

CANADA ENERGY REGULATOR

IN THE MATTER OF the *Canadian Energy Regulation Act*, SC 2019, c 28, s 10 (“**CER Act**”) and the Regulation thereunder;

AND IN THE MATTER OF the Certificate of Public Convenience and Necessity OC-065 (“**Certificate**”) and related orders held by Trans Mountain Pipeline ULC as General Partner of Trans Mountain Pipeline L.P. (collectively, “**Trans Mountain**”), in respect of the Trans Mountain Expansion Project (“**TMEP**” or “**Project**”).

AFFIDAVIT OF CHRISTOPHER BOWCOCK

December 22, 2021

To: The Secretary
Canada Energy Regulator
Suite 210, 517 – 10th Avenue SW
Calgary, AB T2R 0A

AFFIDAVIT OF CHRISTOPHER BOWCOCK

I, CHRISTOPHER BOWCOCK, of 12355 206 Street, Maple Ridge, British Columbia,
SOLEMNLY SWEAR AND DECLARE AS FOLLOWS:

1. I am the Fire Chief for the City of Burnaby, and have held this position since June 15, 2020, including during the period relevant to this motion. In this position, I have been (and am) responsible for review of certain elements of Trans Mountain's plans and applications for permits required for works and activities at the Westridge Marine Terminal ("WMT") and Burnaby Terminal ("BT") (together, the "Terminals").
2. I have 15 years' experience working in all aspects of hydrocarbon facility emergency response and emergency management across North America. This includes fire emergency response in circumstances where facility design features limit the effectiveness of, or significantly complicate, response efforts.
3. I have personal knowledge of the facts and matters addressed in this affidavit, except where stated to be based on information and belief, in which case I believe them to be true.
4. I swear this affidavit in support of City of Burnaby ("Burnaby")'s response to Trans Mountain's Notice of Motion and Constitutional Question. In this affidavit I refer to both the Fire Department and Burnaby, and intend those terms to be interchangeable.
5. I have read the affidavit of Osama Moin dated November 26, 2021, the affidavit of Len Garis dated November 26, 2021, and the affidavit of Dean Palin dated November 26, 2021.

History of Fire Department's serious concerns with Terminal plans

6. I have been involved in reviewing Trans Mountain's general plans for the expansion project in Burnaby, from the perspective of the Burnaby Fire Department, since the time of Trans Mountain's initial expansion project application. The Fire Department has provided detailed comments, information requests, and submissions on emergency response and fire risk matters at the terminals, including addressing issues of fire access within the terminals, throughout the CER's (then National Energy Board's) approval process for the expansion project. For example, Burnaby provided:
 - a. Tank Farm Risk Analysis (May 1, 2015) [A4L8F6], which addressed (among other issues) Burnaby's concerns with insufficient fire access at the BT (eg. pp. 34-35);
 - b. Burnaby's Information Request 1 (May 30, 2014) [A3W5V3], in which Burnaby sought confirmation from Trans Mountain that it had planned and designed the Terminals to comply with the provisions of the Building and Fire Services By-law (IR 6.1(e));
7. Notwithstanding the significant issues raised by the Fire Department in respect of Trans Mountain's plans at the Terminals, the NEB approved the project and terminal design. One

of the conditions on the project approval is that Trans Mountain will implement all commitments made during the main Certificate proceeding, including commitments to meet “all applicable codes and standards” in respect of the design of Terminal expansions.

City of Burnaby requirements for fire access

8. I have reviewed Trans Mountain’s motion, and, in my view, the key issue is Trans Mountain’s non-compliance with the fire lane standards established by Burnaby’s Fire Services By-law at the Terminals. The Fire Services By-law provides for the following mandatory requirements for “fire lanes” (access routes on private property for fire response vehicles):
 - a. posted with visible signage indicating that they are fire lanes;
 - b. not less than 7.3 m (24 ft.) wide;
 - c. provide for a turning radius of not less than 13 m (42.65 ft.);
 - d. capable of supporting a vehicle of 36,288 kg (80,000 lbs.) G.V.W.
9. The requirements for fire lanes set out in the Fire Services By-law are mandatory, and are applied consistently across commercial and industrial development projects in Burnaby. As Fire Chief, I view these requirements as the basic minimum standard for commercial and industrial development projects. For developments with a higher level of fire risk, such as a storage site for hydrocarbons, I would prefer to see more robust fire access standards (wider fire lanes and turning radii).
10. Given the importance of effective compliance assessment and enforcement of Burnaby’s fire access standards, the Fire Chief has imposed the “Burnaby Fire Department New Construction” information requirements under the authority of the Fire Services By-Law (the “**FTAP Requirement**”), which is appended to this affidavit at **Exhibit “A”**. The FTAP Requirement establishes the form and information requirements for the FTAP, reproduces the fire access standards established by the Fire Services By-law, and provides that all submissions for approvals subsequent to the PPA, including Building Permit Drawings, must include the Fire Truck Access Plan drawing for review by the Fire Department.
11. The fire access standards set out in the Fire Services By-law are critically important in the circumstances of the Terminals. In the context of industrial fire protection operations, and particularly hydrocarbon fire protection, the fire lanes within a facility represent the primary location on which vehicles and heavy-duty firefighting equipment is set up, and where firefighting personnel are deployed. Without sufficient space within the fire lane for these purposes, in the case of a hydrocarbon release and/or fire event, firefighting personnel may be placed in closer proximity to flammable hydrocarbons, increasing risk of harm or loss of life. The wider Fire Services By-law fire lane and turning radius requirements are intended to ensure effective fire response efforts, and the health and safety of fire and other emergency response personnel.

12. The standards set out in the Fire Services By-law are further or more specifically designed to ensure:
- a. unimpeded emergency access and egress of fire response vehicles (without unnecessary maneuvering due to tight turns and obstructions during response efforts);
 - b. that fire response vehicles are able to pass a deployed high-volume inlet and discharge fire hose lines;
 - c. that there is space adjacent to fire response vehicles to deploy necessary ground appliances;
 - d. right side engine apparatus clearance of a minimum of 2 meters for ground ladder rack deployment; and
 - e. left side engine apparatus clearance of a minimum of 2 meters for side mount engine operator working area, and space for multiple high-volume inlet and discharge fire hose lines, external foam proportioners and foam concentrate stock mustering.
13. I have reviewed Trans Mountain's response to the CER's IR 1.3, dated December 16, 2021, including Trans Mountain's "considerations" in Terminal access design, and my views as expressed in this affidavit, and in particular in paragraphs 9-12, 23 and 24, with respect to the critical nature of the Fire Services By-Law standards for fire lanes, remain unchanged.
14. The Fire Department has documented its concerns with the Terminals extensively on the NEB record. As a Fire Chief with extensive experience in the context of planning hydrocarbon storage facility firefighting response procedures and pre-plan development, it is my view that there are multiple potential tank fire scenarios within the Terminals that would be unextinguishable due to lack of safe firefighting positions. This is, in part, due to the expanded and densified terminal and tank configuration approved by the NEB. With these existing risks in mind, it is very concerning to me that Trans Mountain would be seeking confirmation of fire lane access plans on the basis of a lower standard than the mandatory minimum contained in Burnaby's Fire Services By-law.
15. I have reviewed the opinion provided by Mr. Len Garis, and find it to be substantially flawed. Mr. Garis does not make any mention of Burnaby's Fire Services By-law, which includes the minimum fire lane standards that are applicable in Burnaby.

