Heritage Mitigation Plan for the Sisson Project

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1.0 INTRODUCTION AND PURPOSE

During the implementation of the archaeological shovel testing program for the Sisson Project (the Project) being carried out by Stantec Consulting Ltd. (Stantec) on behalf of Sisson Mines Ltd. (formerly Northcliff Resources Ltd., the Proponent), a number of Pre-Contact artifacts were recovered in the proposed Open Pit area (the Site Area) for the Project, near Sisson Brook. While discussions were taking place between the Proponent, the Province, and participating First Nations to develop a mitigation plan for continuing the fieldwork, the archaeological investigation was suspended due to the onset of winter conditions in the late fall of 2013, and no further field work has been completed since that time.

As is standard practice following the discovery of archaeological resources, Stantec has developed a comprehensive Heritage Mitigation Plan to describe the methodologies to be implemented during the resumption of the shovel testing of the Site Area in light of the archaeological discoveries, as well as address a variety of heritage-related matters regarding archaeological permitting and the Province's Duty to Consult with First Nations. This document, the Heritage Mitigation Plan for the Sisson Project (the Plan), has been developed by Stantec at the request of Northcliff.

The purpose of this Plan is to present a comprehensive description of all relevant aspects of the archaeological investigation to be implemented at the Site Area and for the entire Project Development Area (PDA). It is anticipated that the Plan will be submitted to Archaeological Services for review, comment as warranted, and approved prior to implementation. Engagement of First Nations on the Plan is also anticipated. The Heritage Mitigation Plan for the Sisson Project would be included as part of an Archaeological Field Research Permit (AFRP) application to conduct *Systematic Data Recovery* as per Section 3.2.1.3 of the *Guidelines and Procedures for Conducting Professional Archaeological Assessments in New Brunswick* (the Guidelines) (Archaeological Services 2012).

It should be noted that Northcliff Resources Ltd. and Todd Minerals Ltd. entered into a limited partnership agreement to advance the development of the Sisson Project. As a result of this agreement, the Sisson Project is now being developed and advanced by Sisson Mines Ltd., on behalf, and as general partner, of the Sisson Project Limited Partnership. Thus, the Proponent of the Sisson Project is now Sisson Mines Ltd., and all references to Northcliff Resources Ltd. (Northcliff) in this document can be read as referring to Sisson Mines Ltd.

Please note that this document follows standard procedures for archaeological impact assessments in New Brunswick and the protection of heritage resources as described in the Guidelines (Archaeological Services) and the *Heritage Conservation Act*. In the event of a conflict arises between the *Heritage Mitigation Plan for the Sisson Project* and those documents, the Guidelines and/or the *Heritage Conservation Act* will supersede the Plan described herein.

2.0 REVISED SHOVEL TESTING PLAN

2.1 BACKGROUND AND SHOVEL TESTING RESULTS TO DATE

Shovel testing began in the fall of 2012 within the Open Pit location. A total of 954 shovel test pits were surveyed within 8 shovel testing polygons bordering watercourse S1B (Appendix B, Figure 1). Of those 954 test pits, approximately 91% (or 869) of the planned shovel test pits were excavated (Stantec 2013a). The remaining 9% of shovel test pits were not completed due to specific location complications such as surface rock, trees or other physical obstacles to shoveling. In the event that these obstacles were encountered at the first attempted location, a second attempt was made approximately 1 m away from the first location, and another attempt was made to dig that test pit, as per Section 2.2.1.4.1 of the Guidelines (Archaeological Services 2012). If, after this second attempt, the additional obstacles to completing the test pit were encountered, the next test pit in the grid was excavated, as per Section 2.2.1.4.1 of the Guidelines (Archaeological Services 2012). No archaeological or heritage resources were encountered during the 2012 field season, and shovel testing ceased in 2012 with the onset of winter.

Shovel testing resumed within the Open Pit area in the fall of 2013. From the total amount recommended for shovel testing within the Open Pit area, 888 shovel test pits were surveyed within 26 polygons during the 2013 field season. Of those, approximately 75% (or 666) of the planned shovel test pits were completed (Stantec 2014) before winter once again forced a work stoppage.

As of the end of the 2013 field season, the total number of shovel test pits completed is 1,535.

2.2 DISCOVERY OF ARCHAEOLOGICAL RESOURCES IN 2013

On October 24, 2013, during shovel testing, a small quartz scraping tool was recovered from a test pit in polygon S2A-8 (Appendix B, Figure 1). The find was made by a Field Technician under the supervision of Ken Holyoke (Archaeological Field Research Permit # 2013NB57). Following this find, a number of other artifacts were recovered from the areas within and surrounding polygons S2A-5, S2A-6, S2A-7, S2A-8, S2A-9, S2A-10, and S2A-11 (collectively, the Site Area) (Appendix B, Figure 1).

Following the recovery of the artifact from polygon S2A-8, the location was registered as a Pre-Contact archaeological site with the Province and was given the site number CcDs-2. In addition to this, six temporary Pre-Contact site numbers (2013NB57-02, -03, -04, -05, -06 and 2013NB55-01) were assigned to the other archaeological discoveries in 2013. It is anticipated that some of these temporary Pre-Contact site numbers will be combined and formally registered with the province prior to the 2014 field season. All relevant Maritime Archaeological Resource Inventory (MARI) forms and catalogues will be updated to reflect these changes and re-submitted to Archaeological Services. A total of 45 artifacts were recovered during the 2013 archaeological program through a combination of positive test pits and surface finds in the Site Area. Note: a shovel test pit that contains an artifact is referred to as a "positive test pit".

To date, a total of 171 (40.4%) of the flagged shovel test pits (STPs) in the polygons associated with the Site Area have been completed (170 excavated, one abandoned due to poor ground conditions), (Table 1). Of those 171 STPs, 14 contained artifacts with a total of 30 artifacts recovered. In addition to artifacts recovered from positive STPs, 15 artifacts were surface collected elsewhere in the Site Area; one artifact from within Sisson Brook, southeast of polygon S2A-8, and another 14 artifacts recovered during a controlled surface collection under the supervision of Ken Holyoke (2013NB57) (Table 2; Appendix B, Figure 1). This surface collection was completed on November 19, 2013 following a heavy rain. The misplacement of two possible quartz microflakes, inventoried under temporary site number 2013NB57-02 and included in the total artifact count, were the subject of an Incident Report filed with Archaeological Services on November 25, 2013 and included in the AFRP Final Report for 2013 shovel testing (Stantec 2014).

Table 1 Shovel Test Pit Summary for the Site Area

Polygon	STPs* Completed (2013)	Positive STPs (2013)	Total STPs Flagged (2013)	Estimated STPs To Be Flagged (2014)	Estimated STPs Remaining (2014)
S2A-5	24	0	24	43	43
S2A-6	11	0	11	33	33
S2A-7	16	0	16	23	23
S2A-8	8	3	59	0	51
S2A-9	47	6	158	40	151
S2A-10	13	4	92	0	79
S2A-11	52	1	63	0	11
TOTALS	**171**	**14**	**423**	**139**	**391**
Total Estimated STPs remaining in Site Area polygons for 2014: 391					
Notes: * Shovel Test Pits (STP).					

Table 2 Registered and Temporary Archaeological Site Numbers and Artifacts Recovered

Site #	Polygon	Number of Positive STPs	Number of Surface Collected Artifacts	Total Artifacts
CcDs-2	S2A-8	3	1	15
	S2A-9	5	0	6
2013NB55-01	S2A-11	1	0	1
2013NB57-02	S2A-9	1	0	3
	S2A-10	4	0	6
2013NB57-03	surface collected	0	2	2
2013NB57-04	surface collected	0	10	10
2013NB57-05	surface collected	0	1	1
2013NB57-06	surface collected	0	1	1
TOTALS	**-**	**14**	**15**	**45**

In addition to the shovel testing still to be completed within the Open Pit area, shovel testing is still required for other areas of the Project such as the Tailings Storage Facility (TSF) area and the 345 kV transmission line and Fire Road re-alignments (345 kV/Fire Road). Depending on its design and avoidance of elevated archaeological potential zones, shovel testing may potentially be required for portions of the proposed 138 kV transmission line (138 kV) (Appendix B, Figures 2–12), specifically in areas where the elevated archaeological potential zones cannot be avoided through design and construction of the transmission line.

2.3 ARCHAEOLOGICAL CONTEXT OF THE DISCOVERIES TO DATE

Among the 45 artifacts recovered during shovel testing in 2013 was a contracting-stemmed projectile point (catalogue No. 2013NB57-02: 001) composed of a fine-grained volcanic stone material. Projectile points of a similar style and appearance to the one recovered within the Site Area have been recovered from archaeological sites throughout northeastern North America (the Northeast) and are associated with a time period called the Middle Archaic which dates from ca. 8000-6000 years before present (BP) (Murphy 1998; Robinson *et al.* 1992; Sanger 2006; Tuck 1991). In particular, the contracting-stemmed projectile point form found in the Site Area appears to be "Stark"-like in morphology, and is reliably associated with Middle Archaic components dating between 7500-6500 BP. It is worth noting that to date there has been little evidence of Stark-like components in northern New England (Maine) or throughout the Maritime Provinces and Québec (Deal *et al.* 2006; Robinson 1992; Sanger 2006). In New Brunswick specifically, there is very limited evidence for Middle Archaic occupation. Five Stark-like projectile points are reported to have been surface collected in New Brunswick: three from Spednic Lake and one from Palfrey Lake (in the St. Croix River drainage in southwestern New Brunswick), and one projectile point surface collected in the Grand Lake area (Deal *et al.* 2006; Murphy 1998:115; Tuck 1991). While a limited number of other archaeological sites from the Middle Archaic period have been identified in New Brunswick, to date, there have been no systematically excavated sites from this time period with Stark-like components in the Province. Test excavations at Mill Lake Bluff in Charlotte County, southwest New Brunswick, did identify a Middle Archaic component (BhDq-8). BhDq-8 was dominated by quartz tool technology. Charcoal recovered from a hearth feature in BhDq-8 was radiocarbon dated to 6120 +/- 90 BP and 6220 +/- 30 BP , fitting into the broad timeframe associated with the Middle Archaic (Suttie 2005). In addition, other Middle Archaic sites, for example, BfDr-3 which is dated to 6330 +/- 30 BP, have recently been identified and excavated in other areas of the province (Suttie 2014, in press).

In addition to the recovery of the projectile point at Sisson, the majority of artifacts (36 artifacts, or 80%) recovered from the Site Area in 2013 are composed of quartz. Although lithic (stone-tool) material type is seldom used to confirm the age of an archaeological site, it has been demonstrated throughout the Northeast that quartz is a ubiquitous tool-stone material associated with sites dating to the Middle Archaic period (Murphy 1998; Robinson 1992). Among the other artifacts discovered in the Site Area were scraping tools, and a number of flakes and pebbles with evidence of use–wear that appear to be consistent with Middle Archaic assemblages reported elsewhere (Murphy 1998; Robinson *et al.* 1992; Suttie 2005).

Due to the onset of winter conditions and the temporary stoppage of the shovel testing in 2013 with less than half (40.4%) of the recommended number of STPs having been completed, no other information on the Site Area has been gathered. The Final Report for Archaeological Field Research Permits (AFRP) 2013NB55 and 2013NB57 (Stantec 2014) discusses in greater detail the background history of the area and its environmental setting, and includes all field notes, field forms, artifact catalogues, photographs, and figures.

2.4 PROPOSED METHODOLOGY TO COMPLETE SHOVEL TESTING

2.4.1 Site Area

In 2013, a total of 423 STPs were flagged in and around the Site Area, and of those, 252 flagged STPs remain to be excavated before work stopped for the winter. In addition to the already flagged STPs, it is anticipated that a further 139 STPs will be flagged in Site Area polygons (Table 1, above) for a total of 391 STPs to be completed of those identified during the 2011 field survey.

Stantec is also proposing to conduct additional shovel testing in areas north and west of the Site Area (Appendix B, Figure 1) based primarily on the location of the surface-collected artifacts recovered on November 19, 2013 as well as landform features surrounding the Site Area. These areas all fall within the proposed Open Pit area.

As identified in Table 3, the additional shovel testing includes:

- STPs proposed to be excavated at 5 m intervals in polygons S2A-5, -6, and -7 where previously, initial shovel testing had taken place at 10 m intervals, as per the Guidelines;
- the area within Archaeological Services' elevated archaeological potential zone (5 m intervals) southeast of S2A-9, not previously shovel tested due to the presence of dense vegetation, blowdowns and tree thinning refuse;
- north of S2A-11 inside the Archaeological Services' elevated archaeological potential zone (includes a 90 x 30 m area at 10 m intervals and a 70 x 10 m area at 5 m intervals (75 STPs));
- west of S2A-9, -10, -11; includes a 230 x 80 m area at 10 m intervals (216 STPs);
- west of S2A-5, -6, -7, -8; includes a 250 x 50 m area at 10 m intervals (156 STPs);
- one 50 x 50 m area surrounding a surface find at 5 m intervals (121 STPs); and
- one 100 x 100 m area surrounding surface finds at 5 m intervals (441 STPs).

Stantec proposes to first complete shovel testing of all flagged test pits (252 STPs) remaining in the area of polygons S2A-8, S2A-9, S2A-10, S2A-11, followed by shovel testing at 5 m intervals in S2A-5, -6, and -7 and the expanded area southeast of S2A-9 (139 STPs). Following the completion of STPs in already established polygons from the Site Area, we propose to then implement the additional test pits in the elevated landforms west and north of the Site Area and surrounding the surface finds (Table 3).

Table 3 Estimated Remaining and Recommended Additional STPs in Site Area

Testing Area	STPs Completed (2013)	Positive STPs (2013)	Estimated STPs to be Flagged (2014)	Estimated STPs Remaining to be completed (2014)
S2A-5	24	0	43	43
S2A-6	11	0	33	33
S2A-7	16	0	23	23
S2A-8	8	3	0	51
S2A-9	47	6	40	151
S2A-10	13	4	0	79
S2A-11	52	1	0	11
N. of S2A-11	0	0	75	75
W. of S2A-9, -10, -11	0	0	216	216
W. of S2A-5, -6, -7, -8	0	0	156	156
50 x 50 m area (5 m STPs)	0	0	121	121
100 x 100 m area (5 m STPs)	0	0	441	441
TOTALS	**171**	**14**	**1,148**	**1,400**

If additional areas warranting shovel testing are identified within the Site Area, apart from the areas described above, this shovel testing will be implemented in accordance with the Guidelines (Archaeological Services 2012) and the *Heritage Mitigation Plan for the Sisson Project* and communicated to Archaeological Services, as appropriate. Completing the shovel testing in the Site Area where artifacts have already been recovered will confirm the extent of the archaeological resources in this area and facilitate the design of a comprehensive excavation plan, as warranted.

The methodology for shovel testing in the Site Area will be consistent with established practices for the shovel testing completed to date, and with standard practices outlined in the Guidelines (Archaeological Services 2012). In order to ensure that all STPs to be excavated within the PDA are consistent with the excavation of STPs to date, and that all possible soil levels associated with possible past human occupation within the PDA are being fully excavated (*i.e.*, that "archaeological bottom" is being reached), Stantec will retain the advice of a professional surficial geologist to be determined by Stantec during the 2014 field season. This individual would visit the field in an area or areas where shovel testing is taking place to provide advice, training and professional opinion on the depth of soil deposits, formation processes and help determine what, "archaeological bottom" is likely to be within the PDA.

2.4.2 Other Areas of the PDA (TSF/Open Pit/Other Facilities)

At the request of Northcliff, archaeological shovel testing has to date focused on the Open Pit area. Based on recommendations made in the 2011 Heritage Impact Assessment (HIA) for the Sisson Project (Stantec 2012), there are a total of 2,663 test pits remaining to be excavated, outside of the Site Area. This includes the remainder of the Open Pit, various locations within the TSF, and a variety of areas outside of these Project features where other facilities related to the Project are required (*e.g.*, waste water treatment ponds) (Appendix B, Figures 2 to 4). This estimate does not include the STP recommendations for the 345 kV/Fire Road realignment, which is discussed below.

The methodology for shovel testing in these areas will be consistent with established practices for the shovel testing completed to date and with standard practices outlined in the Guidelines (Archaeological Services 2012). In order to assist with the confirmation that all STPs to be excavated within the PDA are consistent with the excavation of STPs to date, and that all possible soil levels associated with possible past human occupation within the PDA are being fully excavated (*i.e.*, that "archaeological bottom" is being reached), Stantec will retain the advice of a professional surficial geologist to be determined by Stantec during the 2014 field season.

Shovel testing is proposed to resume in 2014 once weather and ground conditions allow.

2.4.3 Linear Facilities: 345 kV/Fire Road Re-alignments and 138 kV Construction

An archaeological impact assessment (field evaluation, or walkover) of the linear facilities for the Project took place in 2012 (Stantec 2013b), and included:

- a new 38 km-long 138 kV transmission line to supply electricity to the Project, originating at the existing Keswick Terminal;
- a 10 km-long re-alignment of the existing 345 kV Transmission Line 3011, in proximity to the Open Pit;
- a 13 km-long re-alignment of an existing forest resource road known as Fire Road in proximity of the TSF and Open Pit; and
- A 3 km right-of-way for a new site access road and other Project-related ancillary linear facilities.

Recommendations made in the AFRP Final Report (Stantec 2013b) included shovel testing estimates for the 345 kV/Fire Road re-alignments and access roads/ancillary linear facilities (Appendix B, Figures 2–12). In 2012, a linear facility corridor was assessed at a width of 200 m for the 345 kV/Fire Road re-alignments and 100 m for the 138 kV transmission line, and recommendations for archaeological shovel testing were developed within these corridor widths. During Project facility design, these recommendations will be taken into consideration as areas of avoidance. As a result, it is anticipated that the number of test pits recommended in Stantec (2013b) for the 345 kV/Fire Road section may be substantially decreased through avoidance of elevated archaeological potential areas, as well as the fact that the actual footprint of construction for these linear facilities is anticipated to be much narrower than the width of the areas surveyed (*i.e.*, likely locating the 345 kV/Fire Road re-alignment within a 30-50 m wide right-of-way within the 200 m wide corridor assessed as part of the walkover).

