



**TOWN OF SIDNEY
HIGHWAY 17 WEST CYCLE PATH
REPLACEMENT PHASE 3**

TENDER NO. 2024-005

April 17, 2024

**Onsite Engineering Ltd.
103-32310 South Fraser Way
Abbotsford, BC
V2T 1X1**

**Town of Sidney
2440 Sidney Avenue
Sidney, BC
V8L 1Y7**

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Owner: *Town of Sidney*
Contract: **Highway 17 West Cycle Path Replacement Phase 3**

Reference No. 2024-005

The Owner invites tenders for: The replacement and upgrades to the Pat Bay Highway Bike Path. Upgrades include:

- Full reconstruction of 518 m of asphalt pathway;
- Supply and installation of 350 m² of MSE retaining wall.

Security: A Tender shall be accompanied by a Bid Bond (or Certified Cheque) in the amount of ten percent (10%) of the Tender Price.

Surety: A Tender shall be accompanied by a Consent of Surety.

Bonding: The successful Tenderer will be required to provide a Performance and Labour and Material Payment Bond each in the amount of fifty percent (50%) of the Tender Price.

Tenders are scheduled to close: Tenders must be submitted electronically **only**. The email subject line should include the Contract Title, Reference Number and the name of the Participant and must be received on or before

Tender Closing Time: 2:00pm local time

Tender Closing Date: May 16, 2024

at

Submission Email Address: tenders@sidney.ca

(one single PDF, **no** zip files)

The Town has a 20MB size limit for submissions.

Optional Pre-Tender Site Meeting: 11:00 am, local time
Monday May 6, 2024
Existing Bike Path at Malaview Avenue West

Name of Owner's Representative Direct all inquiries regarding the *Contract*, to:

Joel McAllister, P. Eng., Project Manager
Onsite Engineering Ltd.

Phone: 604-996-4722

Email: jmcallister@onsite-eng.ca

Tenderers Checklist

BEFORE SUBMITTING YOUR TENDER, CHECK THE FOLLOWING POINTS:

Item	Page	Complete (✓)
Addenda Acknowledged	FT 1	
Tender Address	FT 5	
Tenderer Signature and Name Printed	FT 5	
Appendix 1 - Schedule of Quantities and Prices	FT 6-8	
Appendix 2 - Preliminary Construction Schedule	FT 9	
Appendix 3 - Experience of Superintendent	FT 10	
Appendix 4 - Comparable Work Experience	FT 11	
Appendix 5 - Subcontractors	FT 12	
Tenderer's Initials	FT 1-12	
Bid Bond		
Consent of Surety		

NOTE: This list is not guaranteed to be complete. It is the *Tenderers* responsibility to ensure that the tender submission is complete.

***Instructions to
Tenderers***

(FOR USE WHEN UNIT PRICES FORM THE BASIS OF PAYMENT TO BE USED ONLY WITH THE GENERAL CONDITIONS AND OTHER STANDARD DOCUMENTS OF THE UNIT PRICE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS.)

(TO BE READ WITH "INSTRUCTIONS TO TENDERERS - PART II"
CONTAINED IN THE EDITION OF THE PUBLICATION
"MASTER MUNICIPAL CONSTRUCTION DOCUMENTS" SPECIFIED IN ARTICLE 2.2 BELOW)

Owner: Town of Sidney

Contract: Highway 17 West Cycle Path Replacement Phase 3

Reference No. 2024-005

1.0 Introduction

1.1 These Instructions apply to and govern the preparation of tenders for this *Contract*. The *Contract* is generally for the following work:

The replacement and upgrades to the Pat Bay Highway Bike Path. Upgrades include:

- Full reconstruction of 518 m of asphalt pathway;
- Supply and installation of 350 m² of MSE retaining wall.

1.2 Direct all inquiries regarding the *Contract*, to:

Joel McAllister, P. Eng., Project Manager
Onsite Engineering Ltd.

Phone: 604-996-4722

Email: jmcallister@onsite-eng.ca

The deadline for inquiries is noon, May 8, 2024. Inquiries received after that time will not be responded to.

If a tenderer contacts anyone inside the Town organization, including members of Council, regarding this tender without being referred to such person by the appropriate person identified above, the Town may exclude any tender submitted by that tenderer from consideration.

2.0 Tender Documents

- 2.1 The tender documents which a tenderer should review to prepare a tender consist of all of the *Contract Documents* listed in Schedule 1 entitled "Schedule of Contract Documents". Schedule 1 is attached to the Agreement which is included as part of the tender package. The *Contract Documents* include the drawings listed in Schedule 2 to the Agreement, entitled "List of *Contract Drawings*".
- 2.2 A portion of the *Contract Documents* are included by reference. Copies of these documents have not been included with the tender package. These documents are the Instructions to Tenderers - Part II, General Conditions, Specifications and Standard Detail Drawings. They are those contained in the publication entitled "Master Municipal Construction Documents - General Conditions, Specifications and Standard Detail Drawings". Refer to Schedule 1 to the Agreement or, if not specified in Schedule 1, then the applicable edition shall be the most recent edition as of the date of the *Tender Closing Date*. All sections of this publication are by reference included in the *Contract Documents*.
- 2.3 Any additional information made available to tenderers prior to the *Tender Closing Time* by the *Owner* or representative of the *Owner*, such as geotechnical reports or as-built plans, which is not expressly included in Schedule 1 or Schedule 2 to the Agreement, is not included in the *Contract Documents*. Such additional information is made available only for the assistance of tenderers who must make their own judgment about its reliability, accuracy, completeness and relevance to the *Contract*, and neither the *Owner* nor any representative of the *Owner* gives any guarantee or representation that the additional information is reliable, accurate, complete or relevant.

3.0 Submission of Tenders

- 3.1 Tenders must be submitted electronically **only**. The email subject line should include the Contract Title, Reference Number and the name of the Participant and must be received on or before
- Tender Closing Time:** 2:00 pm local time
- Tender Closing Date:** May 16, 2024
- at
- Submission Email Address:** tenders@sidney.ca
- (one single PDF, **no** zip files)
- The Town has a 20MB size limit for submissions
- Attention of:** Andrew Hicik, Director of Finance
- 3.2 Late tenders will not be accepted or considered, and will be left unopened
- 3.3 Hard Copies will not be accepted or considered.
- 3.4 The Town will not open this Tender in public. Unverified Tender results will be available within 24 hours of Tender closing.
- 3.5 Depending on the available funds to complete the work program, the scope of the work may be decreased due to budget constraints. The *Owner* reserves the right to reduce scope or remove projects based on available funds. No price adjustment will be considered due to variation in quantities or deletions from that provided in the Contract documents.
- 3.6 Tender Submission
- .1 Tenders **must** be submitted on the Tender Forms included in these tender documents. The addition to or changing of any words in these Tender Forms by the tenderer or the failure to comply with and complete all items may be cause for rejection without consideration of the tender.
 - .2 The Tender Submission **must** include acknowledgement of receipt of all issued addenda.
 - .3 The Tender Submission **must** include the specified financial security.
 - .4 The Form of Tender **must** bear the signature of a legal signing authority of the tenderer.
 - .5 Other than acknowledgement of receipt of addenda, or request for withdrawal or revision, documents submitted as part of a tender will **not** be considered if received by any of the *Owner's* facsimile machines.

4.0 **Additional
Instructions
to Tenderers**

- 4.1 All construction layouts will be provided by the *Contractor*. The *Contractor* shall provide a qualified surveyor acceptable to the *Owner*. The *Contractor* shall provide the location, alignment, and elevation of the works to the accuracy required to satisfy the tolerances specified. The *Contractor* shall establish and maintain a reference baseline to facilitate the inspection of the work and shall supply devices, stakes, or other survey markers required for the laying out of the work. The *Contractor* shall record locations of underground utilities and constructed works. The *Contractor* shall maintain a complete, accurate log of control as the survey work progresses and provide survey work to the *Consultant*.
- 4.2 No price adjustment will be considered due to variation in quantities or deletions from that provided in the Contract documents.
- 4.3 The General Contractor to be responsible for any dewatering or temporary flow diversion required during construction in or adjacent to MoTI ditch.
- 4.4 The lowest or any bid will not necessarily be accepted. The Town unequivocally reserves the right to accept any bid, negotiate a final contract, or reject all bids at its sole discretion. Without limiting the generality of the foregoing, the Town reserves the right, in its sole and absolute discretion, to accept or reject any tender which in the view of the Town is incomplete, obscure, or irregular, which has erasures or corrections in the documents, which contains exceptions or variations, which omits one or more prices, which contains prices the Town considers unbalanced, or which is accompanied by a bid bond or consent of surety (when required) issued by a surety not acceptable to the Town.
- 4.5 All materials and testing including concrete, asphalt, and gravels testing will be arranged by and paid for by the *Contractor*. *Contractor* is responsible for ensuring all materials meet MMCD specifications. Where initial tests fail and subsequent testing is deemed necessary by the Town of Sidney, the cost of the subsequent testing will be the responsibility of the *Contractor*.
- 4.6 The *Contractor* is advised that they are responsible for all necessary measures required to prevent the transportation of any silt or other deleterious material from the site into the Town's stormwater drainage system or any fish bearing watercourses or their tributaries. All requirements of the Ministry of Forests, Lands and Natural Resource Operations, Fisheries and Oceans Canada, and any other federal or provincial department and/or Ministry with respect to air,

earth and water pollution, must be strictly adhered to.

- 4.7 The *Contractor* is responsible for the provision of all offsite disposal sites for materials that are to be removed from the construction sites in this contract. The *Contractor* is responsible for all fees, permits and costs associated with the offsite disposal. The *Contractor* is responsible for ensuring that the chosen disposal site will accept the material to be removed, and will coordinate all necessary environmental or geotechnical sign-offs required to facilitate said approval. Disposal of contaminated material at a site with the appropriate approvals to receive contaminated material.
- 4.8 If any Director, officer, employee, agent or other representative of a bidder makes any representation or solicitation, to any director, officer or employee of the Town with respect to the Tender, whether before or after submission of the Tender, the Town shall be entitled to reject or not accept the tender.
- 4.9 The Bidder declares that there is no collusion or arrangement, formal or informal, between the bidder and any other actual or prospective bidder in connection with the tenders submitted for this ITT; the bidder has no knowledge of the contents of any other tender; and the bidder has made no comparison of figures, agreements, or arrangement, express or implied, with any other party in connection with the making of this tender.
- 4.10 The Bidder agrees that it will not initiate a claim against the Town for not awarding a contract to the Bidder for any reason, or for any error, or alleged error, made by the Town during the Tender process or the awarding of a contract
- 4.11 A Traffic, Signage and Pedestrian Management Plan, including detour routes, shall be submitted to the Town for approval prior to start of construction. Supply and installation of all signs and traffic control through the provision of certified flagging personnel shall be the responsibility of the *Contractor*. Affected businesses directly fronting or adjacent to the works shall have vehicle access at all times.
- 4.12 Worksafe BC Requirements: The *Contractor* must be registered with WorkSafe BC. Before starting the Work, the *Contractor* shall complete a Prime Contractor's Responsibility form (see Appendix A) and documentation satisfactory to the *Owner* to demonstrate the *Contractor* is registered with WorkSafe BC and has satisfied its

		<p>assessment remittance requirements to date. A copy of confirmation from WorkSafe BC of “Notice of Project” is required prior to the scheduling of the pre-construction meeting.</p>
Business License Requirement	4.13	<p>The <i>Contractor</i> will be designated Prime Contractor and will be responsible for occupational health and safety in accordance with WorkSafe BC regulations.</p> <p>As a pre-condition to the award of Contract, the successful tenderer and all sub-<i>Contractors</i> must have or obtain a business license from the <i>Owner</i>, or an inter-municipal or inter-community business license acceptable to the <i>Owner</i>..</p>
Cost of Tender Submission	4.14	<p>The <i>Owner</i> shall not be liable for a Tenderer’s cost of submitting a tender.</p>
Addition/ Deletion of Work	4.15	<p>Tenderers are advised that the <i>Owner</i> may, at its option, and subject to available funding and budgetary considerations, delete any Work described in the Contract Documents or may require that optional work be added to the scope of Work.</p>
Working Hours	4.16	<p>The <i>Contractor</i> will be required to abide by the Town of Sidney Noise Bylaw No.1689 with permitted hours of work including Monday to Friday 0700 hours to 1900 hours and Saturdays 0900 hours to 1700 hours for standard construction activities (noisy activities such as blasting have more restrictive hours), except for Statutory Holidays. Work on Sundays and Statutory Holidays is not permitted.</p> <p>No work will be permitted outside of these windows except in case of emergency and only with written permission of the <i>Owner</i> and to such extent as they deem necessary.</p> <p>Costs for Inspection services for overtime work done on regular workdays or on Saturdays, Sundays and Statutory Holidays, if permitted will be borne by the <i>Contractor</i>.</p>
Commencement and Completion of Work	4.17	<p>The <i>Owner</i> requires that the Work under this Contract be started as quickly as possible after Contract award, and substantial performance of this Contract to be achieved no later than September 27, 2024.</p>
	4.18	<p>Payment for the above items will be considered to be incidental to the work performed and no additional payment will be made to the Contractor.</p>

Form of Tender

FOR USE WHEN UNIT PRICES FORM THE BASIS OF PAYMENT - TO BE USED ONLY WITH THE GENERAL CONDITIONS AND OTHER STANDARD DOCUMENTS OF THE UNIT PRICE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS.

