City of Coquitlam

Contract Documents
74770-2

Pipeline Rd and David Ave Improvements

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Contract No. 74770-2

Pipeline Rd and David Ave Improvements

Project Construction Documents

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Invitation to Tender

INVITATION TO TENDER

DATE OF ISSUE: **January 22, 2026**

We acknowledge with gratitude and respect that the name Coquitlam was derived from the hən̓q̓əmiń əm̓ word kʷikʷəƛ̓əm (kwee-kwuh-tlum) meaning "Red Fish Up the River". The City is honoured to be located on the kʷikʷəƛ̓əm (Kwikwetlem) traditional and ancestral lands, including those parts that were historically shared with the sq̓əc̓iy̓aʔɬ təməxʷ (Katzie), and other Coast Salish Peoples.

Tender No. 74770-2

Pipeline Rd and David Ave Improvements

The City of Coquitlam invites tenders for **Contract 74770-2 - Pipeline Rd and David Ave Improvements**, generally consisting of the following, but not limited to:

- Asphalt Milling - approx. 19,500 square meters;
- Asphalt Paving - approx. 6100 tonnes;
- Concrete Curb & Gutter construction - approx. 1150 meters;
- Concrete flatwork construction - approx. 1200 square meters;
- Approx. 65m of storm main installation and other minor storm works;
- Traffic signal and Street Lighting Works;
- Pavement Markings, tree planting, irrigation; and
- Other miscellaneous and incidental works as described in the Contract Documents.

Tender Documents and Drawings are available for downloading from the City of Coquitlam website: www.coquitlam.ca/BidOpportunities

Printing of Tender documents and drawings is the sole responsibility of the Tenderers.

Tenders submitted must be accompanied by a copy of the original specified 10% Bid Bond and will be received:

On or Before 2:00 pm local time
February 12, 2026
("Closing Date and Time")

Addenda

Tenderers are required to check the City's website for any updated information, issued before the Closing Date at: www.coquitlam.ca/BidOpportunities. **Where in its sole discretion it considers it to be necessary or desirable, the City may issue Addenda to amend any portion of the Contract Documents.**

Any changes to the Tender documentation will be issued by means of written Addenda and posted on the City's website and will form part of the Tender. No amendment of any kind to the Tender is effective unless it is posted in a formal written Addendum on the City website. Upon submitting a Tender, Tenderers will be deemed to have received notice of all Addenda that are posted on the City's website and deemed to have considered the information for inclusion in the Tender submitted.

The City does not retain a bidder's list or bidder's registry. Tenderers are encouraged to register as plan takers and may view the Tender Documents and Drawings by contacting the Vancouver Regional Construction Association (VRCA), website: www.my.vrca.ca, ph: 604-294-3766, or email at vrca@vrca.ca, quoting the Coquitlam Tender Reference Number.

Should there be any discrepancy in the documentation provided, the City's original file copy shall prevail.

Tenders shall remain open for acceptance for 60 days following the submission Closing Date.

The City reserves the right to accept or reject any or all Tenders and the lowest or any Tender may not necessarily be accepted. The City also reserves the right to cancel any request for Tender at any time without recourse by the Tenderer.

The City, prior to award of any Tender, may negotiate with the Tenderer presenting the lowest price compliant Tender, for changes in the Work, materials, specifications or conditions without having any duty or obligation to advise any other Tenderers or to allow them to modify their Tenders, and the City will have no liability to any Tenderer as a result of such negotiations or modifications.

The City will not be responsible for any costs incurred by the Tenderer in preparing the Tender.

Procurement of goods and services is conducted in accordance with Chapter 5 of the Canadian Free Trade Agreement (CFTA) and the New West Partnership Trade Agreement (NWPTA).

M. Pain
Manager Procurement

Instructions to Tenderers

Tender 74770-2

Pipeline Rd and David Ave Improvements

INSTRUCTIONS TO TENDERERS

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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.)

The City of Coquitlam

Contract: **Pipeline Rd and David Ave Improvements**

Reference No. **74770-2**

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:

- Asphalt Milling - approx. 19,500 square meters;
- Asphalt Paving - approx. 6100 tonnes;
- Concrete Curb & Gutter construction - approx. 1150 meters;
- Concrete flatwork construction - approx. 1200 square meters;
- Approx. 65m of storm main installation and other minor storm works;
- Traffic signal and Street Lighting Works;
- Pavement Markings, tree planting, irrigation; and
- Other miscellaneous and incidental works as described in the Contract Documents.

1.2 All inquiries regarding this Tender are to be submitted in writing referencing the **Tender Name and Number** sent to:

E-mail **bid@coquitlam.ca**

The deadline for inquiries is **2:00 PM** local time, **Monday, February 9, 2026.**

INQUIRIES RECEIVED AFTER THIS DATE AND TIME MAY NOT RECEIVE A RESPONSE.

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 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 judgments 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 on the Tender Form provided, accompanied by a copy of the original 10% Bid Bond quoting the Tender Name and Number, and be uploaded to the City's file transfer website.

Tenders must be received on or before:

Tender Closing Time: **2:00 p.m. local time**
Tender Closing Date: **February 12, 2026**

For the purpose of the Tender submission, digital copies of original documents and signatures sent electronically are accepted. Original documents are required upon request by the City.

Instructions for Tender Submission

3.2 **Tender submissions are to be consolidated into one (1) PDF file and uploaded electronically through QFile, the City's file transfer service accessed at website:**
http://qfile.coquitlam.ca/bid

1. **In the "Subject Field" enter: Tender Number and Name**
2. **Add consolidated Tender file in PDF format and Appendix 1 in XLS format, and Send** (ensure your web browser remains open until you receive 2 emails from Qfile to confirm upload is complete and was sent to email: bid@coquitlam.ca)

Tenderers are responsible to allow for ample time to complete the submission process. For assistance, phone 604-927-3037.

3.3 Tenders submitted shall be deemed to be received when displayed as a new email in the in-box of the above email address. The City will not be responsible for any delay or for any Tenders not received for any reason, including technological delays or issues by either party's network or email program, and the City will not be liable for any damages associated with Tenders not received.

3.4 The City reserves the right to accept late Tenders to allow for technological delays. The City also reserves the right to accept Tenders by email: bid@coquitlam.ca.

BIDS RECEIVED IN-PERSON, BY COURIER, OR BY FAX WILL NOT BE ACCEPTED.

3.5 Tenders will not be opened in public. The unevaluated results will be forwarded to participants by email.

3.6 Tender submissions are subject to the Freedom of Information and Protection of Privacy Act and contents may be disclosed if required to do so, pursuant to the Act.

