

Construction Environmental Management Plan
Rev 3.0
Fraser Grain Terminal
11041 Elevator Road, Surrey, BC

Prepared for:
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APPENDIX E
Chance Find Procedure

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS	III
1.0 KEY CONTACTS.....	1
2.0 INTRODUCTION.....	2
3.0 INDIGENOUS CULTURAL HERITAGE.....	2
4.0 CHANCE FIND GUIDANCE AND PROCEDURE.....	3
5.0 PROCEDURE FOR REPORTING ANCESTRAL / HUMAN REMAINS (NOT OF FORENSIC CONCERN).....	5
6.0 ARCHAEOLOGICAL AND CULTURAL HERITAGE RESOURCES IN BC	7
7.0 REPORTING	18
8.0 LEGISLATION.....	18
9.0 REFERENCES.....	19

LIST OF PHOTOS (WITHIN TEXT)

Photo 1	Cultural shell deposit (“midden”)	7
Photo 2	Salmon and Herring Bone.....	8
Photo 3	Burial (rock) Cairn (Beacon Hill, Victoria BC).....	8
Photo 4	Hearth (firepit) feature with fire-cracked rock.....	9
Photo 5	Clam garden diagram	9
Photo 6	Clam garden rock walls	10
Photo 7	Intertidal Fish Trap	10
Photo 8	Intertidal Fish Trap (Burrard Inlet, BC).....	11
Photo 9	Tree Art and Culturally Modified Trees (CMT).....	11
Photo 10	Culturally Modified Tree (stump).....	12
Photo 11	Flaked stone spear points made from basalt and chert	12
Photo 12	Fire cracked rock (FCR) – note sharp, angled breaks.....	13
Photo 13	Worked Bone Artifacts	13
Photo 14	Bone, Claw and Tooth Artifacts	14
Photo 15	Shell Beads.....	14
Photo 16	Hand Mauls (Hammer Stones).....	15
Photo 17	Fish Net Sinker Stone	15
Photo 18	Cedar bark cordage found at a wet site	16
Photo 19	Preserved wood and stone tool	16

LIST OF APPENDICES

- Appendix A Contact Names and Telephone Numbers
- Appendix B Record of Contact
- Appendix C Chance Find Report Form

LIST OF ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
AD	Anno Domini
FGT	Fraser Grain Terminal
HCA	Heritage Conservation Act
m	Metre
PDA	Project Development Area

1.0 KEY CONTACTS

If archaeological or heritage resources are encountered during construction and/or ground altering activities, please contact the following persons under the conditions stated below. Please note that emails are NOT to be used for time sensitive discussions, only for follow up purposes.

Site Supervisor/Project Manager and Environmental Monitor – Contact if archaeological resources and/or ancestral/human remains are encountered:

- FGT, Tanya Hayes, Cell: 604-312-3212, Email: thayes@pandh.ca
- FWS (Contractor), Dale Rawn, Construction Supervisor, Cell: 604-219-8418
- Environmental Monitor, Hemmera, Lindsay McLean, Cell: 778-888-0218

Project Archaeologist – Contact if archaeological resources and/or (suspected) ancestral/human remains are encountered:

- Kleanza, Greg Morrissey, Cell: 604-563-5243, Email: greg@kleanza.com

BC Archaeology Branch – Contact for guidance if Project Archaeologist is unavailable.

- Reception, PH: 250-953-3334

Local RCMP/Coroner – Contact if Project Archaeologist is unreachable and (suspected) ancestral/human remains are encountered.

- RCMP, Non-emergency, PH: 604-599-0502
- BC Coroner Service, Metro Vancouver Region, Tiara Stiglich, PH: 604-660-7708

2.0 INTRODUCTION

The purpose of this Archaeological Chance find Procedure is to address the possibility of archaeological deposits becoming exposed during ground altering activities within the project development area (PDA) for the Fraser Grain Terminal during site preparation or construction. The PDA is located on land under the jurisdiction of the federal Vancouver Fraser Port Authority. This document provides protocols to follow if archaeological materials are inadvertently discovered, particularly appropriate protection and documentation.

Archaeological resources are non-renewable, very susceptible to disturbance, and finite in number. Archaeological sites are a valuable resource that are protected for their historical, cultural, scientific and educational value to the general public, local communities, and Indigenous groups. The regulatory context for archaeological resources is outlined in Section 8.0.

Potential disturbance to archaeological resources must be avoided or managed by Fraser Grain Terminal (FGT) partners, agents, and contractors undertaking FGT sponsored developments. The objectives of this ‘Archaeological Chance Find Procedure’ are to promote preservation of archaeological data while minimizing disruption of construction scheduling. All on-site personnel and contractors who may interact with soils having archaeological potential within the PDA shall be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits. Even areas with previous development history, such as areas where fill has been placed during past development activities, may have intact archaeological deposits in native soil underlying the fill. Imported fill itself may contain disturbed and transported archaeological remains. Note that, as a result of an archaeological overview assessment of the Project site, excavations within areas of moderate to high archaeological potential which exceed the minimum 3 m depth of fill across the Project area are suspected to present archaeological risk. This Archaeological Chance Find Procedure is intended to be used in conjunction with the Project’s Construction Environmental Management Plan.

Additional contact information for appropriate designated individuals is provided in **Appendix A**. A record of contact form is included in **Appendix B** and the Chance Find Report Form is included as **Appendix C**.

3.0 INDIGENOUS CULTURAL HERITAGE

Indigenous cultural heritage is deeply connected to, but also extends beyond the tangible objects classified as ‘archaeological’ resources. Archaeological resources are culturally meaningful and connect community members to the past and represent a collective identity. These resources represent ways of knowing and generational knowledge passed on through the generations. Every Indigenous group manages their cultural heritage in a unique way, but always with respect for the past and future generations.

4.0 CHANCE FIND GUIDANCE AND PROCEDURE

Proper implementation of an Archaeological Chance Find Procedure may lead to discovery of archaeological and/or cultural heritage resources that were not identified in previous archaeological site investigations. As such, it is a valuable tool when properly implemented.

For the Archaeological Chance Find Procedure to be effectively implemented during construction, the site supervisor must ensure that all relevant on-site personnel understand the procedure and the importance of following it if cultural heritage resources are encountered. Additionally, training of field personnel on archaeological and cultural heritage resources that could be found on-site should be provided by the Project Archaeologist (Kleanza) and the Contractor's environmental monitors. On-site presentation of these procedures is *necessary* for all staff performing ground disturbance, shall be completed by the Project Archaeologist and if feasible, in collaboration with affected/local Indigenous groups.

Note that:

- Chance Find Procedures are not useful unless someone on the Contractor's team has thorough training to be able to identify archaeological resources.

If suspected archaeological and/or cultural materials and/or features (both intact and disturbed) are encountered, follow these steps:

1. **Stop work** in the immediate vicinity of the suspected archaeological or cultural heritage materials and secure the area.
2. **Report** the discovery immediately to the following relevant persons:
 - **Site Supervisor/Project Manager:** FWS Site Supervisor, Dale Rawn, 604-219-8418
 - **Environmental Monitor:** Hemmera, Lindsay McLean, (778) 888-0218
 - **Project Archaeologist:** Kleanza, Greg Morrissey, Cell: (604) 563-5243, Email: greg@kleanza.com

The site supervisor, environmental monitor or archaeologist will contact other entities as required. However, if Project Archaeologist is unavailable, contact:

- BC Archaeology Branch Reception, PH: 250-953-3334
3. **Do not disturb** any suspected archaeological materials that are encountered. Do not move any soil from the vicinity of the site, including any spoil material.
 4. **Record** where the find is located, either by flagging the site, by GPS or other location marking device and leave all materials in place.

5. The Project Archaeologist will:
 - a. Visit the site as soon as possible and determine if an archaeological or cultural heritage site (intact or disturbed) is present,
 - b. Coordinate communications with Indigenous groups and FGT to evaluate management options.
 - c. Identify the potential significance of the materials and required mitigation. The BC Archaeology Branch will also be notified of the archaeological find and the Project Archaeologist will work with the Branch to determine permitting requirements.
 - d. Consult with representatives of local Indigenous communities and appropriate government representatives to determine the appropriate course of action. If the significance of the archaeological materials is judged to be sufficient to warrant further action and the archaeological materials cannot be avoided.

5.0 PROCEDURE FOR REPORTING ANCESTRAL / HUMAN REMAINS (NOT OF FORENSIC CONCERN)

Ancestral/human remains are to be treated with the utmost respect no matter the state or context of the remains. *If ancestral/human remains are encountered and suspected to be of forensic concern, immediately contact the local police department or phone 911.*

Ancestral/human remains or bone that cannot be definitively determined to be non-human require immediate notification to the Project Archaeologist. The Project Archaeologist then must immediately notify all affected Indigenous communities. Ancestral/human remains are found in many contexts and may be scattered due to previous disturbances or found fully intact and associated with a mortuary context, such as burial mounds or in other contexts, such as in middens.

If you discover what you suspect may be possible ancestral/human remains (intact or disturbed):

1. **Stop all potentially damaging work within 50 m** of the site of potential ancestral/human/ancestral remains until they can be assessed by a professional archaeologist.
2. **Do not disturb** any possible ancestral/human remains that are encountered. Do not move soil from the vicinity of the remains, including adjacent spoil material. Cover the remains with a clean blanket and tarp, or something similar and limit access to the area.
3. **Report** the discovery immediately to the site supervisor and relevant persons:
 - **Site Supervisor/Project Manager:** Dale Rawn, Cell: 604-219-8418
 - **Environmental Monitor:** Hemmera, Lindsay McLean, Cell: 778.888.0218
 - **Project Archaeologist:** Kleanza, Greg Morrissey, Cell: 604-563-5243, Email: greg@kleanza.com
4. The Site Supervisor and the Project Archaeologist will advise on further action. If the above contacts are unreachable for direction, call the **RCMP Non-emergency line: 604-599-0502.**

Archaeologist Actions: The Project Archaeologist will immediately notify relevant Indigenous communities, and if appropriate, the local policing authority and the BC Coroners Service.