Owner: Town of Sidney

Contract: Highway 17 West Cycle Path Replacement Phase 3

Reference No. 2024-005

To Owner:

WE, THE UNDERSIGNED: 1.1 have received and carefully reviewed all of the *Contract Documents*, including the Instructions to Tenderers, the specified edition of the “Master Municipal Construction Documents - General Conditions, Specifications and Standard Detail Drawings” and the following Addenda:

_____ ;
(ADDENDA, IF ANY)

1.2 have full knowledge of the *Place of the Work*, and the *Work* required; and

1.3 have complied with the Instructions to Tenderers; and

ACCORDINGLY WE HEREBY OFFER 2.1 to perform and complete all of the *Work* and to provide all the labour, equipment and material all as set out in the *Contract Documents*, in strict compliance with the *Contract Documents*; and

2.2 to achieve Substantial Performance of the *Work* on or before September 27, 2024; and

2.3 to do the *Work* for the price, which is the sum of the products of the actual quantities incorporated into the *Work* and the appropriate unit prices set out in Appendix 1, the “*Schedule of Quantities and Prices*”, plus any lump sums or specific prices and adjustment amounts as provided by the *Contract Documents*. For the purposes of tender comparison, our offer is to complete the *Work* for the “*Tender Price*” as set out on Appendix 1 of this Form of Tender. Our *Tender Price* is based on the estimated quantities listed in the *Schedule of Quantities and Prices*, and excludes GST.

Tenderer’s Initials _____

- WE CONFIRM:** 3.1 that we understand and agree that the quantities as listed in the *Schedule of Quantities and Prices* are estimated, and that the actual quantities will vary.
- WE CONFIRM:** 4.1 that the following appendices are attached to and form a part of this tender:
- 4.1.1 the appendices as required by paragraph 5.3 of the Instructions to Tenderers – Part II; and
- 4.1.2 the *Bid Security* as required by paragraph 5.2 of the Instructions to Tenderers – Part II.
- WE AGREE:** 5.1 that this tender will be irrevocable and open for acceptance by the *Owner* for a period of 60 calendar days from the day following the *Tender Closing Date and Time*, even if the tender of another tenderer is accepted by the *Owner*. If within this period the *Owner* delivers a written notice (“*Notice of Award*”) by which the *Owner* accepts our tender we will:
- 5.1.1 within 10 *Days* of receipt of the written *Notice of Award* deliver to the *Owner*:
- a) Performance Bond and a Labour and Material Payment Bond, each in the amount of 50% of the Contract Price, covering the performance of the Work including the *Contractor’s* obligations during the Maintenance Period, issued by a surety licensed to carry on the business of suretyship in the province of British Columbia, and in a form acceptable to the *Owner*;
 - b) Baseline Construction Schedule, as provided by GC 4.6.1;
 - c) “Clearance letter” indicating that the tenderer is in Worksafe BC compliance; and
 - d) Copy of the insurance policies as specified in GC 24 indicating that all such insurance coverage is in place.
- 5.1.2 within 2 *Days* of receipt of written “*Notice to Proceed*”, or such longer time as may be otherwise specified in the *Notice to Proceed*, commence the *Work*; and
- 5.1.3 sign the Contract Documents as required by GC 2.1.2.

- WE AGREE:**
- 6.1 that, if we receive written *Notice of Award* of this *Contract* and, contrary to paragraph 5 of this Form of Tender, we:
- 6.1.1 fail or refuse to deliver the documents as specified by paragraph 5.1.1 of this Form of Tender; or
- 6.1.2 fail or refuse to commence the *Work* as required by the *Notice to Proceed*,
then such failure or refusal will be deemed to be a refusal by us to enter into the *Contract* and the *Owner* may, on written notice to us, award the *Contract* to another party. We further agree that, as full compensation on account of damages suffered by the *Owner* because of such failure or refusal, the *Bid Security* shall be forfeited to the *Owner*, in an amount equal to the lesser of:
- 6.1.3 the face value of the *Bid Security*; and
- 6.1.4 the amount by which our *Tender Price* is less than the amount for which the *Owner* contracts with another party to perform the *Work*.
- 7.1 I (we) declare that:
- 7.1.1 no person, firm or company other than the undersigned, has any interest in this tender or in the proposed *Contract* for which this tender is made;
- 7.1.2 this tender is made without any connection, knowledge, comparison of figures, or agreement with any other company, firm or person making a tender for the same work;
- 7.1.3 in tendering for this work, and when called upon to enter into an agreement with the *Owner*, I (we) will be bound to comply with all laws, statutes, and municipal bylaws pertaining to the work. The agreement will be governed by the laws of the province of British Columbia;
- 7.1.4 in submitting this tender I (we) did not rely upon any information provided by the *Owner*, or any of the *Owner's* employees or agents, relating to the conditions, contingencies, risks or other circumstances, local or otherwise, which might influence or affect the performance or the cost of the work, including, without limiting the nature of the ground, subsoil, substrata of the work site, the means of access to the work site, the quality, quantity, nature or location of the materials to be furnished or removed in performance of the work, and the conditions under

which the labour force will be employed, except the extent that any such information is expressly set forth in the *Contract Documents*. I (we) have relied on our own examination of the work site and have informed ourselves as to all conditions, contingencies, risks, and circumstances, local or otherwise, which might influence or affect the performance or the cost of the work. I (we) accept the site prior to the signing of the *Contract*.

8.1 We agree:

8.1.1 The work shall be completed entirely by the Substantial Completion Date;

8.1.2 There shall be no extension of time from the Designated Completion Date for any reason OTHER than delays clearly attributable to the *OWNER*, its agents, employees or any Authorized Representatives.

9.1 I (we) declare that:

9.1.1 I (we) recognize that the lowest or any tender will not necessarily be accepted; and

9.1.2 I (we) recognize that the *Owner* reserves the right to reject all tenders or to accept the tender which best suits its long term objectives; and

9.1.3 I (we) recognize that the *Owner* reserves the right to accept or reject all or part of this Tender at any time during the period specified by paragraph 5.1 of this Form of Tender.

10.1 I (we) declare that:

10.1.1 I (we) do not (or any related company) have any family, *Ownership*, and operating relationships with the Town of Sidney, or any elected official, staff or other officials holding public office in the Town of Sidney and agree that the *Owner* reserves the right to reject any tender that may be perceived to be in a conflict of interest.

11.1 I (we) declare that:

11.1.1 I (we) am (are) not or have not:

a) an individual who has; or

b) an individual who was a shareholder or officer of a company that has; or

c) a company that has; or

d) a company with a shareholder or officer who has; or

e) a company that is, or was a shareholder of a company that is, or

was a shareholder of a company that has; or
f) a company that has a shareholder or officer who is also a shareholder or officer of another company that has;
g) had a bid bond retained, or
h) had all or part of a performance bond retained, or breached a contract with the *Owner*, or failed to complete its obligations under any prior contract with the *Owner* (or any other publicly funded jurisdiction or organization in British Columbia), or has been charged or convicted of an offence in respect of the *Owner* (or any other publicly funded jurisdiction or organization in British Columbia) contract.

OUR ADDRESS
IS AS
FOLLOWS:

Phone: _____

Fax: _____

Attention: _____

This Tender is executed this
_____ day of _____, 20 _____.

Contractor:

(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

(AUTHORIZED SIGNATORY)

(AUTHORIZED SIGNATORY)

Tenderer's Initials _____

1 General Requirements						
<i>Item</i>	<i>MMCD Ref.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Amount</i>
1		Bonding & Security	LS	1		
		Mobilization				
2		Mobilization and demobilization	LS	1		
SECTION 1 SUBTOTAL						
3 Concrete						
<i>Item</i>	<i>MMCD Ref.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Amount</i>
	03 40 01	PreCast Concrete				
3	1.4.1	Concrete Lamp Post Base including all surrounding surface restoration as necessary for installation	Each	20		
4	1.4.2	MSE Retaining Wall Excavation and Backfill under 31 23 01	Square Metre	350		
SECTION 3 SUBTOTAL						
31 Earthwork						
<i>Item</i>	<i>MMCD Ref.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Amount</i>
	31 11 01	Clearing and Grubbing				
5	1.4.1	Stump Removal	Each	17		
	31 23 01	Excavating, Trenching and Backfilling Underground Utility				
6	1.10.4, 1.10.5	Removal and Disposal of Disused Pipes and Headwalls	LS	1		
7	1.10.7	Cleaning and Reshaping Channels and Ditches	Lineal Metre	175		
	31 24 13	Roadway Excavation, Embankment and Compaction				
8	1.8.5, 1.8.12	Common Excavation - Off-Site Disposal Existing sidewalk/base/subbase	Cubic Metre	160		
9	1.8.5, 1.8.12	Common Excavation - On-Site Disposal Topsoil/Organics	Cubic Metre	90		
10	1.8.5, 1.8.12	Common Excavation - Off-Site Disposal Removal and Disposal of Failing Retaining Wall	Cubic Metre	13		
11	1.8.7	Import Embankment Fill - 75 mm minus	Cubic Metre	360		
12	1.8.9	Subgrade Preparation	Square Metre	1300		
SECTION 31 SUBTOTAL						
32 Roads and Site Improvements						
<i>Item</i>	<i>MMCD Ref.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Amount</i>
	32 11 16.1	Granular Sub-Base				
13	1.4.3	Granular Sub-Base 150 mm Thickness 75 mm minus	Square Metres	1300		
	32 11 23	Granular Base				
14	1.4.2	Granular Base 50 mm Thickness (shoulder) 19 mm minus	Square Metres	160		

Tenderer's Initials _____

15	1.4.2	Granular Base 100 mm Thickness 19 mm minus	Square Metres	1300		
	32 12 16	Hot-Mix Asphalt Concrete Paving				
16	1.5.1, 1.5.2	Asphalt Pavement -Upper Course # 1 50 mm thickness	Square Metres	1300		
	32 31 13	Chain Link Fences & Gates				
17	1.5.4	Handrails – Standard Detail C14	Lineal Metres	354		
	39 92 19	Hydraulic Seeding				
18	1.5.4	Hydraulic Seeding	Incidental			
SECTION 32 SUBTOTAL						
33 Utilities						
<i>Item</i>	<i>MMCD Ref.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Amount</i>
	33 40 01	Storm Sewers				
19	1.5.1, 1.5.2	Culvert 300 mm PVC	Lineal Metres	5		
20	1.5.1, 1.5.2	Culvert 600 mm CSP	Lineal Metres	7		
21	1.5.1, 1.5.2	Culvert 900 mm CSP	Lineal Metres	7		
SECTION 33 SUBTOTAL						

SUB-TOTAL _____

GST (5%) _____

TOTAL _____

Tenderer's Initials _____

Highway 17 West Cycle Path Replacement Phase 3

See paragraph 5.3.2 of the Instructions to Tenderers – Part II.