4.0 Additional Instructions to Tenderers

Additional Instructions to Tenderers

4.0.1 The Contractor must coordinate the work with the Pipeline Road Improvements Phase 1 (target completion date of April 2026), and Shaughnessy Street Pavement Rehabilitation (construction estimated July - August, 2026) projects. The contractor may not start work on Pipeline Road until the Pipeline Road Improvements Phase 1 project is complete.

4.0.2 The works for this project are in the proximity of Metro Vancouver water mains. Permission to work in the proximity of the Metro Vancouver water mains must be obtained and inspection must be arranged a minimum of 10 business days prior to any work taking place.

4.0.3 David Avenue Pavement Rehabilitation must be completed as night work. Traffic Signal Upgrades can be done during the day. Tenderers to review "Appendix A – Traffic Management Detail Specifications" for direction on allowable road closures and work hours. Contractor to coordinate with Contract Administrator on developing an acceptable Traffic Management and Detour Plan as soon as possible after Notice of Award.

Obtaining Documents

4.1 The following documents which are referred to and form part of the Contract Document package may be obtained as follows:

- Copies of the Master Municipal Construction Documents Volume II (2009), General Conditions, Specifications and Standard Detail Drawings are available separately from:

  Support Services Unlimited
  Suite 102

211 Columbia Street
Vancouver, B.C. V6A 2R5
Tel: 604-681-0295
Fax: 604-305-0424

- Copies of the City of Coquitlam Supplementary Specifications and Detailed Drawings to the MMCD 2009 Edition are available for viewing and downloading off the City of Coquitlam website: Supplementary Specifications and Detailed Drawings to MMCD

Test Excavations 4.2 Prior to the excavation of test holes on road allowances or privately owned property the Tenderer shall obtain permission from the Municipality or Owner of the property and comply with their requirements for restoration of disturbed surfaces and utilities. Failure to comply with Municipal by-laws restricting this practice may result in prosecution of the offending party.

Business License 4.3 The successful Tenderer shall provide evidence of a City of Coquitlam Business License or Tri-Cities Inter-Municipal Business License prior to commencement of work or supply of materials. For more information, contact Business License Division Ph: 604-927-3085 or apply online at website: City of Coquitlam Business License

No Claim 4.4 Except as expressly and specifically permitted in these Instructions to Tenderers, no Tenderer shall have any claim for any compensation of any kind whatsoever, as a result of participating in this Tender, including accepting a non-compliant bid and by submitting a Tender, each Tenderer shall be deemed to have agreed that it has no claim.

No Cost 4.5 The City will not under any circumstances be responsible for any costs incurred by the Tenderer in preparing the Tender.

Right to Accept or Reject any Tender 4.6 The City reserves the right to accept or reject any or all Tenders and the lowest or any Tender may not necessarily be accepted. In its sole discretion, the City may reject or retain for its consideration, tenders which are nonconforming because they do not contain the content or form required by the instructions to tenderers or for failure to comply with the process for submission set out in these instructions to tenderers.

The City specifically reserves the right to reject all Tenders if none is considered to be satisfactory and, in that event, at its option, to call for additional Tenders.

Negotiation 4.7 The City, prior to award of any Tender, may negotiate with the Tenderer presenting the lowest price compliant Tender, for changes in the Work, materials, specifications or conditions without having any duty or obligation to advise any other Tenderers or to allow them to modify their Tenders, and the City will have no

liability to any Tenderer as a result of such negotiations or modifications.

Cancellation of Tender 4.8 The City reserves the right to cancel any request for Tender at any time without recourse by the Tenderer. The City has the right to not award this work for any reason including choosing to complete the work with the City's own forces.

Conflict of Interest 4.9 Tenderers shall disclose any actual or potential conflicts of interest and existing business relationships it may have with the City, their elected or appointed officials or employees.

Collusion 4.10 Tenderers will not discuss or communicate with one another in regards to the preparation of their Tenders. Each Tenderer will ensure that its participation in the Tender process and that of its team members is conducted without collusion or fraud. Failure to comply with this requirement may lead to disqualification without further notice or warning.

Instruction to Tenderers – Part II Delete Instructions to Tenderers – Part II Contained in the Edition of the Publication "Master Municipal Construction Documents 2009" and replace with the following:

5.0 Tender Requirements

5.1 A tender should be on the Form of Tender as provided and be signed by the authorized signatory(s) as follows:

5.1.1 if the tenderer is a partnership or joint venture then the name of the partnership or joint venturer should be included, and each partner or joint venturer should sign personally; if a partner of joint venture is a corporation then such corporation should sign as indicated in paragraph 5.1.3 below; and

5.1.2 if the tenderer is a corporation then the full name of the corporation should be included, together with the names and signatures of authorized signatories.

5.1.3 For the purpose of the Tender submission, digital copies of original documents and electronic signatures are accepted. Original documents are required upon request by the City.

5.2 A tender must be accompanied by tender security ("*Bid Security")* in the form of:

5.2.1 a copy (digital or Electronic copy is acceptable) of the original bid bond in an amount equal to 10% of the Tender Price, issued by a surety licensed to carry on the business of suretyship in British

Columbia in a form reasonably satisfactory to the *Owner*;

5.3 Tenderer should be competent and capable of performing the various items of work. Tenderer shall complete the following statement sheets appended to the Form of Tender:

5.3.1 Appendix 1 – the Schedule of Quantities and Prices;

5.3.2 Appendix 2 – a "*Preliminary Construction Schedule*", generally in the form attached as Appendix 2 to the Form of Tender, and showing *Substantial Performance* by the date or within the duration, shown in paragraph 2.2 of the Form of Tender.

5.3.3 Appendix 3 – name and brief description of the previous experience of the *Superintendent* the tenderer will use for the *Work*;

5.3.4 Appendix 4 – a list of previous comparable work, including a brief description of that work, approximate contract value, and references (with phone numbers);

5.3.5 Appendix 5 – a complete list of all subcontractors, if any, that the tenderer will use for the *Work* including full names.; and

5.3.6 Appendix 7 – is provided for information only, to indicate the Contract Insurance is to be submitted by the successful Tenderer upon Notice of Award.

5.4 The successful tenderer will, within 15 *Days* of receipt of the written *Notice of Award*, be required to deliver to the *Owner* the items listed in FT 5.1.1, including a Performance Bond and a Labour and Material Payment Bond as described in FT 5.1.1(a), failing which the provisions of FT 6.1 will apply.

6.0 Qualifications, Modifications, Alternative Tenders

6.1 Tenders which contain qualifications, or omissions, so as to make comparison which other tenders difficult, may be rejected by the *Owner*.

6.2 A tenderer may, at the tenderer's election, submit an alternative tender ("*Alternative Tender*") which varies the materials, products, designs or equipment by the *Owner as Approved Equals* as the case may be, but an *Alternative Tender* must be in addition to, and not in substitution for a tender which conforms to the requirements of the *Contract Documents*.