- An archaeologist or a representative who has specialized training in physical anthropology and representatives from all available local Indigenous communities will visit the site as soon as possible;
- If it is determined that the ancestral/human remains are archaeological in nature, discussions will take place to establish an appropriate procedure for handling of the remains;
- The BC Archaeology Branch will be notified of the archaeological find and the Project Archaeologist will work with the Branch to determine permitting requirements; and

- If it is determined that the human remains are not archaeological in nature, the local policing authority and BC Coroners Service will provide further guidance.

Management Options: An appropriate protocol for handling ancestral/human remains requires consultation with Indigenous communities, many of whom have their own existing policies for taking care of ancestral/human remains. Any management options for found human remains will encompass Indigenous requirements as well as the Archaeology Branch's Found Human Remains Policy. Please note that removal of ancestral/human remains and subsequent reburial may involve certain ceremonies or procedures that could delay Project activities and will require funding from the proponent.

6.0 ARCHAEOLOGICAL AND CULTURAL HERITAGE RESOURCES IN BC

More than 32,000 archaeological sites are currently recorded in BC with many more being added to the provincial inventory every year. For this reason, you will likely encounter an archaeological site during your lifetime - either knowingly or unknowingly. This Archaeological Chance Find Procedure has been established to increase awareness of this important resource and to assist in planning future developments.

Shorelines and adjacent areas have been highly utilised by Indigenous groups for thousands of years. The remnants of this occupation are represented in today's landscape by a wide variety of site types, most of which are related to village or camping sites, resource gathering and production (such as fishing and hunting), tool making, and traditional ceremonial or ritual activities. Some sites that may be immediately visible to a non-archaeologist include shell and non-shell cultural deposits, or "middens".

- Cultural shell deposits ("middens"), both intact and disturbed, are cultural accumulations of shells, stratified in white and grey layers, mixed with streaks of charcoal, ash, and other debris. Shell middens were also commonly used as human burial sites. Look for accumulations of layered, crushed, and whole shell possibly mixed with charcoal, black soil, greasy sediment and other food remains (i.e., fish bone)
- Non-shell midden, as above, cultural accumulations soil deposits, stratified in white and grey layers, mixed with streaks of charcoal, ash, and other debris, such as animal bone, charcoal, black soil, and other food remains (i.e., fish bone)



Photo Source: Kleanza Consulting Ltd.

Photo 1 Cultural shell deposit ("midden")



Photo Source: <http://www.sliammonfirstnation.com/archaeology/fishing.html>

Photo 2 Salmon and Herring Bone

- Surface features such as cultural mounds, or depressions created by former habitations, earthen fortifications, rock cairns/petroforms (can be easily mistaken as rock piles) and hearths. Look for formations distinct from the landscape and unnaturally occurring rock formations.



Photo Source: Kleanza Consulting Ltd.

Photo 3 Burial (rock) Cairn (Beacon Hill, Victoria BC)



Photo Source: <http://janfast.blogspot.com/2017/05/newly-found-stone-age-hearths-from.html>

Photo 4 **Hearth (firepit) feature with fire-cracked rock**

- Clam gardens, look for piles of boulders at the edges of beach areas, or rock walls and terraces

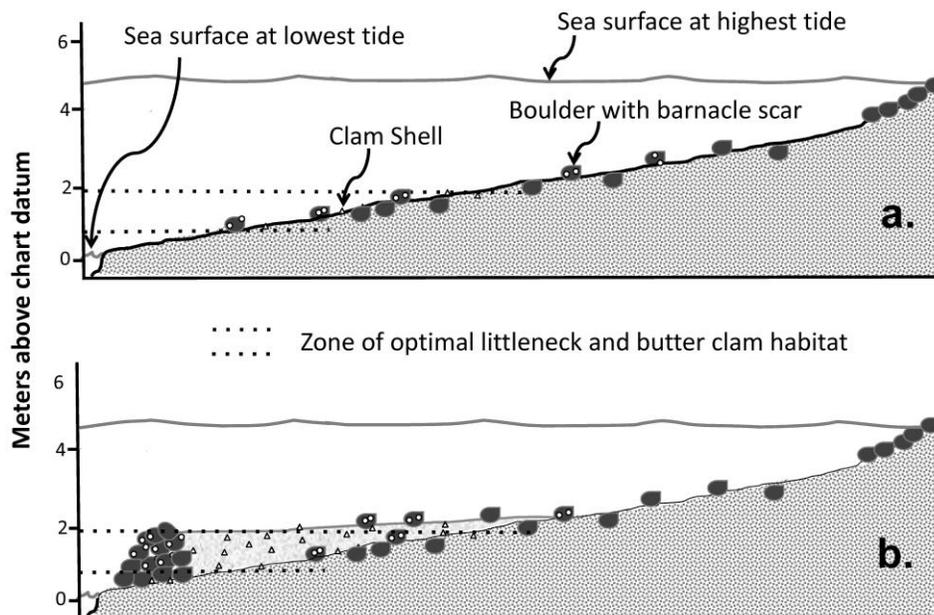


Photo Source: <https://clamgarden.com/clamgardens/constructing-clam-gardens/>

Photo 5 **Clam garden diagram**



Photo Source: <https://www.pc.gc.ca/en/pn-np/bc/gulf/nature/restauration-restoration/parcs-a-myes-clam-gardens>

Photo 6 Clam garden rock walls

- Fish traps and weirs. Fish weirs and traps are typically comprised of linear arrangements of wooden stakes interwoven with brush or mats to trap fish on the falling tide. Look for short stubs of small diameter branches in linear arrangements in the inter-tidal zone or along the river bank.



Photo Source: <https://ecologicalprocesses.springeropen.com/articles/10.1186/2192-1709-2-12>

Photo 7 Intertidal Fish Trap



Photo Source: Kleanza Consulting Ltd.

Photo 8 Intertidal Fish Trap (Burrard Inlet, BC)

- Tree Art and Culturally Modified Trees (CMT). Involves modification to the tree, commonly the removal of the inner and outer bark. Evident from scarring of the bark.



Photo Source: Personal photo, Golden Ears Park, BC – E. Powell

Photo 9 Tree Art and Culturally Modified Trees (CMT)



Photo Source: Kleanza Consulting Ltd.

Photo 10 Culturally Modified Tree (stump)

- Artifacts that have become visible on the land surface owing to erosion or recent land altering activity. These may be produced in a variety of materials such as stone, bone, antler, wood, or shell. Look for obviously formed stone objects or pieces of stone that have been chipped and/or ground in a non-natural way. Bone and antler artifacts will exhibit obvious modification (i.e., cutting, shaping, incision, etc.).



Photo Source: <https://archaeologyblog.treetimeservices.ca/tag/lithics/page/2/>

Photo 11 Flaked stone spear points made from basalt and chert



Photo Source: Kleanza Consulting Ltd.

Photo 12 Fire cracked rock (FCR) – note sharp, angled breaks



Photo Source: Kleanza Consulting Ltd.

Photo 13 Worked Bone Artifacts

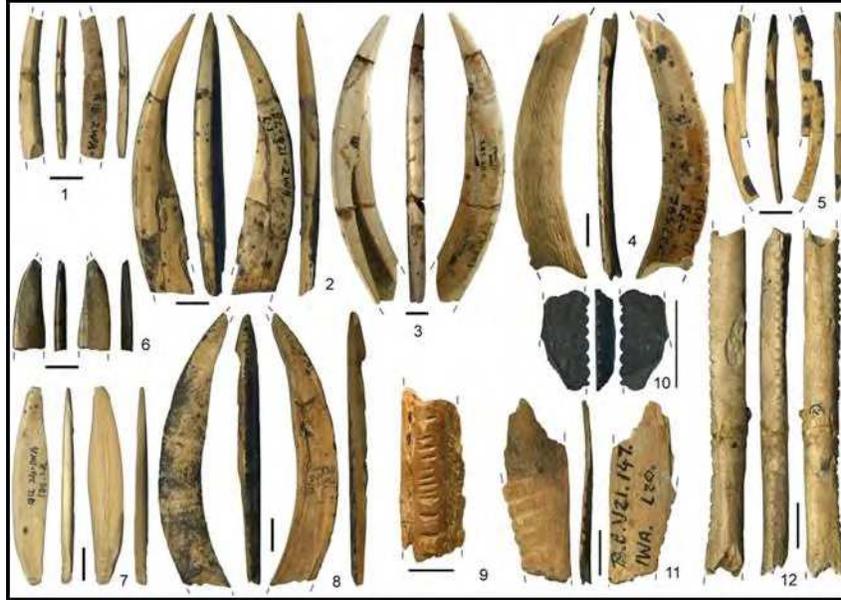


Photo Source: Kleanza Consulting Ltd.

Photo 14 Bone, Claw and Tooth Artifacts



Photo Source: Kleanza Consulting Ltd.

Photo 15 Shell Beads



Photo Source: <http://www.adsny.com/nyindian/roughstonearticles.html>

Photo 16 Hand Mauls (Hammer Stones)



Photo Source: <https://oregonhistoryproject.org/articles/historical-records/sinker-stone-columbia-river/#.WVKgbOmQyUk>

Photo 17 Fish Net Sinker Stone

- Waterlogged deposits or wet sites, which are locations containing organic artifacts (i.e., wood, bark, or plant fibre), that are preserved due to their presence in an anaerobic (oxygen free) environment. Look for fragmentary baskets, rope, carved wood implements (e.g., wedges), and similar objects eroding from intertidal silts and/or clay deposits.



Photo Source: Kleanza Consulting Ltd.

Photo 18 Cedar bark cordage found at a wet site



Photo Source: <http://newswarp.info/2013/01/kilgii-gwaay%E2%80%9410700-year-old-wet-site-revisited-on-the-southern-haida-gwaii-b-c-canada/>

Photo 19 Preserved wood and stone tool

- Rock Art - Includes pictographs (paintings) and petroglyphs (carvings), often found on rock faces, not always in obvious locations – may be obscured by vegetation or rock overhangs.



Photo Source: <http://www.sfu.ca/archaeology-old/museum/rockart/index.html>

Photo 20 **Petroglyphs**



Photo Source: <http://interiorpicto.com/wp-content/uploads/2013/10/pierre-john11.png>

Photo 21 **Pictograph**

7.0 REPORTING

The individual reporting the Chance Find must fill out the Archaeological Chance Find Procedure Record of Contact found in Appendix B. The Project Archaeologist will complete the Archaeological Chance Find Report Form, Appendix C, and inform FGT of required Provincial Archaeological permits required (i.e. Site Alteration Permit). The required permits will identify appropriate mitigation and protection measures, including potential further assessment. The Project Archaeologist will also inform FGT when work may resume in the cordoned off area of the site.