Indicate Schedule with bar chart with major item descriptions and time.

MILESTONE

DATES: _____

ACTIVITY	WEEKLY CONSTRUCTION SCHEDULE											
	1	2	3	4	5	6	7	8	9	10	11	12

Tenderer's Initials _____

Highway 17 West Cycle Path Replacement Phase 3

See paragraph 5.3.3 of the Instructions to Tenderers – Part II.

Name: _____

Experience: _____

Dates: _____

Project Name: _____

Responsibility: _____

References: _____

Dates: _____

Project Name: _____

Responsibility: _____

References: _____

Dates: _____

Project Name: _____

Responsibility: _____

References: _____

Dates: _____

Project Name: _____

Responsibility: _____

References: _____

Tenderer's Initials _____

Highway 17 West Cycle Path Replacement Phase 3

See paragraph 5.3.4 of the Instructions to Tenderers – Part II.

PROJECT	OWNER / CONTACT NAME PHONE and FAX	WORK DESCRIPTION	VALUE (\$)
	Owner/ Contract _____ Phone () _____ Fax () _____		
	Owner/ Contract _____ Phone () _____ Fax () _____		
	Owner/ Contract _____ Phone () _____ Fax () _____		
	Owner/ Contract _____ Phone () _____ Fax () _____		
	Owner/ Contract _____ Phone () _____ Fax () _____		
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	Owner/ Contract _____ Phone () _____ Fax () _____		
	Owner/ Contract _____ Phone () _____ Fax () _____		

Tenderer's Initials _____

Highway 17 West Cycle Path Replacement Phase 3

See paragraph 5.3.5 of the Instructions to Tenderers – Part II.

TENDER ITEM	TRADE	SUBCONTRACTOR NAME	PHONE NUMBER

Tenderer's Initials _____

Form of Agreement

(FOR USE WHEN UNIT PRICES FORM THE BASIS OF PAYMENT TO BE USED ONLY WITH THE GENERAL CONDITIONS AND OTHER STANDARD DOCUMENTS OF THE UNIT PRICE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS.)

BETWEEN *OWNER* AND *CONTRACTOR*

This agreement made in duplicate this

_____ day of _____, 20_____.

Contract: **Highway 17 West Cycle Path Replacement Phase 3**

(TITLE OF CONTRACT)

Reference No.

(*OWNER'S* CONTRACT REFERENCE NO.)

BETWEEN:

The Town of Sidney

(NAME OF *OWNER*)

(the "*Owner*")

AND:

(NAME AND OFFICE ADDRESS OF *CONTRACTOR*)

(the "*Contractor*")

The *Owner* and the *Contractor* agree as follows:

**1.0 The Work Start /
Completion
Dates**

- 1.1 The *Contractor* will perform all *Work* and provide all labour, equipment and material and do all things strictly as required by the *Contract Documents*.
- 1.2 The *Contractor* will commence the *Work* in accordance with the *Notice to Proceed*. The *Contractor* will proceed with the *Work* diligently, will perform the *Work* generally in accordance with the construction schedules as required by the *Contract Documents* and will achieve *Substantial Performance* of the *Work* on or before September 27, 2024 subject to the provisions of the *Contract Documents* for adjustments to the *Contract Time*.
- 1.3 Time shall be of the essence of the *Contract*.

2.0 Contract Documents

- 2.1 The "Contract Documents" consist of the documents listed or referred to in Schedule 1, entitled "Schedule of Contract Documents", which is attached and forms a part of this Agreement, and includes any and all additional and amending documents issued in accordance with the provisions of the Contract Documents. All of the Contract Documents shall constitute the entire *Contract* between the *Owner* and the *Contractor*.
- 2.2 The *Contract* supersedes all prior negotiations, representations or agreements, whether written or oral, and the *Contract* may be amended only in strict accordance with the provisions of the Contract Documents.

3.0 Contract Price

- 3.1 The price for the *Work* ("Contract Price") shall be the sum in Canadian dollars of the following
- the product of the actual quantities of the items of *Work* listed in the Schedule of Quantities and Prices which are incorporated into or made necessary by the *Work* and the unit prices listed in the Schedule of Quantities and Prices; plus
- all lump sums, if any, as listed in the Schedule of Quantities and Prices, for items relating to or incorporated into the *Work*; plus
- any adjustments, including any payments owing on account of *Changes* and agreed to Extra Work, approved in accordance with the provisions of the Contract Documents.
- 3.2 The Contract Price shall be the entire compensation owing to the *Contractor* for the *Work* and this compensation shall cover and include all profit and all costs of supervision, labour, material, equipment, overhead, financing, and all other costs and expenses whatsoever incurred in performing the *Work*.

4.0 Payment

- 4.1 Subject to applicable legislation and the provisions of the Contract Documents, the *Owner* shall make payments to the *Contractor*.
- 4.2 If the *Owner* fails to make payments to the *Contractor* as they become due in accordance with the terms of the Contract Documents then interest calculated at 2% per annum over the prime commercial lending rate of the Royal Bank of Canada on such unpaid amounts shall also become due and payable until payment. Such interest shall be calculated and added to any unpaid amounts monthly.

5.0 Rights and Remedies

- 5.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

5.2 Except as specifically set out in the Contract Documents, no action or failure to act by the *Owner*, Contract Administrator or *Contractor* shall constitute a waiver of any of the parties' rights or duties afforded under the *Contract*, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach under the *Contract*.

6.0 Notices

6.1 Communications among the *Owner*, the Contract Administrator and the *Contractor*, including all written notices required by the Contract Documents, may be delivered by hand, by email or by pre-paid registered mail to the addresses as set out below:

The *Owner*:

Town of Sidney
2440 Sidney Avenue
Sidney, BC, V8L1Y7

Fax: _____
Email: ahicik@sidney.ca
Attention: Andrew Hicik – Director of Finance

The *Contractor*:

Fax: _____
Email: _____
Attention: _____

The Contract Administrator:

Onsite Engineering Ltd.
103-32310 South Fraser Way
Abbotsford, BC V2T 1X1
Fax: 1-866-235-6943
Email: jmcallister@onsite-eng.ca
Attention: Joel McAllister, P.Eng.

6.2 A communication or notice that is addressed as above shall be considered to have been received immediately upon delivery, if delivered by hand; or

immediately and received in hard copy; or
after 5 *Days* from date of posting if sent by registered mail.

- 6.3 The *Owner* or the *Contractor* may, at any time, change its address for notice by giving written notice to the other at the address then applicable. Similarly if the *Contract Administrator* changes its address for notice then the *Owner* will give or cause to be given written notice to the *Contractor*.

7.0 General

- 7.1 This *Contract* shall be constructed according to the laws of British Columbia.
- 7.2 The *Contractor* shall not, without the express written consent of the *Owner*, assign this *Contract*, or any portion of this *Contract*.
- 7.3 The headings included in the *Contract Documents* are for convenience only and do not form part of this *Contract* and will not be used to interpret, define or limit the scope or intent of this *Contract* or any of the provisions of the *Contract Documents*.
- 7.4 A word in the *Contract Documents* in the singular includes the plural and, in each case, vice versa.
- 7.5 This agreement shall ensure to the benefit of and be binding upon the parties and their successors, executors, administrators and assigns.

IN WITNESS WHEREOF the parties hereto have executed this Agreement the day and year first written above.

Contractor:

(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

(AUTHORIZED SIGNATORY)

(AUTHORIZED SIGNATORY)

Owner:

Town of Sidney

(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

(AUTHORIZED SIGNATORY)

(AUTHORIZED SIGNATORY)

(INCLUDE IN LIST ALL DOCUMENTS INCLUDING, IF ANY, SUPPLEMENTARY GENERAL CONDITIONS, SUPPLEMENTARY SPECIFICATIONS, SUPPLEMENTARY STANDARD DETAIL DRAWINGS.)

Schedule 1
Schedule of Contract Documents

The following is an exact and complete list of the Contract Documents, as referred to in Article 2.1 of the Agreement.

NOTE: The documents noted with "*" are contained in the "Master Municipal Construction Documents - General Conditions, Specifications and Standard Detail Drawings", edition dated 2019. All sections of this publication are included in the Contract Documents.

Agreement, including all Schedules;

Supplementary General Conditions ;

General Conditions*;

Supplementary Specifications;

Specifications*;

Supplementary Standard Detail Drawings;

Standard Detail Drawings*;

Executed Form of Tender, including all Appendices;

Contract Documents listed in Schedule 2 to the Agreement –"List of Contract Documents";

Instructions To Tenderers - Part I;

Instructions to Tenderers - Part II*;

The following Addenda:

(ADDENDA, IF ANY)

(COMPLETE LISTING OF ALL DRAWINGS, PLANS AND SKETCHES WHICH ARE TO FORM A PART OF THE CONTRACT,
OTHER THAN STANDARD DETAIL DRAWINGS AND SUPPLEMENTARY STANDARD DETAIL DRAWINGS.)

Schedule 2
List of Contract Documents

TITLE	DRAWING NO.	DATE	REVISION NO.	REVISION DATE
Cover Sheet, Drawing Index, Key Plan and Location Plan	000			
General Notes	001	January 23, 2023	1	January 23, 2023
Bike Path Upgrades Plan and Profile Sheet 1 of 6	101	January 23, 2023	1	January 23, 2023
Bike Path Upgrades Plan and Profile Sheet 2 of 6	102	January 23, 2023	1	January 23, 2023
Bike Path Upgrades Plan and Profile Sheet 3 of 6	103	January 23, 2023	1	January 23, 2023
Bike Path Upgrades Sections Sheet 1 of 2	108	January 23, 2023	1	January 23, 2023
Standard Details	110	January 23, 2023	1	January 23, 2023

UNIT
PRICE
CONTRACT

**SUPPLEMENTARY GENERAL
CONDITIONS**

**SGC
PAGE 1 OF 1
2024**

SECTION	SUB SECTION	SUPPLEMENTARY GENERAL CONDITIONS
SGC 1	24.1.1 (3)	Town of Sidney and Onsite Engineering Inspector/Engineer to be named also as additional insured.

Supplementary Specifications

Appendix A
Prime Contractor Documentation



TOWN OF SIDNEY

PRIME CONTRACTOR DOCUMENTATION

APPENDIX A

GENERAL INFORMATION

This document does not replace the Workers Compensation Act or OH&S Regulations

Section 118 of the Workers Compensation Act:

“multiple employer workplace” means a workplace where workers of 2 or more employers are working at the same time.

Note:

- Workers of one employer do not necessarily have to come in contact with workers of the other
- They do not have to be in the same place at the same time
- Workers’ activities could affect the health and safety of another employer’s workers. This is true even if the workers at the workplace are workers of the owner or contractor.

“prime contractor” means, in relation to a multiple-employer workplace,

- (a) the directing contractor, employer or other person who enters into a written agreement with the owner of that workplace to be the prime contractor for the purposes of this Part, or
- (b) if there is no agreement referred to in paragraph (a), the owner of the workplace.

The prime contractor of a multiple employer workplace must,

- Ensure that the activities of all employers, workers (including the owners), and other persons at the workplace relating to occupational health and safety are coordinated and
- Do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the WC Act and the Regulation in respect of the workplace.