During the 2012 archaeological field survey for the proposed 138 kV transmission line, Stantec made recommendations for areas of elevated archaeological potential to avoid during construction of that transmission line (Stantec 2013b). These recommendations have been provided to NB Power for use in construction planning. Avoidance of areas of elevated archaeological potential will be the preferred planning strategy. Any areas of elevated archaeological potential that cannot be avoided will be subject to additional archaeological assessment and detailed shovel testing recommendations will be developed, as per the methodology described Stantec (2013b) and approved by Archaeological Services.

Elevated potential areas in Figures 2 – 12 of Appendix B are presented as coloured buffer zones and polygons representing the recommendations made for those areas during the archaeological assessment. Red buffers indicate a recommendation for shovel testing and/or avoidance within the buffer zone. Elevated potential areas with yellow buffers, or no buffers, indicate the area was assessed as having low potential for archaeological resources due to a variety of surface conditions such as steep slope, ground saturation, boulder or surface rock, and dense vegetation. Areas represented by the "orange buffer" are recommended for "strategic" testing. Strategic testing refers to specific locations identified as exhibiting elevated (high or medium) archaeological potential, but given the ground conditions in those areas (*e.g.*, steeply sloped, boulder-dominated, saturated), the mandated minimum shovel testing requirements as stated in the Guidelines are not warranted or may not be practical. These areas are still recommended for shovel testing, however, the extent of this will be restricted due to the ground conditions. In addition, "Stone Piles" within the "Stone Buffer Avoidance Area" are depicted on Figure 12 of Appendix B. Based on the composition of these piles (field stones and concrete), the location adjacent to existing modern agricultural fields, and the association with a degraded cedar picket fence, these piles are associated with agricultural practices and not considered to be archaeological or heritage resources (Stantec 2013b). However, if these "Stone Piles" cannot be avoided during transmission line design and construction, additional mitigation (*e.g.*, shovel testing) will be conducted to determine more accurately the age of the features.

The methodology for shovel testing in these areas will be consistent with established practices for the shovel testing completed to date and with standard practices outlined in the Guidelines (Archaeological Services 2012).

2.5 PROPOSED TIMELINE FOR COMPLETION OF SHOVEL TESTING, FOCUS FOR 2014 ARCHAEOLOGICAL PROGRAM

The focus for the 2014 archaeological program for the Project will include:

- mitigation of the Site Area, as described in Section 2.4.1 and Section 3.0, below; and
- completion of shovel testing in the Open Pit area and the TSF area, as described in Section 2.4.2.

If time allows following the completion of these areas of focus, proposed work for the 345 kV/Fire Road and 138 kV transmission line facilities will be initiated and continue until the onset of winter conditions, or until completion, whichever comes first.

Table 4 Estimated Number of Shovel Test Pits for the Sisson Project 2014 Archaeology Program

	Site Area	Open Pit Area	Other Project-related Facilities	Tailings Storage Facility Area	Total Estimated STPs Remaining
Estimated STPs (sub-total)*	1,400	373	164	2,126	4,063

Note:
* Estimated STP numbers are based on recommendations described in Sections 2.4.1 – 2.4.3 and are subject to change based on Project design, field conditions and consultation with Archaeological Services.

Work will commence in late spring or early summer 2014 as soon as weather and ground conditions allow, and will continue until all shovel testing at the PDA is complete or until winter weather and ground conditions warrant a work stoppage at the end of 2014.

Determinations of an exact timeline for completion of shovel testing cannot be provided at this time as the exact scope of any archaeological excavation work required in the Site Area has yet to be determined, as well as other factors (*e.g.*, weather) that may influence the progress of the work.

Northcliff and Stantec are committed to completing all archaeological field work as per requirements set out in the *Heritage Conservation Act,* and following practices outlined in the Guidelines (Archaeological Services 2012) and Stantec standard archaeological protocols, as well as those procedures and protocols outlined in this Plan.

2.6 PROCEDURE FOR DISCOVERY OF ADDITIONAL ARTIFACTS DURING SHOVEL TESTING

In the event that additional artifacts and/or possible artifacts are discovered during any shovel testing being carried out in the PDA, a photograph will be taken of the find prior to it being placed in a plastic bag. As per Stantec's standard procedures, and following the Guidelines (Archaeological Services 2012), any formal tools or utilized/retouched flakes will be recovered using powder-free gloves, and, if found *in situ,* artifacts will be recovered along with a sample of the associated soil matrix. Upon discovery of any artifacts, the person excavating the positive shovel test pit will be provided with a supplementary hard plastic storage container, in which to temporarily place the bagged objects until the completion of the STP, thus preventing small bags from being misplaced or otherwise dislodged via wind or other means.

As per existing Stantec protocols, the Permit Holder will ensure that all artifacts and/or possible artifacts are brought back to the Stantec office at the end of each field day. All artifacts and/or possible artifacts collected will be stored in a secure location within Stantec's office that is accessible by only the Permit Holders and the Stantec Senior Archaeologist until such time as they are presented to the Provincial Regulator, Archaeological Services, along with the permit report.

Archaeological decisions that would be governed by the issuance of an Archaeological Field Research Permit are the responsibility of the Permit Holder and where applicable, as per Section 2.7, Section 3.2.2.1, Section 3.3.4, Section 3.5, Section 5.0, Section 6.0, and Section 8.0, these decisions will be made in consultation with Archaeological Services. Some of these specific tasks (*e.g.*, screening) may be delegated; however, the Permit Holder is responsible for ensuring competency of the delegate and that they are acting in compliance with the requirements at all times. The basis for **all** decisions must be documented. This would include, but is not necessarily limited to, the following:

- the interpretation of the *Guidelines and Procedures for Conducting Professional Archaeological Assessments in New Brunswick* (2012) as issued by Archaeological Services;
- the determination of the archaeological potential of an area;
- the number of test pits and extent of the required shovel testing;
- the location of the test pits;

- the determination of "archaeological bottom";
- judgment decisions made in the field as to the addition or subtraction of any number of test pits compared to initial plans, due to site-specific conditions (*e.g.*, wet areas, bedrock, trees);
- the verification of all screens for the presence of artifacts;
- ultimate responsibility for any and all decisions regarding identification and management of artifacts;
- ensuring compliance with all permit conditions, all Guidelines (Archaeological Services 2012) requirements, this Plan, the *Heritage Conservation Act*, and any other applicable professional archaeological standards;
- consultation with Archaeological Services, where appropriate, to confirm the requirements of the Guidelines (Archaeological Services 2012);
- ensuring compliance with all Stantec Archaeological Field Protocols; and
- notification of any issues regarding the project work to the Senior Archaeologist and the Project Manager, who will in turn notify Northcliff.

Archaeological Services has final authority on decisions regarding equivocal Pre-Contact artifacts, this applies in particular to decisions as to whether an equivocal artifact find (surface or excavated) constitutes an archaeological site.

2.7 FIELD PROCEDURE IN THE EVENT OF FURTHER DISCOVERIES, AND PROTOCOLS FOR THE CONTINUATION OF SHOVEL TESTING

In the event that artifacts (*e.g.,* stone-tools, debitage, ceramics) are recovered from any test pit in or around the PDA, Stantec will first adhere to the standard procedures for documentation and chain of custody, outlined in Section 2.6 above.

All soils from the positive STP that were previously screened through 6 mm (1/4") wire mesh will be rescreened through 3 mm (1/8") wire mesh to see if any additional smaller fragments are present. Excavation of the positive STP will then be completed by a trowel to facilitate better stratigraphic documentation for any additional artifacts, if present. Shovel testing in areas immediately adjacent to the STP from which artifacts were recovered will not be affected by the discovery and work will continue in that area, and other areas. This procedure is superseded by the *Protocols and Communication Strategy for the Accidental Discovery of Identifiable or Possible Human Remains and Bone Material* described in Section 3.5 of this document, and below, regarding artifacts indicative of burial ceremonialism.

In the event that an archaeological feature (*e.g.,* hearth, post-mould) is encountered, the Permit Holder may make the decision for a temporary work suspension at that shovel test pit until Northcliff and Archaeological Services can be notified of the find. In such cases, notification to Archaeological Services will be carried out the next business day, due to lack of cellular phone service within or near the PDA. In the event that a temporary work suspension is warranted to facilitate technical discussion with

Archaeological Services, a 5 m buffer surrounding this specific positive shovel test pit will be established, and work will proceed outside of the 5 m buffer. It is requested that this technical discussion take place within one to two business days of the discovery. The purpose of the discussion will be to confirm that the methodologies presented in this Plan are appropriate for continuing with the archaeological investigation and allow for the continuation of work in the area of the temporary suspension.

The Permit Holder will make the determination either to proceed with shovel testing around any positive test pit, or, to temporarily suspend work in that area in the event that something atypical is discovered, until further determination of the finds can be made in consultation with Archaeological Services, where appropriate. This procedure is superseded by the *Protocols and Communication Strategy for the Accidental Discovery of Identifiable or Possible Human Remains and Bone Material* described in Section 3.5 of this document, and below, regarding artifacts indicative of burial ceremonialism.

In the event that objects potentially representing burial ceremonialism (*e.g.,* red-ochre stained artifacts, artifacts composed of greenstone tuff, red-ochre staining, copper, ground-slate bayonets, fully-channeled gouges, ground-stone rods) are encountered, a 10 m x 10 m exclusion zone will be established surrounding this specific positive shovel test pit and the procedures described below in the *Protocols and Communication Strategy for the Accidental Discovery of Identifiable or Possible Human Remains* (Section 3.5 of this document, below) will be followed.

2.7.1 Communication Protocol for All Discoveries

Stantec and Northcliff are committed to continuing to work cooperatively with Archaeological Services and First Nations in matters of communication and reporting on all aspects of the archaeological program at the Sisson Project.

The discovery of additional artifacts or any archaeological features during shovel testing will be communicated by the Permit Holder to Northcliff and Archaeological Services the next business day following the discoveries (the next business day timeline is to account for the very limited cellular coverage in the PDA). Following this notification, Northcliff and/or Archaeological Services will be responsible, as applicable and appropriate, for notifying appropriate First Nations of the finds. The nature of the discovery (*e.g.*, type of artifact), the exact location in which it was found, and any additional relevant information will also be provided.

The determination as to whether or not a discovery warrants the completion of a new Maritime Archaeological Resource Inventory (MARI) form to be registered as a new and separate archaeological site will be done as per the Guidelines and/or in consultation with Archaeological Services. When a MARI form is completed it will be submitted as described in the Guidelines. These finds will be assigned "Temporary Site Numbers" based on the AFR permit under which the find was made, until such time as the shovel testing is complete, as per the protocol established in 2013 for the Project. In cases where a new Borden number is assigned (at the discretion of Archaeological Services), artifacts from the site will be catalogued under that site number.

These procedures will be adopted for all shovel testing conducted within the PDA for the Project. This communication procedure is superseded by the *Protocols and Communication Strategy for the Accidental Discovery of Identifiable or Possible Human Remains* (Section 3.5) described later in this document in cases of any discoveries that fall under that Protocol.

2.8 ANALYSIS OF MATERIALS AND SAMPLES COLLECTED

Northcliff is committed to completing analysis as outlined in Section 2.3.1.4 of the Guidelines (Archaeological Services 2012), which states: *"It is the responsibility of the Proponent to cover all costs associated with the analysis and dating of samples as part of a site assessment"*. Further information in this regard is provided in Section 8.0 of this document.

The extent and scope of this analysis will be determined in consultation with Archaeological Services and the Curator of Collections, as per the Guidelines, and pending the results of shovel testing.

3.0 PROPOSED MITIGATION PLAN FOR THE SITE AREA

As per discussions with Archaeological Services, permitting for the 2014 archaeological program within the Site Area will involve two separate Archaeological Field Research Permit types that are separate from those required for shovel testing of other areas of the PDA. One AFR permit will be obtained for completing the remaining shovel testing of the Site Area and preliminary excavation of the Site Area (Section 2.4.1, above, and Section 3.2.2, below, respectively). If deemed necessary by Archaeological Services, a second permit will be obtained to complete systematic excavation (Section 3.2.3, below) of the Site Area.

3.1 PROPOSED APPROACH TO MITIGATION

3.1.1 Site Area

Until such time as shovel testing in and around the Site Area is completed, the areal extent, density and context of the finds made in 2013 cannot be accurately determined. Once shovel testing is completed in the Site Area, as outlined in Section 2.4.1, there will be a number of options available to the Proponent for additional mitigation, including but not limited to:

- Preliminary Excavation (Section 3.2.2, below) – where archaeological resources have already been identified, positive STPs will be expanded into 2 m x 2 m excavation units in order to inform further mitigation efforts.

- Systematic Excavation (Section 3.2.3, below) – once the additional Site Area shovel testing and preliminary excavation in 2014 are complete and the concentration and areal distribution of archaeological resources is better understood, consultation with Archaeological Services and First Nations will take place to discuss matters related to systematic excavation. At a minimum, systematic excavation of the Site Area will involve the establishment of a 2 m x 2 m grid system throughout the known area of the archaeological resources.

Avoidance of the Site Area may not be technically or economically feasible as the Open Pit is considered a fixed location due to its association with the ore body. Discussion of avoidance may be considered premature at this time as there is no comprehensive determination of the nature and size of the archaeological and heritage resource(s) within the Site Area.

3.1.2 TSF/Open Pit/Other Facilities

At this time, mitigation for the TSF/Open Pit/Other Facilities (outside of the Site Area) is limited to shovel testing. In the event that archaeological or heritage resources are encountered elsewhere inside the PDA (outside of the Site Area), mitigation will proceed as per the procedures described for the Site Area. Avoidance of these facilities will be considered where this strategy is technically and economically feasible; however, the TSF/Open Pit/Other Facilities are generally considered to be fixed locations.

3.1.3 345 kV/Fire Road Re-alignments and 138 kV Transmission Line

Avoidance is considered to be the preferred strategy for mitigation for the 138 kV transmission line construction. All recommendations for avoidance of areas interacting with areas of elevated archaeological potential included in Stantec (2013b) have been provided to NB Power to include in the planning of tower placement. Where avoidance is not practicable, additional mitigation (*i.e.,* survey and shovel testing) will be developed as per recommendations in Stantec (2013b) and described above, in Section 2.4.3.

Avoidance of areas of elevated archaeological potential that are recommended for shovel testing within the 345 kV/Fire Road facilities corridor will be considered where this strategy is technically and economically feasible. Where avoidance is not practicable, mitigation (*i.e.,* shovel testing) will be implemented as per recommendations in Stantec (2013b) and described above, in Section 2.4.3.

3.2 PROPOSED OPERATIONAL FRAMEWORK FOR EXCAVATION

3.2.1 Preparation

Prior to the resumption of the shovel testing in 2014, a professional surveyor from Stantec, along with members of the Stantec Archaeology Team, will use a Total station and a high accuracy global positioning system (GPS) device to establish a baseline datum for the entire Site Area as well as various control points from which data locations will be measured. All data will be tied into control points already established in the Site Area and for the Project. All subsequent work conducted in the Site Area, including STPs and any preliminary excavation units and excavation units associated with the systematic excavation of the Site Area, will be associated with the baseline, the data, and the control points.

Following the establishment of this baseline datum, the Site Area will be divided into quadrants (*e.g.*, NW, NE, SE, SW) which will serve as the identifiers for all subsequent STPs and excavation units (*e.g.*, if an excavation unit is in the NW quadrant, it's identifier would be N[#]-W[#]). Using a Total station, a 20 m x 20 m (or 50 m x 50 m, depending on density of vegetation) grid will be established using transects perpendicular to the Site Area baseline. A survey stake or pin will be placed at each corner post within this 20 m x 20 m (or 50 m x 50 m) grid.

A smaller 2 m x 2 m excavation grid will be established inside the larger surveyed grid (*i.e.,* a total of one hundred 2 m x 2 m units within a 20 m x 20 m grid) in the areas where archaeological resources are concentrated or distributed. Survey pins will be labelled using the appropriate Site Area quadrant identifier and placed in the corner of each 2 m x 2 m excavation unit, and all units will be delineated using weather-resistant, non-elastic string. Using a Total station, a unit datum will be established in the centre of a 4 m x 4 m area (*i.e.,* the centre of four 2 m x 2 m units) to be used for unit/level measurements in the adjacent four excavation units; thus, in a 20 m x 20 m grid, there will be 25 unit data all labelled, numbered sequentially, and referenced to the appropriate Site Area quadrant.

Excavation will proceed using a unit (2 m x 2 m) and sub-unit (four 1 m x 1 m sub-units in each 2 m x 2 m unit) system. These 2 m x 2 m units (*units*) will be excavated in a checkerboard pattern to allow for sufficient space between active excavation areas, and 1 m x 1 m sub-units (sub-units) will be excavated clockwise starting in the NW corner of the unit. In addition, note taking, described in detail below, will be at the *sub-unit* level. This methodology will allow for the excavation of discrete *units* and provide valuable control over the horizontal distribution of artifacts in the *sub-unit*.

3.2.2 Conducting Preliminary Excavation at Selected Positive Shovel Test Pits

Based on findings following the completion of shovel testing in the Site Area, the Permit Holder will select a sample of positive shovel test pits to be expanded into 2 m x 2 m excavation units. On a preliminary basis, it is proposed that one 2 m x 2 m *unit* will be excavated surrounding each positive STP; however, the 2 m x 2 m *units* selected for this stage of mitigation will be based on the ability of that excavation unit to inform the development of a systematic excavation plan. The recommendation of which STPs to expand into 2 m x 2 m excavation units will be made, with the rationale for the selection, by the Permit Holder and presented to Archaeological Services for approval as work in the Site Area proceeds.