6.3 The only *Alternative Tender* that the *Owner* may acc*ept* is an *Alternative Tender* submitted by that tenderer whose conforming tender, submitted as required by paragraph 6.2 of these

Instructions to Tenderers, would have been accepted by the *Owners* in the preference to other conforming tenders, if no *Alternative Tenders* had been invited.

7.0 Approved Equals

7.1 Prior to the *Tender Closing Time and Date,* a tenderer may request the *Owner* to approve materials, products, or equipment ("*Approved Equal*") to be included in a tender in substitution for items indicated in the Contract Documents.

7.2 Applications for an *Approved Equal* must be in writing, and supported by appropriate supporting information, data, specifications, and documentation.

7.3 If the *Owner* decides in its discretion to accept an *Approved Equal*, then the *Owner* will issue an addendum to all tenderers.

7.4 The *Owner* is not obligated to review or accept an application for an *Approved Equal*.

8.0 Inspection of the *Place of the Work*

8.1 All tenderers, either personally or through a representative, are responsible to examine the *Place of the Work* before submitting a tender. A tenderer has full responsibility to be familiar with and make allowance in the tender for all conditions at the *Place of the Work* that might affect the tender, including any information regarding subsurface soil conditions made available by the *Owner*, the location of the *Work*, local conditions, topographical soil conditions, weather and access. Unless otherwise specified in the *Contract Documents*, a tenderer is not required to do subsurface investigations. By submitting a tender, a tenderer represents that the tenderer has examined the *Place of the Work*, or specifically elected not to. No additional payments or time extensions shall be claimable or due because of difficulties relating to conditions at the *Place of the Work* which were reasonably foreseeable by a contractor qualified to undertake the *Work*.

8.2 Tenderers are referred to GC 11.2.1 regarding **Concealed or Unknown Conditions.**

9.0 Interpretation of *Contract Documents*

9.1 If a tenderer is in doubt as to the correct meaning of any provision of the *Contract Documents*, the tenderer may request clarification as instructed in paragraph 1.2 of the Instructions to Tenderers.

9.2 If a tenderer discovers any contradictions or inconsistencies in the *Contract Documents* or its provisions, or any discrepancies between a provision of the *Contract Documents* and conditions at the *Place of the Work as* observed in an examination under paragraph 8 of the person named in paragraph 1.2 of the Instructions to Tenderers.

9.3 If the *Owner* considers it necessary, the *Owner* may issue written addenda to provide clarification (s) of the *Contract Documents.*

9.4 No oral interpretation or representations from the *Owner* or any representative of the *Owner* will affect, alter, or amend any provision of the *Contract Documents*.

10.0 Prices

10.1 The Tendered Price will represent the entire cost excluding *GST* to the *Owner* of the complete *Work* based on the estimated quantities in the *Schedule of Quantities and Prices* of the Form of Tender. Notwithstanding the generalities of the above, tenderers shall include in the tendered prices (including unit prices, lump sum prices, or other forms of pricing) sufficient amounts to cover:

10.1.1 the costs of all labour, equipment and material included in or required for the *Work*, including all items which, whole not specifically listed in the *Schedule of Quantities and Prices*, are included in the *Work* specifically or by necessary inference from the *Contract Documents;*

10.1.2 all assessments payable with respect to labour as required by any statutory scheme such as unemployment insurance, holiday pay, insurance, CPP and all employee benefits and the Workers Compensation Act;

10.1.3 all overhead costs, including head office and on-site overhead costs, and all amounts for the *Contractor's* profit.

10.2 The tendered prices and all subcontracts must allow for compliance with all applicable laws regarding trade or other qualifications of employees performing the *Work*, and payment of appropriate wages for labour included in or required for the *Work*.

11.0 Taxes

11.1 The tendered prices shall cover all taxes and assessments of any kind payable with respect to the *Work*, but shall not include *GST*. *GST* shall be listed as a separate line item as required by GC 19.3.

12.0 Amendment of Tenders

12.1 A tenderer may amend or revoke a tender by giving written notice, delivered by Email, to the office referred to in paragraph 3.4 of the Instructions to Tenderers at any time up until the *Tender Closing Date and Time*. An amendment or revocation that is received after the *Tender Closing Date and Time* shall not be considered and shall not affect a tender as submitted.

12.2 An amendment or revocation must be signed by an authorized signatory of the tenderer in the same manner as provided by paragraph 5.1 of these Instructions to Tenderers.

12.3 Any amendment that expressly or by inference discloses the tenderer's *Tender Price* or other material element of the tender such that, in the opinion of the *Owner*, the confidentiality of the tender is breached, will invalidate the entire tender.

12.4 An acceptable form of a tender amendment which tenderers may, but are not required to, use is as follows:

"Contract: _____
(TITLE OF CONTRACT)

Reference No. _____
(OWNER'S CONTRACT REFERENCE NO.)

TO: _____
(NAME OF OWNER)

We the undersigned wish to amend our tender which we submitted for the above *Contract* by deleting the following tendered prices or items from our tender:

_____
_____
_____
(TEDNERED PRICES AND/OR TENDER ITEMS IN THE TENDER THAT ARE TO BE AMENDED)

and substituting the following revised tendered prices or items:

_____
_____
_____
(REVISED TENDERED PRICES OR TENDER ITEMS)

The extensions in our tender should be adjusted accordingly, and our ***Tender Price*** as set out in Appendix 1 of our submitted **Form of Tender**, and on the ***Schedule of Quantities and Prices***, increased / decreased by $_____, excluding GST. We have not included our revised ***Tender Price*** in order to preserve the confidentiality of our tender.

Signed and delivered the ___ day of _____, 20___."

13.0 Duration of Tenders

13.1 After the *Tender Closing Time*, a tender shall remain valid and irrevocable as set out in paragraph 5.1 of the Form of Tender.

14.0 Qualifications of Tenderers

14.1 By submitting a tender, a tenderer is representing that it has the competence, qualifications and relevant experience required to do the *Work.*

15.0 Award

15.1 In exercising its discretion, the *Owner* will have regard to the information provided in the Appendices to the Form of Tender as described under IT 5.3 including the proven experience of the tenderer, and any listed subcontractors, to do the *Work*.

Tenders received will be evaluated to provide the City with greatest value based on quality, service, price and experience. Evaluation Criteria will include but is not limited to:

1. Ability to meet specifications and required completion date
2. Contractor's past experience, references, reputation and compliance to specifications
3. Demonstrated successful experience on similar projects and specific equipment installation
4. Price: purchase price, maintenance costs, availability of parts and service, warranty and compatibility with existing equipment and/or conditions
5. Any other criteria, the City deems, at its sole discretion, necessary to evaluate Tenders;
6. Lowest price will not necessarily be accepted.