Trans Mountain's assertion of "site constraints"

16. At paragraph 25 of Mr. Moin's affidavit, I understand him to be stating that "site constraints" or "space limitations" prevent strict adherence to the fire lane standard in Burnaby's Fire Services By-law. Burnaby consistently raised concerns with Trans Mountain's terminal re-configurations through the NEB Certificate approval process, including with respect to the increased emergency response challenges associated with a more densely configured tank

farm. The Fire Department was neither involved in nor consulted in respect of the layout or design of the expanded terminals, and has never been provided any detailed information with respect to the nature of “site constraints”.

17. At paragraph 27 of Mr. Dean Palin’s affidavit in support of this motion, he notes the Commission’s statement in the [Reconsideration Report], that Trans Mountain confirmed that “the tanks and associated infrastructure, containment and designs used in the TMEP terminal expansions would meet... all applicable codes and standards”. The fire lane standards in Burnaby’s Fire Services by-law are clear and unambiguous, and it is surprising that they were either overlooked or disregarded (contrary to the commitment noted in Mr. Palin’s affidavit) at earlier stages of site planning.
18. Trans Mountain’s “Fire Lane Compliance Memo” issued by Stantec on February 5, 2020, was forwarded to the Burnaby Fire Department on March 8, 2021 (appended to this affidavit as **Exhibit “B”**). On the face of this memo, Trans Mountain and its contractors were not considering the fire access standards established by Burnaby’s Fire Services By-Law.
19. As Fire Chief, I have operated on the assumption, based on the project Certificate conditions and Trans Mountain’s representations to the NEB during the Certificate process, that Trans Mountain would comply with all relevant standards in determining site plans. It is only recently that Trans Mountain has referred to “site constraints”, and, again, the Fire Department has not been provided plans with sufficient detail to ascertain the nature or particulars of these “site constraints”.
20. The Fire Services By-law requirements are mandatory standards in Burnaby, and a central component of Burnaby’s fire response and safety scheme. These are standards that all commercial and industrial development proponents are required to comply with.
21. On my review of the FTAP submission drawings, I do not see “site constraints” that would render fire lane widening, or other modification to meet Burnaby fire access standards, impracticable. Based on my summary review of site plans, and drawing on my own experience in hydrocarbon terminal design, the modifications to terminal design and basic civil construction works that would be required to seek compliance are both reasonable in scope, and in proportion to the level of risk mitigation afforded by compliance. In my view, Trans Mountain has not demonstrated that it is unable to meet the fire lane standards established by the Burnaby Fire Services By-law. I have reviewed Trans Mountain’s response to the CER’s IR 1.3, dated December 16, 2021, including highly general references to “sloped” topography and location of infrastructure, and my views as expressed in this paragraph remain unchanged.
22. I would be particularly concerned by Trans Mountain’s non-compliance with Burnaby’s Fire Services By-law standards because the Burnaby Fire Department would likely be required to respond to any significant emergency fire event at the Terminals, including as follows:
 - a. Within the “fence line” of the Terminals:
 - i. Structure firefighting

- ii. Medical emergencies
- iii. Motor vehicle accidents
- iv. Industrial accident and machinery/equipment heavy rescue
- v. Technical and confined space rescue
- vi. Wildland firefighting

b. Outside the fence line of the Terminals:

- i. Isolation
- ii. Evacuation
- iii. Air monitoring
- iv. Fence line firefighting
- v. Wildland fire fighting
- vi. Structure firefighting
- vii. Medical emergency care
- viii. Rescue from high hazard positions
- ix. Field command, coordination and communications operations
- x. Rapid intervention operations
- xi. Hazardous materials operations
- xii. Air, light and rehab operational support
- xiii. Protection and support of close proximity elementary school students


23. Given the significant mobilization of resources and personnel required by the Burnaby Fire Department in a fire emergency situation at either of the Terminals, Trans Mountain's failure to comply with critical and mandatory fire access standards would place the efficacy of Burnaby's response efforts, as well as the efforts of other first responders and contractors, at risk, thereby increasing the likelihood of harm to the public and to firefighting personnel, first responders and facility staff.

Allegations of delay and unresponsiveness

24. At paragraphs 22 and 29 of his affidavit, Mr. Moin states that the Fire Department has failed to provide "substantive" feedback on the FTAPs. I disagree with Mr. Moin. The Fire Department was clear and consistent in its advice to Trans Mountain that FTAPs meeting the Fire Services By-law standards were required, including as early as April 29, 2021 via email (the Building Department had advised Trans Mountain of the FTAP requirement by way of application deficiency lists as early as January 13, 2021). The Fire Department also promptly advised Trans Mountain following its determination that FTAPs submitted by Trans Mountain in May 2021 did not comply with Burnaby's Fire Services By-law, including in emails of June 8 and June 22, 2021. Notwithstanding this advice Trans Mountain continued to submit "revised" draft FTAPs that were non-compliant with the Fire Services By-law. The most recent FTAPs, received on September 17, 2021, also fail to meet the Fire Services By-law standard, and Trans Mountain was advised of this at a meeting on October 8, 2021 and via email on November 19, 2021 (the email correspondence referenced in this paragraph is appended to this affidavit as **Exhibit "C"**). This non-compliance was (and remains) the most significant issue with Trans Mountain's fire access plans at the Terminals, and, in my view, this is very clearly "substantive" feedback.

25. Based on Trans Mountain's continued inquiries with respect to the FTAP and fire access standards since April 2021, and submission of "revised" plans based on feedback from Burnaby (though ultimately remaining non-compliant), I was under the impression that Trans Mountain was actively seeking to comply with the Fire Services By-law standards for fire lanes.
26. At paragraph 23 of his affidavit, Mr. Moin acknowledges that Fire Department's concerns with the FTAP submission were relayed to Trans Mountain at a meeting on October 8, 2021. The concerns that the Fire Department asked the Building Department to relay were generally the same issues that the Fire Department had already been conveying to Trans Mountain directly by way of email since June 2021 (Exhibit C); in particular, advice that the FTAPs were not compliant with the Fire Services By-law.
27. Despite consistent notice from the Fire Department of specific non-compliance issues in the FTAPs for over 4 months, Trans Mountain continued in its failure to remedy these issues through October and November, 2021. At paragraph 29 of Mr. Moin's affidavit, he states that Mr. Assaf "provided no feedback regarding alleged inadequacies" in his November 19, 2021 email; at the time of Mr. Assaf's email, the Fire Department has notified Trans Mountain of the specific nature of the non-compliance issues at least 3 times.
28. The Fire Department remains willing to work with Trans Mountain toward compliance with the Fire Services By-law standards, but to date Trans Mountain has not shown a willingness to seek compliance. This is very concerning to me as Burnaby's Fire Chief, as any fire event at the Terminals will likely necessitate a response from Burnaby's Fire Department given risk to the general public, and, in my view, Trans Mountain's failure to comply with basic minimum Burnaby fire access standards increases the risk of harm to Burnaby firefighting personnel, other first responders and staff on at the Terminals in these circumstances.
29. As of today, Trans Mountain has not provided compliant FTAPs to the Fire Department.