In the event that a positive STP was isolated in the 5 m shovel testing grid, a 2 m x 2 m *unit* will be excavated, and, if no other archaeological or heritage resources are discovered within that 2 m x 2 m *unit*, four additional 50 cm x 50 cm delineation test pits will be excavated 2.5 m in each cardinal direction from the location of the original positive test pit.

These 2 m x 2 m *units* and 50 cm x 50 cm delineation test pits will be excavated by trowel, with three-dimensional plotting of any artifacts and potential artifacts recovered in the unit. All soils will be screened through 6 mm (1/4") mesh. In the event that artifact-bearing layers/levels are encountered, 3mm (1/8") mesh will be used following the methodology described above for shovel testing. Soil stratigraphy will be recorded following conventional standards on unit record forms (Appendix A), with photographs and profile drawings.

Unit data will be tied in with the Site Area baseline, to document all vertical measurements in the 2 m x 2 m excavation units and 50 cm x 50 cm delineation test pits. Where practicable, Stantec will use a Total station for the *in situ* plotting of artifacts and/or flake concentrations and/or features encountered and enhance measurements made from individual unit data. Due to the density of vegetation and the uneven topography within the Site Area, use of Total station for all measurements may not be feasible. In the event that the use of Total station is considered impracticable, all measurements for *units* will be tied to surveyed data located, at a maximum, to within a 4 m x 4 m area, as described above. In addition, each of the four corner posts of 2 m x 2 m excavation units will be surveyed in, and calibrated to control points established for the Project. These data will provide site-level and absolute measurements, allowing digital reconstruction of the site information. Where the removal of vegetation is practical and where this action will not endanger any archaeological resources, it will be considered to facilitate the use of the Total station survey equipment.

In order to retain all Site Area profiles until completion of excavation in any area, a baulk system will be used. Each 2 m x 2 m *unit* will have a 10 cm baulk left on all four sides, resulting in a 20 cm baulk system throughout the Site Area excavations. Following completion of excavation and recording of site profiles, these baulks will be excavated and recorded in the same manner as a *sub-unit*.

Any and all artifacts recovered will be collected, recorded, and catalogued following standards established in the Guidelines (Archaeological Services 2012) as well as internal protocols for the discovery of archaeological resources, described in Sections 3.3 and 8.0 of this document.

3.2.2.1 Procedure for Communication of Discoveries and the Continuation of Work During Preliminary Excavation

Stantec and Northcliff are committed to working cooperatively with Archaeological Services and First Nations and to communicate freely with these parties to ensure they are aware of Project-related activities of importance to them. Northcliff and Archaeological Services will be notified about discoveries during preliminary excavation through summary information included in weekly site progress updates provided to the Proponent, or via a First Nations Monitor on-site should this be implemented in 2014 as in 2013. It is recommended that specific representatives within the First Nations communities be identified to facilitate the distribution of information to other interested First Nations communities.

3.2.3 Systematic Excavation

Following the completion of the shovel testing and preliminary excavations (*e.g.,* 2 m x 2 m units), the extent of the archaeological resources discovered will be presented to Archaeological Services for review.

Determination of the necessity to systematically excavate the Site Area will be made in consultation with Northcliff, Archaeological Services, and First Nations involved with the Project. Following the completion of shovel testing in the Site Area, Stantec will prepare a summary of the known distribution of archaeological resources, and based on that distribution will present the excavation plan consistent with the methodologies described in this document. Detailed methodology for conducting the systematic excavation, post-field analysis and conservation, as well as protocols for the accidental discovery of human remains, preliminary crew structure, and First Nations participation are outlined below, and will be used in support of the detailed information following completion of shovel testing and preliminary excavation in the Site Area.

At a minimum, systematic excavation of the Site Area will involve the establishment of a 2 m x 2 m grid system throughout the known area of the archaeological resources, as described above.

3.2.3.1 First Nations Participation

In addition to the Stantec Archaeology Team, Stantec anticipates that First Nations communities already participating on the Project will continue to do so by providing personnel from within their communities. These persons would have prior experience in archaeology, or can be trained on the job by Stantec, and would be involved with every level of fieldwork, including a First Nations Monitor working alongside the Permit Holder and a senior technical expert, crew supervisors and field technicians.

First Nations community members, First Nations archaeologists, and representatives will be involved on a daily basis as field crew and trained as supervisors in the ongoing shovel testing program, and subsequent excavation, within the PDA.

It is anticipated that at least one person representing First Nations communities involved with the Project will be present on-site during shovel testing and any excavation activities.

It is anticipated that site visits from interested First Nation communities can be arranged based on level of interest and availability. It is recommended that such field visits be arranged in advance based on predictable schedule (*e.g.,* bi-weekly on Fridays). This schedule will be developed by Northcliff in consultation with First Nations communities upon the commencement of the 2014 field season.

3.2.4 Site Security

Security provisions will be implemented where appropriate, as per discussions between Northcliff, Stantec, and Archaeological Services. These provisions may include, but not necessarily be limited to, installation of passive devices (*e.g.,* trail cameras) to monitor the Site Area outside of work hours, education and awareness programs for non-archaeological staff working at the Sisson Project, education and awareness programs within local and First Nations communities, and/or installation of access barriers (*e.g.,* fencing, gates) leading to the Site Area. Additional measures may be considered as warranted.

The precise needs for, and approach to, site security will be discussed and agreed to separately by mutual agreement between Stantec, Northcliff, and Archaeological Services.

3.2.5 Site Protection from Weather

Provisions to protect the Site Area from weather during excavation will be implemented where appropriate, as per discussions between Northcliff, Stantec, and Archaeological Services. These provisions may include, but not necessarily be limited to, non-invasive drainage diversion (sandbags), or tents or garages. Semi-permanent structures or large tents are not contemplated at this time due to the forested nature of the Site Area; however may be considered in the future, depending on the nature and extent of any archaeological resources that may be discovered. Additional measures may be considered as warranted.

3.3 EXCAVATION METHODOLOGY

3.3.1 Detailed Excavation Methodology

Excavation of each *unit* and *sub-unit* will proceed as follows:

1. Opening elevations of the *unit* will be taken in reference to the nearest unit datum, thus all vertical measurements will be depth below datum (DBD).

2. Excavation will proceed by natural levels (see generalized soil profile, below) as distinguished by its colour, texture or content. These natural levels will have a numeric identifier (*e.g.,* Levels 1.0–6.0; Appendix B, Figure 13).

3. Upon encountering a change in the colour, texture or content of a natural level, a new level will be started (*e.g.,* Levels 2.0–6.0; Appendix B, Figure 13); or

    - should there be no change in a natural level for greater than 10 cm, an arbitrary sub-level will be started. These arbitrary sub-levels will have an numeric identifier *(e.g.,* Sub-level 3.1 or Sub-level 5.1; Appendix B, Figure 13) and will be identified as an arbitrary level change on the excavation unit form.

4. Upon encountering archaeological resources (artifacts) within a level a cultural sub-level, will be started. These cultural sub-levels will have an alpha-numeric identifier (*e.g.,* Sub-level 3.0-a; Appendix B, Figure 13).

5. In the event that an intrusive feature that is natural or the result of bioturbation is identified, a sub-level will be started for that natural feature. These intrusive features will have an alpha-numeric identifier based on the natural level in which the intrusive feature originated (*e.g.,* Sub-level 1.0-a; Appendix B, Figure 13). This alpha-numeric identifier will remain with this feature regardless of the depth the feature reaches within the excavation *unit* or *sub-unit*.

In the event that cultural features are discovered in any *unit* during excavation, procedures include:

6. Features will have an alpha-numeric identifier based on the natural level in which the cultural feature originated (*e.g.,* Sub-level 3.0-b; Appendix B, Figure 13).

    - Upon identification of a cultural feature, a sub-level form will be populated, appropriate measurements taken and recording completed (*e.g.*, a sketch on the Sub-Unit Record Form);

7. If possible without disturbing it, expose the cultural feature within the *sub-unit* (*i.e.*, remove the remaining soil from the overlying level or sub-level):

    - if the cultural feature extends into an adjacent *sub-unit*, expose the cultural feature to the extent practicable in adjacent *sub-units* and excavate as a discrete sub-level;

    - the sub-level designated to the cultural feature (*e.g.,* Sub-level 3.0-b) in the *sub-unit* where the cultural feature was originally discovered will be used for all *sub-units* or *units* where the cultural feature is found to be present; or

    - the feature will not be excavated until it is exposed in all *sub-units* or *units;*

8. Depending on the nature of the feature, as determined by the Permit Holder, different strategies will be employed for recording and excavating the feature (*e.g.*, pedestaling or sectioning), and where applicable (*e.g.,* as per Section 3.3.4 and Section 3.5), these decisions will be made in consultation with Archaeological Services.

Each new level or sub-level encountered within a *sub-unit* will have its own set of notes and record forms and, when a new level or sub-level is encountered in a *sub-unit*, excavation of that *sub-unit* will stop and all appropriate recording will take place. Each new level or sub-level in each *sub-unit* will have opening and closing elevations recorded from all four corners and the centre of the *sub-unit*. Where practicable, Stantec will use a Total station to record all opening and closing elevations. The excavator will move into the adjacent *sub-unit* and it will be excavated to the same level or sub-level.

This methodology will allow for the horizontal exposure throughout the entire *unit* of each level, and if present, sub-levels. Cultural features (*e.g.*, hearths, storage pits) will be excavated as independent sub-levels.

3.3.1.1 Generalized Site Area Soil Profile

In 2013, it was determined that a generalized soil profile (for reference see Appendix B, Figure 13) for the Site Area consists of upwards of 6 natural levels as follows (all measurements are estimated and presented as examples of depths below surface):

1. 0-5 cm – Sod/Forest Duff/litter mat;
2. 5-10 cm – Silty, black humic layer;
3. 10-20 cm – Leached white-grey, silty coarse sand;
4. 20-25 cm – Dark reddish brown fine silt;
5. 25-40 cm – Medium orange-brown sandy silt; and
6. 40-50 cm – Grey-brown coarse sandy clay (till).

No cultural levels were identified during shovel testing, as all artifacts recovered in 2013 were recovered from screens and not *in situ*. This generalized profile will be refined following completion of shovel testing and preliminary excavation in 2014, and will provide guidance for the AFRP application for systematic excavation. Munsell soil colour charts will also be used during shovel testing and preliminary excavation to provide standardized soil colour references.

All soils recovered from *units* and *sub-units* will be screened through 3 mm (1/8") wire mesh. Upper soil layers may be screened through graduated apertures of 6 m (1/4") then 3 mm (1/8") wire mesh to allow for the removal of coarse material, particularly root matter, and improve efficiency.

In order to ensure that all soil levels associated with possible past human occupation within the PDA are being fully excavated (*i.e.,* that "archaeological bottom" is being reached) for each excavation unit, Stantec will retain the advice of a professional surficial geologist in the 2014 field season. This individual would visit the field in an area or areas where excavation is taking place to provide advice, training and professional opinion on the depth of soil deposits, formation processes and help determine what, "archaeological bottom" is likely to be within the PDA. These determinations will be made in consultation with Archaeological Services when representatives are available or present in the field.

3.3.2 Recording, Sub-Unit Record Forms, and Field Notes

Documentation of systematic excavation at the Site Area will follow Stantec standard procedures and those included in the Guidelines (Archaeological Services 2012). Using the Sub-Unit Record Form (Appendix A), notes will be taken for *sub-units*, at the level and sub-level as well as field notes maintained by Supervisors and the Permit Holder.

The Permit Holder and Supervisors will provide recording and field notation training to Field Technicians prior to, and during excavations at the Site Area. To ensure consistency and accuracy in recording, if a Field Technician is recording their own *unit* and *sub-unit* notes, Supervisors will provide guidance and proofing in advance of the completion of these forms.

Upon encountering a change in soil (*i.e.*, a change in level or sub-level), Field Technicians will alert the Supervisor and the active Sub-Unit Record form will be completed. This process will be followed for all levels and sub-levels in each *sub-unit*. In the event that the Field Technician is recording their own notes a Supervisor or the Permit Holder *must* approve a level or sub-level transition.

Following the completion of a *unit*, all final elevations will be recorded using the *unit* datum and using a Total station. All four profiles in the *unit* will be cleaned, photographed and recorded by a Supervisor or the Permit Holder and a Field Technician.

Plan-view sketches of a *unit* will be completed at the bottom of each level; sub-levels encountered within that level will be included based on the Sub-Unit Record Form. Where sub-levels are no longer visible at the bottom of a level, or, are intrusive into a subsequent level, this will be sketched in. Plan-view sketches of the *unit* will be completed by a Supervisor or the Permit Holder and a Field Technician and will include all four *units* sharing the same datum (*i.e.*, each plan view *unit* level sketch will include 4 *units*). These plan-view sketches will be completed to scale on metric grid paper.

All Supervisors and the Permit Holder will complete daily field notes which will be maintained separate from record forms, and completed throughout the day.

Quality assurance and quality control (QA/QC) and logistics will be overseen by Supervisors and the Permit Holder, and a daily progress and completion log to ensure the accurate tracking of site excavation progress, artifact tracking and field note and field form recording will be used. These daily logs will form the basis of weekly reports issued to Archaeological Services and First Nations involved with the Project.

3.3.3 Chain of Custody for Artifacts, Forms, and Field Notes

Upon discovery of any artifacts, the person excavating a *sub-unit* will be provided with a durable hard plastic container or tote, in which to temporarily place the bagged objects until the completion of the shovel test pit, thus preventing small bags from being misplaced or otherwise dislodged via wind or some other means. All artifacts will be collected and handled as per the protocols outlined in Section 8.0 of this document.

Following the completion of a *unit*, a supervisor or the Permit Holder and a Field Technician will complete all required recording for the *unit*. All artifacts and samples collected and temporarily stored from the *unit*, as per the protocols outlined in Section 8.0 of this document, will be approved following QA/QC by a Supervisor or the Permit Holder.

Supervisors or the Permit Holder will ensure all artifact bags are accounted for in the tote, and that all field forms and recording for the *unit* in question are complete. Upon verifying the completion of the

unit, a Supervisor or the Permit Holder will update the daily progress and completion log, and the Permit Holder will sign off on this form at the end of the day.

As per Stantec's existing protocols, it is the responsibility of the Permit Holder to ensure that all artifacts and/or possible artifacts are brought back to the Stantec office at the conclusion of the day. All artifacts and/or possible artifacts collected will be stored in a secure location within Stantec's office accessible by only the Permit Holders and the Stantec Senior Archaeologist until such time as they are presented to the Provincial Regulator, Archaeological Services, along with the Permit Report. All artifacts collected and stored by Stantec will be available for inspection.

3.3.4 Procedure for Communication of Noteworthy Discoveries and the Continuation of Work During Excavation

In the event that artifacts (*e.g.,* stone-tools, debitage, ceramics) or archaeological features (*e.g.,* hearth, post-moulds) are encountered during excavation, Stantec will first adhere to standard procedures for documentation and chain of custody outlined in Section 3.3.3., above, and Section 8.0, below. Temporary work stoppages will not be required for these discoveries.

In the event that objects or features potentially representing burial ceremonialism (*e.g.,* red-ochre stained artifacts, red-ochre staining, copper, ground-slate bayonets) are encountered, a 10 m buffer will be established surrounding this specific *unit* and the procedures described below in the *Protocols and Communication Strategy for the Accidental Discovery of Identifiable or Possible Human Remains and Bone Material* (Section 3.5) will be followed.

Northcliff and Archaeological Services will be notified about discoveries during preliminary excavation through summary information included in weekly site progress updates provided to the Proponent, or via a First Nations Monitor on-site should this be implemented in 2014 as in 2013. This communication schedule is superseded by the *Protocols and Communication Strategy for the Accidental Discovery of Identifiable or Possible Human Remains and Bone Material* described in Section 3.5 of this document. It is recommended that specific representatives within the First Nations communities be identified to facilitate the distribution of information to other interested First Nations communities.

3.3.5 Analysis of Materials and Samples Collected

Northcliff is committed to working collaboratively with Archaeological Services in developing a plan for completing analysis as outlined in Section 2.3.1.4 of the Guidelines (Archaeological Services 2012):

> *"It is the responsibility of the Proponent to cover all costs associated with the analysis and dating of samples as part of a site assessment"*.

And Section 3.2.1.3 of the Guidelines (Archaeological Services 2012):

> *"To allow for a cursory assessment of ecofacts…consultants* ***must*** *collect soil samples from hearths, wells, burials, privies, living floors and middens…[representing] at minimum 10% of the total feature area"*.

> *"For a mitigation project, all soils from these features **must** be bagged and floated by the excavator or a qualified paleobotanical expert (apart from the 10% sampled). If the feature is more than 1 metre², then a sample strategy should be employed whereby at least 1 metre² of soil from the feature is floated."*
>
> *"In Project Proposals and AFRP applications, proponents are obliged to budget 5% of the total cost of the AIA for analysis, dating and conservation of recorded materials (minimum $1,000)."*

Northcliff and Stantec will also seek out the services of an individual trained or experienced in palaeobotanical analysis for any ecofacts recovered during flotation, and a qualified zooarchaeologist or archaeologist with appropriate training to provide analysis of any faunal material. At a minimum, analysis of a statistically valid sample of all subsistence-related material will be conducted, as per the Guidelines (Archaeological Services 2012).

The extent and scope of this analysis will be developed in consultation with Archaeological Services, as per the Guidelines (Archaeological Services 2012).

3.4 RECOMMENDATIONS

3.4.1 On-site Facilities

In order to provide a clean and well organized working environment over the duration of Site Area shovel testing and excavation, on-site facilities may be required. These facilities may include a field office or trailer, portable sanitation facilities, or semi-permanent structures for designated smoking and eating areas. Any areas where these facilities would be located will be subject to archaeological evaluation (*e.g.,* walkover, and, if warranted judgmental shovel testing) prior to being established, as appropriate, although efforts will be made to locate these facilities in previously disturbed locations (*e.g.*, existing access roads).

No on-site facilities are proposed for general shovel testing of other areas of the PDA this time—on-site facilities are only proposed for the Site Area, given the duration and extent of the work program at this location and the need to carefully control site conditions near the Site Area.