8.0 LEGISLATION

In BC, the *Heritage Conservation Act*, RSBC 1996, c. 187 (HCA) automatically protects all archaeological sites that predate AD 1846 on Provincial Crown or private land. Burial sites and rock art sites are protected regardless of age (BCAPA 2012).

In Canada, archaeological materials or sites on federal lands and lands underwater are within the jurisdiction of the Parks Canada Agency (S.4(1) B) and the *Parks Canada Agency Act*, SC 1998, c. 31. Guidelines provided by the federal government pertaining to archaeological materials or sites include Parks Canada Guidelines for the Management of Archaeological Resources (2005), and Canada Research and Collection Permit Process (2017) as well as the Treasury Board's Guide to the Management of Moveable Heritage Assets (2008). While provincial laws do not apply to federal lands, "Parks Canada refers to certain aspects for guidance as a matter of practicality" (Parks Canada 2005), and generally accepts as best practice the archaeological standards established by the BC Archaeology Branch. These include the Archaeological Impact Assessment Guidelines (FLNRO n.d.a).

9.0 REFERENCES

- British Columbia Association of Professional Archaeologists (BCAPA). 2012. Standard of Practice: Defining Site Boundaries in the Field.
- FLNRO. n.d.a. Archaeology in BC - Ministry of Forests, Lands and Natural Resource Operations. Government of British Columbia - Archaeology. Provincial Government. <https://www.for.gov.bc.ca/archaeology/archaeology_in_BC.htm>. Accessed 26 Jun 2017.
- FLNRO. n.d.b. Procedures for Reporting Human Remains - Archaeology - Ministry of Forests, Lands and Natural Resource Operations. Government of British Columbia - Archaeology. Provincial Government. <https://www.for.gov.bc.ca/archaeology/reporting_archaeological_artifact_finds/procedures_for_reporting_human_remains.htm>. Accessed 26 Jun 2017.
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- Parks Canada Agency Act. 1998. c. 31. <<http://laws-lois.justice.gc.ca/PDF/P-0.4.pdf>>.
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- Treasury Board of Canada Secretariat. 2008. Guide to the Management of Movable Heritage Assets. <<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=13872>>. Accessed 10 Jul 2014.
- Tsleil-Waututh Nation Archaeological Chance Finds Management Guideline. n.d.

APPENDIX A
Contact Names and Telephone Numbers

Agency	Name of Contact	Phone Number
Site Supervisor	Dale Rawn, FWS	Cell: 604-219-8418
Fraser Grain Terminal	Tanya Hayes	Cell: 604-312-3212
Hemmera Envirochem Environmental Monitor	Lindsay McLean	Cell: 778-888-0218
Project Archaeologist, Kleanza Consulting	Greg Morrissey	Cell: 604-563-5243,
BC Archaeology Branch	Reception	250-953-3334
RCMP (Non-emergency)	Local Detachment	604-599-0502
BC Coroners Service, Metro Vancouver Region	Tiara Stiglich	604-660-7708
Musqueam Indian Band	Aviva Finkelstein (archaeologist)	Main Office: 604-263-3261
Semiahmoo First Nation	Main Office	604-536-3101
Seabird Island Band		604-796-2177
People of the River Referrals Office		604-824-2420
Stó:lō Nation		604-858-3366
Stó:lō Tribal Council		604-796-0627
Katzie First Nation		604-465-8961
Cowichan Tribes		250-748-3196
Lake Cowichan First Nation		250-749-3301
Lyackson First Nation		1-888-592-5766
Penelakut Tribe		250-246-2321
Halalt First Nation		250-246-4736
Stz'uminus First Nation		250-245-7155
Tsawwassen First Nation		604-943-2112
Tsleil-Waututh Nation	Evan Hardy, Archaeological Liaison	778-957-0545

APPENDIX B
Record of Contact

Agency	Date and Time of Contact	Name of Person Contacted	Action

APPENDIX C
Chance Find Report Form

Appendix C: CHANCE FIND REPORT FORM

Recorder's Name/Affiliation: _____

Date: _____

Location of chance find (Location description, UTM coordinates, road, quarter section, depth below surface):

Photographs Taken (#s) (please include name/number or owner of camera):

Description of find:

Method used to mark and protect find:

Distribution:

<input type="checkbox"/> Contractor or Site Supervisor	<input type="checkbox"/> Project Archaeologist	<input type="checkbox"/> BC Archaeology Branch	<input type="checkbox"/> R.C.M.P.	<input type="checkbox"/> Local First Nation(s)
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Sketch Map



ADDITIONAL NOTES:

APPENDIX F
Reportable Quantities

APPENDIX F – REPORTABLE LEVELS OF CERTAIN SUBSTANCES

In the event of an incident on-site, the first task is to ensure that all site personnel are safe, then follow the Containment and Clean-up strategy as outlined within the Plan. Determine the material spilled and quantity then reference the following table, **Table A**, for the reportable levels for various substances to the Provincial Emergency Coordination Centre (1-800-663-3456).

Table A Reportable Levels for Certain Substances

Item	Column 1 Substance Spilled	Column 2 Specified Amount
1	Class 1, Explosives as defined in section 2.9 of the Federal Regulations	Any quantity that could pose a danger to public safety or 50 kg
2	Class 2.1, Flammable Gases, other than natural gas, as defined in section 2.14 (a) of the Federal Regulations	10 kg
3	Class 2.2 Non-Flammable and Non-Toxic Gases as defined in section 2.14 (b) of the Federal Regulations	10 kg
4	Class 2.3, Toxic Gases as defined in section 2.14 (c) of the Federal Regulations	5 kg
5	Class 3, Flammable Liquids as defined in section 2.18 of the Federal Regulations	100 L
6	Class 4, Flammable Solids as defined in section 2.20 of the Federal Regulations	25 kg
7	Class 5.1, Oxidizing Substances as defined in section 2.24 (a) of the Federal Regulations	50 kg or 50 L
8	Class 5.2, Organic Peroxides as defined in section 2.24 (b) of the Federal Regulations	1 kg or 1 L
9	Class 6.1, Toxic Substances as defined in section 2.27 (a) of the Federal Regulations	5 kg or 5 L
10	Class 6.2, Infectious Substances as defined in section 2.27 (b) of the Federal Regulations	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
11	Class 7, Radioactive Materials as defined in section 2.37 of the Federal Regulations	Any quantity that could pose a danger to public safety and an emission level greater than the emission level established in section 20 of the "Packaging and Transport of Nuclear Substances Regulations"
12	Class 8, Corrosives as defined in section 2.40 of the Federal Regulations	5 kg or 5 L
13	Class 9, Miscellaneous Products, Substances or Organisms as defined in section 2.43 of the Federal Regulations	25 kg or 25 L
14	waste containing dioxin as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
15	leachable toxic waste as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L

Item	Column 1 Substance Spilled	Column 2 Specified Amount
16	waste containing polycyclic aromatic hydrocarbons as defined in section 1 of the hazardous Waste Regulation	5 kg or 5 L
17	waste asbestos as defined in section 1 of the Hazardous Waste Regulation	50 kg
18	waste oil as defined in section 1 of the Hazardous Waste Regulation	100 L
19	waste containing a pest control product as defined in section 1 of the Hazardous Waste Regulation	5 kg or 5 L
20	PCB Wastes as defined in section 1 of the Hazardous Waste Regulation	25 kg or 25 L
21	waste containing tetrachloroethylene as defined in section 1 of the Hazardous Waste Regulation	50 kg or 50 L
22	biomedical waste as defined in section 1 of the Hazardous Waste Regulation	1 kg or 1 L, or less if the waste poses a danger to public safety or the environment
23	A hazardous waste as defined in section 1 of the Hazardous Waste Regulation and not covered under items 1 – 22	25 kg or 25 L
24	A substance, not covered by items 1 to 23, that can cause pollution	200 kg or 200 L
25	Natural gas	10 kg, if there is a breakage in a pipeline or fitting operated above 100 psi that results in a sudden and uncontrolled release of natural gas

APPENDIX G
Traffic Management Plan

Traffic Management Plan

Fraser Grain Terminal

Revision: 4.1

PER No.: 15-041

INTERNAL PROJECT No.: 08-18-069J

DATE: November 23, 2018

CLIENT: Parrish & Heimbecker, Limited

LOCATION: 11041 Elevator Rd, Surrey, BC

Contents

1.0	Introduction	1
2.0	Scope of Work	1
3.0	Construction Stages	2
4.0	Public Information Plan	4
5.0	Equipment Usage During Construction	4
6.0	Construction Traffic Volume	4
7.0	Vehicle Routes and Movements	5
8.0	Signage	5
9.0	Incident Reporting	5
10.0	Responsibilities	6
11.0	On-Site Loading and Receiving	6
12.0	On-Site Traffic Control	6
13.0	Construction Parking	7
14.0	Risk Analysis	7

Appendices

Appendix A Site Access and Layout Figures

Appendix B Typical Equipment Usage

Appendix C Traffic Management Checklist

1.0 Introduction

The purpose of this Traffic Management Plan (TMP) is to describe the processes that will control the flow of traffic to and from the Fraser Grain Terminal (FGT) worksite during certain construction phases. FWS highest priority during the execution of this project is to protect the natural environment and the health and safety of the project personnel and the public in the vicinity of the site.

During certain phases of construction, additional traffic management plans will be created to augment or replace the current one, depending on the risks or activities involved. Revised or augmented plans will be submitted to VFPA for approval, prior to the future phases or scope being undertaken. This traffic management plan shall outline the various plans to inform the public, respond to incidents and manage traffic during the initial phase of site construction.

This scope of this plan covers all the activities listed in section 3.0 but does not cover the following construction activities or phases:

- a) Rail road crossing at Robson Road,
- b) New access road construction,
- c) Access to site once the new access road is constructed,
- d) Changes to the PARY yards.
- e) Concrete pour of main bin slab (large volume pour requiring multiple trucks)

FWS will use on-site traffic control and signage to manage the entrance and egress of the trucks to and from site. Upon leaving site the traffic and trucks will be travelling on public roads and local traffic laws will be strictly followed. Appendix A identifies site access and layout.