AFFIRMED BEFORE ME at Burnaby,
British Columbia, this 22nd day of
December, 2021.



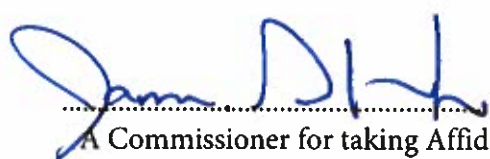
A Commissioner for taking Affidavits for
the Province of British Columbia

JAMES E. SILVESTER
Staff Counsel
City of Burnaby
4949 Canada Way, Burnaby, B.C.
V5G 1M2 (604-294-7235)



CHRISTOPHER BOWCOCK

This is Exhibit "A" referred to in the Affidavit of Christopher Bowcock, sworn before me at the City of Burnaby this 22nd day of December, 2021.


.....
A Commissioner for taking Affidavits within
British Columbia

BURNABY FIRE DEPARTMENT NEW CONSTRUCTION REQUIREMENTS INFORMATION

Preliminary Plan Approval Applications (PPA)

All applications for Preliminary Plan Approval for new construction (which are not preceded by rezoning) will now be required to submit an additional Fire Truck Access Plan.

All subsequent submissions for approvals such as Building Permit Drawings must also include this same approved Fire Truck Access Plan drawing which will be reviewed by the Fire Department to ensure there are no changes. If a rezoning precedes an application for Preliminary Plan Approval only three complete sets of drawings are required for an application. However, all PPA applications must include a Fire Truck Access Plan. One copy of the Fire Truck Access Plan will remain with the Fire Department for their records.

Fire Truck Access Plan Requirements

All sets of drawings will now be required to include a Fire Truck Access Plan. This will be in the form of a site plan and should be fully dimensioned showing building outlines, setbacks, driveways, parking and fire truck access all clearly noted. This drawing will also include location and identification of the following:

- scale of drawing will be 1/16 in = 1 foot or 1/32 in = 1 foot
- new and existing hydrant(s)
- dimensioned distance between hydrant(s) and fire department connections
- dimensioned distance from all buildings between the furthest primary access point to the nearest fire truck access
- all entrances and exits from underground parking area
- location(s) of fire alarm annunciator panel(s)
- fire truck access route with weight considerations
- adjacent City streets
- which buildings are sprinklered and non-sprinklered
- rollover curb required for all fire truck access routes

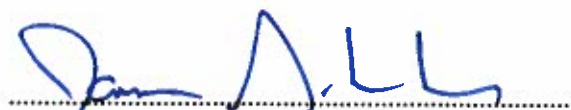
Additional Requirements


1. Every non-sprinklered building must have direct access for firefighting from outdoors up to the sixth storey or 25 meters (82 feet) above grade.
2. Present weight factors of fire and rescue equipment requires fire truck access roads to be constructed to withstand a weight of 36,287 KG (80,000 lbs), and construction material must ensure accessibility under all climatic conditions. Our longest truck is a quintuple aerial with an overall length of 47', including the bucket overhang.
3. Any designated fire truck access must be a minimum of 7.3 meters (24 feet) wide with no obstructions. Clearance heights must be 5 meters (16 feet, 5 inches) vertically.
4. A turnaround facility must be provided for any dead-end portion of a fire truck access route exceeding 90 meters (295 feet).
5. Any road, street, or area that is a designated fire truck access must be located no further than 15 meters (49 feet, 3 inches) or closer than 3 meters (9 feet, 10 inches) from the face of a building.

6. Curves or off sets on access roads must conform with the B.C. Building Code (2006) Edition, and a centerline turning radius of 13 meters (42 feet, 8 inches) to accommodate aerial and ladder platforms. On cul-de-sac type turn arounds, where light standards protrude or dead end portions exceed 90 meters, we require a 15.3 radius.
7. On 'S' type curves, the fire truck access radius must be designed to accommodate aerial and ladder platforms.
8. A change of gradient on access roads are not to exceed 1 in 12.5 over a minimum distance of 15 meters (49 feet, 3 inches) and provide a minimum overhead clearance of 5 meters (16 feet, 5 inches) vertically.
9. Required space for an aerial ladder at a 70° angle, when located between high building is as follows:
 - 9 meters (29 feet, 6 inches) radius at 24 meters (78 feet, 9 inches) extension
 - 11.5 meters (37 feet, 9 inches) radius at 30.5 meters (100 feet) extension
10. Signs must be posted prohibiting parking in fire department lane(s).
11. Fire department connection must be as follows:
 - address side, fully visible and recognizable from the street or nearest point of fire department vehicle accessibility
 - within 45 meters (150 feet) of a hydrant
12. The fire department connection for a standpipe or automatic sprinkler system must be located so the distance from the fire department connection to a hydrant is not more than 45 meters (150 feet) and is unobstructed.
13. For a building not provided with a fire department connection, a fire department pumper vehicle can be located as that the length of the access route from a hydrant to the vehicle, plus the unobstructed path of travel for the firefighter from the vehicle, to the building is not more than 90 meters (300 feet) and the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 45 meters (150 feet).
14. Fire department connections must be clearly marked to conform with B.C. Fire Code (2006) Edition, N.F.P.A. 13. In addition, signs must be attached indicating the portions of the building served. Letters on the designated signs must be a minimum of one (1) inch in height.

Any additional questions, please contact the Fire Prevention Office at 604-294-7195.

This is Exhibit "B" referred to in the Affidavit
of Christopher Bowcock, sworn before me at the
City of Burnaby this 22nd day of December, 2021.