3.4.2 Vegetation Removal

In order to facilitate line of sight and ease of access to excavation areas, limited vegetation removal (*i.e.,* tree-felling) may take place within the Site Area. Northcliff is committed to obtaining all necessary permits or permissions in the event that vegetation removal is necessary. This activity will be evaluated by Stantec and only implemented where required to facilitate excavation or access and only when it can be completed with no danger to known archaeological resources. In all cases, vegetation removal would be done by manual means (*i.e.*, mechanical harvesters would not be used) and the ground surface would not be disturbed during this activity.

3.5 PROTOCOLS AND COMMUNICATION STRATEGY FOR THE ACCIDENTAL DISCOVERY OF IDENTIFIABLE OR POSSIBLE HUMAN REMAINS AND BONE MATERIAL

The following is adapted from Appendix C of the Guidelines (Archaeological Services 2012) "Sample Protocol for Accidental Discovery of Human Remains".

These procedures are subject to approval of Archaeological Services.

Human remains will generally fall into one of the following four categories:

1. Legal Evidence
    - All human remains that are discovered must be initially treated as potential forensic evidence.
2. Cemeteries Registered Under the New Brunswick *Cemetery Companies Act*
3. Historic Cemeteries and Family Plots
    - These include human remains buried in currently neglected and overgrown early twentieth century cemeteries and family plots. Living relatives or descendants may exist.
4. Archaeological Remains
    - Archaeological human remains include Pre-Contact human remains and Historic period remains that were interred as a result of religious/social burial practices. Pre-Contact human remains may occur as a single burial or as multiple burials such as unrecorded First Nations burial sites. Historic period archaeological human remains typically occur in historic cemeteries and long forgotten (pre-twentieth century) family plots.

3.5.1 Protocol to Follow in the Event of Discovery of Human Remains, or Evidence of Burials

1. Halt all Activities

All Project activities will immediately be suspended upon the discovery of human remains and the Sisson Project site manager will be informed of the work suspension. Until determined otherwise, the remains must be treated as evidence in a forensic investigation. If the remains are found in backdirt or a screen, the screen must not be emptied as physical evidence may be destroyed. If remains are found during shovel testing or excavation, the potential for additional burials must be acknowledged and shovel testing and excavation strategies must reflect this elevated potential.

2. Secure the Area

A 10 m x 10 m area surrounding the find must immediately be designated as an exclusion zone to all personnel and the public. Depending on the weather and other conditions, the human remains discovered must be provided with non-intrusive protection, such as covering with a cloth or canvas tarp (non-plastic preferred). All personnel and traffic must exit the site by one common non-intrusive path. Curiosity seekers must be kept off the site.

3. Inform the Lead Police Agency

The nearest detachments of the RCMP are located in the community of Mouth of Keswick (satellite office), the town of Stanley (satellite office) and the town of Woodstock (full detachment), and must be informed immediately. Upon verbal description of the situation the lead police agency may dispense with a site visit to view the site/remains. Typically, the lead police agency is on the scene in less than 24 hours. The lead police agency will make a decision as to whether the Coroner and/or Archaeological Services must be involved.

The lead police agency specialists may be called to determine if the situation is associated with a crime or an archaeological feature. If it is concluded to be related to a crime, the lead police agency specialist will inform the Coroner, collect data, and remove the remains.

If the lead police agency determines the situation not to be associated with a criminal matter, then Archaeological Services will be consulted at (506) 453-3014 to determine the proper course of action in consultation with stakeholders.

If Archaeological Services determines that the human remains are not associated with an archaeological feature but still have to be removed, certificates of removal are required from both the Coroner's Office and the Chief Medical Officer of New Brunswick.

3.5.2 Resuming Work

Work can only resume at the Project once clearance has been received from all of the authorities and agencies concerned. Northcliff and Stantec, along with First Nations involved in the Project and Archaeological Services, will come to a determination of the appropriate site-specific strategy should Pre-Contact human remains be encountered, prior to the resumption of work.

4.0 IMPORTANCE OF HERITAGE RESOURCES IDENTIFIED AT THE SISSON PROJECT

Based on preliminary findings from the 2013 field season, the archaeological site(s) identified at the Sisson Project represent an important find in the context of New Brunswick prehistory. The discovery of a "Stark-like" contracting-stemmed projectile point, and the ubiquity of quartz tools, led the Stantec Archaeology Team to determine that a component or components of the Site Area are associated with the Middle Archaic (ca. 8000-6000 BP) period. The importance of this find is related to the relative rarity of intact Middle Archaic components in the Northeast, and in particular, New Brunswick.

The discovery of this site serves to substantiate, along with previous surface finds (see Section 2.3, above), the presence of ancestral First Nations, in what became New Brunswick, for several millennia before the arrival of Europeans. Although older sites have been recorded and subject to limited excavation in the province, the site at the Sisson Project would be the first systematically excavated Middle Archaic Stark-like component in New Brunswick, and among a limited number recorded and excavated in the larger Northeast region. The information that could be obtained from a systematic excavation would help to inform First Nations, New Brunswickers and archaeologists about the history and cultural heritage of this area.

Any additional determination of the historical significance of any archaeological resources that have been and may be discovered within the PDA for the Project rests with the Crown, on advice from the advisory committee, who is also responsible for approving the nature and extent of any mitigation for such discoveries.

5.0 PROPOSED INCIDENT REPORTING PROCEDURES

5.1 WHAT CONSTITUTES AN INCIDENT

A "Heritage Incident" is defined as a perceived or real violation of the spirit or intent of any law, commitment, requirement, and/or condition of approval for matters relating to heritage or archaeology as part of or in relation to this Project.

5.2 DETAILED INCIDENT REPORTING PROCEDURES

Once a member of the Stantec Archaeological Team becomes aware of a heritage incident, he/she must **immediately** report the incident to the Stantec Permit Holder for that Project and the Permit Holder will report the incident to the Senior Archaeologist **and** Project Manager. Early information is essential to maintain compliance with permitting requirements.

The report to the Project Manager and Senior Archaeologist will include the following details as they are available and can be reasonably gathered at the time of the discovery of the incident:

- the Project name;
- the Proponent;
- the nature of the incident;
- the location of the incident (including GPS coordinates where available), date and time of the incident, and circumstances that led to or contributed to the discovery of the incident;
- contractor name (if applicable); and
- what, if anything, has, can and will be done to mitigate the incident.

The information gathered above will be recorded by the Permit Holder and provided, along with the Permit number. Additionally, site conditions are to be documented to the fullest extent practical (*e.g.,* site sketches showing extend of incident, photographs). If appropriate, the location of the incident will be secured to facilitate any investigation, if such actions are warranted.

The Project Manager will **immediately** notify the Proponent of the incident and convey to the Proponent that we are obliged to immediately report the incident to the regulator, Archaeological Services. If the Project Manager is not available, the incident will be reported to the Proponent by the Senior Archaeologist, or the Permit Holder.

5.3 DETAILED ON-SITE INCIDENT PROCEDURES

If heritage or archaeological resources or locations with potential for heritage resources are in imminent danger as a result of the incident, the Project Manager, on the advice of the Senior Archaeologist or Permit Holder, will recommend to the Proponent that work within a minimum of 4 m by 4 m to the resources be halted immediately. If additional work is planned on the site, all work will cease until a

resolution of the incident is achieved (with approval from Archaeological Services) and a protocol is established to prevent future incidents on the site, as warranted.

Following the reporting of the incident to the Proponent, the incident, along with the details gathered, will be reported to Archaeological Services by the Permit Holder if possible. Archaeological Services must be contacted as soon as possible, or at least within four (4) hours, following the discovery of the incident. The Senior Archaeologist and the Project Manager must support the Permit Holder in this reporting and in no way cause or contribute to a delay in the reporting to Archaeological Services. The inability to contact the Proponent is not a sufficient reason to delay contacting Archaeological Services. The Senior Archaeologist may make the call to Archaeological Services if a call from the field is not practical, for whatever reason. The following reporting procedure to Archaeological Services shall be carried out:

- first point of contact is the Project Executive (506-453-3014; 506-470-3901), Archaeological Services and second point of contact is the Manager, Archaeological Services (506-453-2756); or

- if direct voice contact is not made, a voice message providing as much detail as practical, followed by an email with further details to the Project Executive.

In this latter case, subsequent attempts at directly discussing the incident with an Archaeological Services staff member will be made until the situation can be discussed with the regulator—a voicemail and email alone are not sufficient to fulfill reporting requirements.

The time and content of the discussion with Archaeological Services is to be recorded in writing by the Permit Holder or the Senior Archaeologist, whoever is the caller. Copies of the records shall be submitted as soon as possible to the Project Manager, Senior Archaeologist, and to the project file.

Following initial discussions with Archaeological Services, First Nations will be informed of the incident. The instructions of Archaeological Services in respect of the incident shall be strictly adhered to. Should the recommended mitigation for the incident be acceptable to Archaeological Services, the Proponent will be informed of these measures by the Project Manager and the mitigation implemented. Should other or additional mitigation be required by Archaeological Services, it will be presented to the Proponent prior to implementation. Should a conflict arise between the Proponent's objectives and the requirements of Archaeological Services, the situation shall be discussed by all parties as soon as practicable to arrive at a satisfactory solution for all parties.

Archaeological Services has the authority to issue "Stop Work" orders for matters related to heritage resources.

A written report on the incident with details of the results of the communication and discussion above, along with the success of the mitigation, as applicable, will be provided to Archaeological Services and First Nations within 48 hours of the discovery of the incident or within a timeframe agreed to by Archaeological Services.

This protocol shall be strictly adhered to by all Stantec field personnel involved in Sisson Project Archaeological Impact Assessments.

5.4 MINISTERIAL INSPECTIONS AND REPORTS

Northcliff and Stantec acknowledge that it is the prerogative under the *Heritage Conservation Act,* and outlined in Section 1.4.2 of the Guidelines (Archaeological Services 2012) for Heritage Inspectors appointed by the Minister to conduct periodic inspections of the field aspects of Archaeological Impact Assessments. The various field activities and items to be presented or inspected during a Ministerial Inspection are listed in Appendix J of the Guidelines (Archaeological Services 2012).

In the interest of proper documentation and review of these Ministerial Inspections, Northcliff and Stantec request the following:

- In the event that a Ministerial Inspection is conducted by a Heritage Inspector (the Inspector), a copy of the *Ministerial Archaeological Inspection Report* (the Inspection Report) and a receipt of Inspection will be provided immediately following the Inspection to the permitted archaeologist on site as per the draft procedure presented by Archaeological Services on May 2, 2014.

- The permitted archaeologist will be given an opportunity to review the findings and results of the Inspection Report, and may request a meeting to review the report, with the Inspector.

- In the event that the Inspection Report identifies any deficiencies, the permitted archaeologist will have the opportunity to comment and provide corrective actions, as per the draft procedure presented by Archaeological Services on May 2, 2014, and these corrective actions will be documented on the Inspection Report, as appropriate.

- In the interest of transparency, the Inspection Report, following review by the permitted archaeologist, in consultation with the Inspector, can be released to First Nations for review and comment.

The Inspector agrees to conduct inspections within their given mandate as per Section 76 of the *Heritage Conservation Act*.

6.0 PROPOSED ACCIDENTAL DISCOVERY PROCEDURES

6.1 WHAT CONSTITUTES AN ACCIDENTAL DISCOVERY?

An "Accidental Discovery" is defined herein as the accidental discovery of any archaeological or heritage resources, including bones until proven to be non-human in origin, during Project construction activities or pre-Construction drilling programs without the presence of a permitted archaeologist.

6.2 DETAILED ACCIDENTAL DISCOVERY REPORTING PROCEDURES

All construction personnel are responsible for reporting any unusual materials unearthed during construction activities to a Construction Supervisor. All construction personnel will be provided appropriate training (see below) in order to understand the significance and importance of preserving and reporting any archaeological or heritage resource. The protocols outlined below will differ depending upon the type of archaeological or heritage resource encountered by the Accidental Discovery.

Any heritage resources unearthed during construction, including fossil resources, are protected under the *Heritage Conservation Act*, and are property of the Crown. Those artifacts of Pre-Contact or Historic First Nations' origin are held in trust by the Crown for the aboriginal peoples of the New Brunswick. No person, other than one issued a Permit by the Minister responsible for the Department of Tourism, Heritage and Culture (*i.e.,* a permitted archaeologist), or a representative appointed by the Minister (*i.e.,* a Heritage Inspector) may move, or in any way alter, an archaeological or heritage resource, as per Section 11 of the *Heritage Conservation Act*.

Reporting of the accidental discovery of a heritage resource is explicitly outlined in Section 9 of the *Heritage Conservation Act*. This report should include:

- the nature of activity resulting in the accidental discovery;
- the nature of the material discovered;
- the precise location of the discovery; and
- the names of the persons witnessing the discovery.

6.3 DETAILED ON-SITE PROCEDURES IN THE EVENT OF AN ACCIDENTAL DISCOVERY

In the event of an accidental discovery of archaeological or heritage resources, or possible archaeological or heritage resources:

- All work in the immediate area of the discovery, including a sufficient buffer (5 – 10 m) around the discovery, will halt immediately.

- If a Construction Supervisor is not present for the discovery, construction personnel will alert his/her immediate supervisor or a Construction Supervisor immediately and a Supervisor will issue the stop work order immediately.

- If the discovery is in an area where work is continuing, fencing or flagging tape will be erected around the area of the discovery for protection, and any construction personnel working nearby will be made aware of the discovery.

- If a permitted archaeologist is on the Project site, the supervisor issuing the stop-work order will inform the archaeologist immediately.

- The permitted archaeologist will investigate the accidental discovery and determine if the find is an archaeological or heritage resource of concern.

- If there is no permitted archaeologist on site, the supervisor will contact Archaeological Services directly, and a representative with Archaeological Services will make the determination as to whether the discovery is an archaeological or heritage resource.

If the accidental discovery is determined to be an archaeological or heritage resource and additional work is planned on the site, all work will cease until a resolution of the accidental discovery is achieved (with approval from Archaeological Services) and a protocol is established to prevent future accidents on the site.

Following the reporting of the accidental discovery to the permitted archaeologist or supervisor, the accident, along with the details gathered, will be reported to Archaeological Services by the permitted archaeologist or supervisor. Archaeological Services must be contacted as soon as possible, or at least within four (4) hours, following the discovery. The inability to contact the Proponent is not a sufficient reason to delay contacting Archaeological Services. The Senior Archaeologist may make the call to Archaeological Services if a call from the field is not practical, for whatever reason. The following reporting procedure to Archaeological Services shall be carried out:

- first point of contact is the Project Executive (506-453-3014; 506-470-3901), Archaeological Services and second point of contact is the Manager, Archaeological Services (506-453-2756); or

- if direct voice contact is not made, a voice message providing as much detail as practical, followed by an email with further details to the Project Executive.

In this latter case, subsequent attempts at directly discussing the accident with an Archaeological Services staff member will be made until the situation can be discussed with the regulator - a voicemail and email alone are not sufficient to fulfill reporting requirements.

The time and content of the discussion with Archaeological Services is to be recorded in writing by the Permit Holder or the Senior Archaeologist, whoever is the caller. Copies of the records shall be submitted as soon as possible to the Project Manager, Senior Archaeologist, and to the project file.

Following initial discussions with Archaeological Services, First Nations will be informed of the accident. The instructions of Archaeological Services in respect of the accident shall be strictly adhered to. Should the recommended mitigation for the accident be acceptable to Archaeological Services, the Proponent will be informed of these measures by the Project Manager and the mitigation implemented. Should other or additional mitigation be required by Archaeological Services, it will be presented to the Proponent prior to implementation. Should a conflict arise between the Proponent's objectives and the requirements of Archaeological Services, the situation shall be discussed by all parties as soon as practicable to arrive at a satisfactory solution for all parties.

Archaeological Services has the authority to issue "Stop Work" orders for matters related to archaeological and heritage resources.

A written report on the accident, with details of the results of the communication and discussion above, along with the success of the mitigation will be provided to Archaeological Services and First Nations, within 48 hours of the discovery of the accident or within a timeframe agreed to by Archaeological Services.

6.3.1 Return to Work

Work will only resume in the vicinity of the accidental discovery when authorized clearance has been received from Archaeological Services.

6.4 BONE ENCOUNTER

For any situation where bones are encountered during construction activities, the procedures outlined in the *Protocol and Communication Strategy for the Accidental Discovery of Identifiable or Possible Human Remains and Bone Material* in Section 3.5 of this document.

6.5 TRAINING FOR NON-ARCHAEOLOGICAL PERSONNEL

All personnel involved in construction or on-site activities, without the presence of a permitted archaeologist, will be provided with training on the response and protection for heritage resources as part of any overall environmental awareness training.

Sensitivity training and awareness training of the importance of reporting and protecting archaeological and heritage resources will be included.

7.0 PROPOSED CREW TRAINING PLAN

7.1 INSTRUCTOR QUALIFICATIONS AND CREW STRUCTURE

The instructor qualifications will be consistent with the requirements to hold an AFRP in New Brunswick, or, have demonstrable comparative regional expertise and instructional experience.

The training of the crew will take place before fieldwork commencement and will include an overview of the prehistory of New Brunswick with special focus on the Archaic Period in the province and broader Northeast, all aspects of field methods, artifact identification, and artifact handling. It is anticipated that this training will involve a minimum of one-day in-class training and a field component, as well as on-the-job training. To ensure that new hires, field crew not familiar with the Site Area, and Field Technicians without prior archaeological training are comfortable with the work and understand their role in the Project, it is anticipated that field work will begin at a slower pace and gradually increase over time and that training will continue throughout the duration of the Project.

7.1.1 Field Crew Personnel

The Stantec Archaeology Team includes a number of individuals capable of holding AFRPs for archaeological work in New Brunswick, along with a number of highly experienced archaeologists familiar with shovel testing, excavation and site delineation. Experience on our team encompasses a variety of different geographic and temporal settings as well as research backgrounds and expertise.