2.0 Scope of Work

FGT is a new grain handling facility located on the Fraser River in Surrey, BC. The facility will trans-ship 3.5 million MT per year of grain products including wheat, barley, oil seeds, and pulses.

The FGT project will include the following new components:

- Semi-loop rail track and loading track connected to the adjacent PARY and crossing Robson Road near Elevator Road. This traffic management plan does not cover this work.
- Construction of a new loop track serving the new rail unloading building, plus a new spur serving the new rail/truck loading structure. This is the minimum change required to allow the FGT to function under current operating conditions.
- Extension and switch relocation of tracks in the PARY, to be completed post-construction of the initial plant construction. This traffic management plan does not cover this work.
- Rail unloading station and transfer tower with fully-enclosed conveying equipment and a built-in dust suppression system.
- Three (3) fixed tower shiploaders with telescoping spouts, each with dust-reducing features for vessel loading, replacing existing shiploader mobile conveyors. Each tower will be supported on steel piles in the foreshore and land-side shore area.
- 25 above-ground steel storage bins (20 x 3,500 MT, 4 x 400 MT and 1 x 710 MT).
- Ground densification for the silo and shiploader foundations using stone columns for densification. The foundation densification program for the silo area was developed to minimize potential movement of in-situ contamination plumes.

- Single integrated container, bulk truck, and rail loading structure.
- Container storage yard.
- An administration building and maintenance and sample storage building, two control rooms, electrical rooms and container preparation area with fabric rain cover.
- New access road from Robson Road. This traffic management plan does not cover this work.

The Traffic Management Plan involves the following construction and associated activities:

- Buildings (storage area, rail unloading building, transfer tower, container loading structure, railcar/truck loading structure, administration building, maintenance & sample storage building).
- Removal of existing concrete slab, pavement, Shed 4, electrical substation building and rail spur. Shed 4 requires demolition to make way for the proposed new rail. The demolition is covered under VFPA approval for the Direct Transfer Coal Facility and FGT will carry out this work on behalf of FSD under the existing approval (Project Permit Number 2012-072-1).
- Installation of services (water and sewer systems, mechanical and electrical).
- Installation of a shipping system (wharf, transfer system, and gallery).
- Road and rail line construction within the FGT property.

Construction activities include pile driving for the shipping system, pouring of concrete for building foundations, and erection of buildings and structures. Limited excavation will be required and is anticipated to require management and disposal of contaminated soil and groundwater as outlined in the CEMP.

3.0 Construction Stages

Construction is planned to start shortly after receipt of the Project Permit from the VFPA. Construction of the entire project is anticipated to take approximately 24 months from mobilization to commissioning. This traffic management plan will be in effect for approximately 12 months after receipt of the Project Permit. By this time, future phases or scopes will be ready to be undertaken and the Traffic Management Plan shall be submitted to VFPA for approval before starting these works.

Please note that the access road construction and main bin slab concrete pour will occur within the first 12 months, but these works will require further details added to the Traffic Management Plan. Once the details are developed, a revised plan will be submitted to the VFPA for approval before starting these works.

Construction works have been planned according to functional areas of the site such as storage, receiving, shipping, and container loading. Construction is anticipated to be sequenced as follows:

- Prepare for on-site construction:
 - Mobilize to site
 - Establish temp service & power
- Demolition:
 - Demolition of Shed 4
 - Demolition of Bekaert slab
- Main Project construction:
 - Civil services
- Remove existing utilities

- Establish permanent storm sewer and interceptor
- Install underground services
- Roads and site development on the FGT site.
- Construction of new access road
- Main plant:
 - Densification
 - Receiving and unloading pit
 - Reclaim/transfer tunnel
 - Main storage silos
 - Piling for shipping and loadout
 - Steel bin erection
 - Structural steel erection
 - Plant electrical
 - Container/rail/truck loading – steel & equipment install
- Shiploader construction
- Rail loop construction
 - Clearing and vegetation management
 - Rail line install
 - Rail road crossing at Robson Road.
 - Extension and switch relocation of tracks in the PARY, to be completed post construction of the initial plant construction.
- Maintenance building construction
- Administration building construction
 - Foundation
 - Install pre-fabricated building
 - Final site work and paving

Note that construction sequencing described above may change slightly at FWS' discretion to optimize construction schedule.

Hours of work for construction activities will be consistent with the port authority's approved hours of construction: 7:00 a.m. to 8:00 p.m. Monday to Saturday. Any work outside of regular hours will require prior approval from Vancouver Fraser Port Authority and notifications will be conducted as per port authority requirements.

4.0 Public Information Plan

There are no changes or effects to public roads during this phase of construction. Public notification of traffic will occur according to the Communications Plan. Where there are activities that affect traffic in the area, an updated Traffic Management Plan will address any communication changes, if required.

5.0 Equipment Usage During Construction

Equipment types and quantities will vary through the construction process. The table attached as Appendix B outlines expected equipment usage through each stage.

One over width load is anticipated to be received on site in early 2019. This load shall undergo the BC Provincial Commercial Vehicle oversize load permit process in accordance with applicable regulations and final delivery routing to site shall be confirmed by FWS via the permitting process and the Traffic Management Plan shall be updated with relevant details.

6.0 Construction Traffic Volume

All transport of construction materials to and from the Site is anticipated to be truck-based. Equipment and supplies will be brought to the site, and any debris, wastes, and contaminated soil will be removed from site and disposed of at appropriately licensed facilities.

The main site access point will be Elevator Road via Robson Road and Tannery Road Interchange, with exiting trucks using the same access to then move onto the South Fraser Perimeter Road (SFPR). Trucks will follow the applicable laws and regulations regarding the loading and transport of their materials, (e.g., Transportation of Dangerous Goods Act), and any other applicable regulations.

Appendix A Shows Site access, parking and traffic routes during construction.

Based on the construction duration, construction traffic volumes for the project are estimated as follows.

For delivery trucks

- Total Work days – 6 days/week x 4 weeks/month x 24 months = 576 work days
- Average trucks /day = 8 trucks/day

Truck traffic is anticipated to be very heavy (about 50 trucks per day) during the large foundation concrete pours. The foundation concrete is split into five separate pour days, spread over a 125-day period starting in Q1 2019

In addition to delivery trucks, worker vehicles will be accessing the FGT site. Parking spaces for worker vehicles (based on a vehicle occupancy of 1.5 people/vehicle) is shown in Appendix A. The estimate was further based on the following assumptions:

- Average attendance = 80 people
- Average vehicles = 53 vehicles
- Peak attendance = 160 people (approx. 2x average day attendance)
- Peak vehicles = 106 vehicles

7.0 Vehicle Routes and Movements

All vehicles will travel to and from site via the Tannery Road/SFPR interchange and along Robson Road to Elevator Road. No other public roads shall be designated as use for construction access, unless otherwise noted in the plan. Truck routes are further detailed in Appendix A attached. Most material for the site shall be coming via major highways, mostly Highway 1, 91, or 99 then Highway 17. Alternate routing shall be via 104 Ave to Tannery Road in case there are issues with Highway 17.

Traffic from North Vancouver shall arrive to site by travelling on Highway 1 then East 104 Ave and take Highway 17 towards to Tannery road access. Alternate routing to site shall be via 104 Ave westbound to Tannery Road.

Concrete supply location has not been finalized but we are working on finding a feasible solution that has the least impact to traffic. If the selection of the concrete supply location will use alternate routing than that mentioned above, the Traffic Management Plan will be updated and submitted to VFPA for approval before any work is undertaken

To remove the potential for any traffic congestion on public roads adjacent to the site, a truck staging area will be established beside FWS's site office and laydown area. This staging area will have capacity for four (4) semi-trucks to park if they are required to wait for loading or unloading.

FWS' site office will be inset from the main site entrance. This will allow multiple trucks or visitors to enter the site at one time, park and sign in at FWS's office without the need to stop on public roads.

There will be no need for any project traffic to stop or park along Robson Rd. or Elevator Rd. at any time.

A wheel wash station will be used by exiting vehicles that traveled on excavated surfaces on-site. Vehicles that have remained on finished surfaces will not pass through the wheel wash station.

8.0 Signage

Signage will be placed at the site entrance to identify the project site. Signage identifying there is a construction site access ahead shall be placed on Robson Road to notify traffic there is construction happening in the area.

FWS crew will review the site prior to mobilization and periodically thereafter to determine requirements for safety and informative signage, and their required locations on the site.

Signage will be provided directing all visitors to the site office on arrival to site, informing visitors of exclusion zones and areas of restricted access, and of PPE and safety requirements.

All signage will be erected before commencing site works and will remain in place until no longer required or on the completion of the scope of work.

9.0 Incident Reporting

Any incidents occurring on public roads involving subcontractors for the site will be reported in accordance with local laws and practices. Reporting will be the responsibility of the subcontractor.

Any incidents occurring on public roads involving FWS personnel or vehicles will be reported in accordance with local laws and practices, and reporting will be the responsibility of the FWS project manager.

Any incident occurring at the site access point, shall be investigated by FWS and information regarding the nature of the incident shall be communicated to Fraser Surrey Docks and VFPA Operations Centre via Andrew Smith, Project Manager.

Incidents occurring on the FWS construction site shall be investigated and documented internally, in accordance

with the FWS Site Specific HSE Management Plan.

10.0 Responsibilities

FWS personnel have developed this initial TMP to be in effect from the start of construction through winter 2019. It will be updated periodically to reflect changing scopes of work, and changing site conditions and updates submitted to VFPA for approval before new work is undertaken.

Key personnel and contact information are provided in the table to follow.

Key Personnel	Role	Responsibility	Contact Information
Andrew Smith	Project Manager	Review and approve TMP prior to its implementation Periodically audit the site to ensure compliance by all personnel and equipment	e: asmith@fwsgroup.com d: 204.928.8766
Dale Rawn	Construction Manager	Ensure all personnel, subtrades, delivery drivers are familiar with, and follow, the TMP	e: drawn@fwsgroup.com c: 604.219.8418
Jessica Wright	Site CSO	Assist in communicating and periodically evaluating/updating the TMP	e: jwright@fwsgroup.com

FWS personnel will periodically re-evaluate TMP requirements using the Traffic Management checklist attached as Appendix C.