Each employer of workers at a multiple employer workplace must give to the prime contractor the name of the person the employer has designated to supervise the employer’s workers at that workplace.

For the sake of clarity, the following apply in determining whether there is a “multiple-employer” workplace:

- Two or more adjacent workplaces do not constitute a “multiple-employer workplace”, even though the activities at one place might affect the health and safety of workers at an adjacent workplace.
- In contrast, the workplace will generally be a “multiple-employer” workplace in the following situations:
 - Workers of different employers are present at the same time working on the different projects; or
 - Workers of different employers are present at the same time working on the same project.

In either case, the workplace would be considered a “multiple-employer” worksite.



TOWN OF SIDNEY

PRIME CONTRACTOR DOCUMENTATION

- In determining whether “workers of 2 or more employers are working at the same time”, the phrase “at the same time” will be given such fair, large and liberal construction as may best attain the objectives of section 118. “At the same time” does not mean that, at any precise point in time, there are workers of 2 or more employers present in the workplace. Rather, it means that, over an appropriate interval, there are workers of 2 or more employers present in the workplace, whether or not the 2 or more groups of workers are actually present together in the workplace at any precise point in time at all. The duration of the interval of time to be considered will depend upon the circumstances of the individual workplace.
- Whether the workers of the one employer come into actual contact with the workers of the other employer does not generally affect the determination of whether the workplace is a “multiple-employer workplace”. An employer, the employer’s workers and their activities could well affect the health and safety of another employer’s workers who come into the workplace later in the day or on another day, even though there may be no actual contact between the two groups of workers.

However, the degree to which the activities of the first employer and its workers affect the health and safety of the second employer’s workers will generally affect the determination of the responsibilities of the prime contractor and of the two employers under Part 3 and the regulations.

- Virtually all workplaces will be visited by workers of other employers. For example, workers may deliver or pick up mail, goods or materials or enter to inspect the premises. Short term visits of this type, even if regular, do not make the workplace a “multiple-employer workplace” for purposes of section 118(1).

The written agreement referred to in section 118(1) of the Act must be made available within a reasonable time if requested by a Board officer.

There can be only one “prime contractor” at a workplace at any point in time. If an owner enters into more than one agreement purporting to create a “prime contractor” for the same period of time, the owner is considered to be the prime contractor.



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PRIME CONTRACTOR DOCUMENTATION

Section 119 of the Workers Compensation Act:

Every owner of a workplace must:

- (a) provide and maintain the owner's land and premises that are being used as a workplace in a manner that ensures the health and safety of persons at or near the workplace,
- (b) give to the employer or prime contractor at the workplace the information known to the owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the workplace, and
- (c) comply with this Part, the regulations and any applicable orders.

Prime Contractor Qualified Coordinator OJ&S Regulations 20.3:

- (2) If a work location has overlapping or adjoining work activities of 2 or more employers that create a hazard to workers, and the combined workforce at the workplace is more than 5,
 - (a) the owner, or if the owner engages another person to be the prime contractor, then that person must:
 - (i) appoint a qualified coordinator for the purpose of ensuring the coordination of health and safety activities for the location, and
 - (ii) provide up-to-date information as specified in subsection (4), readily available on site, and
 - (b) each employer must give the coordinator appointed under paragraph (a)(i) the name of a qualified person designated to be responsible for that employer's site health and safety activities.
- (3) The duties of the qualified coordinator appointed under paragraph (2)(a)(i) include:
 - (a) informing employers and workers of the hazards created, and
 - (b) ensuring that the hazards are addressed throughout the duration of the work activities.
- (4) The information required by subsection (2)(a)(ii) includes:
 - (a) the name of the qualified coordinator appointed under subsection (2)(a)(i),
 - (b) a site drawing, which must be posted, showing project layout, first aid location, emergency transportation provisions, and the evacuation marshalling station, and
 - (c) a set of construction procedures designed to protect the health and safety of workers at the workplace, developed in accordance with the requirements of this Regulation.



TOWN OF SIDNEY

PRIME CONTRACTOR DOCUMENTATION

PRE-CONSTRUCTION MEETING FORM

Date: _____ Meeting Location: _____

Firm Name _____ Contract #: _____

Prime Contractor: _____

Prime Contractor's Superintendent: _____

Town's Contract Representative: _____

AGREEMENT

The Prime Contractor:

- Acknowledges appointment as Prime Contractor defined by WorkSafe BC OH&S Regulations
- Sections 20.2 and 20.3, and in the Workers' Compensation Act, Sections 118 Clauses 1 and 2.
- Understands the Owners duties as defined in the Workers' Compensation Act, Section 119.
- Understands for any discrepancy establishing health and safety protocol, WorkSafe BC OH&S Regulation and/or the Workers' Compensation Act (Part 3) shall prevail.
- Acknowledges being informed of any known workplace hazards by the owner or owner's delegate, by signing attached "Existing Known Hazard Assessment" form.
- Shall communicate known hazards to any persons who may be affected and ensure appropriate measures are taken to effectively control or eliminate the hazards.
- Shall ensure all workers are suitably trained and qualified to perform the duties for which they have been assigned.
- Shall ensure or coordinate first aid equipment and services as required by WorkSafe BC OH&S Regulation.
- Shall coordinate the occupational health and safety activities for the project.
- Assumes responsibility for the health and safety of all workers and for ensuring compliance by all workers with the Workers' Compensation Act (Part 3) and WorkSafe BC OH&S Regulation.
- Understands any WorkSafe BC violation by the Prime Contractor may be considered a breach of contract resulting in possible termination or suspension of the contract and/or any other actions deemed appropriate at the discretion of the Municipality.
- Understands any penalties, sanctions or additional costs levied against the Prime Contractor will be the responsibility of the Prime Contractor.
- Accepts the following required documents shall be maintained and made available upon request from the Municipality and/or WorkSafe BC Prevention officer at the workplace.



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PRIME CONTRACTOR DOCUMENTATION

The documents required to be maintained and available by the Prime Contractor will include, but not be limited to:

- All notices which the Prime Contractor is required to provide to WorkSafe BC as per WorkSafe BC OH&S Regulation.
- Any written summaries of remedial action taken to reduce occupational health and safety hazards within the area of responsibility.
- All directives and inspection reports issued by WorkSafe BC.
- Records of any incidents and accidents occurring within the Prime Contractor's area of responsibility.
- Completed accident investigations for any incidents and accidents occurring within the Prime Contractor's area of responsibility.

On a construction workplace, these additional documents are required to be maintained and available by the Prime Contractor:

- Records of all orientation and regular safety meetings held between contractors and their workers, including topics discussed, worker names and companies in attendance.
- Written evidence of regular inspections within the workplace.
- Occupational first aid records.
- Worker training records.
- Current list of the name of a qualified person designated to be responsible for each subcontractor (employer's) site health and safety activities.
- Diagram of the emergency route to the hospital.

The following information must be provided to the Town's Contract Representative:

- WorkSafe BC Notice of Project
- WorkSafe BC Clearance Letter
- Prime Contractor's OH&S Safety Program
- Prime Contractor's OH&S Safety Program Document

First Aid Attendants: _____

Safety Supervisor: _____

Location of First Aid Station: _____

Signature of Prime Contractor: _____

Signature of Town's Contract Representative: _____



TOWN OF SIDNEY

PRIME CONTRACTOR DOCUMENTATION

EXISTING KNOWN HAZARD ASSESSMENT

Discussion between the Prime Contractor and the Town's Contract Representative

Date: _____ Meeting Location: _____

Prime Contractor: _____

Prime Contractor Representative: _____

- Town's Contract Representative to make the Prime Contractor aware of any known extraordinary pre-existing hazards peculiar to the contract.
- It is recognized the known pre-existing hazards identified may not be a comprehensive list and due caution is always required.
- Use additional pages if necessary.

Identified Extraordinary Hazards	Action required to eliminate or control hazards and ensure worker safety
Comment:	
Comment:	
Comment:	

Prime Contractor Representative (signature)

Town's Contract Representative (signature)

Prime Contractor Representative (printed)

Town's Contract Representative (printed)

Appendix B
Geotechnical Report



THURBER ENGINEERING LTD.

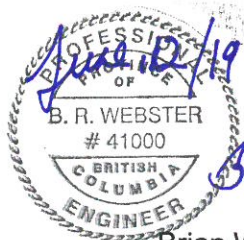
**TOWN OF SIDNEY
HIGHWAY 17 WEST CYCLE PATH REPLACEMENT
GEOTECHNICAL INVESTIGATION**

Report

to

TOWN OF SIDNEY

Stephen Bean, M.Eng., P.Eng.
Review Principal



Brian Webster
Brian Webster, B.Eng., P.Eng.
Project Engineer

Date: June 12, 2019
File: 26020



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STATEMENT OF LIMITATIONS AND CONDITIONS



LIST OF TABLES

Table 1 – Pavement Structure

APPENDIX A

Modified Unified Soils Classification System

Symbols and Terms Used on the Test Hole Logs

Test Pit Location Plan – Drawing No. 26020-1

2019 Test Pit Logs



1. INTRODUCTION

This report presents the results of a geotechnical investigation carried out by Thurber Engineering Ltd. (Thurber) for the proposed replacement of an existing asphalt paved multi-use pathway that runs along the west side of Highway 17 in Sidney, BC. The test pit program was conducted to assess the subsurface conditions along the pathway.

The scope of work for geotechnical services was outlined in Thurber's proposal letter to the Town of Sidney (Town) dated April 26, 2019. Authorization to proceed with the work was provided by your email on April 30, 2019.

It is a condition of this report that Thurber's performance of its professional services is subject to the attached Statement of Limitations and Conditions.

2. PROJECT DESCRIPTION

We understand that the Town is planning to rebuild an approximately 500 m long section of asphalt pathway between Henry Avenue West and Beacon Avenue West on the west side of Highway 17. Based on our review of the Issued for Review drawings, the West Cycle Path replacement will include widening some sections of the pathway from the current 1.5 m to between 2 m and 2.5 m and may involve partial to total remediation depending on the condition of the existing asphalt path.

3. GEOTECHNICAL INVESTIGATION

3.1 Field Coordination

A walkthrough was conducted on May 2, 2019 with the Town to review access requirements and possible test pit locations prior to beginning the field investigation. BC One Call was notified to identify nearby buried and/or overhead utilities at each proposed test pit location. GeoScan Subsurface Surveys Inc. of Victoria, BC scanned each test pit area for underground utilities on May 8, 2019.

3.2 Test Pit Investigation

Seven test pits (TP19-1 to -7) were excavated on May 16, 2019 using a mini rubber tracked excavator operated by W.A. Jones and Sons Trucking of North Saanich, BC. All test pits were excavated at accessible locations through the asphalt pathway given the presence of underground utilities. The test pits were logged in the field by a Thurber representative and the locations were determined using a hand-held GPS and are shown on Drawing No. 26020-1 in Appendix A.

Disturbed soil samples were collected at selected depths in all test pits. The test pits were terminated in the native brown, silty clay at depths between 1.2 m (TP19-1) and 1.4 m (TP19-4 and -6) below the asphalt surface. Refusal was not encountered in any of the test pits. All tests pits were backfilled with excavated material and tamped with the bucket. Town personnel applied asphalt cold patch at the test pit locations.



All samples were returned to our Victoria laboratory for visual identification and determination of moisture contents. The results from the field and laboratory investigations were used to compile the test pit logs which are included in Appendix A.

An environmental or archaeological assessment was not undertaken as part of this geotechnical investigation.

4. SITE CONDITIONS

4.1 Soil Stratigraphy

A general description of the soil and groundwater conditions encountered are given below. The reader should refer to the test pit logs in Appendix A for a detailed description of the soil and groundwater conditions encountered at each test pit location.