As there have been very few sites from the Middle Archaic time period excavated throughout the Northeast, and no systematically excavated Stark-like component in New Brunswick, additional training will be provided to supervisory staff on the material culture, and literature (both published and "grey") from this time period. It is should be noted that at this time, it has not been determined that all artifacts recovered from the Site Area are indeed associated with the Middle Archaic period. To this end, Stantec has engaged with a number of qualified professionals potentially capable of providing assistance with expert technical advice in developing the AFR permit application and field methodology, as well as providing support in a field capacity, as per Section 1, item 5, Appendix A "Archaeological Field Research Permit Guidelines" of the Guidelines (Archaeological Services 2012:47):

> *"Specific experience in the type of project the applicant is applying for a permit for (i.e. shell-midden, historic site, underwater archaeology, site in an alluvial setting etc.). If the applicant cannot demonstrate experience in an area for which he/she is applying for a Permit, the applicant must include a letter from someone with this experience who has agreed to provide oversight of the applicant's project. This person agrees to accept responsibility for the methodology with the applicant and must therefore be intimately involved in developing the methodology and reviewing the results in consultation with Archaeological Services."*

7.1.1.1 Stantec Archaeology Team (New Brunswick)

- Christopher R. Blair, B.A. – Senior Archaeologist
- Vincent Bourgeois, M.A., RPA – Senior Archaeologist
- Greg Buchanan, M.Sc., RPA – Archaeologist/Human Osteologist
- Trevor Dow, B.A. – Archaeologist
- Ken Holyoke, M.A., RPA – Archaeologist
- Janice Lavergne, M.Sc., RPA – Archaeologist/Human Osteologist
- Shannon McDonnell-Melanson, M.A., RPA – Archaeologist
- Austin Paul (B.A. in progress) – Archaeologist
- Alexandre Pelletier-Michaud, B.A. – Archaeologist
- Michael Rooney, B.A., M.A. (in progress) – Archaeologist
- Christian Thériault, M.A., RPA – Archaeologist/Geoarchaeologist
- W. Jesse Webb, B.A., M.A. (in progress) – Archaeologist (focus in Zooarchaeology)

7.1.1.2 Stantec Archaeology Team (Ottawa/Guelph)

- Colin Varley, M.A., RPA – Senior Archaeologist

7.1.1.3 Stantec Archaeology Team (Saskatoon)

- Leslie J. (Butch) Amundson, M.A., RPA – Senior Archaeologist

7.1.1.4 University of New Brunswick (Expert Advisors)

- David W. Black, PhD. – Professor, Expert in Northeastern North American Archaeology
- Susan E. Blair, PhD. – Professor, Expert in Northeastern North American Archaeology
- Bruce E. Broster, PhD – Professor, Surficial and Quaternary Geologist, Department of Earth Sciences

7.1.1.5 New Brunswick Department of Natural Resources (Expert Advisors)

- Serge Allard. – Surficial Geologist, Geological Surveys Branch
- Alan Seaman, MSc., P.Geo – Quaternary and Surficial Geologist, Geological Surveys Branch

7.1.1.6 Field Crew Structure

Although the structure of field crews will be determined in detail prior to the commencement of fieldwork in 2014, the example provided below offers a proposed approach to the management structure for work to be undertaken in the Site Area including shovel testing and preliminary excavation. This structure is based upon the successful implementation of the proposed First Nations participation in 2014. See Appendix D for proposed operational schema for the shovel testing and excavation phases of the archaeological work at the Sisson Project. These schema are subject to change based on field discoveries, personnel resources, and the stage of work.

Permit Holder

The Permit Holder (Field Director) will have the experience and qualifications consistent with those required in the *Guidelines and Procedures for Conducting Professional Archaeological Assessments in New Brunswick* (Archaeological Services 2012). The duties of the Permit Holder will be to coordinate and direct all fieldwork on site. The Permit Holder will be present on site during all fieldwork. He/she will be responsible for setting up the excavation, ensuring the proper execution of methodology, analysis of the results, and production of the AFRP Final Report. Final responsibility and accountability for all decisions made on-site rests with the Permit Holder.

The prospective Permit Holder for this work will be Ken Holyoke, M.A., RPA. Mr. Holyoke has 6 years' field experience working in consulting and research archaeology in New Brunswick, British Columbia, Nova Scotia, Labrador, as well as a field school excavation in Belize, Central America. Mr. Holyoke has considerable experience in excavation, supervision and field direction spanning from the Late Archaic through to the Historic Period, as well as in a variety of environmental settings. An updated *Curriculum Vitae* for Mr. Holyoke will be included in the AFRP application for this work.

Senior technical expertise and advice will be provided on-site by Vincent Bourgeois, M.A., RPA, and Colin Varley, M.A., RPA. Mr. Bourgeois and Mr. Varley each have over 20 years' experience working in New Brunswick and Northeast prehistory, along with substantial experience in archaeological excavation. Mr. Bourgeois and Mr. Varley have also participated in, supervised and field directed numerous excavations spanning from the Palaeoindian period through to the Historic period in a variety of environmental settings and regions, including New Brunswick. Updated *Curricula Vitae* for Mr. Bourgeois and Mr. Varley will be included in the AFRP application for this work.

Janice Lavergne, M.Sc., RPA and Christian Thériault, M.A., RPA will be lead supervisors and/or Permit Holders and/or Permit Holder-alternates for the different components of the archaeological work at the Sisson Project. Both Ms. Lavergne and Mr. Thériault have over 10 years' archaeological experience working in New Brunswick, Québec, Ontario, and the United Kingdom. Updated *Curricula Vitae* for Ms. Lavergne and Mr. Thériault will be included in the AFRP application for this work.

In addition to Stantec personnel, expert technical advice, guidance, and, if warranted, on-site assistance, will be sought from independent researchers and consultants familiar with the temporal and environmental setting of the archaeological sites at the Sisson Project.

Field Supervisors

Field Supervisors will work directly under the Permit Holder/Field Director and will be in charge of excavating and documenting excavation units and shovel test pits while supervising field technicians. The field Supervisor qualifications will include prior experience in field methods (with a focus in excavation), field note taking, stratigraphic interpretation, artifact and feature identification, and laboratory techniques.

QA/QC and Field Logistics Personnel

The QA/QC and Field Logistics personnel will maintain a daily artifact inventory and ensure that the proper and accurate documentation is being produced during the excavation. He/she will also be responsible for the end of day artifact tally. The qualifications of this individual will be the same as a Supervisor.

Field Technicians

Field Technicians will be responsible for the excavating units and shovel test pits under the guidance of a field Supervisor. Field technicians will demonstrate a working knowledge and understanding of field techniques and an ability to identify cultural features and artifacts when encountered. They will be trained and aware of the sensitivities involved with working with and handling of Pre-Contact artifacts.

7.2 TRAINING PROVIDED

Training will be provided to all archaeological staff at the Sisson Project and will involve, at a minimum, one full day of classroom-based training, and one half-day orientation and training session in the field. These training sessions will include, but not necessarily be limited to:

- basic archaeological field methodology;
- archaeological excavation training;
- site-specific methodological training;
- an overview of New Brunswick archaeology and prehistory;
- an overview of the Archaic Period in New Brunswick;
- artifact and sample handling;
- chain of custody, supervisory and management structure;
- reviewing and understanding Project roles and responsibilities outlined in the Heritage Mitigation Plan for the Sisson Project; and
- reviewing and understanding the *Heritage Conservation Act* and the *Guideline and Procedures for Conducting Professional Archaeological Assessments in New Brunswick*.

In addition, considerable health, safety and environment (HSE) training will be provided in accordance with Stantec's and Northcliff's HSE Policies, including, but not limited to:

- Emergency First Aid;
- Green Defensive Driving;
- WHMIS;
- Bear Awareness;
- Stantec HSE Orientation and Safe Work Practice Review; and
- Sisson Project Site Orientation.

Once field work begins, continued education and mentorship in field methodology and best practices will be provided by Supervisors and Permit Holders. In addition to this training, Stantec has compiled a bibliography of source material (Appendix C), including published and grey literature, on various topics such as the late Pleistocene and early Holocene palaeo-environment in New Brunswick, local and regional geological history, the Archaic period, and the Middle Archaic period in New Brunswick and the Northeast. This bibliography will be made available to all archaeological personnel working at the Sisson Project (print copies will be brought to the field), and will continue to be added to as other resources are identified or become available.

8.0 ARTIFACT COLLECTION, HANDLING, ANALYSIS, AND CURATION PROCEDURES

8.1 ARTIFACT AND SAMPLE COLLECTION AND HANDLING

The following are procedures to be followed in the event that artifacts and/or possible artifacts are discovered in any *unit or test pit* during excavation.

8.1.1 Methodology and Practices

- In the interest of the long-term preservation and conservation of archaeological resources, Stantec will use only acid-free bags for all artifacts and artifact labels recovered during systematic excavation at the Site Area.

- As per Stantec's standard procedures, and following the Guidelines (Archaeological Services 2012) any formal tools or utilized/retouched flakes found *in situ* will be recovered using powder-free gloves along with associated soil matrix.

- All artifacts recovered *in situ* will be piece-plotted, at a minimum, with horizontal coordinates and circa depth (*e.g.*, 10–20 cm DBD), and all tools and debitage concentrations will be piece-plotted with horizontal coordinates and vertical measurements (DBD):

    - horizontal coordinates will be recorded using tape measures and plumb-bobs and measured from *unit* grid strings;

    - vertical measurements will be recorded from a *unit* datum, using a line-level and measuring tape;

    - where practicable, Stantec will use a Total station for the *in situ* plotting of artifacts and/or flake concentrations and/or features encountered in *sub-units* to enhance measurements made from individual unit data;

        - at a minimum, all piece-plotted artifacts and points recorded without the use of a Total station will be converted to digital spatial measurements tied to Site Area data;

    - all artifacts recovered *in situ* will be bagged individually with corresponding acid-free provenience tags; and

    - all artifacts recovered *in situ* will be recorded and sketch plotted on the level or sub-level Sub-Unit Record Form.

- All artifacts recovered from screens will be divided into the appropriate artifact class (*e.g.*, lithic, ceramic, faunal) and bagged as part of a *sub-unit* level, or *sub-unit* sub-level bag:

    - circa horizontal coordinates and vertical measurements will be placed on provenience tags for these *sub-unit* artifact bags; and

    - all artifacts recovered from screens will be recorded on the level or sub-level Sub-Unit Record Form.

- All artifacts recovered from *sub-unit* levels or sub-levels will be grouped together in a larger bag and all *sub-unit* bags will be kept in a durable plastic tote while *unit* excavation proceeds (chain of custody procedures are outlined, below).

In the event that charcoal is encountered in any *unit* during excavation, procedures include:

- A Supervisor and the Permit Holderwill confirm if collection of the charcoal is warranted (*i.e.*, not the result of a natural process such as root burn):

    - if collection is warranted, the sample will be collected using a trowel or a plastic disposable implement, while wearing powder-free gloves to ensure no contamination;

- The sample will be placed in a tinfoil envelope and sealed properly, before being placed in an acid-free bag with appropriate provenience tag.

- The sample will be recorded and sketch plotted on the level or sub-level Sub-Unit Record Form.

- Where artifacts are found in association with a charcoal sample, the charcoal sample and artifacts will be cross-referential.

If it is determined that the charcoal sample is part of a cultural feature, see the relevant procedures listed above.

8.2 ARTIFACT AND SAMPLE ANALYSIS

Northcliff is committed to completing analysis as outlined in Section 2.3.1.4 of the Guidelines (Archaeological Services 2012):

> *"It is the responsibility of the Proponent to cover all costs associated with the analysis and dating of samples as part of a site assessment".*

And Section 3.2.1.3 of the Guidelines (Archaeological Services 2012):

> *"To allow for a cursory assessment of ecofacts…consultants* ***must*** *collect soil samples from hearths, wells, burials, privies, living floors and middens…[representing] at minimum 10% of the total feature area".*
>
> *"For a mitigation project, all soils from these features* ***must*** *be bagged and floated by the excavator or a qualified paleobotanical expert (apart from the 10% sampled). If the feature is more than* [1 m^2]*, then a sample strategy should be employed whereby at least* [1 m^2] *of soil from the feature is floated."*
>
> *"In Project Proposals and AFRP applications, proponent are obliged to budget 5% of the total cost of the AIA for analysis, dating and conservation of recorded materials (minimum $1000)."*

> *"For Pre-Contact archaeological sites, any formal tools or utilized/retouched debitage must be recovered using unused powder-free gloves along with associated soil matrix…to permit the use of emerging analytical techniques sensitive to minute levels of contamination. Cleaning and sample extraction for these artifacts can be arranged with Archaeological Services."*

Stantec and Northcliff are committed to developing the various artifact and sample handling and analysis practices and procedures in consultation with Archaeological Services and the Curator of Collections.

In the event that any invasive or destructive analytical techniques (*e.g.,* radiocarbon dating) are to take place on any artifact or sample collected at the Sisson Project, Stantec will first consult with Archaeological Services.

8.2.1 Methodology and Practices

Northcliff and Stantec will also seek out the services of an individual trained and experienced in palaeobotanical analysis for any ecofacts recovered during flotation, and a qualified zooarchaeologist or archaeologist with appropriate training to provide analysis of any faunal material. At a minimum, analysis of a statistically valid sample of all subsistence-related material will be conducted, as per the Guidelines.

The extent and scope of this analysis will be developed in consultation with Archaeological Services, as per the Guidelines.

8.3 ARTIFACT AND SAMPLE CURATION

A field inventory of artifacts and samples will be maintained by the QA/QC and Field Logistics personnel. In the interest of time and the limited capacity for electronic equipment, cataloguing and lab space in the field, no formal catalogue will be prepared until out of the field.

In the event that a large number of artifacts begin to be recovered during systematic excavation, a dedicated lab technician may be employed to catalogue and conduct preliminary analysis of artifacts while field work is ongoing. The threshold number of artifacts per day or per week at which point a lab technician would be required will be determined in consultation with the Proponent.

8.3.1 Methodology and Practices

8.3.1.1 Stable Artifacts

Stable artifacts (*e.g.,* stone-tools) will be collected, recorded, and bagged, using acid-free bags, as per the procedures outlined above. These artifacts will be submitted to Archaeological Services upon completion of the AFRP final report as per Stantec's standard procedures, and the Guidelines (Archaeological Services 2012).

8.3.1.2 Unstable Artifacts

Unstable artifacts (*e.g.,* ceramics, metals, organic artifacts or ecofacts) will be collected and recorded as per the procedures outlined above. The various categories of unstable artifacts may require additional collection and bagging methods (*e.g.,* hard-plastic storage containers). Additional artifact-specific curation measures may be developed in consultation with AS.

As per Stantec's standard procedures, in the event that unstable artifacts are encountered and need to be removed from the ground, our first point of contact will be Dee Stubbs-Lee, Conservator at the New Brunswick Museum. Ms. Stubbs-Lee can offer conservation advice and can identify specialists and contacts in the field that are available on a consultation basis.

All unstable artifacts to be photographed *in situ* and an *Artifact Condition Report* will be completed (Appendix H of the Guidelines) for each unstable or perishable artifact.

Ceramics

Stantec will use acid-free bags to collect and hard-plastic totes to store, ceramic artifacts in the field, as per Stantec's standard procedures. Care will be taken to retain the condition of any ceramic artifacts by keeping avoiding fast drying, and storing separately from other artifacts.

Metals

Stantec will use acid-free bags to collect and hard-plastic totes to store, metal artifacts in the field, as per Stantec's standard procedures. If recovered from a moist context, care will be taken to retain the condition of any metal artifacts by keeping them moist and storing separately from other artifacts.

If found in a dry context Stantec will use paper bags to collect, and hard-plastic totes to store, metal artifacts (*e.g.,* nails) in the field. Care will be taken to reduce moisture while these artifacts are in storage through the use of desiccants (*e.g.,* silica gel) and storing separately from other unstable and stable artifacts.

All metal artifacts will be bagged individually, even if recovered from a screen.

In the event that metal objects potentially representing burial ceremonialism (*e.g.,* copper) are encountered, a 10 m buffer will be established surrounding this specific positive shovel test pit and the procedures described below in the *Protocols and Communication Strategy for the Accidental Discovery of Identifiable or Possible Human Remains* (Section 3.5) will be followed. Situation-specific curation measures will be developed in consultation with AS.

Organics

Stantec will use acid-free bags to collect, and hard-plastic totes to store, organic artifacts (*e.g.,* wood, faunal remains, and botanics) in the field, as per Stantec's standard procedures. If recovered, care will be taken to retain the condition of any organic artifacts by storing them in a cool, moist location separate from other artifacts.

9.0 CLOSING

This Plan serves as a guidance document to other documents (*e.g.,* AFRP applications) and will be revisited and updated as necessary. Any requirements to modify the Heritage Mitigation Plan for the Sisson Project will be handled through amendments to Archaeological Field Research Permits issued for the various components of the archaeological impact assessments.

This *Heritage Mitigation Plan for the Sisson Project* has been prepared as a regulatory requirement as per the Guidelines (Archaeological Services 2012) and the *Heritage Conservation Act*, for the sole benefit of Northcliff. Methodology, communication and field procedures, and best practices described herein may not be used in written form by any other person or entity, other than for its intended purposes, without the express written consent of Stantec Consulting Ltd. (Stantec) and Northcliff. Any use which a third party makes of this report is the responsibility of such third party.

The information and recommendations contained in this Plan are based upon work undertaken in accordance with generally accepted scientific practices current at the time the work was performed. Further, the information and recommendations contained in this Plan are in accordance with our understanding of the Project as it was presented at the time of our report. The information provided in this report was compiled from existing documents, design information provided by Northcliff, data provided by regulatory agencies and others, as well as field work carried out in 2013 and proposed for 2014, specifically in support of this Plan.

Stantec Consulting Ltd.