11.0 On-Site Loading and Receiving

FWS will use the methodologies described in this section for on-site loading and receiving activities.

- FWS will use predefined truck routes as detailed in Appendix A. This will be distributed to subcontractors prior to mobilizing trucks to site.
- The size of trucks will be chosen dependent on available space on site and road restrictions on the route.
- When the trucks arrive on site drivers will be required to check in with FWS personnel who will communicate approved routes, on-site hazards, and any changes in site conditions for regular drivers.
- A detailed traffic management plan will be developed specific to significant concrete pour activities to plan for concrete truck traffic.

12.0 On-Site Traffic Control

FWS will use on-site traffic control and signage to manage the entrance and egress of the trucks to and from site. Anticipated frequency and schedule of vehicle traffic will be discussed each day at the tailgate meeting.

Additional signage, delineators, and barricades will be placed as required on site to manage on-site travel.

An FWS worker will be assigned as the traffic control personnel each day and will be responsible for directing and

controlling traffic movement on site. A third-party flagger will not be required on the project.

13.0 Construction Parking

A designated area for all construction parking for pickups and light vehicles will be established adjacent to the existing site personnel parking area.

A separate area for staging of trucks and heavy equipment will be established on the south east of the site, as illustrated in Appendix A.

No vehicles or equipment will be staged over the Metro Vancouver water main at any time, and it will be kept free from any unnecessary loading.

Visitor and employee parking of vehicles shall be established and posted in a safe area of the site. During peak days of traffic, which should be limited to the main bin concrete pour days, additional vehicle parking shall be arranged on-site, in safe work areas that are available during that phase of work. There is adequate room on site for 106 vehicles, for the concrete pour days.

14.0 Risk Analysis

This section identifies possible risks associated with the transportation process and vehicle/equipment movement on site.

We identify and evaluate each risk using the following criteria:

- Type
- Probability
- Impact
- Risk location
- Control and mitigation strategy

The following table presents risks in the order they would be likely to occur.

Risk ID	Activity	Risk Type	Probability	Impact	Location	Control and Mitigation Strategy
1	Traveling to site	Traffic accident	Moderate	High	Public roads	Plan route Consider driving records in subtrade selection
2	Entering site	Collision or pedestrian strike	Moderate	High	Public roads	Follow traffic management plan Provide signage identifying site entrance
3	Entering/Exiting site	Project vehicles impacting flow of traffic outside of the work zone	Low	Moderate	Public roads	Allow ample space inside work zone for vehicles to enter, park safely, and access site office without having to stop on public roads.
4	On-site maneuvering	Strike of worker or collision with equipment	Moderate	High	Site	Follow on-site traffic management plan

						Implement speed limit in work zone Use delineators Use spotters
5	Exiting site	Collision or pedestrian strike	Moderate	High	Public roads	Provide stop sign at exit.

Additional risks may be identified as the project progresses. The above risk matrix should be considered organic in nature, and will evolve throughout the project. A traffic management checklist will be completed periodically by the site supervisor (Appendix C) and new control and mitigation measures will be implemented as required.

APPENDIX A – Site Access and Layout Figures

Figure 1: Primary Access to Site.