The City may, in its absolute discretion, not award to a Tenderer if the Tenderer, or any officer or director of a corporate Tenderer, is or has been engaged, either directly or indirectly through another corporation or legal entity, in a legal action against the City and its elected and appointed officers and employees or any of them in relation to:

a) any other contract or services; or

b) any matter arising from the City's exercise of its powers, duties or functions under the *Local Government Act,* the *Community Charter* or any other enactments; within five years of this Tender Offer.

For purposes of this section, the words "legal action" includes, without limitation, mediation, arbitration, hearing before an administrative tribunal or lawsuit filed in any court.

Without limiting the City's sole discretion, in determining whether or not to award to a Tenderer pursuant to this clause, the City will consider such factors as whether the legal action is likely to affect the Tenderer's ability to work with the City and its employees, agents, consultants and representatives or any of them and whether the City's past experience with the Tenderer in the matter that resulted in the legal action indicates that the City is likely to incur increased staff and legal costs or either of them in the administration of this contract if it is awarded to the Tenderer.

In the event that the lowest total Tender Price by two or more Tenderers is the same amount, the City will select a Tenderer with an overall satisfactory performance record in having completed work on previous relevant projects that are provided as references, and on City projects. Information obtained from references will not be disclosed or discussed with any Tenderer. If all references are equal, selection will be determined by a coin toss in a manner to be directed by the City.

Where only one Tender is received the City may reject such and re-tender on a selected basis.

15.2 The *Owner* will notify the successful tenderer in writing.

15.3 If there are any discrepancies in the *Schedule of Quantities and Prices* between the unit prices and the extended totals then the unit prices shall be deemed correct, and corresponding corrections shall be made to the extended totals. If a unit price or extended total has been omitted, the following shall apply:

a) If a unit price is given but the corresponding extended total has been omitted, then the extended total shall be calculated from unit price and the estimated quantity, and inserted as the extended total;

b) If an extended total is given but the corresponding unit price has been omitted, then the unit price shall be calculated from the extended total and estimated quantity, and inserted as the unit price;

c) If both the unit price and the corresponding extended total for a tender item have been omitted, then the following test shall be applied to determine whether the tender shall be rejected as incomplete:

(i) the highest of the unit prices tendered by other tenderers for that tender item shall be used as the test unit price, and the corresponding test extended total shall be calculated from the test unit price and the estimated quantity;

(ii) if the test extended total for the tender item exceeds 1% of the revised total *Tender Price*, including the test extended total, or if the revised total *Tender Price*, including the test extended total, alters the ranking of the tenderers according to the lowest *Tender Price*, then the omitted unit price for that tender item is deemed to materially affect the *Tender Price* relative to other tenders and the tender shall be rejected;

(iii) if the tender is not rejected under subparagraph (ii) of this IT 15.3 (c), then the unit price and the extended total for that tender item shall both be deemed to be, and the costs for that tender item shall be zero deemed to be included in other tender items prices;

d) In no event shall page totals in the *Schedule of Quantities and Prices* or the total *Tender Price* be used to calculate missing extended totals or unit prices.

16.0 Subcontractors

16.1 The *Owner* reserves the right to object to any of the subcontractors listed in a tender. If the *Owner* objects to any of the subcontractor(s) then the *Owner* will permit a tenderer to, within 5 days, propose a substitute subcontractor(s) acceptable to the *Owner* provided that there is not resulting adjustment in the *Tender Price* or the completion date set out in paragraph 2.2 of the Form of Tender. A tenderer will not be required to make such substitution and, if the *Owner* objects to a listed *Subcontractor(s)*, the tenderer may, rather than propose a substitute subcontractor(s), consider its tender rejected by the *Owner* and by written notice withdraw it tender. The *Owner* shall, in the event, return the tenderer's bid security.

17.0 Optional Work

17.1 If the *Schedule of Quantities and Prices* includes any tender prices for *Optional or Provisional Work*, as defined in GC 7.4.1, the tenderers must complete all the unit prices for such *Optional or Provisional Work*. Such tender prices shall not include any general overhead costs, or other costs, or profit, not directly related to the *Optional or Provisional Work*.

17.2 Notwithstanding that the *Owner* may elect not to proceed with the *Optional or Provisional Work*, the tender prices for any *Optional or Provisional Work*, including the extended totals for *Optional or Provisional Work* unit prices, shall be included in the *Tender Price* for the purpose of any price comparisons between tenders.

Form of Tender

Form of Tender

Tender No. 74770-2

Pipeline Rd and David Ave Improvements

Summary

Name of ***Contractor***: _____

Tender Price *(*exclude GST): $ _____
(FROM APPENDIX 1 OF FORM OF TENDER)

Tender submitted must be accompanied by a copy of the original 10% Bid Bond and will be received

On or before 2:00 pm (local time)
Thursday, February 12, 2026

Instructions for Tender Submission

Tender submissions are to be consolidated into one (1) .pdf file and **uploaded electronically through QFile, the City's file transfer service accessed at website:** qfile.coquitlam.ca/bid

1. **In the "Subject Field" enter:** Tender Number and Name
2. **Add consolidated Tender file in PDF format, and Appendix 1 in XLS format, and Send** (ensure your web browser remains open until you receive 2 emails from Qfile to confirm upload is complete and was sent to the correct email address: bid@coquitlam.ca)

Tenderers are responsible to allow ample time to complete the Tender submission process. If assistance is required, phone 604-927-3037.

THE CITY OF COQUITLAM
3000 Guildford Way
Coquitlam, B.C. V3B 7N2

January 2026

(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.)

Contract Name: **Pipeline Rd and David Ave Improvements**
Reference No.: **74770-2**

TO OWNER:

1 WE, THE UNDERSIGNED:

1.1 have received and carefully reviewed all of the *Contract Documents*, including the Instructions to Tenderers, the City of Coquitlam Supplementary General Conditions, the City of Coquitlam Supplementary Contract Specifications, 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 shall fully disclose any actual or potential conflicts of interest and existing business relationships we may have with the City, their elected or appointed officials or employees:

_____

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

1.4 have complied with the Instructions to Tenderers; and

2 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 **October 31, 2026**; 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.*

3 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.

3.2 that we understand and agree that the owner is in no way obliged to accept this Tender.

4 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.

4.1.3 the Certificate of Compliance on the form provided in Appendix 7 of this Form of Tender.

5 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 **15** *Days* of receipt of the written *Notice of Award* deliver to the *Owner*:

a) a Performance Bond and a Labour and Material Payment Bond, each in the amount of 50% of the *Contract Price*, 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) a "clearance letter" indicating that the Tenderer is in WCB compliance; and

c) a copy of the insurance policies as specified in SGC Section 24 indicating that all such insurance coverage is in place and;

d) a letter confirming the *Contractor* as “Prime Contractor” for the Contract as specified in SGC Section 21.2.1.