.....
A Commissioner for taking Affidavits within
British Columbia

| | | | |
|--|--|------------------------------|------------|
|  KLTP 01-13283-TB-BB00-CS-MEM-0007 | Trans Mountain Expansion Project Burnaby Terminal Fire Lane Compliance Memo | Contractor Revision Date: | 2020-01-30 |
| | | Contractor Revision No.: | 2 |
| | | Page | 1 of 8 |



Trans Mountain Expansion Project

Burnaby Terminal Fire Lane Compliance Memo

TMEP Document # 01-13283-TB-BB000-CS-MEM-0007 R2

| Rev No. | Prepared by/ Date | Reviewed by/ Date | Approved by/ Date | Reviewed by TMEP | Pages Revised | Issued Type |
|---------|--------------------------------|----------------------------------|---|---------------------|------------------|------------------------|
| 1 | Mohammed Sawalha 2020-01-30 | Matthew Wilson 2020-01-30 | Dave Shoemaker 2020-01-30 | | 8 | Issued for Information |
| 2 | Mohammed Sawalha 2020-02-05 | Matthew Wilson 2020-02-05 MAW | Dave Shoemaker 2020-02-05 MAW for DS | | 8 | Issued for Information |

| | | | |
|-------|---|-------|--|
| To: | Chase Babiuk KLTP -TMEP – Trans Mountain Expansion Project | From: | Mohammed Sawalha P.Eng. Stantec Consulting Ltd. |
| File: | 117202581-CI-MEM-0005 Rev 2 - TMEP Burnaby Terminal Fire Lane Compliance Memo | Date: | February 5, 2020 |

Reference: TMEP Burnaby Terminal Fire Lane Compliance Memo

INTRODUCTION:

Stantec Consulting Ltd. (Stantec) is completing the detailed engineering for Trans Mountain Expansion Project Burnaby, Westridge and Sumas Terminals. The scope of this memo is limited to the review of the New Proposed Access Roads (L110, L200, L150, L250, L300, L500 and L600) widths and turning radiuses at Burnaby Terminal for compliance with British Columbia Building Code (BCBC 2018, Section 3.2.5.6, Provision for Firefighting Access Routs Design).

BCBC 2018 – SECTION 3.2.5.6 FIRE LANE REQUIREMENTS:

Based on Section 3.2.5.6 of BCBC 2018, the minimum clear width of roads shall be 6m and the center line radius not less than 12m.

SUMMARY - COMPLIANCE OF CURRENT DESIGN:

On reviewing the current design, the New Proposed Access Roads are in compliance with the requirements of BCBC 2018, Section 3.2.5.6. except for the turning radiuses of the access road L110 to the access road L150 (9m radius). Stantec has performed an AutoTURN simulation for a Firetruck in the two areas that have 9m radius, the AutoTURN Firetruck simulations show that the assumed Firetruck should be able to make the two corners, more details on the findings are presented in the attached Figurers (Figure 01 to 05).

As requested in the Fire System review for Operations meeting document# 01-13283-GG-0000-GN-MOM-0032, held on October 01-2019, the Figure 01 is updated to include the following features:

- The unpaved access road which is on the South Side of the ISWRA (this access road is unpaved, and the width of this road is less than 6m, therefore can't be used as a Fire Lane).
- The unpaved access road running from the SE corner of the ISWRA to the main gate (this access road is unpaved, therefore can't be used as a Fire Lane).
- The existing road which runs along the South of the Existing Manifold area.
- The existing access Points to the Terminal such as (Primary – Main Gate, Auxiliary – Office, Auxiliary – Residential Road on West Side).

February 5, 2020
Chase BabiukKLTP -TMEP – Trans Mountain Expansion Project
Page 2 of 2


Reference: TMEP

DISCLAIMER

This document entitled TMEP Burnaby Terminal Fire Lane Compliance Memo was prepared by Stantec Consulting Ltd. ("Stantec") for the account of Trans Mountain Pipeline L.P. (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

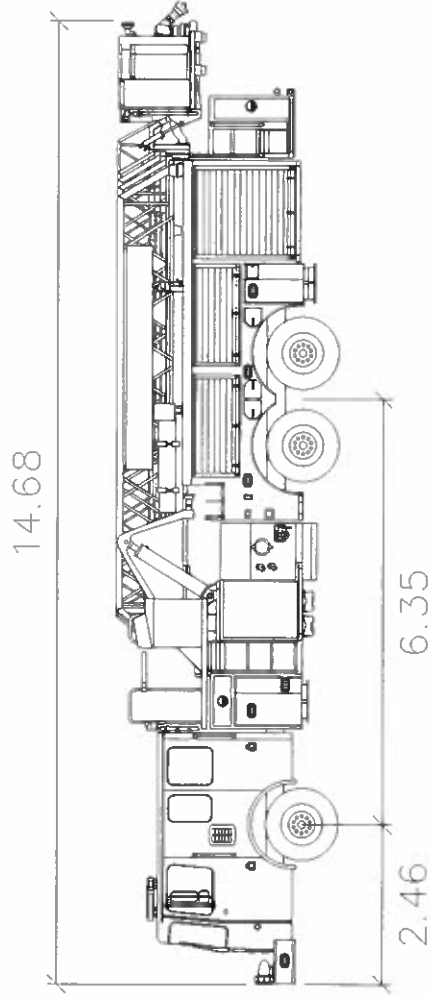
Mohammed Sawalha P.Eng.

Senior Civil Engineer
10220 – 103 Avenue NW, Suite 500
Edmonton AB T5K 2L6
mohammed.sawalha@stantec.com
Phone: (780) 917-6984
Fax: (780) 917-8580
Attachment: Figure-01 to 05