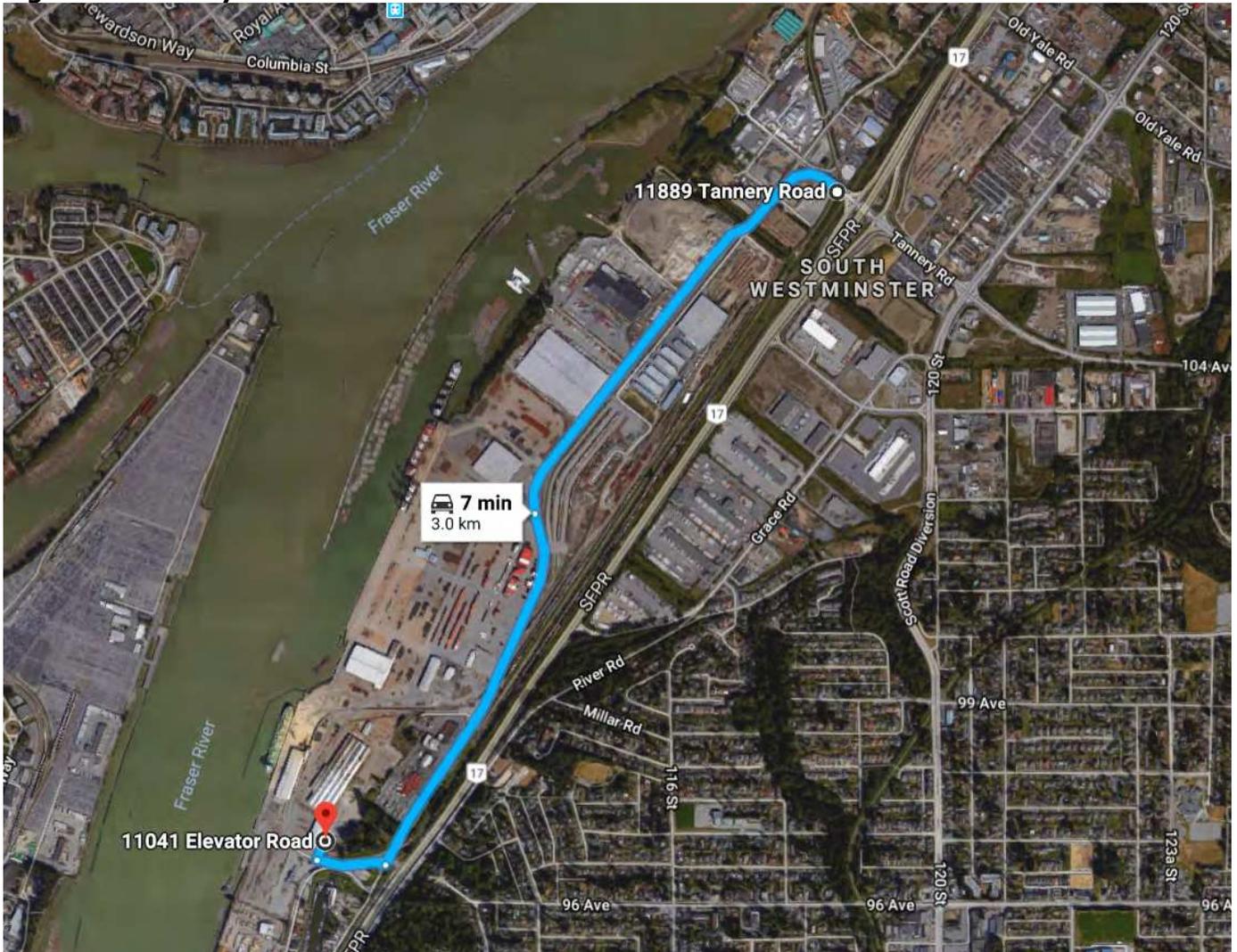


Figure 2: Wider Road Network in relation to Project

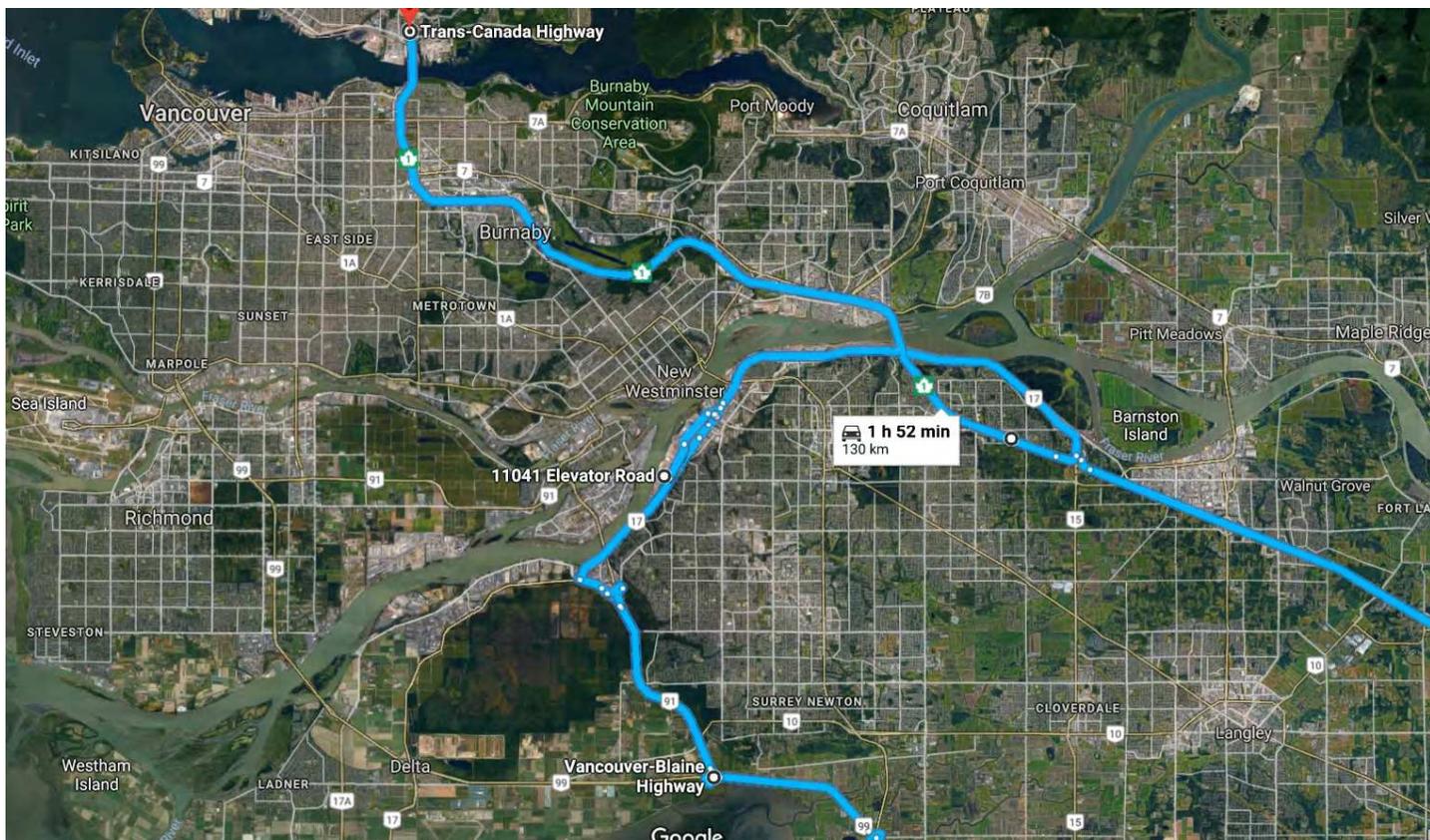


Figure 4: Traffic Routing and Site Signage during Concrete removal