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.

6 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 OUR ADDRESS is as follows:

_____

_____

_____

Phone: _____ - _____ - _____

Email: _____

Attention: _____

This Tender is executed this_____day of_____, 20_____.

Contractor:

_____
(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

_____
(AUTHORIZED SIGNATORY)

_____
(AUTHORIZED SIGNATORY)

8 WE CONFIRM:

8.1 our Goods and Services Tax (GST) registration status is as follows:

8.1.1 for information purposes, our GST Registration Number is:

_____
(GST REGISTRATION NUMBER)

or;

8.1.2 by signature hereunder, we certify we are **not required** to provide a registration number:

_____
(AUTHORIZED SIGNATORY)

_____
(AUTHORIZED SIGNATORY)

APPENDIX 1
FORM OF TENDER

Contract 74770-2
Pipeline Rd and David Ave Improvements

SCHEDULE OF QUANTITIES AND PRICES
(see paragraph 5.3.1 of the Instruction to Tenderers)
(All Tender and Contract Prices shall NOT include GST. GST will apply upon payment)
(Should there be any discrepancy in the information provided, the City's original file copy shall prevail)

ITEM NO.	MMCD Ref. / (Supplementary Contract Specifications)	DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED AMOUNT
1.00	**01 55 00S**	**TRAFFIC CONTROL, VEHICLE ACCESS AND PARKING**				
1.01	(1.5.1)	Traffic Control and Management		Incidental to Contract		
2.00	**01 57 01S**	**ENVIRONMENTAL PROTECTION**				
2.01	(1.6.1)	ESC supply & installation, maintenance and removal		Incidental to Contract		
		Pipeline Rd Improvements				
3.00	**01 58 01S**	**PROJECT IDENTIFICATION**				
3.01	(1.3.1)	Construction Zone Information Signs	ea.	4		
3.02	(1.3.2)	Changeable Message Board Signs (CMS) (x4)	month	6		
4.00	**03 30 20S**	**CONCRETE WALKS, CURBS AND GUTTERS**				
4.01	(1.4.3)	Concrete Curb & Gutter - Wide Base – MMCD C5	l.m	1,080		
4.02	(1.4.3)	Median Narrow Curb and Gutter - Pipeline Road Only	l.m	72		
4.03	(1.4.3)	150mm Concrete Curb/Band	l.m	32		
4.04	(1.4.5)	Concrete Sidewalk & Walkway connectors, Wheelchair Letdowns, & Median Infill - 100mm thick – Broom Finished; and as shown and described in the Contract Documents	sq.m	900		
4.05	(1.4.5)	Raised Concrete Islands In Pedestrian/Cycling Areas	sq.m	190		
4.06	(1.4.10)	Tactile Attention Indicators - 0.6m Wide - Truncated Dome Pattern, Yellow color - Cast-in-place (removable)	l.m	76		
5.00	**26 56 01S**	**ROADWAY LIGHTING**				
5.01	(1.9.1)	Supply & installation of Roadway and Pedestrian Lighting and Communication Ducting (ALL) Works including any removal, adjustments and disposal needed to complete the work and as shown on the Contract Drawing	l.s.	1		
6.00	**31 11 01S**	**CLEARING AND GRUBBING**				
6.01	(1.4.1)	Clearing & grubbing; Remove/Trim Hedges, Shrubs, Trees<300mm dia, etc.	l.s.	1		
7.00	**31 11 41S**	**SHRUB AND TREE PRESERVATION**				
7.01	(1.3.2)	Preservation of Existing Trees (Includes Dry Vac and Air Spade)	Allowance		$2,000.00	**$2,000.00**
8.00	**31 24 13S**	**ROADWAY EXCAVATION, EMBANKMENT AND COMPACTION**				
8.01	(1.8.4)	Removal and offsite disposal of Existing Concrete (all Depths), including pathways, medians, letdowns or sidewalks.	sq.m	430		
8.02	(1.8.4)	Removal and offsite disposal of Existing Asphalt (all Depths), including asphalt curb, pathways, medians, letdowns or sidewalks.	sq.m	2,020		
8.03	(1.8.4)	Removal and Disposal of Existing Concrete Curb and Gutter	l.m	370		
8.04	(1.8.5)	Common Excavation including Off Site Disposal (includes topsoil stripping)	cu.m	2,770		
8.05	1.8.7	Imported Embankment Fill, 75mm SGSB - **Provisional**	tonne	1,870		
8.06	(1.8.10)	Overexcavation, Offsite Disposal, Backfilling - **Provisional**	cu.m	50		
9.00	**32 01 16.7S**	**COLD MILLING**				
9.01	(1.5.4)	Full Depth Milling (up to 150mm)	sq.m	8,630		
10.00	**32 11 16.1S**	**GRANULAR SUBBASE**				
10.01	(1.4.3)	75mm Crushed Minus Granular Sub Base - variable thickness - **Provisional**	tonne	5,360		
11.00	**32 11 23S**	**GRANULAR BASE**				
11.01	(1.4.3)	25mm Minus Granular Base, variable thickness, for roadway and as shown in Contract Drawings	tonne	2,480		
11.02	(1.4.3)	19mm Minus Granular Base, variable thickness	tonne	620		
12.00	**32 12 16S**	**HOT-MIX ASPHALT CONCRETE PAVING**				
12.01	(1.5.1)	Asphaltic Concrete Paving - 19mm MOTI Class 1 medium mix with 80-100 Group A Asphalt Binder, 50mm, 1 lift	tonne	1,200		
12.02	(1.5.1)	Asphaltic Concrete Paving - Lower Course #1, 65mm, 1 lift	tonne	2,400		
12.03	(1.5.3)	Asphaltic Concrete Paving - Upper Course #2, 50mm, 1 lift - Bike Pathway and MUP	tonne	190		