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Appendix A

Sub-Unit Record Form

EXCAVATION SUB-UNIT RECORD FORM

Site:	**Project #:**	**Permit #:**
Date Opened:	**Date Closed:**	**Excavator (s):**
Unit Information		
Area:	**Unit #:**	**Sub-Unit:**
Level	**Feature**	**Nearest STP**
Level: ☐ Natural ☐ Cultural ☐ Arbitrary		

Soil Description		
Sediment Texture:	**Sediment Colour:**	
Consolidation:	**Inclusions**	
Comments:		
Charcoal: Y / N	**Samples Taken:** Y / N	**LIST SAMPLES BELOW**

ELEVATIONS: Datum #_____			**PHOTOS** Camera # _____	
***all measures are DEPTH BELOW DATUM (DBD)**	**OPENED**	**CLOSED**	**PHOTO ID**	**DESCRIPTION**
NW				
NE				
Centre				
SE				
SW				

Artifacts/Samples (PLOT ON SKETCH BY NUMBER, BACK OF PAGE)

North (Y)	East (X)	DBD	Description	Sketch #

EXCAVATION SUB-UNIT RECORD FORM

Additional General Comments _____

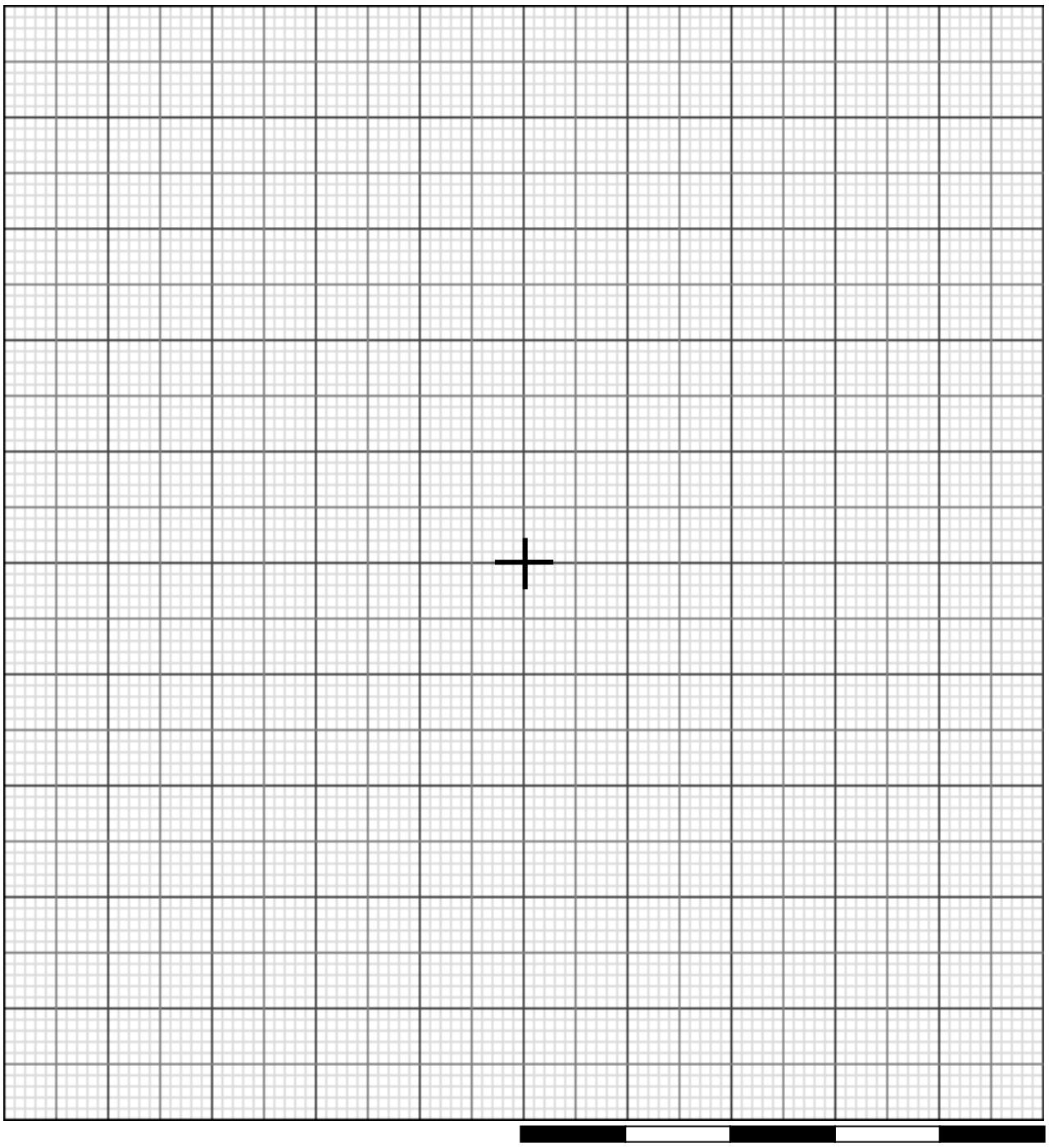
_____

_____

_____

_____

N



Scale Bar = 50 cm

Appendix B

Figures

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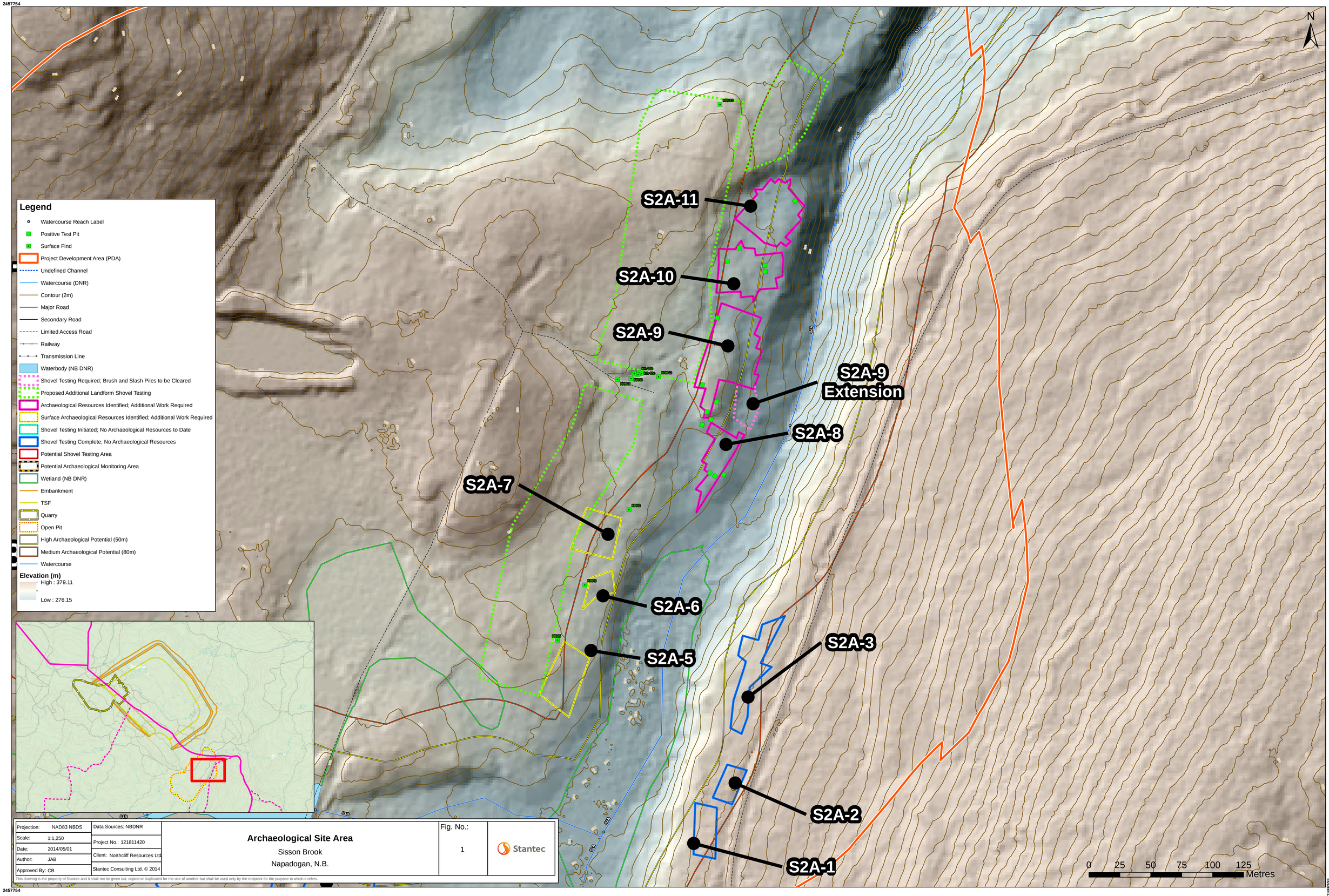

Legend

- Watercourse Reach Label
- Positive Test Pit
- Surface Find
- Project Development Area (PDA)
- Undefined Channel
- Watercourse (DNR)
- Contour (2m)
- Major Road
- Secondary Road
- Limited Access Road
- Railway
- Transmission Line
- Waterbody (NB DNR)
- Shovel Testing Required; Brush and Slash Piles to be Cleared
- Proposed Additional Landform Shovel Testing
- Archaeological Resources Identified; Additional Work Required
- Surface Archaeological Resources Identified; Additional Work Required
- Shovel Testing Initiated; No Archaeological Resources to Date
- Shovel Testing Complete; No Archaeological Resources
- Potential Shovel Testing Area
- Potential Archaeological Monitoring Area
- Wetland (NB DNR)
- Embankment
- TSF
- Quarry
- Open Pit
- High Archaeological Potential (50m)
- Medium Archaeological Potential (80m)
- Watercourse

Elevation (m)

High : 379.11

Low : 276.15

Projection: NAD83 NBDS	Data Sources: NBDNR	**Archaeological Site Area** Sisson Brook Napadogan, N.B.	Fig. No.: 1
Scale: 1:1,250	Project No.: 121811420		
Date: 2014/05/01	Client: Northcliff Resources Ltd.		
Author: JAB			
Approved By: CB	Stantec Consulting Ltd. © 2014		

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N

Legend

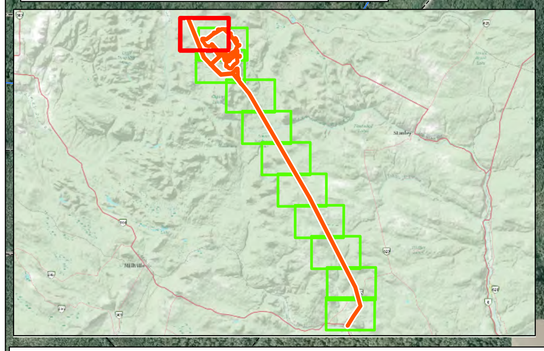
- Project Development Area (PDA)
- Embankment
- TSF
- Quarry
- Major Road
- Secondary Road
- Resource Road/Trail
- Railway
- Transmission Line
- Open Pit
- Undefined Channel
- Watercourse (DNR)
- Major Road
- Secondary Road
- Limited Access Road
- Railway
- Transmission Line
- Waterbody (NB DNR)

Mine Site Area Shovel Testing Progress

- Archaeological Resources Identified; Additional Work Required
- Surface Archaeological Resources Identified; Additional Work Required
- Shovel Testing Initiated; No Archaeological Resources to Date
- Shovel Testing Complete; No Archaeological Resources
- Potential Shovel Testing Area
- Potential Archaeological Monitoring Area
- Proposed Additional Landform Shovel Testing

Linear Facility Shovel Testing Recommendations

- Potential Late Glacial Feature
- Stone Buffer Avoidance Area *
- Potential Shovel Testing / Avoidance Area *
- Potential Strategic Testing Area *
- Low Potential Area
- Watercourse Area



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Scale: 1:7,500	Project No.: 121811420	Sisson Project	2	
Date: 2014/04/25	Client: Northcliff Resources Ltd.	Napadogan, N.B.		
Author: JAB	Stantec Consulting Ltd. © 2014			
Approved By: CB				

0 250 500 750 1,000 1,250 Metres

Legend

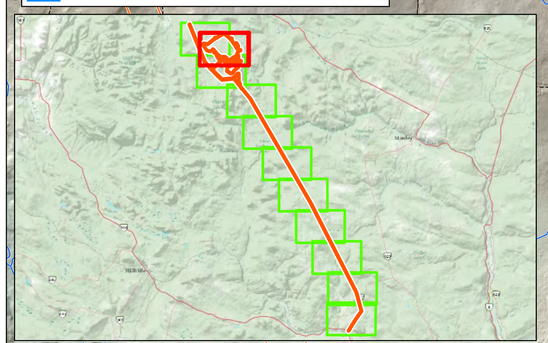
- Project Development Area (PDA)
- Embankment
- TSF
- Quarry
- Major Road
- Secondary Road
- Resource Road/Trail
- Railway
- Transmission Line
- Open Pit
- Undefined Channel
- Watercourse (DNR)
- Major Road
- Secondary Road
- Limited Access Road
- Railway
- Transmission Line
- Waterbody (NB DNR)

Mine Site Area Shovel Testing Progress

- Archaeological Resources Identified; Additional Work Required
- Surface Archaeological Resources Identified; Additional Work Required
- Shovel Testing Initiated; No Archaeological Resources to Date
- Shovel Testing Complete; No Archaeological Resources
- Potential Shovel Testing Area
- Potential Archaeological Monitoring Area
- Proposed Additional Landform Shovel Testing

Linear Facility Shovel Testing Recommendations

- Potential Late Glacial Feature
- Stone Buffer Avoidance Area *
- Potential Shovel Testing / Avoidance Area *
- Potential Strategic Testing Area *
- Low Potential Area
- Watercourse Area



Projection: NAD83 NBDS	Data Sources: NBDNR	**Shovel Testing Areas** Sisson Project Napadogan, N.B.	Fig. No.: 3
Scale: 1:7,500	Project No.: 121811420		
Date: 2014/04/25	Client: Northcliff Resources Ltd.		
Author: JAB	Stantec Consulting Ltd. © 2014		
Approved By: CB			

0 250 500 750 1,000 1,250 Metres

Legend

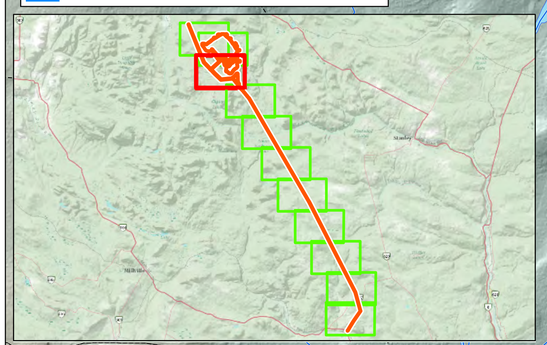
- Project Development Area (PDA)
- Embankment
- TSF
- Quarry
- Major Road
- Secondary Road
- Resource Road/Trail
- Railway
- Transmission Line
- Open Pit
- Undefined Channel
- Watercourse (DNR)
- Major Road
- Secondary Road
- Limited Access Road
- Railway
- Transmission Line
- Waterbody (NB DNR)

Mine Site Area Shovel Testing Progress

- Archaeological Resources Identified; Additional Work Required
- Surface Archaeological Resources Identified; Additional Work Required
- Shovel Testing Initiated; No Archaeological Resources to Date
- Shovel Testing Complete; No Archaeological Resources
- Potential Shovel Testing Area
- Potential Archaeological Monitoring Area
- Proposed Additional Landform Shovel Testing

Linear Facility Shovel Testing Recommendations

- Potential Late Glacial Feature
- Stone Buffer Avoidance Area *
- Potential Shovel Testing / Avoidance Area *
- Potential Strategic Testing Area *
- Low Potential Area
- Watercourse Area



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Scale: 1:7,500	Project No.: 121811420	Sisson Project	4	
Date: 2014/04/25	Client: Northcliff Resources Ltd.	Napadogan, N.B.		
Author: JAB	Stantec Consulting Ltd. © 2014			
Approved By: CB				

0 250 500 750 1,000 1,250 Metres

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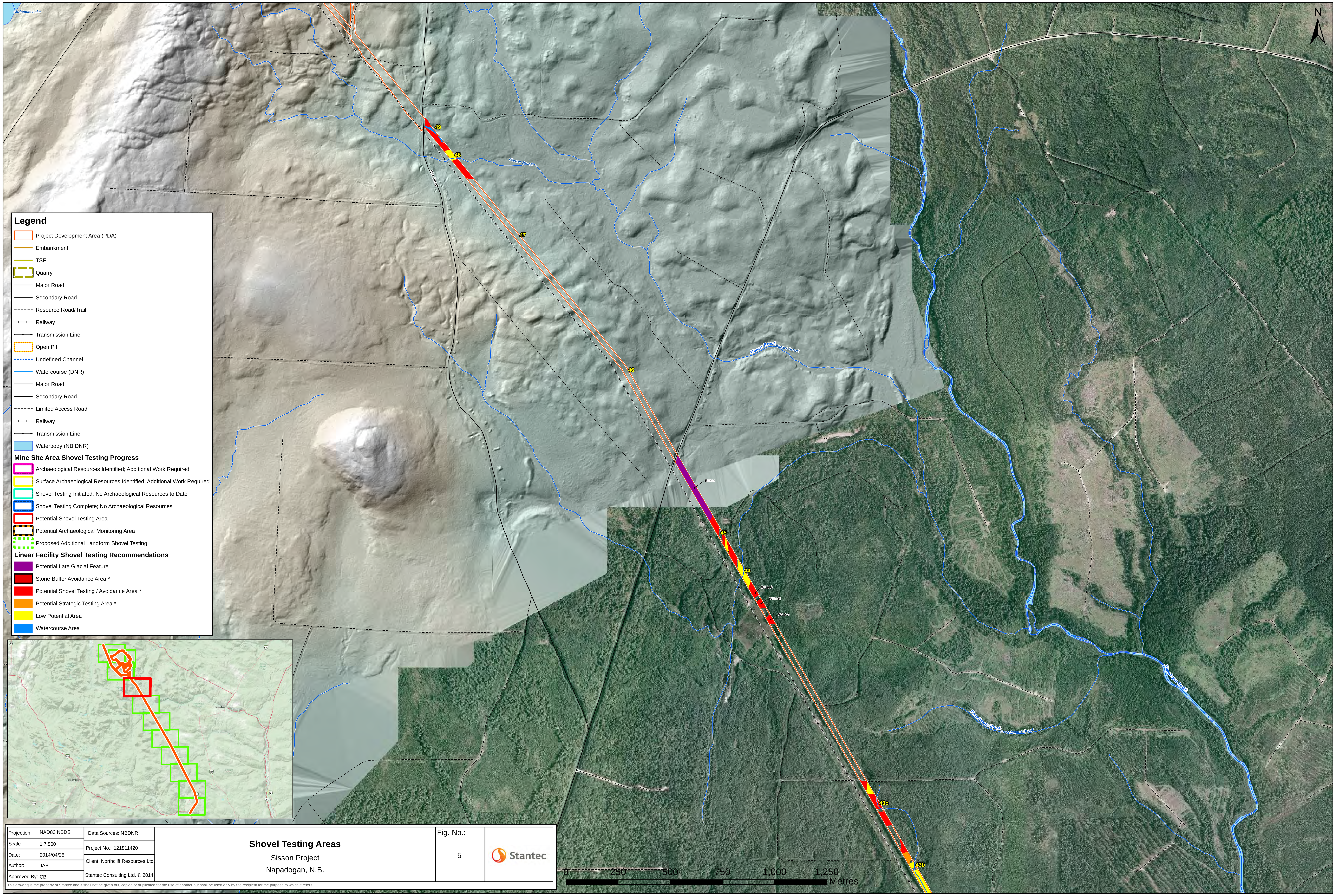