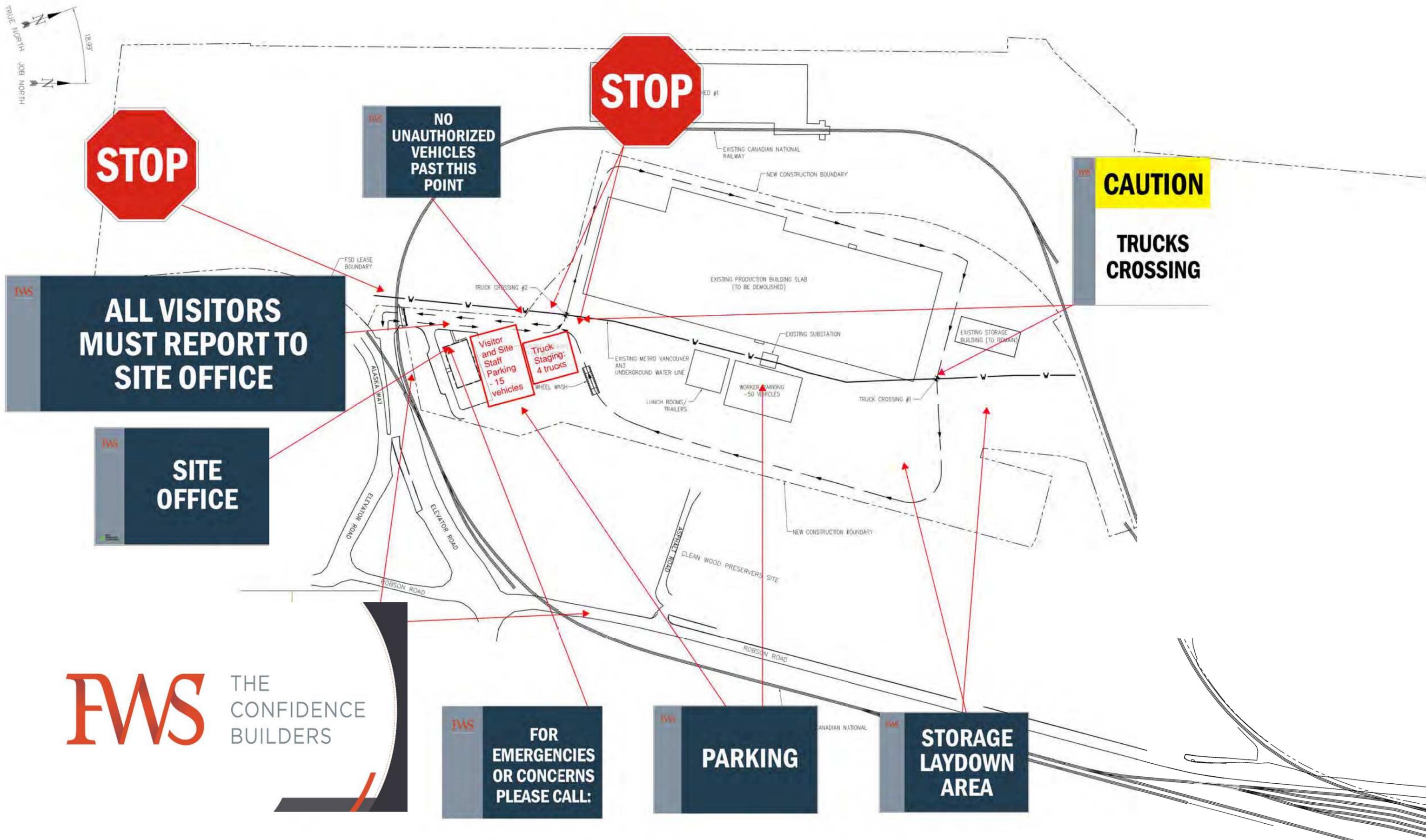


Figure 5- On-Site Traffic flow during Concrete Removal

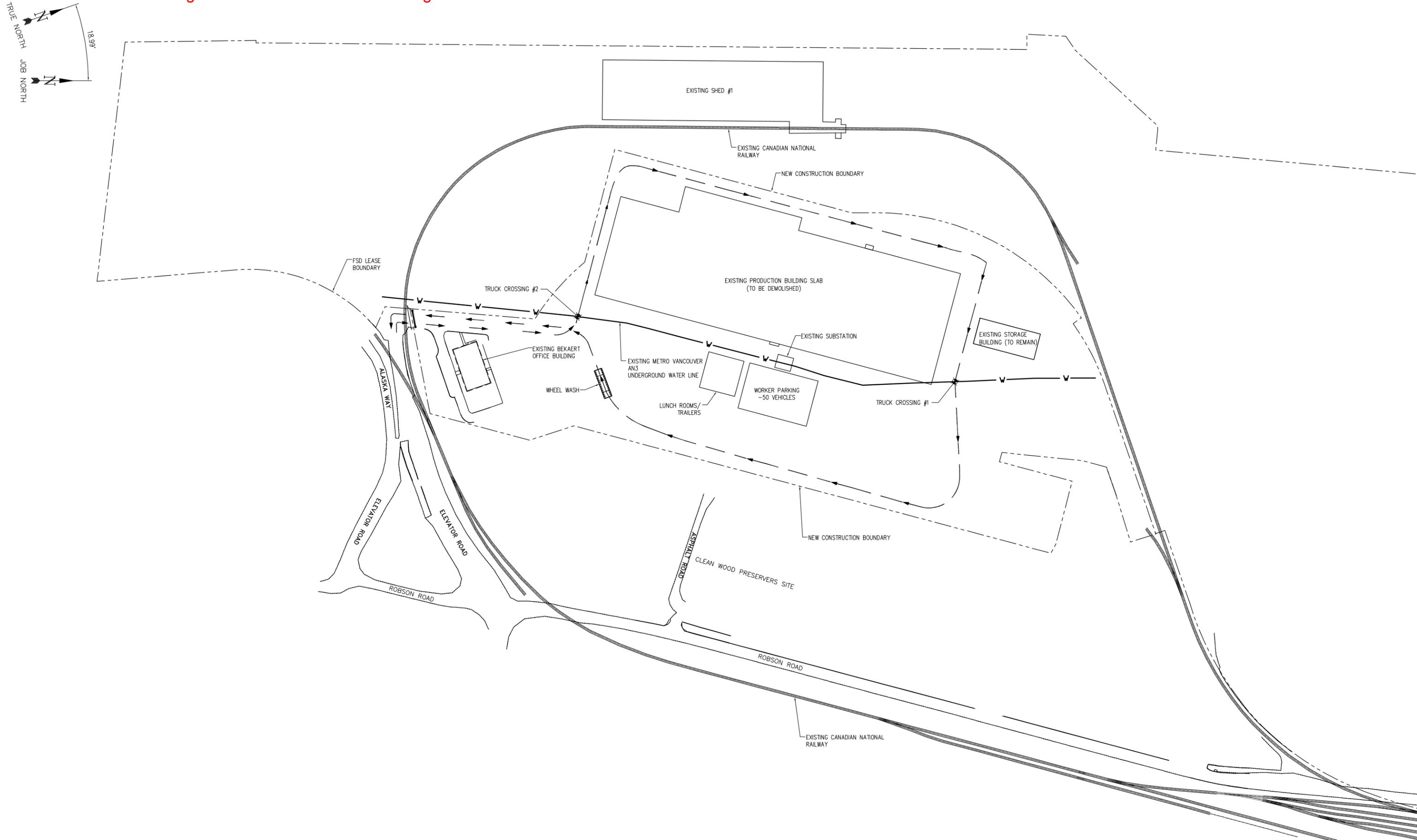
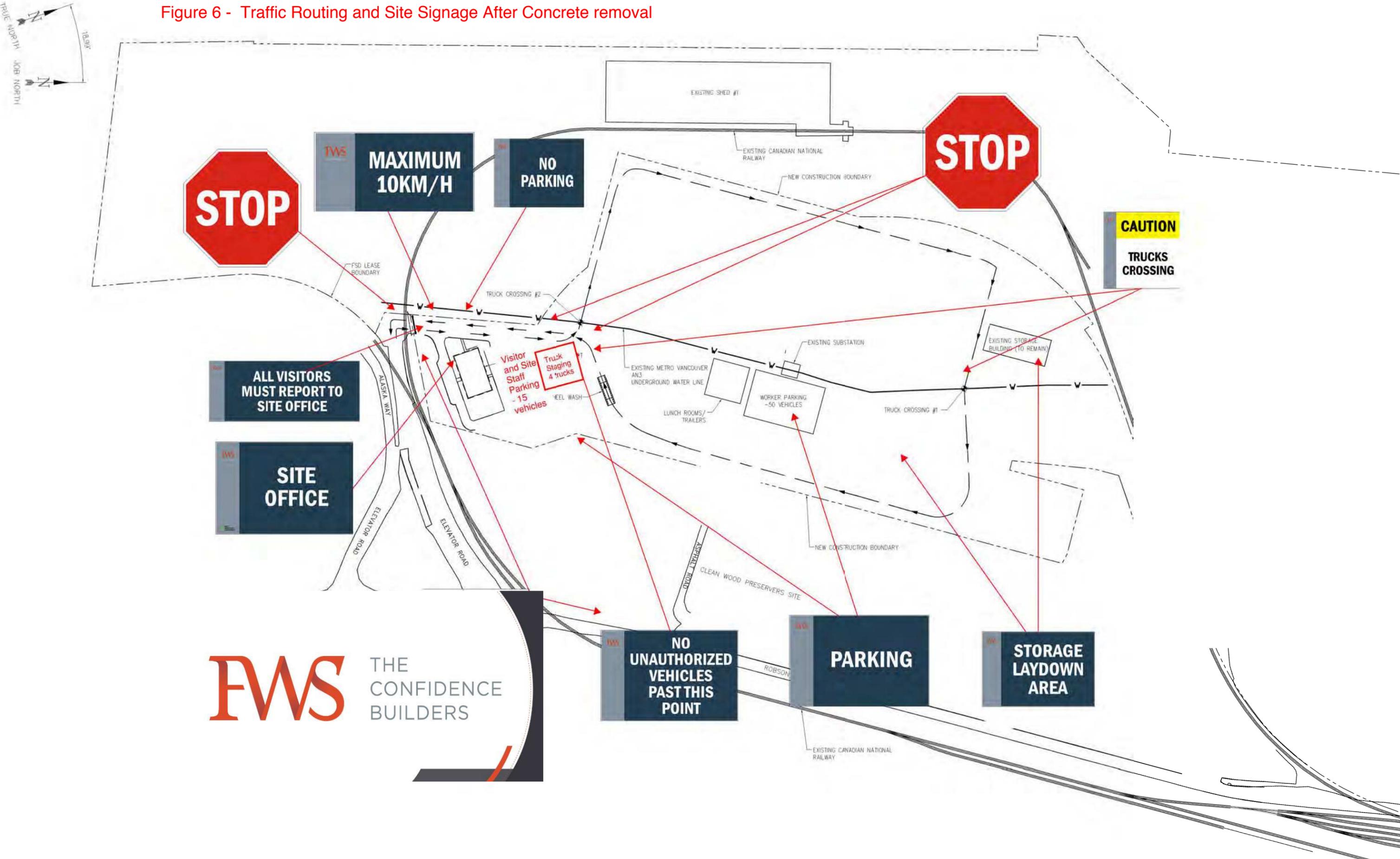
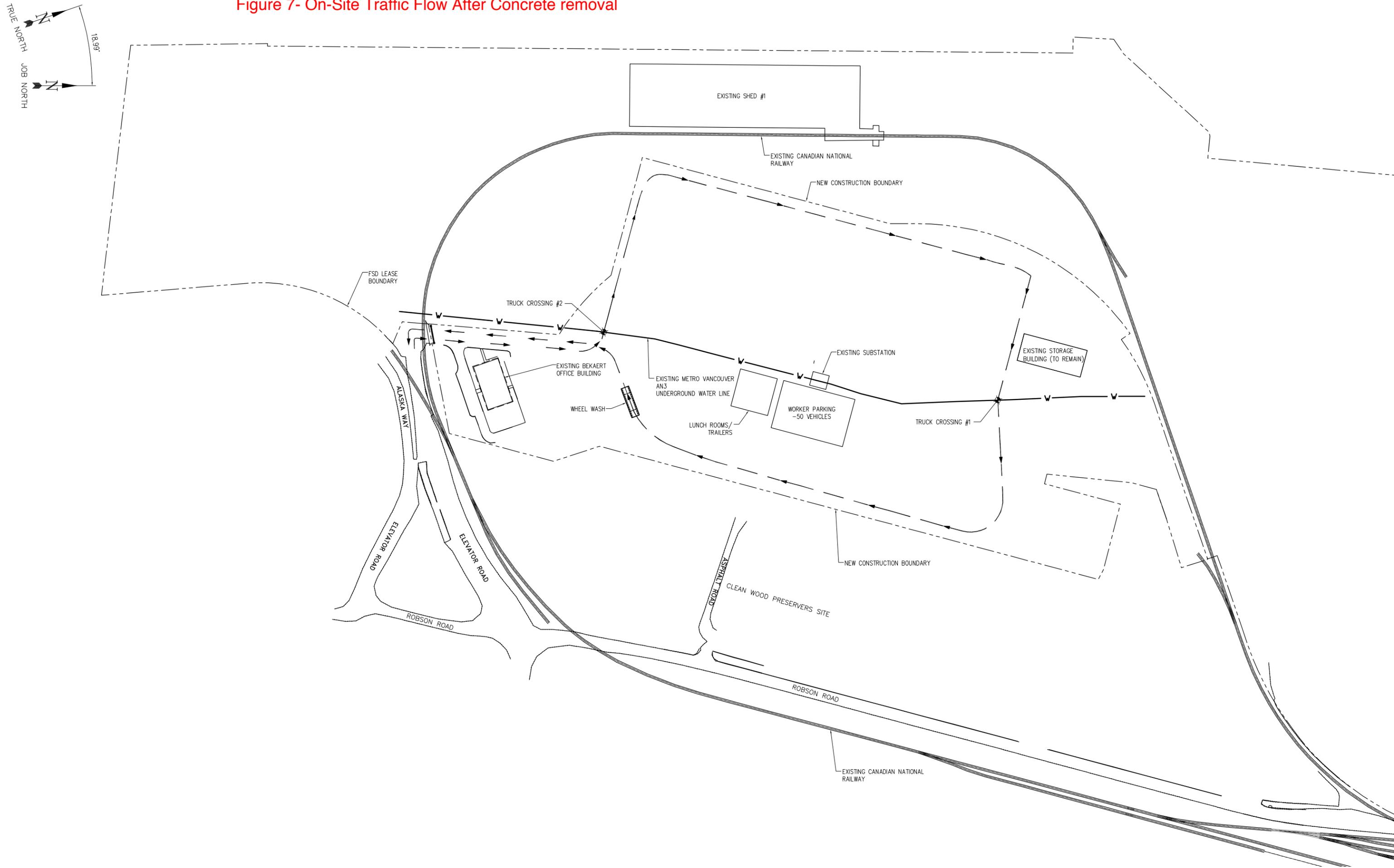