ITEM NO.	MMCD Ref. / (Supplementary Contract Specifications)	DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED AMOUNT
13.00	**32 17 23S**	**PAINTED PAVEMENT MARKINGS**				
13.01	(1.5.3)	Supply & Installation Thermoplastic Pavement Markings	l.s.	1		
13.02	(1.5.3)	Supply & Installation MMA Solid Green Conflict Zone Painting	l.s.	1		
13.03	(1.5.4)	Supply & Install of Traffic Signage on new base and post - City to supply all new sign tabs	ea.	15		
13.04	(1.5.4)	Supply & Install of Traffic Signage on streetlight pole using clamps - City to supply all new sign tabs	ea.	18		
13.05	(1.5.4)	Supply and Install of Traffic Signage on existing base and post	ea.	4		
13.06	(1.5.4)	Remove, protect and relocate existing sign, base and post	ea.	5		
13.07	(1.5.4)	Remove, protect and relocate existing signage	ea.	2		
13.08	(1.5.5)	Removal and offsite disposal of existing signage and assembly	l.s.	1		
14.00	**32 84 23S**	**IRRIGATION**				
14.01	(1.11)	Design and Build Irrigation System as per Coquitlam Irrigation Standards for Planting Areas c/w double check valve assembly, all labor, equipment, materials needed to complete the work and and as shown in Contract Drawings & Appendix D	l.s.	1		
15.00	**32 91 13.23S**	**STRUCTURAL SOIL**				
15.01	(1.8.1)	Structural Soil within Critical Root Zones of Existing Tree	cu.m	370		
16.00	**32 91 21S**	**TOP SOIL AND FINISH GRADING**				
16.01	(1.4.1)	Imported Topsoil - 150mm Thick for Sod	cu.m	270		
16.02	(1.4.4)	Growing Medium - Boulevard Tree Planting Trench - includes excavation, backfill, and growing medium as shown in Appendix D, COQ-L2A, as shown in Contract Drawings, and as described in Contract Documents	cu.m	470		
17.00	**32 92 23S**	**SODDING**				
17.01	(1.8.1)	Sodding	sq.m	1,740		
18.00	**32 93 01S**	**PLANTING OF TREES, SHRUBS, AND GROUND COVERS**				
18.01	(1.9.1)	Planting of Trees and Park Beds as described in the Contract Drawings	l.s.	1		
19.00	**33 40 01S**	**STORM SEWERS**				
19.01	(1.6.2)	250mm Storm Pipe PVC SDR35 c/w import backfill	l.m	65		
19.02	(1.6.5)	Catch Basin Lead - 150mm SDR28 PVC c/w import backfill (Including pvc wyes)	l.m	60		
20.00	**33 44 01S**	**MANHOLES AND CATCHBASINS**				
20.01	(1.5.1)	Supply & Installation of 1050mm pre gasketed manhole including frames, lid, base, riser, barrel and all related works as shown on the contract drawing and as described in contract documents	ea.	2		
20.02	(1.5.2)	900mm Side Inlet Catch Basin Assembly per COQ-S11A	ea.	4		
20.03	(1.5.2)	600mm Single Top Inlet Catch Basin c/w 600mm Offset Sump per COQ-S11B	ea.	6		
20.04	(1.5.3.1)	Manhole Frame and Lid Replacement & Adjustments - **Provisional**	ea.	3		
20.05	(1.5.3.1/1.5.3.4)	Manhole Frame and Lid Adjustment Only - **Provisional**	ea.	7		
20.06	(1.5.3.4)	Junction Box Adjustment Only - **Provisional**	ea.	4		
20.07	(1.5.3.4)	Valve Box Cover Adjustments Only - **Provisional**	ea.	16		
20.08	1.5.4	Removal, Capping, and Disposal of Catch Basins	ea.	10		
20.09	1.5.4	Removal, Capping, and Disposal of Catch Basins with Offset Sump	ea.	2		

ITEM NO.	MMCD Ref. / (Supplementary Contract Specifications)	DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED AMOUNT
21.00	**34 41 13S**	**TRAFFIC SIGNALS**				
21.01	(1.9.2)	David Avenue Intersection - Traffic Signal Modification (All Works) and as described in contract drawing	l.s.	1		
		David Ave Pavement Rehabilitation				
22.00	**01 58 01S**	**PROJECT IDENTIFICATION**				
22.01	(1.3.1)	Construction Zone Information Signs	ea.	3		
22.02	(1.3.2)	Changeable Message Board Signs (CMS) (x2)	month	1		
23.00	**03 30 20S**	**CONCRETE WALKS, CURBS AND GUTTERS**				
23.01	(1.4.5)	Concrete Sidewalk & Walkway connectors, Wheelchair Letdowns, & Median Infill - 100mm thick – Broom Finished; and as shown and described in the Contract Documents	sq.m	70		
24.00	**03 40 01**	**PRECAST CONCRETE**				
24.01	1.4.2	Removal and Reconstruction of Allan Block Retaining Wall c/w Steel Handrail	L.S.	1		
25.00	**07 91 00S**	**JOINTS**				
25.01	(1.4.1)	East Abutments Expansion Joint Replacement	L.S.	1		
25.02	(1.4.1)	West Abutments Expansion Joint Replacement	L.S.	1		
26.00	**31 24 13S**	**ROADWAY EXCAVATION, EMBANKMENT AND COMPACTION**				
26.01	(1.8.10)	Over Excavation (including offsite Disposal) - **Provisional**	cu.m	50		
27.00	**32 01 16.7S**	**COLD MILLING**				
27.01	(1.5.4)	Surface Milling - 50mm depth	sq.m	3,360		
27.02	(1.5.4)	Surface Milling - 60mm depth	sq.m	4,640		
27.03	(1.5.4)	Full Depth Milling, up to 125mm depth	sq.m	2,440		
27.04	(1.5.4)	Full Depth Milling, up to 135mm depth	sq.m	520		
28.00	**32 11 23S**	**GRANULAR BASE**				
28.01	(1.4.3)	25mm Minus Granular Base (Variable Thickness) - **Provisional**	tonne	170		
29.00	**32 12 16S**	**HOT-MIX ASPHALT CONCRETE PAVING**				
29.01	(1.5.1)	Asphaltic Concrete Paving - MMCD Standard Lower Course #1 (75mm)	tonne	600		
29.02	(1.5.1)	Asphaltic Concrete Paving - 19mm MOTI Class 1 medium mix with 80-100 Group A Asphalt Binder, 50mm, 1 lift (variable thickness)	tonne	1,670		
29.03	(1.5.1)	Asphaltic Concrete Paving - MMCD Standard Lower Course #1 (75mm) - Patching incl. Removals - **Provisional**	tonne	50		
30.00	**32 17 23S**	**PAINTED PAVEMENT MARKINGS**				
30.01	(1.5.3)	Thermoplastic Line Painting & Pavement Markings	L.S.	1		
30.02	(1.5.3)	MMA Solid Green Conflict Zone Painting	L.S.	1		
31.00	**33 44 01S**	**MANHOLES AND CATCHBASINS**				
31.01	(1.5.3.1)	Manhole Frame and Lid Replacement and Adjustment as Directed by CA - **Provisional**	ea.	4		
31.02	(1.5.3.1/1.5.4)	Manhole Frame and Lid Adjustment Only - **Provisional**	ea.	8		
31.03	(1.5.3.2)	Water Valve Box Adjustment & Adjustment - **Provisional**	ea.	4		
31.04	(1.5.3.4)	Water Valve Box Replacement Only - **Provisional**	ea.	7		
32.00	**34 41 13S**	**TRAFFIC SIGNALS**				
32.01	(1.9.2)	Shaughnessy St Intersection - Traffic Signal Modification (All Works) and as described in contract drawing	l.s.	1		
32.02	(1.9.4)	Supply and Install Detector Loops in Base Lift of Asphalt	ea.	2		