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Date: 2014/04/25	Client: Northcliff Resources Ltd.	Napadogan, N.B.		
Author: JAB	Stantec Consulting Ltd. © 2014			
Approved By: CB				

Legend

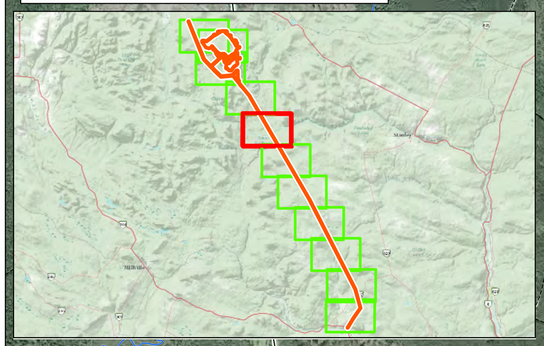
- Project Development Area (PDA)
- Embankment
- TSF
- Quarry
- Major Road
- Secondary Road
- Resource Road/Trail
- Railway
- Transmission Line
- Open Pit
- Undefined Channel
- Watercourse (DNR)
- Major Road
- Secondary Road
- Limited Access Road
- Railway
- Transmission Line
- Waterbody (NB DNR)

Mine Site Area Shovel Testing Progress

- Archaeological Resources Identified; Additional Work Required
- Surface Archaeological Resources Identified; Additional Work Required
- Shovel Testing Initiated; No Archaeological Resources to Date
- Shovel Testing Complete; No Archaeological Resources
- Potential Shovel Testing Area
- Potential Archaeological Monitoring Area
- Proposed Additional Landform Shovel Testing

Linear Facility Shovel Testing Recommendations

- Potential Late Glacial Feature
- Stone Buffer Avoidance Area *
- Potential Shovel Testing / Avoidance Area *
- Potential Strategic Testing Area *
- Low Potential Area
- Watercourse Area



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Date: 2014/04/25	Client: Northcliff Resources Ltd.	Napadogan, N.B.		
Author: JAB	Stantec Consulting Ltd. © 2014			
Approved By: CB				

0 250 500 750 1,000 1,250 Metres

Legend

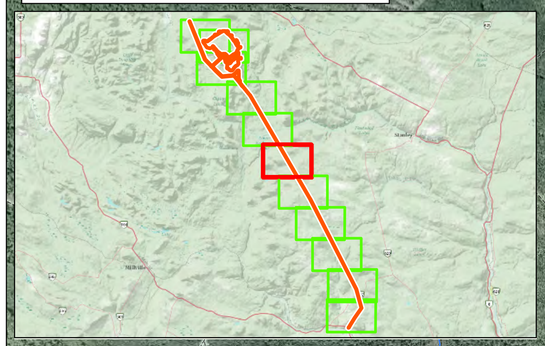
- Project Development Area (PDA)
- Embankment
- TSF
- Quarry
- Major Road
- Secondary Road
- Resource Road/Trail
- Railway
- Transmission Line
- Open Pit
- Undefined Channel
- Watercourse (DNR)
- Major Road
- Secondary Road
- Limited Access Road
- Railway
- Transmission Line
- Waterbody (NB DNR)

Mine Site Area Shovel Testing Progress

- Archaeological Resources Identified; Additional Work Required
- Surface Archaeological Resources Identified; Additional Work Required
- Shovel Testing Initiated; No Archaeological Resources to Date
- Shovel Testing Complete; No Archaeological Resources
- Potential Shovel Testing Area
- Potential Archaeological Monitoring Area
- Proposed Additional Landform Shovel Testing

Linear Facility Shovel Testing Recommendations

- Potential Late Glacial Feature
- Stone Buffer Avoidance Area *
- Potential Shovel Testing / Avoidance Area *
- Potential Strategic Testing Area *
- Low Potential Area
- Watercourse Area



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Scale:	1:7,500
Date:	2014/04/25
Author:	JAB
Approved By:	CB

Data Sources: NBDNR

Project No.: 121811420

Client: Northcliff Resources Ltd.

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Shovel Testing Areas

Sisson Project

Napadogan, N.B.

Fig. No.: 7

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0 250 500 750 1,000 1,250 Metres

N

Legend

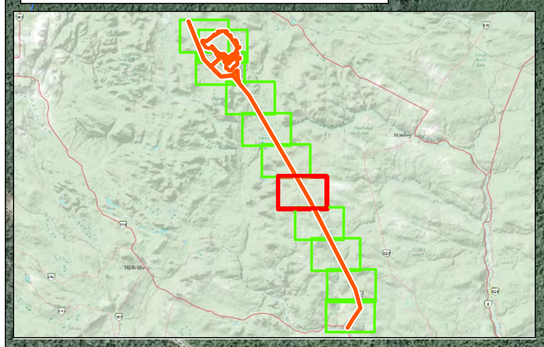
- Project Development Area (PDA)
- Embankment
- TSF
- Quarry
- Major Road
- Secondary Road
- Resource Road/Trail
- Railway
- Transmission Line
- Open Pit
- Undefined Channel
- Watercourse (DNR)
- Major Road
- Secondary Road
- Limited Access Road
- Railway
- Transmission Line
- Waterbody (NB DNR)

Mine Site Area Shovel Testing Progress

- Archaeological Resources Identified; Additional Work Required
- Surface Archaeological Resources Identified; Additional Work Required
- Shovel Testing Initiated; No Archaeological Resources to Date
- Shovel Testing Complete; No Archaeological Resources
- Potential Shovel Testing Area
- Potential Archaeological Monitoring Area
- Proposed Additional Landform Shovel Testing

Linear Facility Shovel Testing Recommendations

- Potential Late Glacial Feature
- Stone Buffer Avoidance Area *
- Potential Shovel Testing / Avoidance Area *
- Potential Strategic Testing Area *
- Low Potential Area
- Watercourse Area



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Scale: 1:7,500	Project No.: 121811420		
Date: 2014/04/25	Client: Northcliff Resources Ltd.		
Author: JAB	Stantec Consulting Ltd. © 2014		
Approved By: CB			

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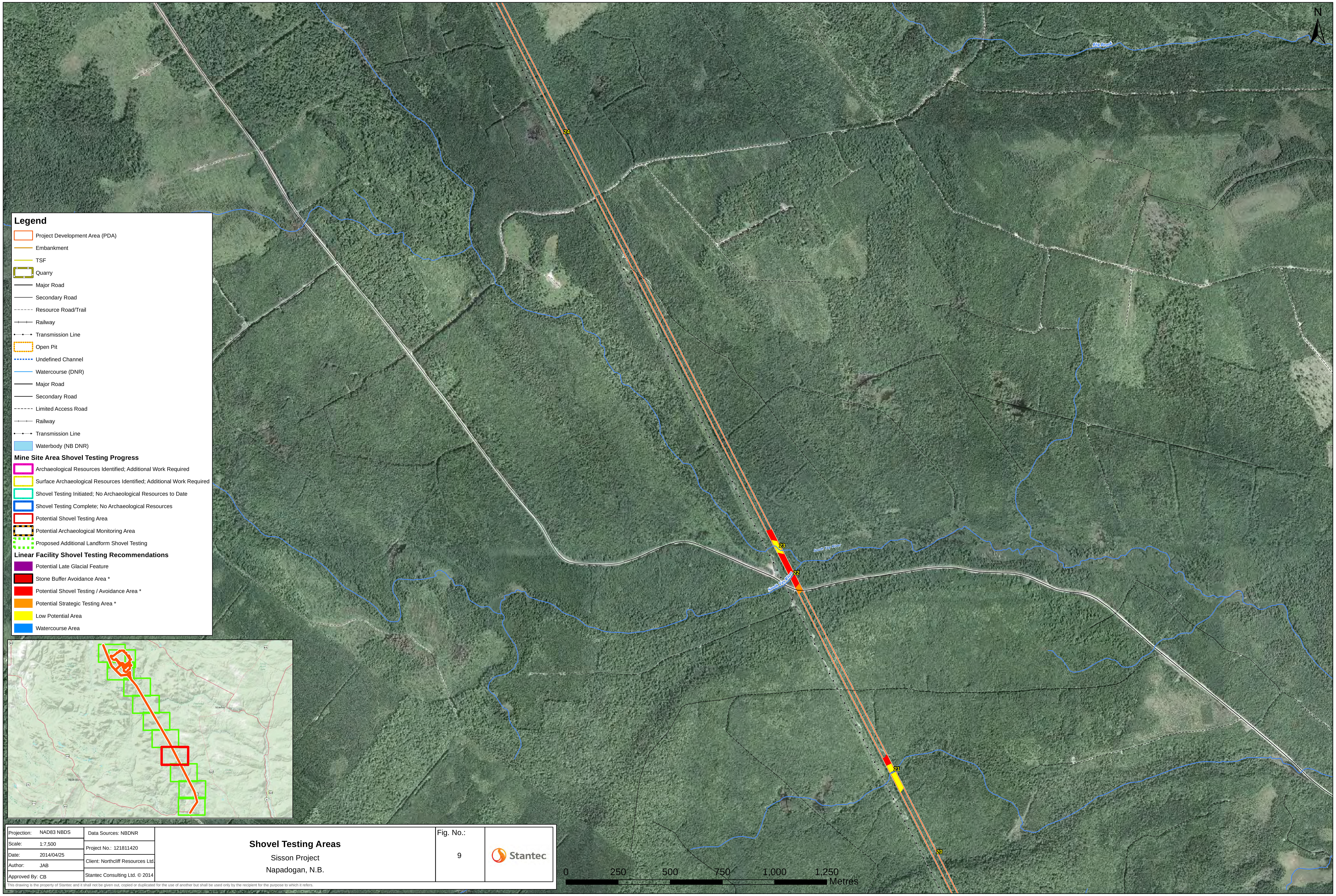

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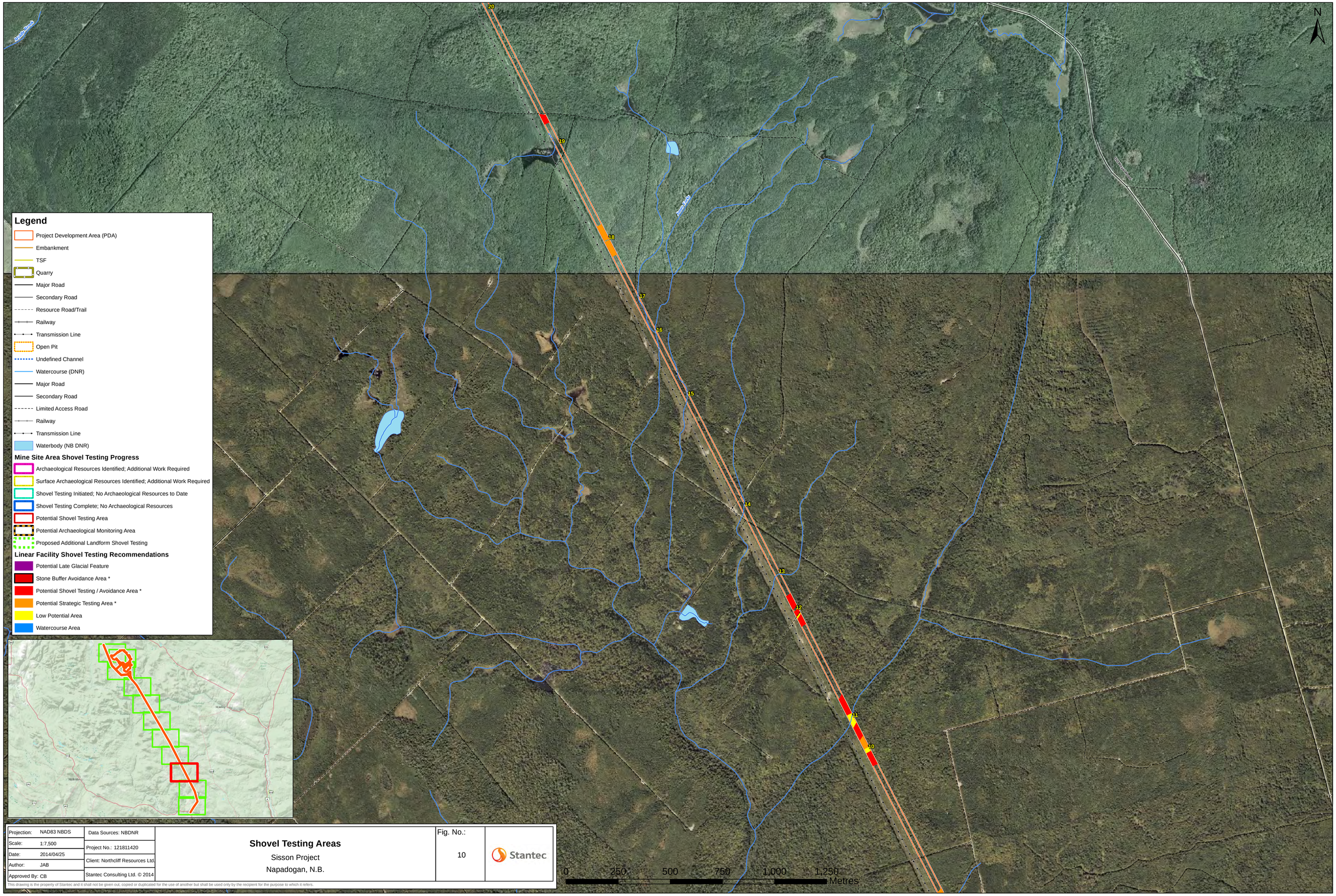
Scale: 1:7,500	Project No.: 121811420			
Date: 2014/04/25	Client: Northcliff Resources Ltd.			
Author: JAB	Stantec Consulting Ltd. © 2014			
Approved By: CB				


20
19
18
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Legend
Project Development Area (PDA)
Embankment
TSF
Quarry
Major Road
Secondary Road
Resource Road/Trail
Railway
Transmission Line
Open Pit
Undefined Channel
Watercourse (DNR)
Major Road
Secondary Road
Limited Access Road
Railway
Transmission Line
Waterbody (NB DNR)
Mine Site Area Shovel Testing Progress
Archaeological Resources Identified; Additional Work Required
Surface Archaeological Resources Identified; Additional Work Required
Shovel Testing Initiated; No Archaeological Resources to Date
Shovel Testing Complete; No Archaeological Resources
Potential Shovel Testing Area
Potential Archaeological Monitoring Area
Proposed Additional Landform Shovel Testing
Linear Facility Shovel Testing Recommendations
Potential Late Glacial Feature
Stone Buffer Avoidance Area *
Potential Shovel Testing / Avoidance Area *
Potential Strategic Testing Area *
Low Potential Area
Watercourse Area
Projection: NAD83 NBDS
Scale: 1:7,500
Date: 2014/04/25
Author: JAB
Approved By: CB
Data Sources: NBDNR
Project No.: 121811420
Client: Northcliff Resources Ltd.
Stantec Consulting Ltd. © 2014
Shovel Testing Areas
Sisson Project
Napadogan, N.B.
Fig. No.:
10
Stantec
0
250
500
750
1,000
1,250
Metres
This drawing is the property of Stantec and it shall not be given out, copied or duplicated for the use of another but shall be used only by the recipient for the purpose to which it refers.