Feb. 05-2020

NEW PROPOSED ACCESS ROAD -- ASSUMED FIRETRUCK PROFILE USED FOR THE AUTOTURN



Smeal Platform MM 100ft

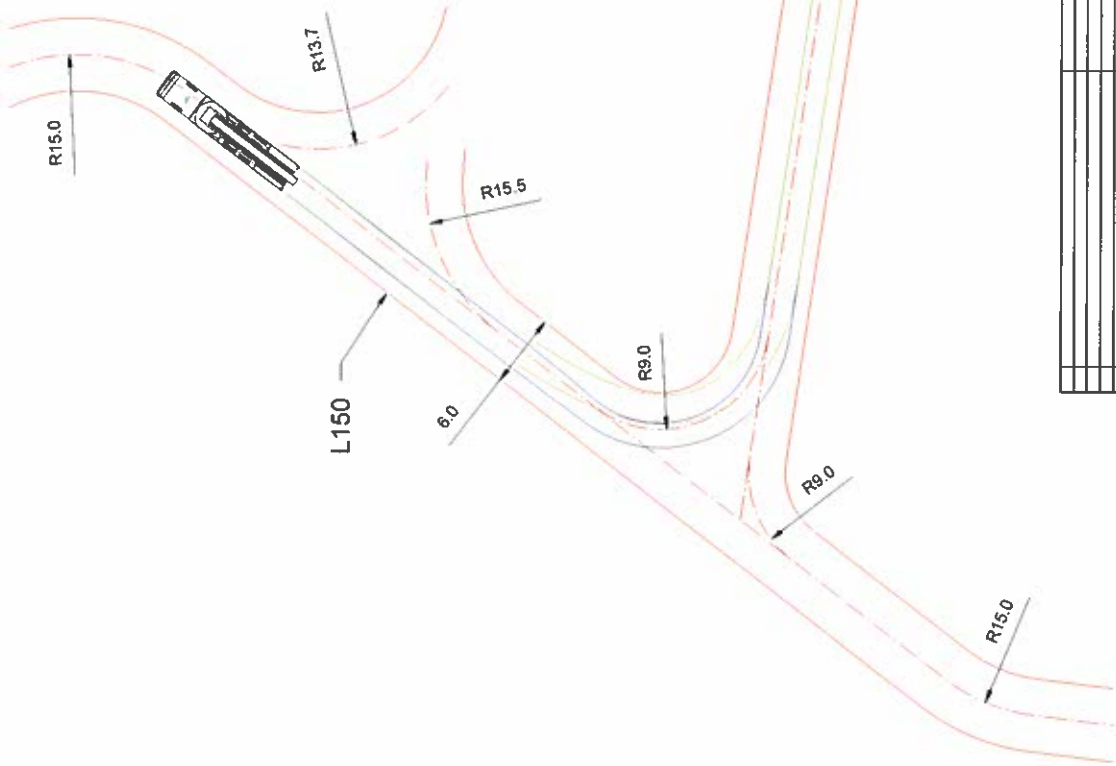
meters

- Width : 2.54
- Track : 2.41
- Lock to Lock Time : 6.0
- Steering Angle : 45.0

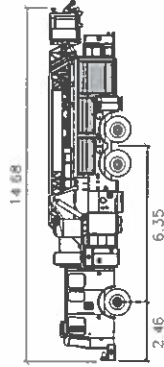
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| | | | |
| SHEET NO. 02 SCALE 1:200 DATE 11/09/04 | NEW PROPOSED ACCESS ROAD ASSUMED FIRETRUCK PROFILE USED FOR THE AUTOTURN BURMISTERS TERMINAL | PROJECT CODE: 01-13283 REVISION NO. 02 FIGURE A | SHEET NO. 02 SCALE 1:200 DATE 11/09/04 |
| DRAWN BY: M. SAMUKAR CHECKED BY: M. SAMUKAR APPROVED BY: M. SAMUKAR | PROJECT CODE: 01-13283 REVISION NO. 02 FIGURE A | SHEET NO. 02 SCALE 1:200 DATE 11/09/04 | SHEET NO. 02 SCALE 1:200 DATE 11/09/04 |

NEW PROPOSED ACCESS ROAD L110 RIGHT TURN TO L150:

Blue Lines denotes Front Tires, Green Lines denotes Rear Tires.



TK-99



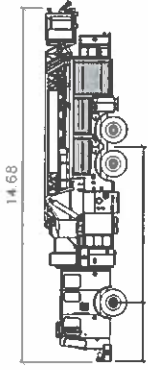
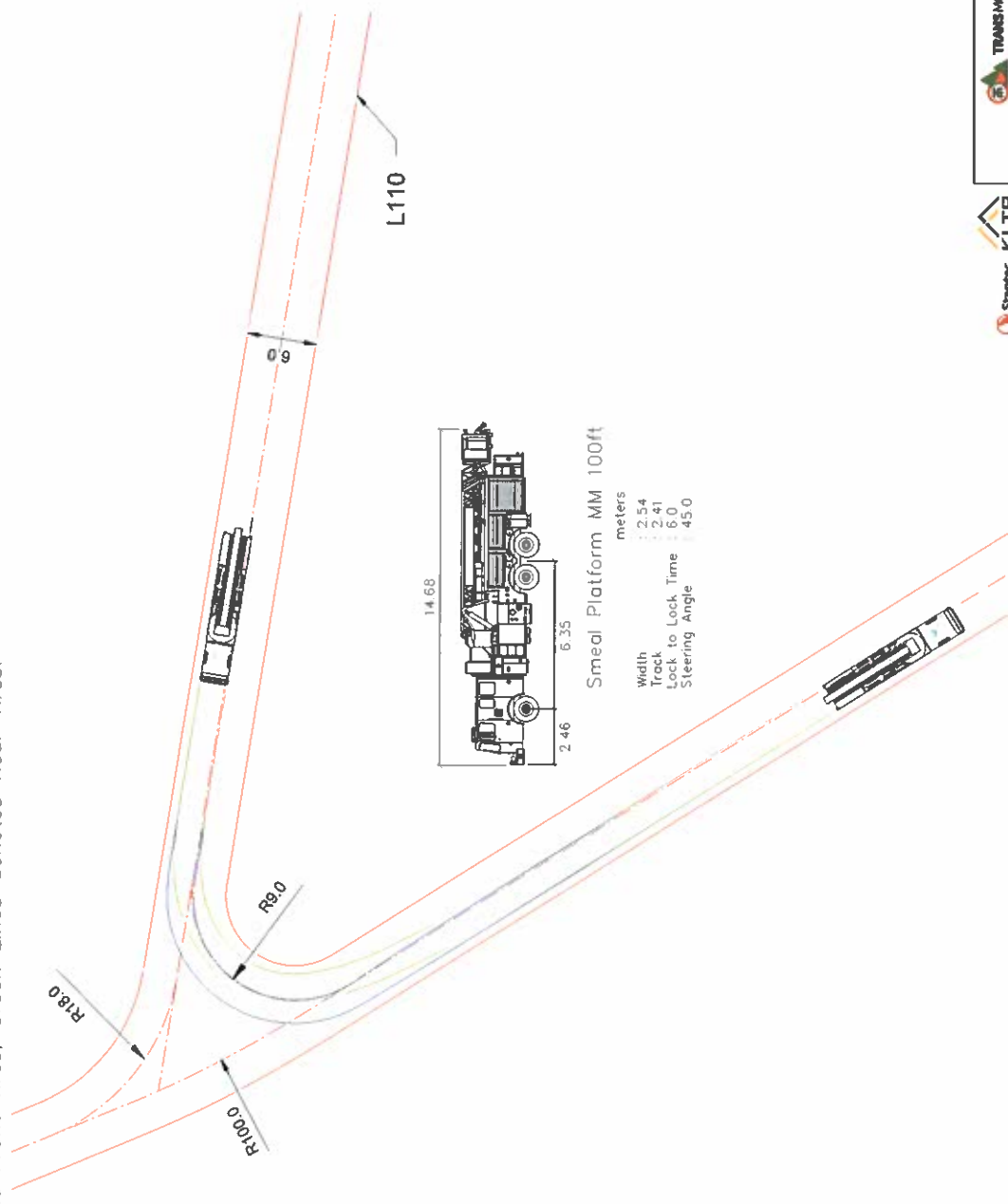
Smeal Platform MM 100ft

- Width : 2.54 meters
- Track : 2.41
- Lock to Lock Time : 6.0
- Steering Angle : 45.0

| | | | | | |
|--------------|--|--------|----|-----------|---|
| PROJECT NO. | 01-13283 | FIGURE | D3 | SHEET NO. | A |
| PROJECT NAME | NEW PROPOSED ACCESS ROAD L110 RIGHT TURN TO L150 | | | | |
| CLIENT | TRANS MOUNTAIN | | | | |
| DATE | 11/09/14 | | | | |
| DESIGNED BY | M. S. S. S. | | | | |
| CHECKED BY | M. S. S. S. | | | | |
| APPROVED BY | M. S. S. S. | | | | |
| SCALE | AS SHOWN | | | | |

NEW PROPOSED ACCESS ROAD L150 LEFT TURN TO L110:


Blue Lines denotes Front Tires, Green Lines denotes Rear Tires.