Asphalt / Topsoil / Fill

A 50 mm thick layer of asphalt was encountered at all test pit locations and was underlain by gravelly sand (road base fill) to depths up to 400 mm below the surface. A 250 mm thick layer of topsoil / organic silt was encountered below the gravel fill at TP19-1.

Brown Clay

Native, stiff to hard, brown silty clay was encountered below the fill at all test pit locations and continued to the depths excavated.

Bedrock / Refusal

Bedrock or refusal on dense soils was not encountered in any of the test pits to the depths excavated.

4.2 Groundwater Seepage

Groundwater or surface water seepage was not observed in any of the test pits at the time of excavating. The groundwater table could be found as a perched condition above the native clay deposit. The water level could rise seasonally and may be encountered during construction depending on the time of year and the depth of excavation.

5. PAVEMENT CONDITIONS

5.1 Surface Conditions

A visual inspection of the asphalt surface was made to determine the extent of cracking and distress in the pavement structure. Longitudinal and transverse cracking was observed at numerous locations along the pathway. Larger cracks and heaving were also evident throughout as was some alligator cracking.



5.2 Pavement Structure

The asphalt concrete encountered at all test pit locations is 50 mm thick and underlain by 100 mm to 350 mm of gravelly sand (road-base) material. The road base is underlain by topsoil at TP19-1 and by generally stiff to very stiff silty clay at the other locations. Localized pockets of organic silt were encountered within the native clay deposit.

No free water or seepage was encountered within the test pits at the time of the investigation.

6. ASSESSMENT AND RECOMMENDATIONS

The assessment and recommendations provided below are based on the results of the test pit investigation and our review of the Issued for Review drawings dated April 17, 2019. Any changes to the proposed pathway alignment may require modifications to the recommendations provided below.

6.1 Causes of Pavement Distress

As noted earlier, longitudinal and transverse cracking was observed at numerous locations along the path. The test pits excavated along the path indicate a variable thickness of road base is present below the asphalt surface at the test pit locations; however, no sub-base layer was encountered and there were variable amounts of organic silt encountered below the base course layer.

The cracking that is present in the pavement is attributed to fatigue of the asphalt, and possibly some settlement due to the organics and underlying deep, soft clay. At the time of the test pit investigation inspection, there did not appear to be a drainage problem in the native clay subgrade. However, it is possible that some water accumulates in the organic silt and upper clay layer in the wet winter months and could result in some seasonal softening below the surface of the gravelly sand fill.

The combination of increased usage from pedestrian and cycle travel, the absence of a crushed sub-base course, reduced thickness of base course and softening below the base course from inadequate drainage, possible ongoing settlement of underlying soft clay at depth from Highway 17 construction, pockets of organic silt and the presence of tree roots just below the surface have likely contributed to the pavement distress exhibited to date.

6.2 Rehabilitation Options

We understand that the Town is interested in a rehabilitation option that does not involve full reconstruction of the entire pathway. A lower cost option with reduced pavement life is outlined below.

6.2.1 Partial Reconstruction

Provided grading allows for it, a structural overlay could be placed after milling out 50% to 75% of the existing asphalt surface. The thickness of the overlay can be adjusted to match the grade



of new pavement structure in the widened sections of the pathway. Note that a 'mill and fill' approach will repair surface cracking and extend service life but does not address the underlying causes of pavement distress as would be provided by full reconstruction.

6.2.2 Pathway Widening

We recommend that all existing fill and any organic silt deposits be stripped to allow for the installation of the recommended thickness of asphalt, base course and SGSB as noted below in Section 6.4. Some localized sub-excavation may be required to remove organic silt deposits and to expose generally stiff, brown silty clay. If root structure is encountered that cannot be disturbed and thus limit the extent of pavement structure that be placed in these areas, then the ground surface could be covered with a non-woven geotextile fabric prior to covering with engineered fill.

MMCD specifications for base and sub-base courses should be used with no more than 5% fines.

6.3 Reuse of Excavated Materials

Granular material removed from beneath the asphalt can be re-used to backfill over-excavated areas and for sub-base course provided it is free of organics and is not excessively wet at the time of placement in order to achieve adequate compaction. All organics and otherwise deleterious material should be separated from the useable stockpile material prior to placement. All mixed fill with clay and organics should be wasted. Backfill should be compacted to at least 95% of the Modified Proctor Maximum Dry Density (MPMDD) as per MMCD specifications.

6.4 Pavement Recommendations

All soils should be removed to the minimum depth required to install the pavement structure thickness as noted below. Following excavation, if granular soils are encountered at design elevation then they should be surface compacted with a heavy diesel plate tamper to identify any weak zones prior to placing engineered fill.

As outlined in Section 6.2.2 above, localized sub-excavation may be required to remove mixed organic fill and wet, softened / disturbed soil. A non-woven geotextile fabric (ie. Nilex 4545 or equivalent) could be placed on the subgrade to facilitate compaction and the migration of fines.

Provided the subgrade for all pathway restoration areas are prepared in accordance with the recommendations given above, the following pavement structure can be used for this pathway:

**TABLE 1
RECOMMENDED PAVEMENT STRUCTURE**

Structure	Thickness (mm)
Asphalt Concrete	50
Crushed Base Course	150
Select Granular Sub-base	150



The pavement structure for path restoration is applicable for pedestrian and bicycle traffic and assumes that the path is not used for passenger car or light pickup usage.

All granular materials should meet the MMCD specifications for gradation and compaction requirements. Asphalt concrete should also meet MMCD specifications for materials and placement.



STATEMENT OF LIMITATIONS AND CONDITIONS

1. STANDARD OF CARE

This Report has been prepared in accordance with generally accepted engineering or environmental consulting practices in the applicable jurisdiction. No other warranty, expressed or implied, is intended or made.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT THURBER'S WRITTEN CONSENT AND SUCH USE SHALL BE ON SUCH TERMS AND CONDITIONS AS THURBER MAY EXPRESSLY APPROVE. Ownership in and copyright for the contents of the Report belong to Thurber. Any use which a third party makes of the Report, is the sole responsibility of such third party. Thurber accepts no responsibility whatsoever for damages suffered by any third party resulting from use of the Report without Thurber's express written permission.

5. INTERPRETATION OF THE REPORT

- a) Nature and Exactness of Soil and Contaminant Description: Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other persons making use of such documents or records with our express written consent should be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other persons. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) Reliance on Provided Information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other persons providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) Design Services: The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber should be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design detailed in the contract documents should be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) Construction Services: During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions in order to confirm and document that the site conditions do not materially differ from those interpreted conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

6. RELEASE OF POLLUTANTS OR HAZARDOUS SUBSTANCES

Geotechnical engineering and environmental consulting projects often have the potential to encounter pollutants or hazardous substances and the potential to cause the escape, release or dispersal of those substances. Thurber shall have no liability to the Client under any circumstances, for the escape, release or dispersal of pollutants or hazardous substances, unless such pollutants or hazardous substances have been specifically and accurately identified to Thurber by the Client prior to the commencement of Thurber's professional services.

7. INDEPENDENT JUDGEMENTS OF CLIENT

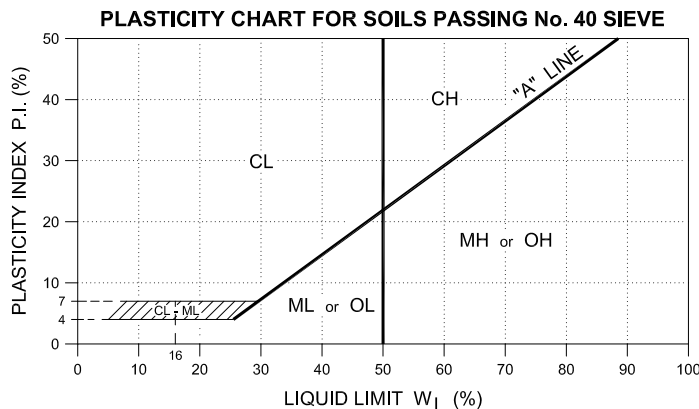
The information, interpretations and conclusions in the Report are based on Thurber's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Thurber does not accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes but is not limited to decisions made to develop, purchase or sell land.





UNIFIED CLASSIFICATION SYSTEM FOR SOILS (ASTM D2487)

MAJOR DIVISION		SYMBOLS		TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA	
		GROUP	GRAPH			
COARSE-GRAINED SOILS (MORE THAN 50% BY WEIGHT RETAINED ON No. 200 SIEVE)	GRAVELS MORE THAN 50% COARSE FRACTION RETAINED ON No. 4 SIEVE	CLEAN GRAVELS ($< 5\%$ FINES)	GW		WELL GRADED GRAVEL and WELL GRADED GRAVEL with SAND.	$C_U = \frac{D_{60}}{D_{10}} \geq 4$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1 \text{ to } 3$
			GP		POORLY GRADED GRAVEL and POORLY GRADED GRAVEL with SAND.	NOT MEETING ABOVE REQUIREMENTS
		GRAVELS WITH FINES ($> 12\%$ FINES)	GM		SILTY GRAVEL, GRAVEL - SAND - SILT MIXTURES.	FINES CLASSIFY AS ML or MH ⁽³⁾
			GC		CLAYEY GRAVEL, GRAVEL - SAND - CLAY MIXTURES.	FINES CLASSIFY AS CL or CH ⁽³⁾
	SANDS MORE THAN 50% COARSE FRACTION PASSES No. 4 SIEVE	CLEAN SANDS ($< 5\%$ FINES)	SW		WELL GRADED SAND and WELL GRADED SAND with GRAVEL	$C_U = \frac{D_{60}}{D_{10}} \geq 6$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1 \text{ to } 3$
			SP		POORLY GRADED SAND and POORLY GRADED SAND with GRAVEL.	NOT MEETING ABOVE REQUIREMENTS
		SANDS WITH FINES ($> 12\%$ FINES)	SM		SILTY SAND, SAND - SILT MIXTURES.	FINES CLASSIFY AS ML or MH ⁽³⁾
			SC		CLAYEY SAND, SAND - CLAY MIXTURES.	FINES CLASSIFY AS CL or CH ⁽³⁾
FINE-GRAINED SOILS (MORE THAN 50% BY WEIGHT PASSES No. 200 SIEVE)	SILTS BELOW "A" LINE NEGLECTIBLE ORGANIC CONTENT	$W_L < 50\%$	ML		INORGANIC SILTS, SILTS with SAND and SILTS with GRAVEL and SANDY or GRAVELLY SILTS.	P.I. < 4 or PLOTS BELOW THE "A" LINE
		$W_L > 50\%$	MH		INORGANIC SILTS, SILTS with SAND & SILTS with GRAVEL & SANDY or GRAVELLY SILTS, FINE SANDY or SILTY SOILS.	P.I. PLOTS BELOW THE "A" LINE
	CLAYS ABOVE "A" LINE ON PLASTICITY CHART NEGLECTIBLE ORGANIC CONTENT	$W_L < 50\%$	CL		INORGANIC CLAYS of LOW PLASTICITY, GRAVELLY, SANDY, or SILTY CLAYS, LEAN CLAYS.	P.I. > 7 and PLOTS ON OR ABOVE THE "A" LINE
		W_L near 50%	CL-CH		BORDERLINE INORGANIC CLAYS and SILTY CLAYS with LIQUID LIMITS NEAR 50%.	(only used for visual identification)
		$W_L > 50\%$	CH		INORGANIC CLAYS of HIGH PLASTICITY, FAT CLAYS.	P.I. PLOTS ON OR ABOVE THE "A" LINE
	ORGANIC SILTS and CLAYS	$W_L < 50\%$	OL		ORGANIC SILTS and ORGANIC SILTY CLAYS of LOW PLASTICITY.	$\frac{W_L \text{ (oven dried)}}{W_L \text{ (not dried)}} < 0.75$
		$W_L > 50\%$	OH		ORGANIC CLAYS OF HIGH PLASTICITY.	$\frac{W_L \text{ (oven dried)}}{W_L \text{ (not dried)}} < 0.75$
HIGHLY ORGANIC SOILS		PT		PEAT and other HIGHLY ORGANIC SOILS.	STRONG COLOR OR ODOR, AND OFTEN FIBROUS TEXTURE.	