Total Tendered Price (exclude GST): $_____

(Transfer the amount to Form of Tender Summary Page 1)

Name of **Contractor:** _____

APPENDIX 2

FORM OF TENDER

Contract 74770-2
Pipeline Rd and David Ave Improvements

PRELIMINARY CONSTRUCTION SCHEDULE
(See paragraph 5.3.2 of the Instructions to Tenderers)

INDICATE SCHEDULE WITH BAR CHART WITH CONSTRUCTION DURATIONS

CONSTRUCTION ACTIVITY	APRIL				MAY				JUNE					JULY				AUGUST				SEPTEMBER					OCTOBER			
	1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4

Substantial Completion Date: **October 31, 2026**

Proposed Disposal Site: _____

APPENDIX 3

FORM OF TENDER

Contract 74770-2
Pipeline Rd and David Ave Improvements

EXPERIENCE OF SUPERINTENDENT
(See paragraph 5.3.3 of the Instructions to Tenderers)

Proposed Project Superintendent _____

List of Project Experience

PROJECT:		**Dates:**	
Work Description:			
Responsibility:			
Owner/Reference:		**Phone No.:**	

PROJECT:		**Dates:**	
Work Description:			
Responsibility:			
Owner/Reference:		**Phone No.:**	

PROJECT:		**Dates:**	
Work Description:			
Responsibility:			
Owner/Reference:		**Phone No.:**	

APPENDIX 4

FORM OF TENDER

Contract 74770-2
Pipeline Rd and David Ave Improvements

CONTRACTOR'S COMPARABLE WORK EXPERIENCE
(See paragraph 5.3.4 of the Instructions to Tenderers)

PROJECT:		**VALUE ($):**	
OWNER:		**Phone No.:**	
Work Description:			

PROJECT:		**VALUE ($):**	
OWNER:		**Phone No.:**	
Work Description:			

PROJECT:		**VALUE ($):**	
OWNER:		**Phone No.:**	
Work Description:			

PROJECT:		**VALUE ($):**	
OWNER:		**Phone No.:**	
Work Description:			

APPENDIX 5

FORM OF TENDER

Contract 74770-2
Pipeline Rd and David Ave Improvements

SUBCONTRACTORS
(See paragraph 5.3.5 of the Instructions to Tenderers)

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No.:**	

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No.:**	

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No.:**	

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No.:**	

Trade:		**Tender Item:**	
Work Description:			
Subcontractor:		**Phone No:**	

APPENDIX 6

FORM OF TENDER

Contract 74770-2
Pipeline Rd and David Ave Improvements

Bid Bond

NO. _____ $ _____

KNOW ALL MEN BY THESE PRESENTS THAT

_____
As Principal, hereinafter called the Principal, and

_____
As Surety, hereinafter called the Surety, are held and firmly bound unto

_____
As Obligee, hereinafter called the Obligee, in the amount of

_____ Dollars ($_____) lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a written Tender to the Obligee, dated the _____day of _____, 2026, for Contract _____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the aforesaid Principal shall have the Tender accepted within sixty (60) days from the Closing Date of Tender and the said Principal will, within the time required, enter into a formal contract and give good and sufficient bonds to secure the performance of the terms and conditions of the Contract, then this obligation shall be null and void; otherwise the Principal and Surety will pay unto the Obligee the difference in money between the amount of the bid of the said Principal and the amount for which the Obligee legally contracts with another party to perform the work if the latter amount be in excess of the former.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of six (6) months from the date of this Bond.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its Attorney-In-Fact, this _____ day of _____, 2026.

SIGNED, SEALED AND DELIVERED
In the presence of:

)
)
)
)
_____)

_____
PRINCIPAL

_____
SURETY

APPENDIX 7

FORM OF TENDER

Contract 74770-2
Pipeline Rd and David Ave Improvements

CERTIFICATE OF COMPLIANCE for CONTRACT INSURANCE

This is provided for information to certify that the Tenderer does hereby undertake and agree to supply to the City of Coquitlam, upon award, contract insurance listed below for the project requirements indicated:

Contract Number: **74770-2**

Contract Name: **Pipeline Rd and David Ave Improvements**

Description of Work:

- Asphalt Milling - approx. 19,500 square meters;
- Asphalt Paving - approx. 6100 tonnes;
- Concrete Curb & Gutter construction - approx. 1150 meters;
- Concrete flatwork construction - approx. 1200 square meters;
- Approx. 65m of storm main installation and other minor storm works;
- Traffic signal and Street Lighting Works;
- Pavement Markings, tree planting, irrigation; and
- Other miscellaneous and incidental works as described in the Contract Documents.

Commercial General Liability: **$5,000,000 limit**

Special Coverage Required:

YES	NO	Special Coverage Description
( )	(X)	Shoring and Underpinning Hazard
( )	(X)	Pile Driving and Vibrations
(X)	( )	Excavation Hazard
( )	(X)	Demolition
( )	(X)	Blasting

We also certify that the insurance coverage will meet the requirements of the Supplementary General Conditions Section 24 – Insurance, included as part of the Contract Documents, and that the proof of insurance will be provided on the City of Coquitlam Certificate of Insurance form, without amendments, except for the exclusions noted above.

_____ _____

Name of Tenderer (printed) *Authorized Signature*

_____

Date

Agreement

AGREEMENT

Between Owner and Contractor

(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.)

THIS AGREEMENT made in duplicate this ____ day of _____ 2026.

Contract: **Pipeline Rd and David Ave Improvements**

***Reference No*. 74770-2**

BETWEEN:

The City of Coquitlam
3000 Guildford Way
Coquitlam, B.C. V3B 7N2

(the "*Owner*")

AND:

(the "*Contractor*")

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

1 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 **October 31, 2026,** subject to the provisions of the *Contract Documents* for adjustments to the *Contract Time*.