Smeal Platform MM 100ft
meters
Width : 2.46
Track : 2.54
Lock to Lock Time : 2.41
Steering Angle : 45.0

| | | | | | |
|-------------|----------|--------------|---|-------------|-----------|
| SHEET NO. | 1150 | SCALE | AS SHOWN | DATE | 11/19/04 |
| PROJECT NO. | 01-13283 | PROJECT NAME | NEW PROPOSED ACCESS ROAD L150 LEFT TURN TO L110 | DESIGNED BY | M. SHARMA |
| DATE | 11/19/04 | CHECKED BY | BURNARD TERNAN | APPROVED BY | |
| REVISION | | DATE | | BY | |
| 1 | | 11/19/04 | | | |

This is Exhibit "C" referred to in the Affidavit of Christopher Bowcock, sworn before me at the City of Burnaby this 22nd day of December, 2021.


 A Commissioner for taking Affidavits within
 British Columbia

From: Assaf, George <George.Assaf@burnaby.ca>

Sent: Friday, November 19, 2021 9:47 PM

To: Osama_Moin@transmountain.com

Cc: Bowcock, Chris <Chris.Bowcock@burnaby.ca>; Kushnir, Peter <Peter.Kushnir@burnaby.ca>; Yan, Benjamin <Benjamin.Yan@burnaby.ca>; Geno_Bast@transmountain.com

Subject: TMEP, Fire Truck Access submissions

Dear Osama,

Please be advised that the plans submitted in October 2021 for Fire Truck Access have been rejected as inadequate. The plans do not meet the City of Burnaby's minimum requirements for Fire Truck Access as supplied to your organization several times previously.

Please provide a new submission showing how you will meet the City of Burnaby's minimum requirements for Fire Truck Access.

The affected permits are

BLD21-00348

BLD21-00032

BLD21-00256

BLD21-00655

BLD20-01042

BLD21-00658

BLD21-00346

BLD21-00655

BLD21-00349
BLD20-01039
BLD20-00928
BLD21-00082
BLD21-00132
BLD21-00347
BLD21-00031
BLD20-01040
BLD21-00658
BLD21-00033
BLD20-01041
BLD21-00432

We look forward to receiving submissions that meet the minimum requirements for the City of Burnaby.

Regards,

George Assaf

Chief Fire Prevention Officer

Direct: 604-294-7564

City of Burnaby | Burnaby Fire Department | Fire Prevention Division

Station 1 – 2nd Floor | 4867 Sperling Avenue | Burnaby, BC V5E 2S9

Our Vision: A world-class city committed to creating and sustaining the best quality of life for our entire community.

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From: Malinoski, Kelly <Kelly_Malinoski@transmountain.com>
Sent: Wednesday, June 23, 2021 11:10 AM
To: Assaf, George <George.Assaf@burnaby.ca>; Danny.Goncalves <Dan.Goncalves@kltp.ca>; Paulson, Brian <Brian.Paulson@burnaby.ca>; Parker, Kelly <Kelly.Parker@burnaby.ca>
Cc: Pountney, Bronwyn <Bronwyn_Pountney@transmountain.com>; Mike.Christian-PTR <Mike.Christian@kltp.ca>; KLTP.Permitting <KLTP.Permitting@kltp.ca>; Mckinnon, Katie <Katie_Mckinnon@transmountain.com>; Bowcock, Chris <Chris.Bowcock@burnaby.ca>; Ritchie, Miles <Miles.Ritchie@burnaby.ca>
Subject: RE: Trans Mountain Burnaby Terminal Fire Truck Access Plan

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Thank-you for your response George

Danny was looking for some feedback and input on the documents from their draft form to ensure

the team was producing an acceptable document and ensure an efficient review process. Given your answer below we will continue producing the plan to scale and requirements listed on your website and as previously provided. They will utilize the match lines that make the most sense for the property.

We understand this to be the only outstanding item for the building permits for the applicable buildings.

You can expect the completed set of drawings in the next few weeks from Danny and his team.

Kelly

Kelly Malinoski
 Director, Emergency Management
 W: 403-514-6538 | C: 403-804-6771
kelly_malinoski@transmountain.com

Toll Free: 1.866.514.6700 | E: info@transmountain.com | W: transmountain.com
 Follow: @TransMtn



From: Assaf, George <George.Assaf@burnaby.ca>
Sent: Tuesday, June 22, 2021 5:24 PM
To: Malinoski, Kelly <Kelly_Malinoski@transmountain.com>; Danny.Goncalves <Dan.Goncalves@kltp.ca>; Paulson, Brian <Brian.Paulson@burnaby.ca>; Parker, Kelly <Kelly.Parker@burnaby.ca>
Cc: Pountney, Bronwyn <Bronwyn_Pountney@transmountain.com>; Mike.Christian-PTR <Mike.Christian@kltp.ca>; KLTP.Permitting <KLTP.Permitting@kltp.ca>; Mckinnon, Katie <Katie_Mckinnon@transmountain.com>; Bowcock, Chris <Chris.Bowcock@burnaby.ca>; Ritchie, Miles <Miles.Ritchie@burnaby.ca>
Subject: RE: Trans Mountain Burnaby Terminal Fire Truck Access Plan

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Hi Kelly,

We have had an opportunity to check the plans since they were submitted, and the preliminary result is that they do not meet our requirements for fire truck access. There are multiple issues with the widths, turning radii, lack of hard surfaces, and length of lanes with a lack of turn around spots. All our requirements are on the City of Burnaby's website, and have been provided to you and your entire team previously.

You can expect all the plans to be returned early next week.

Please note that these requirements are not only for firefighting purposes, but also to ensure prompt response in the event of medical emergencies, and technical rescue.

Please feel free to submit plans that fulfil our fire truck access requirements for review.

I look forward to your response.

George Assaf

Chief Fire Prevention Officer

Direct: 604-294-7564

City of Burnaby | Burnaby Fire Department | Fire Prevention Division

Station 1 – 2nd Floor | 4867 Sperling Avenue | Burnaby, BC V5E 2S9

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From: Paulson, Brian <Brian.Paulson@burnaby.ca>
Sent: Tuesday, June 8, 2021 2:45 PM
To: Danny.Goncalves <Dan.Goncalves@kltp.ca>
Cc: Assaf, George <George.Assaf@burnaby.ca>; Bowcock, Chris <Chris.Bowcock@burnaby.ca>
Subject: FW: Trans Mountain Burnaby Terminal Fire Truck Access Plan

Hello Danny

I have reviewed the plans along with my Assistant Fire Chief.

See attached for the required symbols on all drawings for the Burnaby Fire Department

In response to question A. – The site plan looks good but if this is going to be used as the Pre-Incident Plan drawing the symbols are not correct.

Question B. – symbols are not correct, the Fire Truck Access does not meet the requirements of the Burnaby Fire Department.

Question C. – the drawing orientation is not so much the problem it is that the Fire Truck Access does not meet the requirements so the drawings will eventually have to be redone.

I appreciate all the work so far but the Fire Truck Access (FTA) does not meet the basic requirements

of the Burnaby Fire Department.