NOTES:

- ALL SIEVE SIZES ARE U.S. STANDARD, A.S.T.M. E11-04.
- COARSE GRAINED SOILS WITH 5 TO 12% FINES REQUIRE DUAL SYMBOLS (GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, SP-SC).
- IF FINES CLASSIFY CL-ML USE DUAL SYMBOL (GC-GM or SC-SM).
- WHERE TESTING IS NOT CARRIED OUT, THE IDENTIFICATIONS ARE DETERMINED BY VISUAL-MANUAL PROCEDURES DESCRIBED IN ASTM D2488-06.



SYMBOLS AND TERMS USED ON TEST LOGS

1. PARTICLE SIZE CLASSIFICATION OF MINERAL SOILS

DESCRIPTION	APPARENT PARTICLE SIZE
BOULDERS	> 200 mm
COBBLES	75 mm to 200 mm
GRAVEL coarse	19 mm to 75 mm
fine	4.75 mm to 19 mm
SAND coarse	2 mm to 4.75 mm
medium	0.475 mm to 2 mm
fine	0.075 mm to 0.475 mm
SILT	Non-plastic particles, not visible to the naked eye
CLAY	Plastic particles, not visible to the naked eye

NOTE: Metric Conversion is approximate only

2. TERMS DESCRIBING CONSISTENCY (Cohesive Soils Only)

DESCRIPTION	APPROXIMATE UNDRAINED SHEAR STRENGTH
Very Soft	Less than 10 kPa (250 psf)
Soft	10 to 25 kPa (250 - 500 psf)
Firm	25 to 50 kPa (500 - 1000 psf)
Stiff	50 to 100 kPa (1000 - 2000 psf)
Very Stiff	100 to 200 kPa (2000 - 4000 psf)
Hard	Greater than 200 kPa (4000 psf)

NOTE: Metric Conversion is approximate only

3. TERMS DESCRIBING DENSITY (Cohesionless Soils Only)

DESCRIPTION	STANDARD PENETRATION TEST
	Number of blows per foot (300 mm) *
Very Loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	over 50

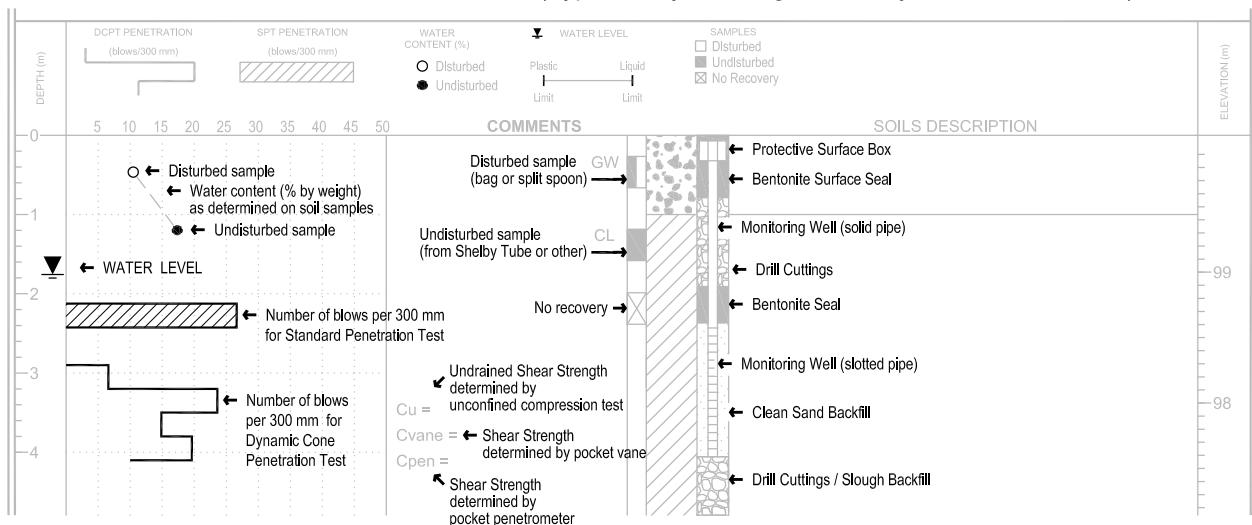
* Directly applicable to sands and, with interpretation, to gravels

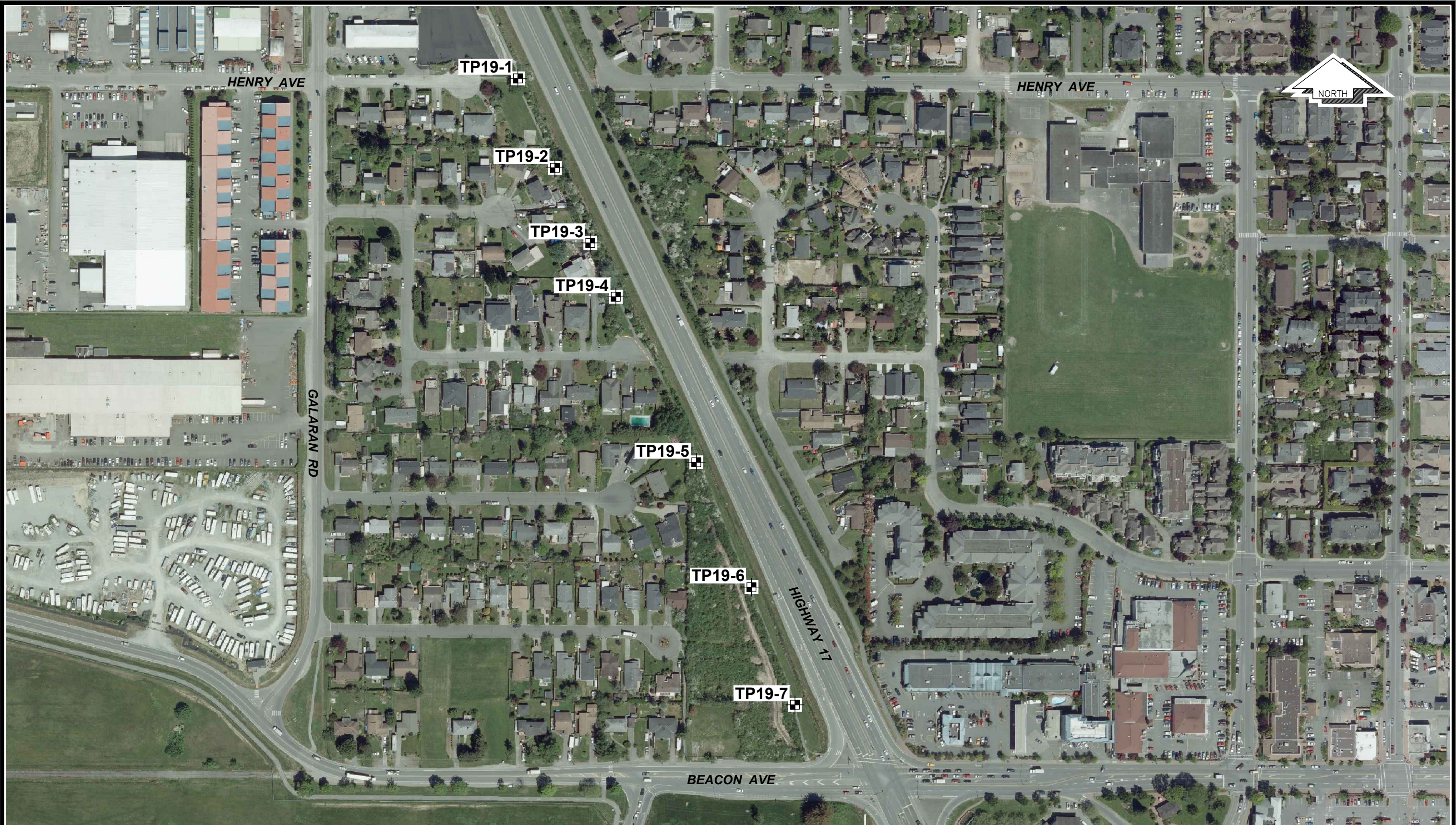
4. PROPORTION OF MINOR COMPONENTS BY WEIGHT

DESCRIPTION	PERCENT BY WEIGHT
and	35 to 50 %
y / ey	20 to 35 %
some	10 to 20 %
trace	less than 10 %

EXAMPLE: Silty SAND, trace of gravel = Sand with 20 to 35% silt and up to 10% gravel, by dry weight. (Percentages of secondary materials are estimates based on visual and tactile assessment of samples).

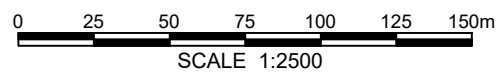
5. LEGEND FOR TEST HOLE LOGS (Typical only showing commonly included elements)





NOTES:

1. Test Pits were located by hand-held GPS unit; locations are approximate only.
2. 2017 aerial image from CRD Geospatial Data download site.



THURBER ENGINEERING LTD.

DESIGNED BRW	DRAWN RRS	APPROVED <i>BRW</i>
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TOWN OF SIDNEY		
TEST PIT LOCATION PLAN		
HIGHWAY 17; WEST CYCLE PATH REPLACEMENT GEOTECHNICAL INVESTIGATION		
SIDNEY, B.C.		
DATE JUNE 12, 2019	SCALE 1:2500	PROJECT No. 26020 - 1
	DWG. NO. -	REV. -

LOG OF TEST PIT

TEST PIT NO.
TP19-1

LOCATION: See Drawing 26020-1
N 5388990 E 469763 (Approx.)
UTM NAD83 Zone 10U



CLIENT: Town of Sidney
PROJECT: Highway 17, West Cycle Path
Replacement
Geotechnical Investigation

TOP OF HOLE ELEV:
METHOD: John Deere Mini-Excavator
DRILLING CO.: W.A. Jones & Sons
INSPECTOR: JH

DATE: 16-May-2019
FILE NO.: 26020

DEPTH (m)	DCPT PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	SOIL HEADSPACE READING (ppm)	DEPTH (m)
		○ Disturbed ● Undisturbed	Plastic Limit Liquid Limit	■ Disturbed ■ Undisturbed ⊠ No Recovery	◆ Peak ◇ Residual ⊕ CPen reading	▲ Passing #200 sieve △ Passing #4 sieve	■ GASTECH reading ⊗ PID reading	

DEPTH (m)	DCPT PENETRATION (blows/300 mm)	WATER CONTENT (%)	WATER LEVEL	SAMPLES	UNDRAINED SHEAR STRENGTH (kPa)	GRAIN SIZE (%)	SOIL HEADSPACE READING (ppm)	SOILS DESCRIPTION	DEPTH (m)
0								50 mm ASPHALT	0
0.1								Moist, brown, gravelly SAND (Road-base FILL); trace silt; gravel to 50 mm diameter	
0.2								Moist, brown to black, organic SILT (TOPSOIL); trace to some gravel; trace to some sand	
0.3								Very stiff, moist, mottled grey-brown, silty CLAY; trace sand; trace organics	
0.4								Very stiff to hard, moist, brown, silty CLAY; trace organics	
1.2								End of Pit at 1.2 m depth. No water encountered during excavation. Upon completion of digging: Pit backfilled with excavated materials; asphalt cold patch installed at surface.	
3									3

LOG OF TEST PIT (NO EST.) R. RRS. 26020_SIDNEY CYCLE PATH_2019 TEST PIT LOGS.GPJ THURBER BC.GDT 12/16/19- THURBER VICTORIA FEBRUARY 2012 REVERSE.GLB

LOG OF TEST PIT

LOCATION: See Drawing 26020-1
N 5388929 E 469789 (Approx.)
UTM NAD83 Zone 10U

TOP OF HOLE ELEV:

METHOD: John Deere Mini-Excavator

DRILLING CO.: W.A. Jones & Sons

INSPECTOR: JH



CLIENT: Town of Sidney
PROJECT: Highway 17, West Cycle Path
Replacement
Geotechnical Investigation

DATE: 16-May-2019

FILE NO.: 26020

DEPTH (m)	DCPT PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES ■ Disturbed ■ Undisturbed ⊠ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ⊕ CPen reading	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	SOIL HEADSPACE READING (ppm) ■ GASTECH reading ⊗ PID reading	COMMENTS	SOILS DESCRIPTION	DEPTH (m)
0									50 mm ASPHALT	0
									Moist, brown, gravelly SAND (Road-base FILL); trace silt; gravel to 40 mm diameter	
									Very stiff, moist, mottled grey-brown, silty CLAY; trace sand; trace organics	
									Very stiff to hard, moist, brown, silty CLAY	
1										1
									End of Pit at 1.3 m depth. No water encountered during excavation.	
									Upon completion of digging: Pit backfilled with excavated materials; asphalt cold patch installed at surface.	
2										2
3										3

LOG OF TEST PIT (NO EST.) R. RRS. 26020_SIDNEY CYCLE PATH_2019 TEST PIT LOGS.GPJ THURBER BC.GDT 12/6/19- THURBER VICTORIA FEBRUARY 2012 REVERSE GLB

LOG OF TEST PIT

LOCATION: See Drawing 26020-1
N 5388877 E 469813 (Approx.)
UTM NAD83 Zone 10U

TOP OF HOLE ELEV:

METHOD: John Deere Mini-Excavator

DRILLING CO.: W.A. Jones & Sons

INSPECTOR: JH



CLIENT: Town of Sidney
PROJECT: Highway 17, West Cycle Path
Replacement
Geotechnical Investigation

DATE: 16-May-2019

FILE NO.: 26020

DEPTH (m)	DCPT PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES ■ Disturbed ■ Undisturbed ⊠ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ⊕ CPen reading	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	SOIL HEADSPACE READING (ppm) ■ GASTECH reading ⊗ PID reading	DEPTH (m)	COMMENTS	SOILS DESCRIPTION
0										50 mm ASPHALT
										Moist, brown, gravelly SAND (Road-base FILL); trace silt; gravel to 40 mm diameter
										Stiff to very stiff, moist, mottled grey-brown, silty CLAY; trace sand; trace organics
										Very stiff to hard, moist, brown, silty CLAY
										End of Pit at 1.3 m depth. No water encountered during excavation. Upon completion of digging: Pit backfilled with excavated materials; asphalt cold patch installed at surface.
3										

LOG OF TEST PIT (NO EST.) R. RRS. 26020_SIDNEY CYCLE PATH_2019 TEST PIT LOGS.GPJ THURBER BC.GDT 12/6/19- THURBER VICTORIA FEBRUARY 2012 REVERSE.GLB

LOG OF TEST PIT

LOCATION: See Drawing 26020-1
N 5388840 E 469831 (Approx.)
UTM NAD83 Zone 10U

TOP OF HOLE ELEV:

METHOD: John Deere Mini-Excavator

DRILLING CO.: W.A. Jones & Sons

INSPECTOR: JH



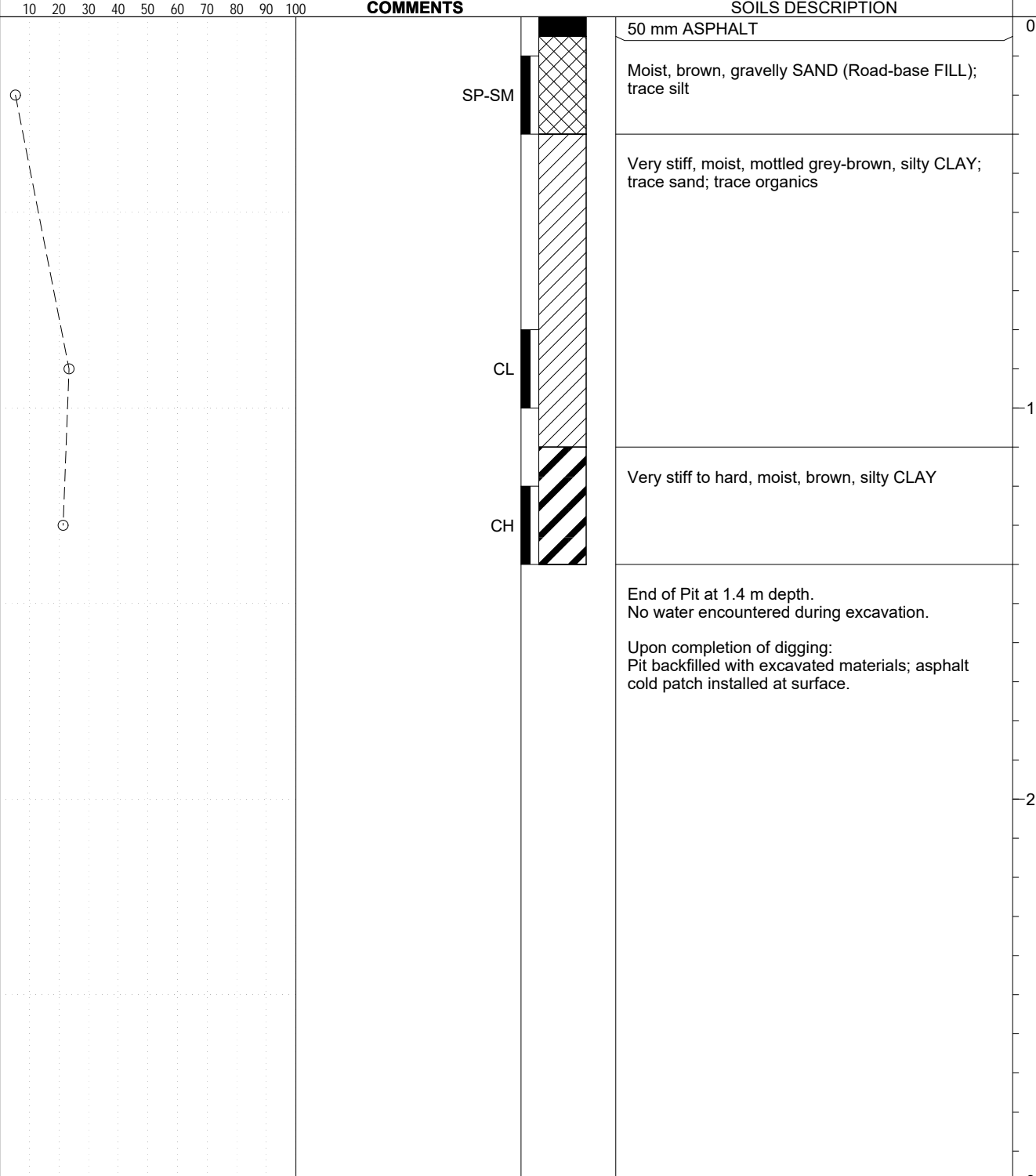
CLIENT: Town of Sidney
PROJECT: Highway 17, West Cycle Path
Replacement
Geotechnical Investigation

DATE: 16-May-2019

FILE NO.: 26020

DEPTH (m)	DCPT PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES ■ Disturbed ■ Undisturbed ⊠ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ⊕ CPen reading	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	SOIL HEADSPACE READING (ppm) ■ GASTECH reading ⊗ PID reading	DEPTH (m)
0								0
1								1
2								2
3								3

LOG OF TEST PIT (NO EST.) R. RRS. 26020_SIDNEY CYCLE PATH_2019 TEST PIT LOGS.GPJ THURBER BC.GDT 12/16/19- THURBER VICTORIA FEBRUARY 2012 REVERSE.GLB



SOILS DESCRIPTION

0 - 50 mm ASPHALT

Moist, brown, gravelly SAND (Road-base FILL); trace silt

Very stiff, moist, mottled grey-brown, silty CLAY; trace sand; trace organics

Very stiff to hard, moist, brown, silty CLAY

End of Pit at 1.4 m depth.
No water encountered during excavation.

Upon completion of digging:
Pit backfilled with excavated materials; asphalt cold patch installed at surface.

LOG OF TEST PIT

LOCATION: See Drawing 26020-1
N 5388726 E 469886 (Approx.)
UTM NAD83 Zone 10U

CLIENT: Town of Sidney
PROJECT: Highway 17, West Cycle Path
Replacement
Geotechnical Investigation

TOP OF HOLE ELEV:

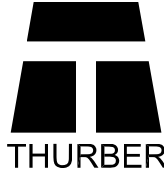
METHOD: John Deere Mini-Excavator

DATE: 16-May-2019

DRILLING CO.: W.A. Jones & Sons

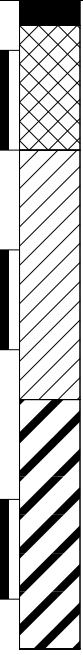
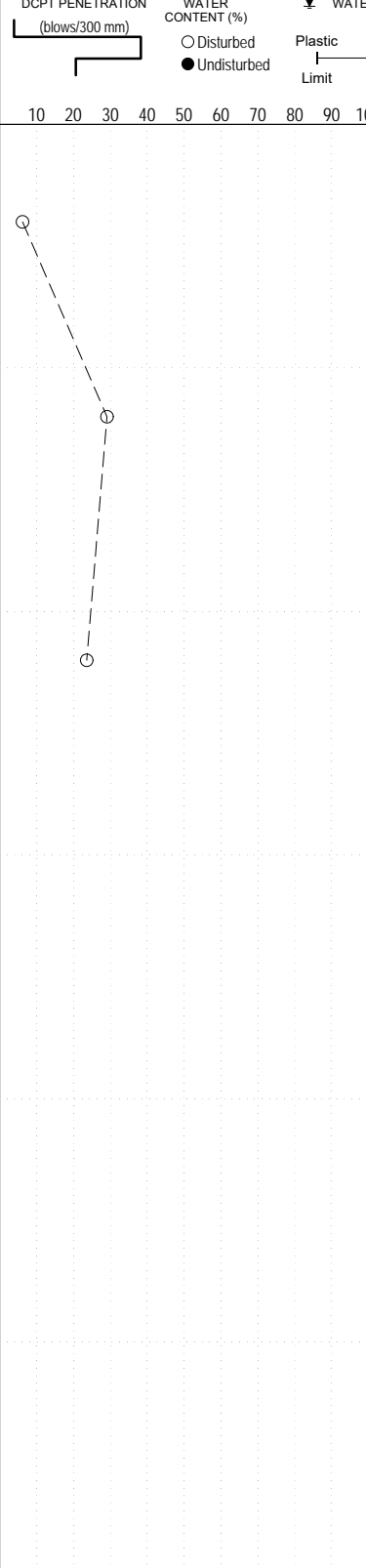
FILE NO.: 26020

INSPECTOR: JH



DEPTH (m)	DCPT PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL Plastic Limit Liquid Limit	SAMPLES ■ Disturbed ■ Undisturbed ⊠ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ⊕ CPen reading	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	SOIL HEADSPACE READING (ppm) ■ GASTECH reading ⊗ PID reading	DEPTH (m)
0								0
				SP-SM				
				CL				
1				CH				1
2								2
3								3

LOG OF TEST PIT (NO EST.) R. RRS. 26020_SIDNEY CYCLE PATH_2019 TEST PIT LOGS.GPJ THURBER BC.GDT 12/6/19- THURBER VICTORIA FEBRUARY 2012 REVERSE GLB



50 mm ASPHALT

Moist, brown, gravelly SAND (Road-base FILL); trace silt; gravel to 40 mm diameter

Stiff to very stiff, moist, mottled grey-brown, silty CLAY; trace sand; trace organics

Very stiff to hard, moist, brown, silty CLAY; trace sand

End of Pit at 1.3 m depth.
No water encountered during excavation.