Legend

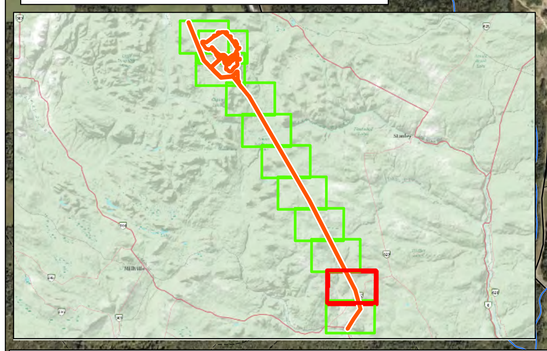
- Project Development Area (PDA)
- Embankment
- TSF
- Quarry
- Major Road
- Secondary Road
- Resource Road/Trail
- Railway
- Transmission Line
- Open Pit
- Undefined Channel
- Watercourse (DNR)
- Major Road
- Secondary Road
- Limited Access Road
- Railway
- Transmission Line
- Waterbody (NB DNR)

Mine Site Area Shovel Testing Progress

- Archaeological Resources Identified; Additional Work Required
- Surface Archaeological Resources Identified; Additional Work Required
- Shovel Testing Initiated; No Archaeological Resources to Date
- Shovel Testing Complete; No Archaeological Resources
- Potential Shovel Testing Area
- Potential Archaeological Monitoring Area
- Proposed Additional Landform Shovel Testing

Linear Facility Shovel Testing Recommendations

- Potential Late Glacial Feature
- Stone Buffer Avoidance Area *
- Potential Shovel Testing / Avoidance Area *
- Potential Strategic Testing Area *
- Low Potential Area
- Watercourse Area



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Scale: 1:7,500	Project No.: 121811420		
Date: 2014/04/25	Client: Northcliff Resources Ltd.		
Author: JAB	Stantec Consulting Ltd. © 2014		
Approved By: CB			

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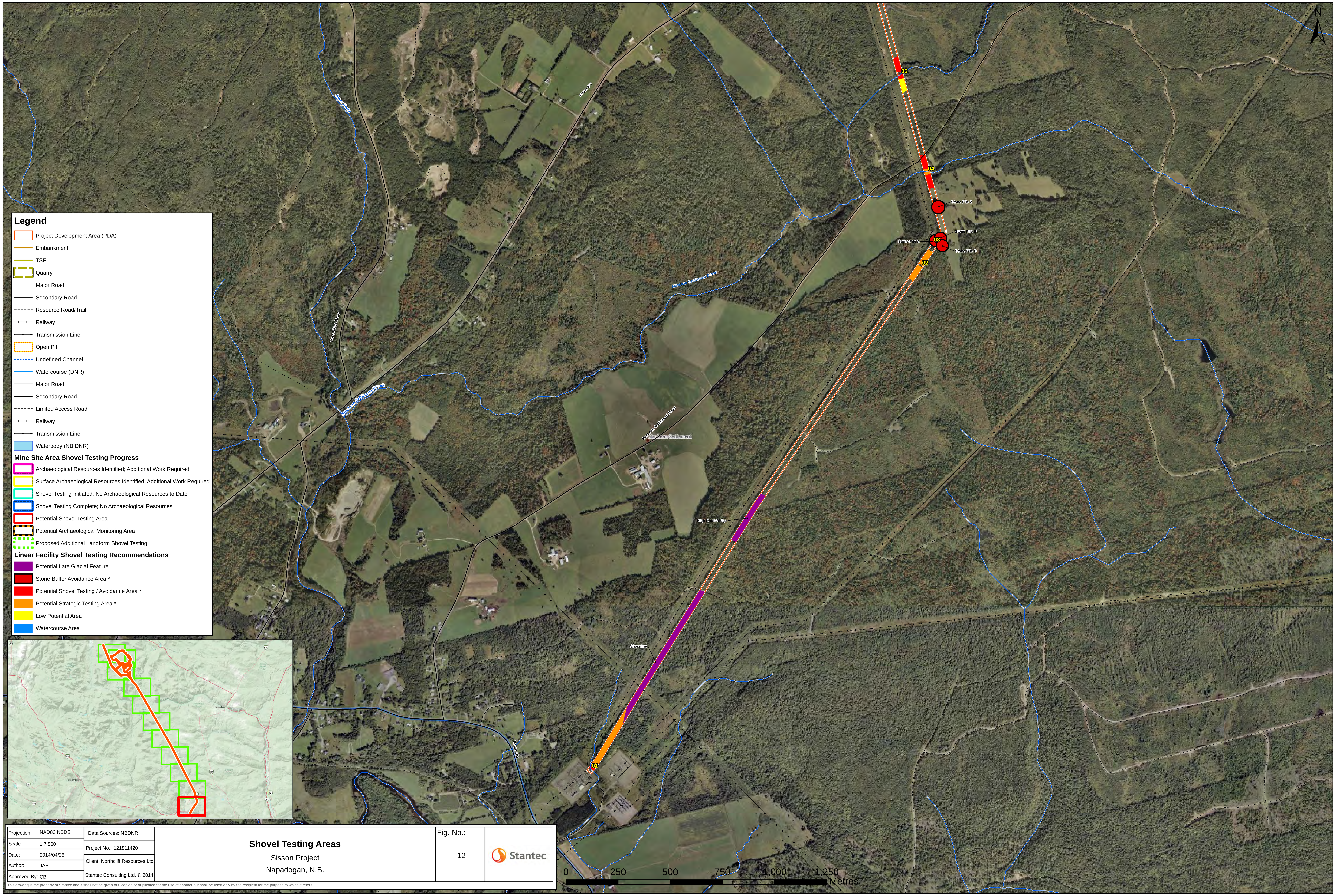

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Scale: 1:7,500	Project No.: 121811420		
Date: 2014/04/25	Client: Northcliff Resources Ltd.		
Author: JAB			
Approved By: CB	Stantec Consulting Ltd. © 2014		

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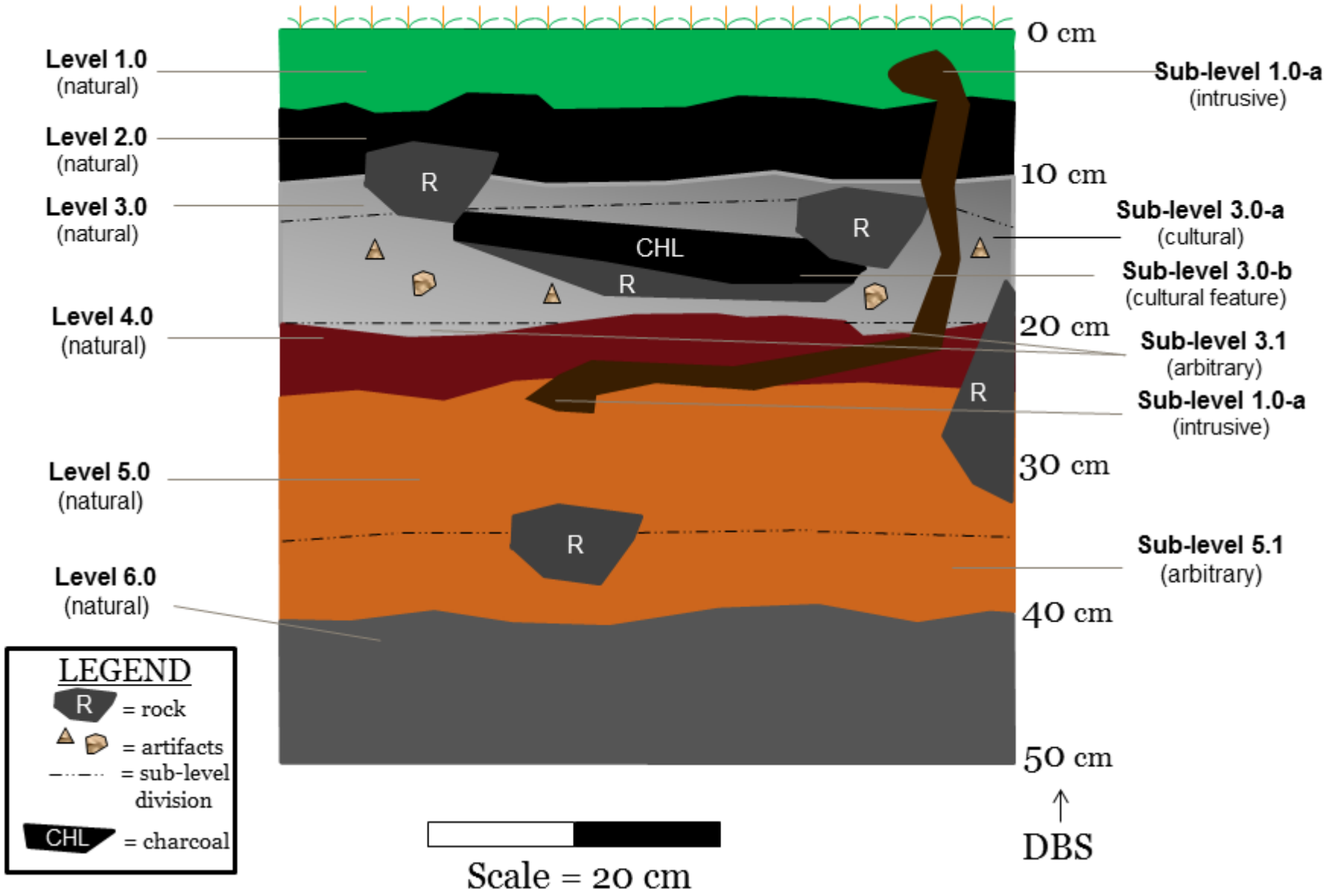

Proposed Excavation Level and Sub-level Profile	**Scale:**	**Job No.:**		**Figure No.:**
	N/A	121811420		**13**
	Date:	**Dwn By:**	**Appd. By:**	
Client: **Sisson Mines Ltd.**	May 7, 2014	TEA	KRH	

Stantec

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Appendix C

Bibliography of Archaic, Late Pleistocene and Early Holocene Literature

Bibliography of Archaic, Late Pleistocene and Early Holocene Literature in the Northeast

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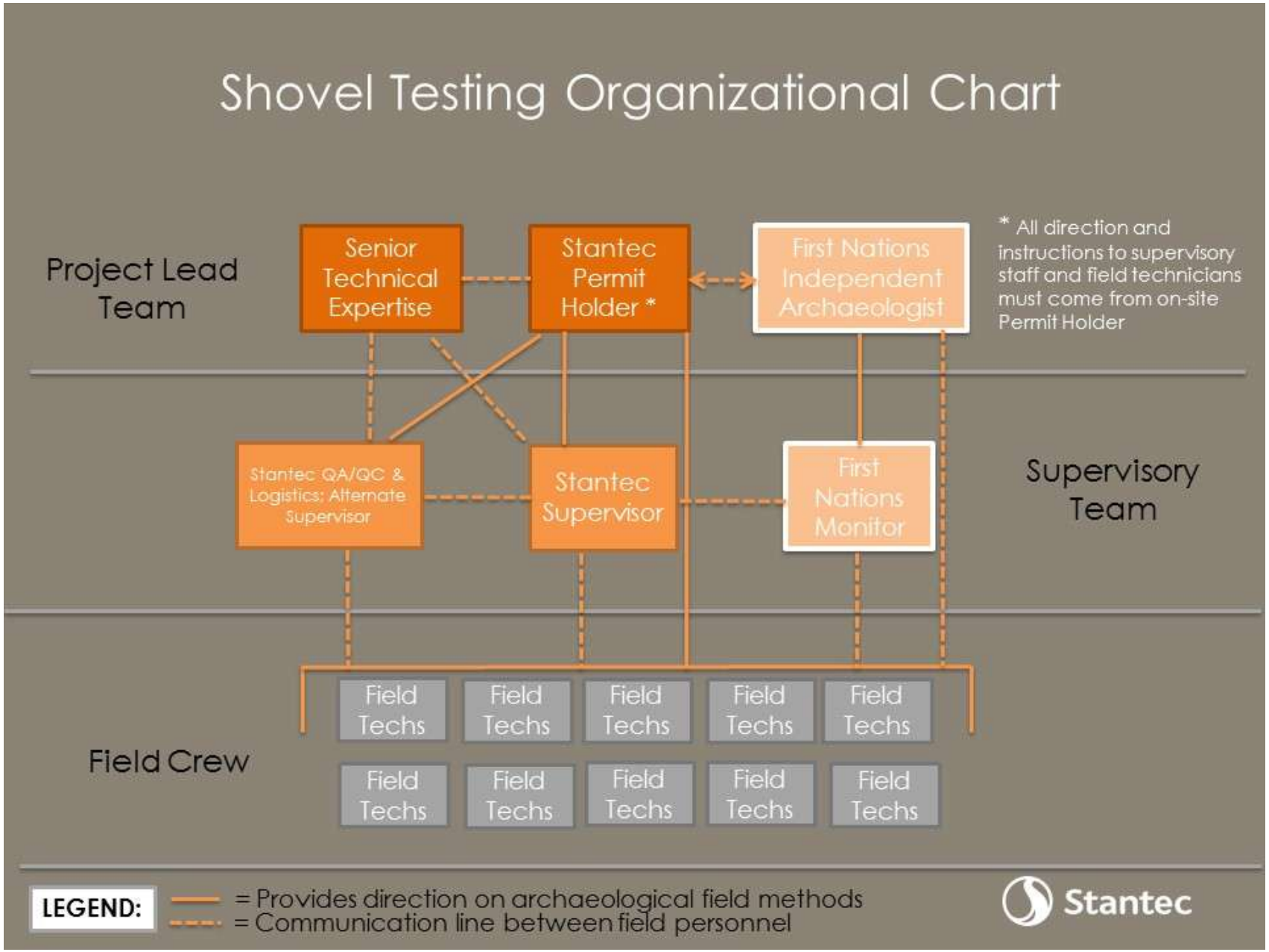
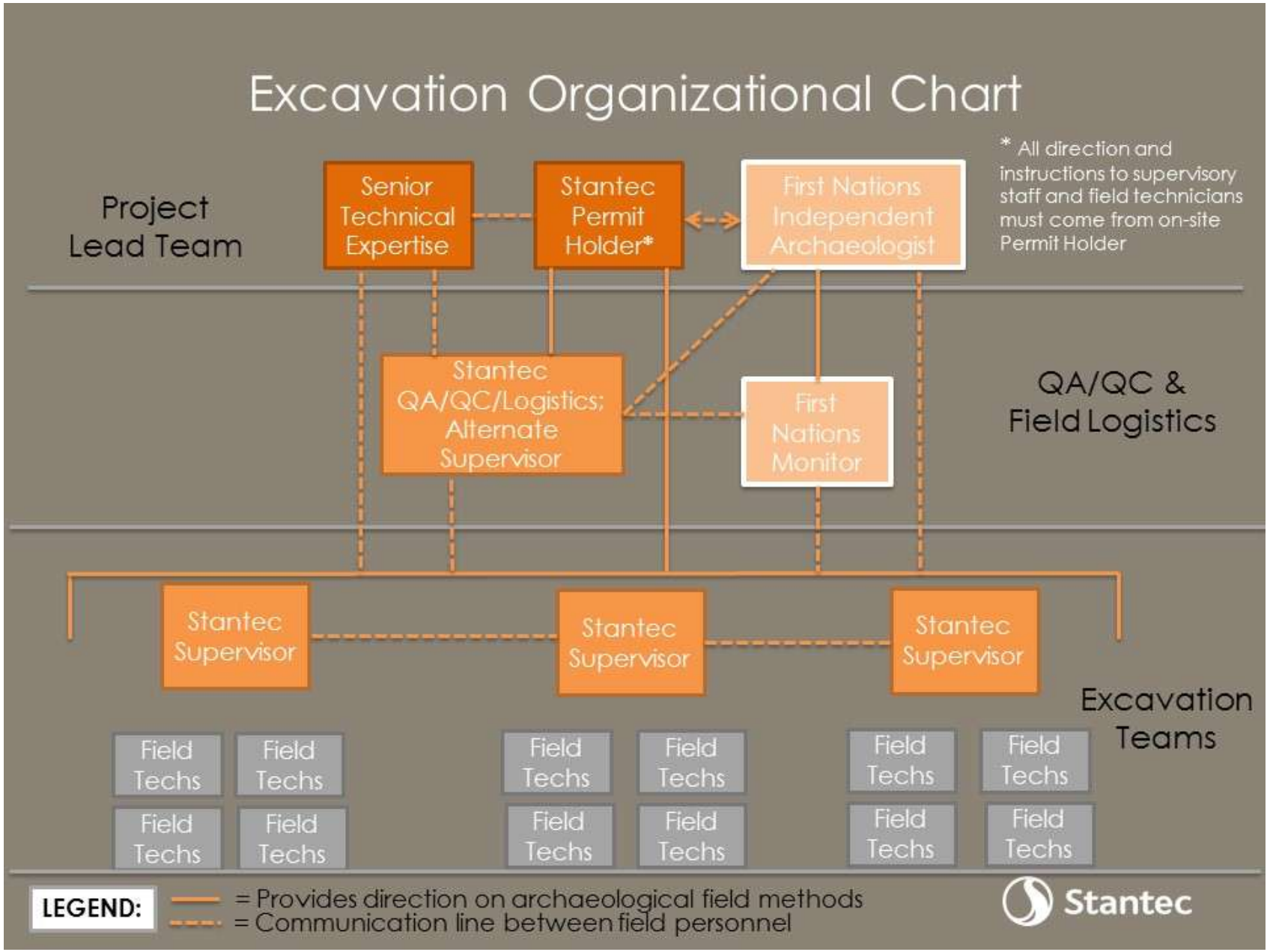
Appendix D

Operational Schema


Shovel Testing Organizational Chart
Project Lead Team
Senior Technical Expertise
Stantec Permit Holder *
First Nations Independent Archaeologist
* All direction and instructions to supervisory staff and field technicians must come from on-site Permit Holder
Stantec QA/QC & Logistics; Alternate Supervisor
Stantec Supervisor
First Nations Monitor
Supervisory Team
Field Techs
Field Crew
LEGEND:
= Provides direction on archaeological field methods
= Communication line between field personnel
Stantec


Excavation Organizational Chart
Project Lead Team
Senior Technical Expertise
Stantec Permit Holder*
First Nations Independent Archaeologist
* All direction and instructions to supervisory staff and field technicians must come from on-site Permit Holder
Stantec QA/QC/Logistics; Alternate Supervisor
First Nations Monitor
QA/QC & Field Logistics
Stantec Supervisor
Stantec Supervisor
Stantec Supervisor
Excavation Teams
Field Techs
LEGEND:
= Provides direction on archaeological field methods
= Communication line between field personnel
Stantec

Appendix E

Contact List of the Sisson Project Heritage Mitigation Plan

Contact List for the Sisson Project Heritage Mitigation Plan

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