Figure 6 - Traffic Routing and Site Signage After Concrete removal



FWS THE CONFIDENCE BUILDERS

Figure 7- On-Site Traffic Flow After Concrete removal



APPENDIX B – Typical Equipment Usage

APPENDIX C - Traffic Management Checklist

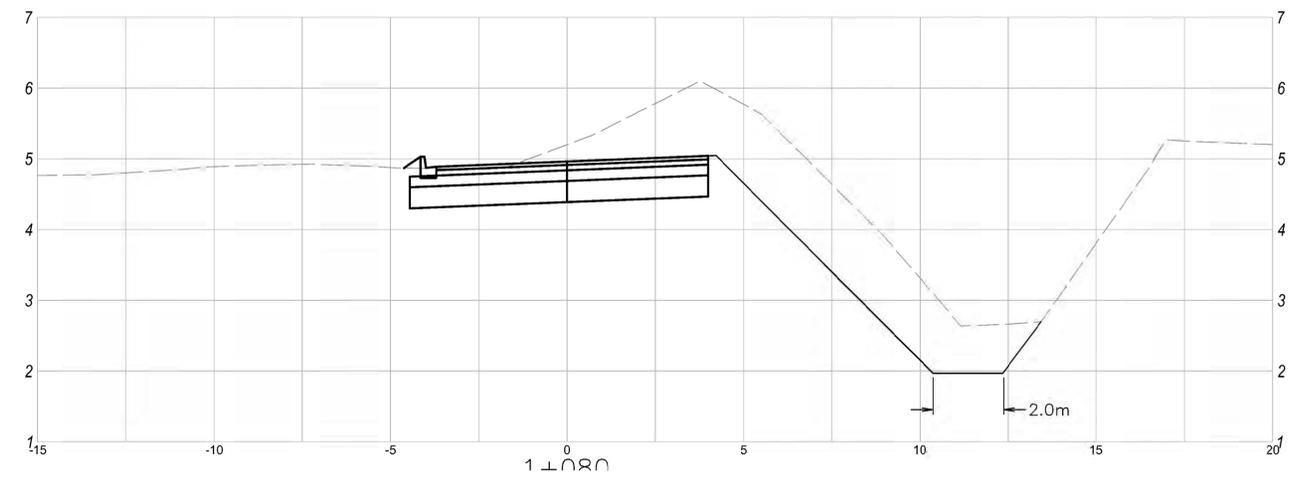
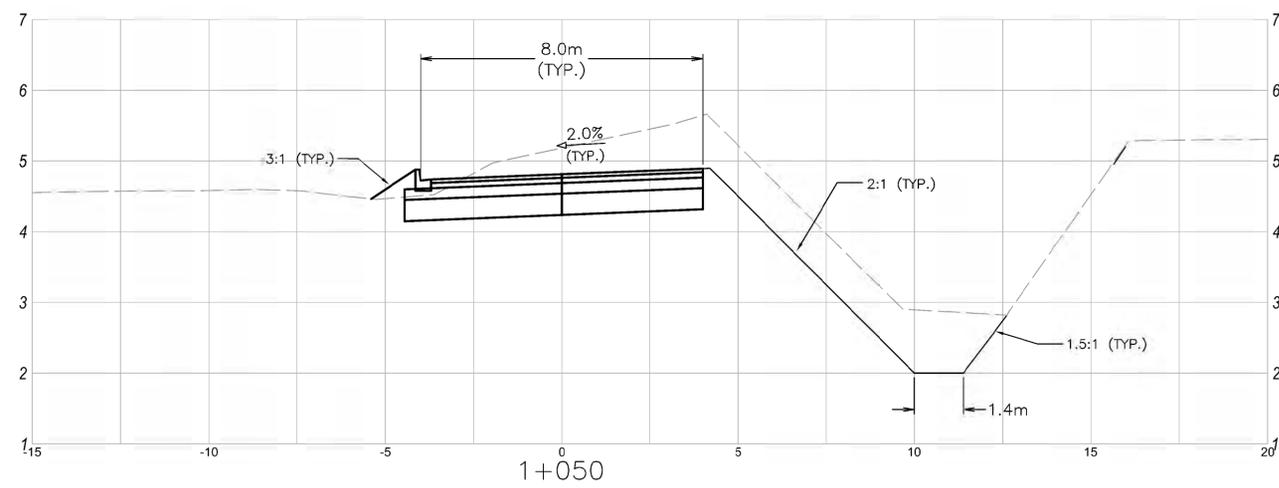
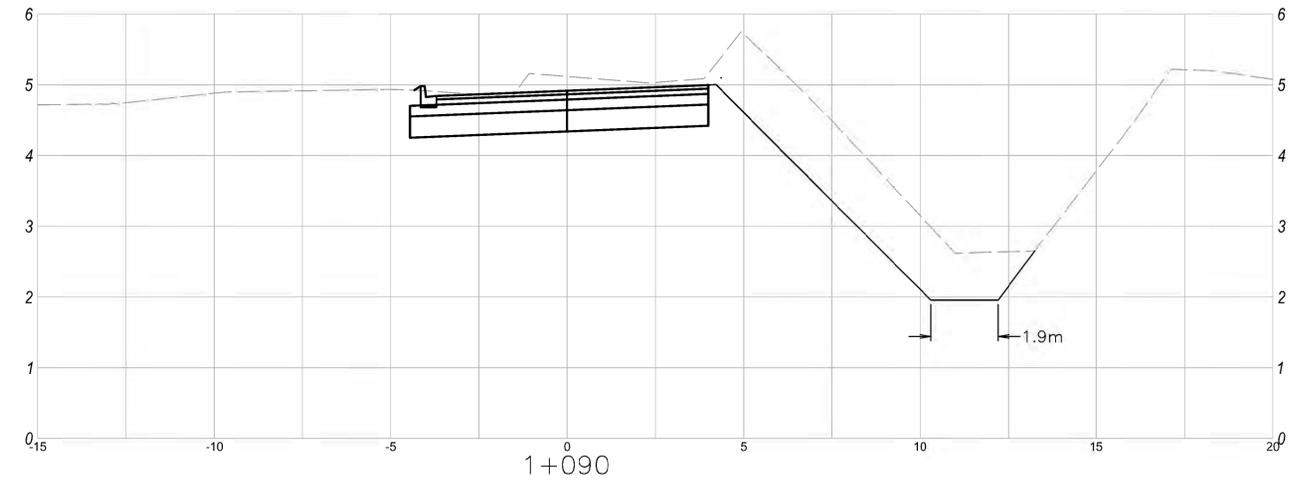
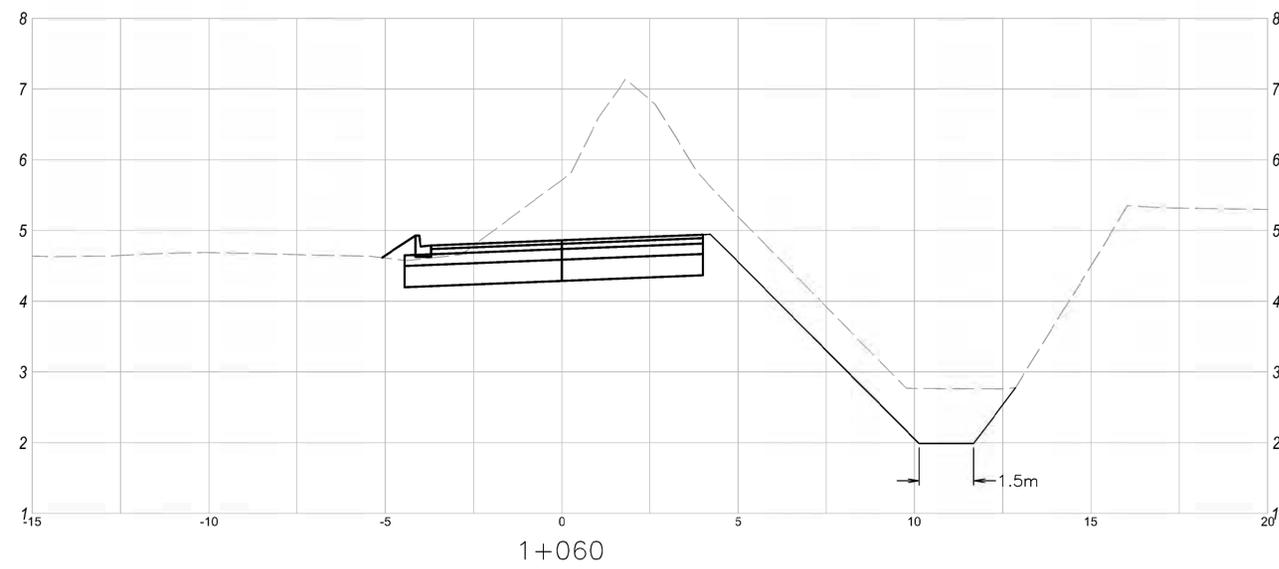
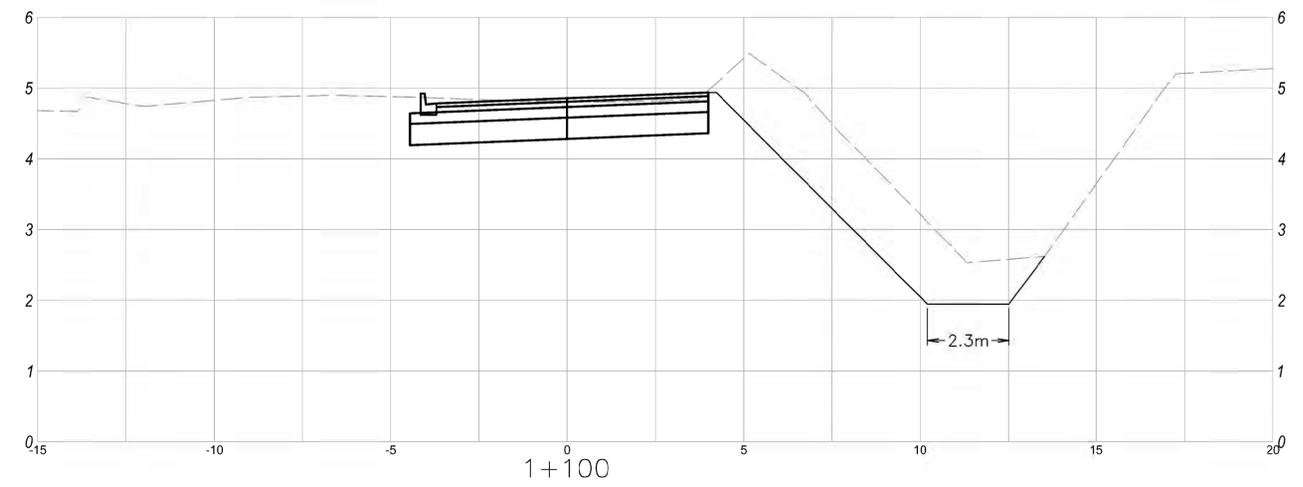
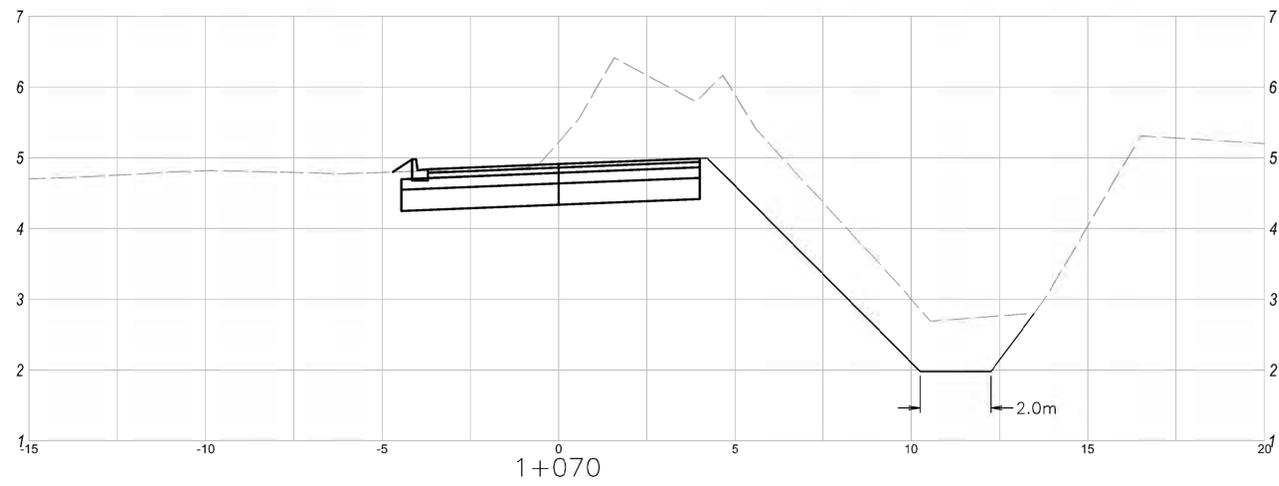
Traffic Management Checklist

Project: Fraser Grain Terminal Date: _____

Location: 11041 Elevator Rd, Surrey BC Completed by: _____

TRAFFIC MANAGEMENT CHECKLIST		Yes	No	N/A
1	Are traffic concerns identified and counter-measures outlined on worksite JSAs or worker FLHAs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Has the site supervisor signed the worker FLHAs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Has a management plan or instructions been developed for the transport, delivery, and offloading of equipment and materials at the worksite?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Is there a requirement to routinely complete an inspection of all vehicles and mobile equipment before being mobilized to a worksite?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Are drivers aware of speed limits established for the worksite?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Are worksite roadways maintained throughout the project duration?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Are designated walking areas for pedestrians separated from mobile equipment traffic?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Can workers access the worksite from temporary or permanent offices without crossing roadways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Has movement of material been minimized during peak traffic periods, either on public, private, or worksite roadways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Is safe parking available at the worksite off roadways and walkways for both employees and contractors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Have traffic patterns been assessed during peak traffic periods?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Have traffic schedules and emergency signs been posted prior to the start of work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Have seasonal lanes changed in width (i.e., due to precipitation, freezing)? If so, has the roadway narrowed causing trucks to pass closer together (i.e., soft shoulders)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX H
FWS Access Road Drawings



No.	DESCRIPTION	BY	DATE
3	ISSUED FOR REVIEW	DWF	MAR29/19
2	EMERGENCY ACCESS ADDED	DWF	FEB07/19
1	ISSUED FOR CONSTRUCTION	DWF	JAN30/19
REVISIONS			

P.Eng.



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Scale

H=1:100
V=1:50

FRASER GRAIN TERMINAL

NEW GRAIN EXPORT FACILITY
11041 ELEVATOR ROAD, SURREY

Drawn: DWF Design Checked: SJV Date: MAR 2018
Designed: DWF Discipline Review: SJV Date: MAR 2018

ACCESS ROAD
CROSS SECTIONS

Drawing No.

32022
C-3C

Sheet No.

06