We look at the roads, both the new TMEP and existing site access roads, as Fire Truck Access. These are required to be 7.3 m in width, a vehicle weight rating of 80,000lbs, turning radius to the centerline of 13m, and paved.

The new TMEP turn around should be a hammerhead or a proper turn around with posted signs for no parking. Any other access road more than 90m requires a turn around if not it must be a drive through road.

Any Fire Department Connections are required to be within 45m of a hydrant. This measurement is based on the road distance and not a straight line over landscaping and walls.

For all the requirements see attached for Fire Truck Access.

The most important issue is to have the Fire Truck Access to meet the basic requirements of the Burnaby Fire Department.

Brian Paulson | Captain, Fire Prevention Division | Burnaby Fire Department

City of Burnaby | Station 1 – 2nd Floor | 4867 Sperling Avenue, Burnaby BC V5E 2S9

www.burnaby.ca | brian.paulson@burnaby.ca | Office 604-294-7563 | Fax 604-294-0490

From: Danny.Goncalves <Dan.Goncalves@kltp.ca>

Sent: Friday, May 28, 2021 3:56 PM

To: Parker, Kelly <Kelly.Parker@burnaby.ca>; Paulson, Brian <Brian.Paulson@burnaby.ca>

Cc: Malinoski, Kelly <Kelly_Malinoski@transmountain.com>; Assaf, George <George.Assaf@burnaby.ca>; Mckinnon, Katie <katie_mckinnon@transmountain.com>; Pountney, Bronwyn <Bronwyn_Pountney@transmountain.com>; Bowcock, Chris <Chris.Bowcock@burnaby.ca>; Ritchie, Miles <Miles.Ritchie@burnaby.ca>; Mike.Christian-PTR <Mike.Christian@kltp.ca>

Subject: FW: Trans Mountain Burnaby Terminal Fire Truck Access Plan

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Hi Kelly, Brian,

Per your direction below I wanted to provide you an update on the progress being made on the Burnaby Terminal fire truck access plans as we will need your input in order to move forward.

I have attached the following files for your consideration:

1. **PDF: 01-13283-BB00-CE0178101 RB Clean** – This is a first draft of your requested one page site plan to scale approx. 1:2000.
2. **PDF: 01-13283-BB00-CE0178101 RB Site Frames** – this version of the drawing shows you

what the matchlines look like to get the approximately 22 individual site plans to the scale you require. The drawings align with plant north in this instance

3. **PDF: 01-13283-BB00-CE0178101 RB UTM Frames** – this version of the drawing provides an alternative set of matchlines to get you 21 individual site plans to the scale you require. The drawings align with true north in this instance.
4. **PDF: 01-13283-BB00-CE0178101 RB With Existing Site Plans** – this version of the drawing outlines the individual fire code compliance site plan drawings which have already been reviewed by your department through the building permit process started back in October of 2020. All building permit submissions to date have included these individual plans at the request of the plan checking department. Refer to point 5 below.
5. **PDF: Individual Fire Site Plans (Submitted)** – this is a collection of all the individual site plans that you already should have reviewed as part of the permit application process. These are the drawings referenced in #4 above.

Required Direction Needed from the Burnaby Fire Department

- A. Provide some preliminary feedback on the one page site plan discussed in **#1** above.
- B. Confirm if you are willing to proceed with **#4 & #5** above and make use of all the plans already submitted during the permit application process rather than creating a whole new set of 20+ plans
- C. If the answer to “B” above is ‘no’, please confirm which drawing orientation option you prefer from **#2** and **#3** above

It would be appreciated if you could provide direction at your earliest convenience so that we may proceed accordingly with the plans you require.

Thanks,



Danny Gonçalves, M.Eng, P.Eng

Kiewit-Ledcor TMEP Partnership (KLTP)

CELL: (780)-893-5984

dan.goncalves@kltp.ca

BURNABY FIRE DEPARTMENT NEW CONSTRUCTION REQUIREMENTS INFORMATION

Preliminary Plan Approval Applications (PPA)

All applications for Preliminary Plan Approval for new construction (which are not preceded by rezoning) will now be required to submit an additional Fire Truck Access Plan.

All subsequent submissions for approvals such as Building Permit Drawings must also include this same approved Fire Truck Access Plan drawing which will be reviewed by the Fire Department to ensure there are no changes. If a rezoning precedes an application for Preliminary Plan Approval only three complete sets of drawings are required for an application. However, all PPA applications must include a Fire Truck Access Plan. One copy of the Fire Truck Access Plan will remain with the Fire Department for their records.

Fire Truck Access Plan Requirements

All sets of drawings will now be required to include a Fire Truck Access Plan. This will be in the form of a site plan and should be fully dimensioned showing building outlines, setbacks, driveways, parking and fire truck access all clearly noted. This drawing will also include location and identification of the following:

- scale of drawing will be 1/16 in = 1 foot or 1/32 in = 1 foot
- new and existing hydrant(s)
- dimensioned distance between hydrant(s) and fire department connections
- dimensioned distance from all buildings between the furthest primary access point to the nearest fire truck access
- all entrances and exits from underground parking area
- location(s) of fire alarm annunciator panel(s)
- fire truck access route with weight considerations
- adjacent City streets
- which buildings are sprinklered and non-sprinklered
- rollover curb required for all fire truck access routes

Additional Requirements

1. Every non-sprinklered building must have direct access for firefighting from outdoors up to the sixth storey or 25 meters (82 feet) above grade.
2. Present weight factors of fire and rescue equipment requires fire truck access roads to be constructed to withstand a weight of 36,287 KG (80,000 lbs), and construction material must ensure accessibility under all climatic conditions. Our longest truck is a quintuple aerial with an overall length of 47', including the bucket overhang.
3. Any designated fire truck access must be a minimum of 7.3 meters (24 feet) wide with no obstructions. Clearance heights must be 5 meters (16 feet, 5 inches) vertically.
4. A turnaround facility must be provided for any dead-end portion of a fire truck access route exceeding 90 meters (295 feet).
5. Any road, street, or area that is a designated fire truck access must be located no further than 15 meters (49 feet, 3 inches) or closer than 3 meters (9 feet, 10 inches) from the face of a building.

