP) 2016 Tier 2 Soil and Groundwater Remediation Guidelines for Residential/Parkland land use for coarse grained soils, excluding the protection of the freshwater aquatic life (FAL) exposure pathway and groundwater ecological soil contact, where applicable (Alberta 2016 Tier 2 Guidelines).

Based on the results of this assessment, petroleum hydrocarbons (PHC) and volatile organic compounds (VOC) impacts are present due to past activities on the north central, northeast, and south central (repair bays) portions of the Site. It is recommended that the impacts in these areas be remediated prior to future development of the Site.

The statements made in this Executive Summary are subject to the same limitations included in Stantec’s Statement of Limitations, presented in Section 6.0, and are to be read in conjunction with the remainder of this report.



**Appendix D – Executive Summary, Phase II Environmental Site Assessment, 8105-106 Street NW and 10570 -81 Avenue NW, Edmonton, AB. December 2017**

## Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by Southpark Development LP (the Client) to conduct a Phase II Environmental Site Assessment (ESA) at 8105 – 106 Street (Lot 19 and west half of Lot 20, Block 63, Plan I) and 10570 – 81 Avenue (east half of Lot 20 and Lot 21, Block 63, Plan I) referred to as “Lot 19/20” and “Site 2”, respectively, in Edmonton, Alberta.

The main objective of the Phase II ESA was to assess the soil and groundwater conditions at Lot 19/20 and the west end of Site 2 with respect to the known petroleum hydrocarbon (PHC) impacts present in soil and groundwater in the project area associated with the property located to the north (10565 – 82 Avenue NW) owned by the Client.

Based on the results of this assessment, PHC impacts in soil and groundwater are present in the northeast portion of Lot 19/20 (area of MW17-402) at depths consistent with impacts reported for Site 3. This indicates that PHC impacts extend south of Site 3 onto this property. The results indicate that PHC impacts in excess of the referenced guidelines did not extend to the locations of MW17-400 or MW17-401. As a result, the south and west extent of the PHC impacts in the area of Lot 19/20 is considered to be delineated.

Previous assessment of soil and groundwater on the west end of Site 2 identified that PHC impacts were present on the east half of Lot 20 and were indicated to extend south and west of MW17-302 and west of MW17-300. In order to further delineate the PHC impacts to the south, MW17-403 was installed as part of this investigation. The soil and groundwater results indicate that PHC impacts do not exceed the referenced guidelines at MW17-403. As a result, the south extent of the PHC impacts in the west end of Site 2 is considered delineated. Delineation to the east on Site 2 was obtained from previous work.

Based on the results of this investigation, no further delineation of PHC impacts in the areas of Lot 19/20 and the west end of Site 2 is considered to be required.

The statements made in this Executive Summary are subject to the same limitations included in Stantec’s Statement of Limitations, presented in Section 6.0, and are to be read in conjunction with the remainder of this report.

## Appendix E- Executive Summary, Phase II Environmental Site Assessment, 10549-82 Avenue (Lot 12) – Southpark Lands. May 2018

### Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by Southpark Development LP (Southpark) to conduct a Phase II Environmental Site Assessment (ESA) on a property located at 10549 – 82 Avenue (described as Lot 12, Block 63, Plan I) in Edmonton, Alberta, described herein as “Lot 12”. Lot 12 is adjacent to the east of Southpark Lands located at 10565 – 82 Avenue (Site 3). At the time of the ESA, Lot 12 included a 2-storey building occupied by commercial businesses and Site 3 was a vacant lot.

The objective of the Phase II ESA was to further delineate off-site soil and groundwater impacts with respect to potential contaminants of concern (PCOC), associated with historical land uses, east of Site 3 beneath the building on Lot 12.

The assessment was conducted through borehole drilling, soil sampling and analysis, the completion of groundwater monitoring wells, groundwater monitoring, and the collection and analysis of groundwater samples. The referenced guidelines used for Lot 12, as previously determined through ESA’s completed for surrounding properties (Stantec, 2014), were the Alberta Environment and Parks (AEP) 2016 Tier 2 Soil and Groundwater Remediation Guidelines for Residential/Parkland land use for coarse grained soils, excluding the protection of the freshwater aquatic life (FAL) exposure pathway and groundwater ecological soil contact (Alberta 2016 Tier 2 Guidelines).

Based on the results of this assessment, hydrocarbon impacts are present in the soil beneath the west portion of Lot 12, indicating the impacts extend east from Site 3 onto Lot 12. However, the analytical results from the soil samples collected from BH18-03 at 7.9-8.1 m below ground surface (BGS) and 9.2–9.4 m BGS indicate that the impacts are not present beyond approximately 2.7 m from the west property line of Lot 12 and are considered horizontally delineated to the east of Site 3.

The benzene concentration that exceeded the referenced guidelines for the soil sample at a depth of approximately 8.5 m BGS is overlain by more than 7.0 m of silty/sandy clay. Therefore, the risk associated with the impacts are considered to be low to the building occupants on Lot 12, and no further environmental assessment work is considered to be warranted at this time.

The statements made in this Executive Summary are subject to the same limitations included in Stantec’s Statement of Limitations, presented in Section 6.0, and are to be read in conjunction with the remainder of this report.