Upon completion of digging:
Pit backfilled with excavated materials; asphalt cold patch installed at surface.

LOG OF TEST PIT

TEST PIT NO.
TP19-6

LOCATION: See Drawing 26020-1
N 5388640 E 469924 (Approx.)
UTM NAD83 Zone 10U



CLIENT: Town of Sidney
PROJECT: Highway 17, West Cycle Path
Replacement
Geotechnical Investigation

TOP OF HOLE ELEV:
METHOD: John Deere Mini-Excavator
DRILLING CO.: W.A. Jones & Sons
INSPECTOR: JH

DATE: 16-May-2019
FILE NO.: 26020

DEPTH (m)	DCPT PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL Plastic Limit Liquid Limit	SAMPLES ■ Disturbed ■ Undisturbed ⊠ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ⊕ CPen reading	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	SOIL HEADSPACE READING (ppm) ■ GASTECH reading ⊗ PID reading	DEPTH (m)	COMMENTS	SOILS DESCRIPTION
0										50 mm ASPHALT
										Moist, brown, gravelly SAND (Road-base FILL); trace silt; gravel to 40 mm diameter
										Stiff to very stiff, moist, mottled grey-brown, silty CLAY; trace sand; trace organics
										Very stiff to hard, moist, brown, silty CLAY
1.4										End of Pit at 1.4 m depth. No water encountered during excavation. Upon completion of digging: Pit backfilled with excavated materials; asphalt cold patch installed at surface.
3										

LOG OF TEST PIT (NO EST.) R. RRS. 26020_SIDNEY CYCLE PATH_2019 TEST PIT LOGS.GPJ THURBER BC.GDT 12/6/19- THURBER VICTORIA FEBRUARY 2012 REVERSE.GLB

LOG OF TEST PIT

LOCATION: See Drawing 26020-1
N 5388559 E 469954 (Approx.)
UTM NAD83 Zone 10U

CLIENT: Town of Sidney
PROJECT: Highway 17, West Cycle Path
Replacement
Geotechnical Investigation

TOP OF HOLE ELEV:

METHOD: John Deere Mini-Excavator

DATE: 16-May-2019

DRILLING CO.: W.A. Jones & Sons

THURBER

FILE NO.: 26020

INSPECTOR: JH

DEPTH (m)	DCPT PENETRATION (blows/300 mm)	WATER CONTENT (%) ○ Disturbed ● Undisturbed	WATER LEVEL ▼ Plastic Limit Liquid Limit	SAMPLES ■ Disturbed ■ Undisturbed ⊠ No Recovery	UNDRAINED SHEAR STRENGTH (kPa) ◆ Peak ◇ Residual ⊕ CPen reading	GRAIN SIZE (%) ▲ Passing #200 sieve △ Passing #4 sieve	SOIL HEADSPACE READING (ppm) ■ GASTECH reading ⊗ PID reading	DEPTH (m)
	COMMENTS				SOILS DESCRIPTION			
0								0
				SP-SM				50 mm ASPHALT
								Moist, brown, gravelly SAND (Road-base FILL); trace silt; gravel to 50 mm diameter
				CL				Very stiff, moist, mottled grey-brown, silty CLAY; trace sand; trace organics
				CH				Very stiff to hard, moist, brown, silty CLAY; trace organics
1								1
								End of Pit at 1.3 m depth. No water encountered during excavation.
								Upon completion of digging: Pit backfilled with excavated materials; asphalt cold patch installed at surface.
2								2
3								3

LOG OF TEST PIT (NO EST.) R. RRS. 26020_SIDNEY CYCLE PATH_2019 TEST PIT LOGS.GPJ THURBER BC.GDT 12/16/19- THURBER VICTORIA FEBRUARY 2012 REVERSE GLB

Appendix C
Flex MSE Vegetated Wall System



FlexMSE[®]
Vegetated Wall System



THE ECOLOGICAL SOLUTION

For Erosion Control, Retaining
Walls, Highways and Waterways

www.FlexMSE.com

SIMPLICITY, ADAPTABILITY, AND LONGEVITY

Flex MSE is a Patented engineered solution for vegetated retaining walls and erosion control.

Flex MSE Bags and Interlocking Plates are used to build naturally resilient Geomodular structures.

A unique soft building material which exhibits hard material qualities, Flex MSE adapts to events that would ruin lesser systems, and only gets stronger and greener as time goes on.

Flex MSE is a Patented system which leverages Mechanically Stabilized Earth (MSE) principles along with geotextile technology to create strong and easy to install Geomodular block structures.



10m (33ft) tall municipal roadway



Economical



Eco friendly



Permanent



Aesthetically
Pleasing



75 Year
Warranty

BUILDING WITH FLEX MSE



Flex MSE is one of the easiest systems on the market to install, vegetate and maintain.

Flex MSE Bags are:

- ✓ Filled with sand and organics
- ✓ An ideal 'planter block' for many types of vegetation
- ✓ Water and root permeable
- ✓ Flexible enough to create almost any contour or angle

Flex MSE Plates are:

- ✓ Made from 100% recycled material
- ✓ Designed to bridge the gap between Bags to create an interlocking mechanical connection
- ✓ Engineered with Friction Strips for greater Bag to Bag mechanical connection and Geogrid hooks to connect to soil reinforcement.



5m (16ft) tall landscape retaining wall

The Flex MSE Vegetated Wall system provides the strength of interlocking components without the need for concrete, rebar, wire mesh or other formwork.

APPLICATIONS AND USES



Civil Infrastructure

- Slope Repairs (shallow and reinforced)
- Retaining Walls
- Highway Walls
- Bridge Abutments
- Noise Barriers
- Levees/Dikes



Commercial and Residential

- Large Landscaping Walls
- Garden Walls
- Site Levelling and Optimization
- Golf Courses and Parks



Anywhere Land meets Water

- Culverts and Pump Stations
- Stream bank Protection
- River Bank Protection
- Coastal Protection
- Channel Linings
- Detention/Retention Ponds and Reservoirs
- Irrigation Canals, Ditches



Emergency Use

- Permanent Flood Protection Walls
- Wind and Storm Protection Walls
- Blast Walls and Bunkers

FLEX MSE ADVANTAGES

1

Flex MSE cuts installation times.

Flex MSE walls install in $\frac{2}{3}$ to $\frac{1}{2}$ of the time of conventional walls.

2

Flex MSE is lightweight and easy to transport.

93m² (1000ft²) of unfilled Flex MSE ships on a single pallet.

3

Flex MSE is cost effective.

The all-in costs for a Flex MSE wall are generally 40-50% less than other systems. Savings in machine, labor, material and transportation costs make Flex MSE an obvious choice for helping generate project cost savings.

6

Longevity

With Flex MSE's 120 year design life and 75 year warranty, lifetime costs can be $\frac{1}{4}$ of conventional systems.

5

Flex MSE is ideal for a wide variety of applications.

Flex MSE works seamlessly with utilities and landforms and integrates perfectly with other building materials and systems.

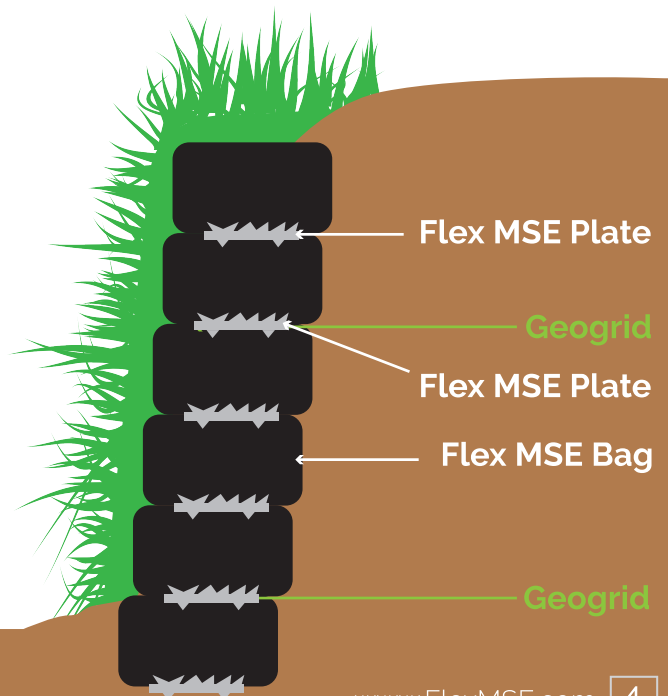
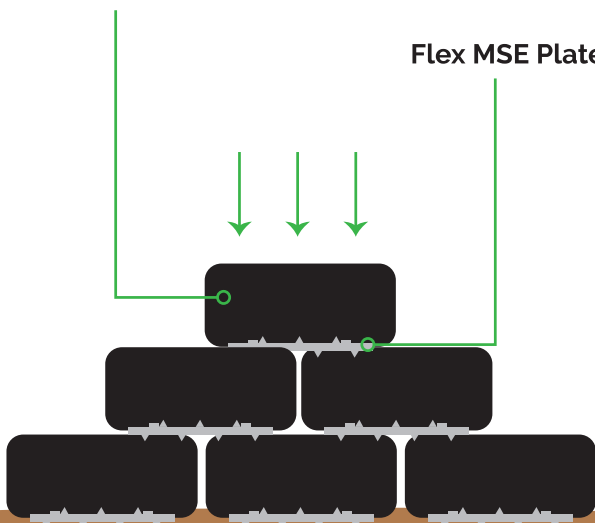
4

Flex MSE walls are easy to construct.

DIY'ers to professional contractors can install Flex MSE using our simple installation methods.

Flex MSE Bag

Flex MSE Plate



INSTALLATION AND VEGETATION

INSTALLATION

- Place Flex MSE Plates 760mm (30") apart in a shallow, relatively level trench.
- Center a Flex MSE Bag on top of each Plate, laid end to end.
- Place a single Flex MSE Plate over each Bag joint, in a 1:1 ratio.
- Lay each row of Bags squarely over the Flex MSE Plates, creating an offset 'running bond' pattern. Plates should be completely covered.
- Tamp or lightly compact the Bags to create a level course.
- Place and compact backfill every two courses or as required.
- Repeat this process until the desired height is reached, adding reinforcement as required.
- When using Geogrid, the Flex MSE Plate's Patented Grid Hooks secure geogrid at the select layers.

VEGETATION

- A key advantage of Flex MSE is its ability to accept almost all types of vegetation over 100% of the face.
- Vegetation can include grasses, ground covers, flowers, vines, and small shrubs.
- Hydroseeding, live planting and live staking walls are examples of vegetation methods that work well with the Flex MSE system.



5m (16ft) tall commercial retaining wall

FLEX MSE SYSTEM COMPONENT SPECIFICATION

FLEX MSE PLATE

Provides a positive mechanical connection between the Flex MSE Bags, effectively interlocking each and every Bag into one solid Unit. The Flex MSE Plate incorporates our Patented Friction Strips and two Geogrid Hooks per Plate.

Dimensions:

Height	42mm (1.65")
Length	285mm (11.22")
Width	99mm (3.90")
Spikes	11
Hooks	2
Weight	63g (2.2oz)



FLEX MSE BAG

Flex MSE Bags provide the ideal planter block for permanent vegetation. These Bags have a filtering functionality to prevent soil particle seepage while permitting water and roots to pass.

Dimensions:

Unfilled:

Width	380mm (15")
Length	890mm (35")

Filled:

Width	300mm (12")
Length	760mm (30")
Height	140mm (5.5")



TOLL FREE:

1-877-349-5945



FlexMSE[®]
Vegetated Wall System

DISCLAIMER:

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Front Cover: 5m (16ft) tall terraced residential slope

Back Cover: 3m (10ft) tall, 500m (1,640ft) long residential wall