6. Curves or off sets on access roads must conform with the B.C. Building Code (2006) Edition, and a centerline turning radius of 13 meters (42 feet, 8 inches) to accommodate aerial and ladder platforms. On cul-de-sac type turn arounds, where light standards protrude or dead end portions exceed 90 meters, we require a 15.3 radius.
7. On 'S' type curves, the fire truck access radius must be designed to accommodate aerial and ladder platforms.
8. A change of gradient on access roads are not to exceed 1 in 12.5 over a minimum distance of 15 meters (49 feet, 3 inches) and provide a minimum overhead clearance of 5 meters (16 feet, 5 inches) vertically.
9. Required space for an aerial ladder at a 70° angle, when located between high building is as follows:
 - 9 meters (29 feet, 6 inches) radius at 24 meters (78 feet, 9 inches) extension
 - 11.5 meters (37 feet, 9 inches) radius at 30.5 meters (100 feet) extension
10. Signs must be posted prohibiting parking in fire department lane(s).
11. Fire department connection must be as follows:
 - address side, fully visible and recognizable from the street or nearest point of fire department vehicle accessibility
 - within 45 meters (150 feet) of a hydrant
12. The fire department connection for a standpipe or automatic sprinkler system must be located so the distance from the fire department connection to a hydrant is not more than 45 meters (150 feet) and is unobstructed.
13. For a building not provided with a fire department connection, a fire department pumper vehicle can be located as that the length of the access route from a hydrant to the vehicle, plus the unobstructed path of travel for the firefighter from the vehicle, to the building is not more than 90 meters (300 feet) and the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 45 meters (150 feet).
14. Fire department connections must be clearly marked to conform with B.C. Fire Code (2006) Edition, N.F.P.A. 13. In addition, signs must be attached indicating the portions of the building served. Letters on the designated signs must be a minimum of one (1) inch in height.

Any additional questions, please contact the Fire Prevention Office at 604-294-7195.

From: Parker, Kelly <Kelly.Parker@burnaby.ca>
Sent: Thursday, April 29, 2021 8:01 AM
To: 'Malinoski, Kelly' <Kelly_Malinoski@transmountain.com>
Cc: Assaf, George <George.Assaf@burnaby.ca>; Brian Paulson <bpaulson256@gmail.com>;
Danny.Goncalves <Dan.Goncalves@kltp.ca>; Mckinnon, Katie
<Katie_Mckinnon@transmountain.com>; Pountney, Bronwyn
<Bronwyn_Pountney@transmountain.com>; Bowcock, Chris <Chris.Bowcock@burnaby.ca>; Ritchie,
Miles <Miles.Ritchie@burnaby.ca>
Subject: TRANSMOUNTAIN Building Permit Applications

Good morning Kelly;

After consulting with Captain Brian Paulson and Chief George Assaf, we confirm that the Burnaby Fire Department requires an updated Fire Truck Access Plan – not just a site plan, but a Fire Truck Access Plan which must have the following requirements noted on it:

- Fire Truck Access Plan should be fully dimensioned showing building outlines, setbacks, driveways, parking and fire truck access clearly noted of the entire site

- Location and identification of the following:
 - scale of drawing will be 1/16 in = 1 foot or 1/32 in = 1 foot
 - new and existing hydrant(s)
 - dimensioned distance between hydrant(s) and fire department connection(s)
 - fire department connection(s) must be mounted on building or remote pilaster
 - dimensioned distance from all buildings between the furthest primary access point to the nearest fire truck access
 - location(s) of fire alarm annunciator panel(s)
 - fire truck access route with weight considerations
 - adjacent City streets
 - which buildings are sprinklered and non-sprinklered
 - rollover curb required for all fire truck access routes
- Every non-sprinklered building must have direct access for firefighting from outdoors up to the sixth storey or 25 meters (82 feet) above grade
- Present weight factors of fire and rescue equipment requires fire truck access roads to be constructed to withstand a weight of 36,287 KG (80,000 lbs), and construction material must ensure accessibility under all climatic conditions. Solid, paved surfaces accepted (no grass crete.) Our longest truck is a quintuple aerial with an overall length of over 49', including the bucket overhang
- Any designated fire truck access must be a minimum of 7.3 meters (24 feet) wide with no obstructions. Clearance heights must be 5 meters (16 feet, 5 inches) vertically
- A turnaround facility must be provided for any dead-end portion of a fire truck access route exceeding 90 meters (295 feet)
- Any road, street, or area that is a designated fire truck access must be located no further than 15 meters (49 feet, 3 inches) or closer than 3 meters (9 feet, 10 inches) from the face of a building
- Curves or off sets on access roads must conform with the B.C. Building Code, and a centerline turning radius of 13 meters (42 feet, 8 inches) to accommodate aerial and ladder platforms. On cul-de-sac type turn-arounds, where light standards protrude or dead end portions exceed 90

meters, we require a 15.3 radius

- On 'S' type curves, the fire truck access radius must be designed to accommodate aerial and ladder platforms
- A change of gradient on access roads are not to exceed 1 in 12.5 over a minimum distance of 15 meters (49 feet, 3 inches) and provide a minimum overhead clearance of 5 meters (16 feet, 5 inches) vertically
- Required space for an aerial ladder at a 70o angle, when located between high building is as follows:
 - 9 meters (29 feet, 6 inches) radius at 24 meters (78 feet, 9 inches) extension
 - 11.5 meters (37 feet, 9 inches) radius at 30.5 meters (100 feet) extension
- Fire department connection must be as follows:
 - address side, fully visible and recognizable from the street or nearest point of fire department vehicle accessibility and within 45 meters (150 feet) of a hydrant
- The fire department connection for a standpipe or automatic sprinkler system must be located so the distance from the fire department connection to a hydrant is not more than 45 meters (150 feet) and is unobstructed
- For a building not provided with a fire department connection, a fire department pumper vehicle can be located as that the length of the access route from a hydrant to the vehicle, plus the unobstructed path of travel for the firefighter from the vehicle, to the building is not more than 90 meters (300 feet) and the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 45 meters (150 feet)
- Fire department connections must be clearly marked to conform with B.C. Fire Code and N.F.P.A. 13. In addition, signs must be attached indicating the portions of the building served. Letters on the designated signs must be a minimum of one (1) inch in height.
- Complete full size (hard copy) Fire Truck Access Plan

We look forward to receiving this requested information at your earliest

opportunity.

Regards,

Kelly Parker | Acting Captain - Fire Prevention Division | Burnaby Fire Department | Cel 604-842-1323

City of Burnaby | Station 1 – 2nd Floor | 4867 Sperling Avenue, Burnaby BC V5E 2S9

www.burnaby.ca | kelly.parker@burnaby.ca | Office 604-294-7599 | Fax 604-294-0490

From: Malinoski, Kelly <Kelly_Malinoski@transmountain.com>

Sent: Wednesday, April 28, 2021 11:22 AM

To: Parker, Kelly <Kelly.Parker@burnaby.ca>; Paulson, Brian <Brian.Paulson@burnaby.ca>

Cc: Assaf, George <George.Assaf@burnaby.ca>; Danny.Goncalves <Dan.Goncalves@kltp.ca>;

Mckinnon, Katie <Katie_Mckinnon@transmountain.com>; Pountney, Bronwyn

<Bronwyn_Pountney@transmountain.com>

Subject: RE: BLD20-00928 and BLD21-00082 Firewater and Foam Buildings

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Good Morning Brian

I have not yet heard back from you if you require anything else. We have submitted the access diagrams around these specific buildings, the fire truck access report for all new roads and a diagram of the overall site showing all roads including those that are not changing.

We are happy to provide whatever it is that you need, but will need to understand what additional requirements you may have.

Kelly

Kelly Malinoski

Director, Emergency Management/Directrice, Gestion des situations d'urgence

W: 403-514-6538 | C: 403-804-6771

kelly_malinoski@transmountain.com