1.3 Time shall be the essence of the Contract.

2 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 CONTRACT PRICE

3.1 The price for the *Work* ("*Contract Price*") shall be the sum in Canadian dollars of the following:

a) 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

b) all lump sums, if any, as listed in the *Schedule of Quantities and Prices*, for items relating to or incorporated into the *Work*; plus

c) 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 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 RIGHTS AND REMEDIES

5.1 The duties and obligations imposed by the *Contract Documents* and the rights and remedies available hereunder 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 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 email, or by hand, or by pre-paid registered mail to the addresses as set out below:

The *Owner:*

The City of Coquitlam
3000 Guildford Way
Coquitlam, B.C. V3B 7N2

Tel: 604-927-3500

The *Contractor:*

Tel:
Email:
Attention:

The *Contract Administrator*:

The City of Coquitlam
3000 Guildford Way
Coquitlam, B.C. V3B 7N2

Tel:
Email:
Attention:

6.2 A communication or notice that is addressed as above shall be considered to have been received:

a) immediately upon delivery, if delivered by hand; or
b) immediately upon transmission if sent or received by email; or
c) 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 GENERAL

7.1 This *Contract* shall be construed 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 enure 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 AND POSITION - PRINT)

Owner:

The City of Coquitlam

_____
Edwin Dela Rosa, AScT
(MANAGER, CAPITAL PROJECTS AND INSPECTIONS)
Representative as Per G.C. 17

_____
Chad Braley, AScT
(SENIOR MANAGER, DESIGN AND CONSTRUCTION)

Pipeline Rd and David Ave Improvements

Reference No: 74770-2

Schedule 1

Schedule of Contract Documents

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

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 2009. All sections of this publication are included in the *Contract Documents*.

1. Agreement, including all Schedules;
2. The following Addenda:
    - As issued
3. Supplementary General Conditions, if any;
4. General Conditions*;
5. Supplementary Specifications, if any;
6. Detail Specifications, if any;
7. Specifications*;
8. Supplementary Detail Drawings, if any;
9. Standard Detail Drawings*;
10. Executed Form of Tender, including all Appendices;
11. Drawings listed in Schedule 2 to the Agreement –"List of Drawings", if any;
12. Instructions to Tenderers;
13. COQUITLAM "Supplementary Specifications Master Municipal Construction Documents" March 2022

Pipeline Rd and David Ave Improvements

Reference No: 74770-2

Schedule 2

LIST OF DRAWINGS

(Complete Listing of All Drawings, Plans and Sketches That Are Part of the Contract Documents)

Bound in this Document:

Appendix A: Traffic Management Detail Specifications

Appendix B: Archaeological Chance Find Procedures

Appendix C: As-built Records

Appendix D: Standard Detail Drawings

Appendix E: Traffic Management Plans – MOTT Project Category Determination

Bound Separately: Contract Drawings

TITLE	SHEET NO.	REVISION NO.	DATE
COVER – PIPELINE ROAD IMPROVEMENTS PHASE 2	-	-	-
GENERAL NOTES	1/53	A	Dec. 9/25
TYPICAL SECTIONS	2/53	A	Dec. 9/25
REMOVALS PLAN – STA 10+630 TO STA 11+110	3/53	A	Dec. 9/25
ROADWORKS – PIPELINE RD – STA 10+900 TO STA 11+110	4/53	A	Dec. 9/25
ROADWORKS – DAVID AVENUE – STA 59+940 TO STA 60+240	5/53	A	Dec. 9/25
ROADWORKS – INTERSECTION CURB GRADING	6/53	A	Dec. 9/25
SIGNAGE PLAN – STA 10+180 TO STA 10+400	7/53	A	Dec. 9/25
STORM SEWER – STA 10+900 TO STA 11+130	8/53	A	Dec. 9/25
PLANTING PLAN	9/53	A	Dec. 9/25
LANDSCAPE DETAILS 1	10/53	A	Dec. 9/25
LANDSCAPE DETAILS 2	11/53	A	Dec. 9/25
CROSS SECTIONS – STA 10+870 TO STA 11+020	12/53	A	Dec. 9/25
CROSS SECTIONS – STA 11+030 TO STA 11+110	13/53	A	Dec. 9/25
IRRIGATION PLAN – STA 10+850 TO STA 11+020	14/53	A	Dec. 9/25
IRRIGATION DETAILS	15/53	A	Dec. 9/25
PIPELINE ROAD PHASE 2 – STREET LIGHTING - GENERAL NOTES	16/53	-	Dec. 4/25
PIPELINE ROAD PHASE 2 – STREET LIGHTING	17/53	-	Dec. 4/25
PIPELINE RD AND DAVID AVE– TRAFFIC SIGNAL MODIFICATIONS	18/53	-	Dec. 4/25
PIPELINE RD AND DAVID AVE– TRAFFIC SIGNAL MODIFICATIONS	19/53	-	Dec. 4/25

TITLE	SHEET NO.	REVISION NO.	DATE
PIPELINE RD AND DAVID AVE– TRAFFIC SIGNAL MODIFICATIONS	20/53	-	Dec. 4/25
COVER – DAVID AVENUE PAVEMENT REHABILITATION	-	-	-
GENERAL NOTES	21/53	C	Jan. 16/26
ROADWORKS – STA 59+440 TO STA 59+740	22/53	C	Jan. 16/26
ROADWORKS – STA 59+740 to STA 60+080	23/53	C	Jan. 16/26
ROADWORKS – STA 60+080 TO STA 60+420	24/53	C	Jan. 16/26
ROADWORKS – STA 60+420 TO STA 60+750	25/53	C	Jan. 16/26
ROADWORKS – STA 60+750 TO STA 61+020	26/53	C	Jan. 16/26
DAVID AND SHAUGHNESSY - TRAFFIC SIGNAL MODIFICATIONS 1/2	27/53	-	Dec. 4/25
DAVID AND SHAUGHNESSY - TRAFFIC SIGNAL MODIFICATIONS 2/2	28/53	-	Dec. 4/25
COQUITLAM RIVER BRIDGE – GENERAL NOTES	29/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – SITE PLAN	30/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – GENERAL ARRANGEMENT	31/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – ABUTMENT BEAM & PIER BEAM 1/2	32/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – ABUTMENT BEAM & PIER BEAM 2/2	33/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – WEST ABUTMENT DETAILS	34/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – EAST ABUTMENT DETAILS	35/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – ABUTMENT REINF. PLAN & ELEV.	36/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – ABUTMENT REINF. SECTS. & DETS.	37/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – PIER BEAM REINF. PLAN & SECTS.	38/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – SPAN 1 LAYOUT & DETAILS	39/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – SPAN 2 LAYOUT & DETAILS	40/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – SPAN 3 LAYOUT & DETAILS	41/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – SPAN 4 LAYOUT & DETAILS	42/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – DECK PLAN AND SECTIONS	43/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – DECK SECTIONS AND DETAILS	44/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – DECK REINF. PLAN & SECTIONS	45/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – DECK REINF. SECTIONS	46/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – DECK REINF. SECTIONS	47/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – SECTIONS AND DETAILS	48/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – DUCT HANGER DETAILS	49/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – BANK PROTECTION WORKS	50/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – BANK PROTECTION WORKS	51/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – COLUMN & PILE DETAILS 1/2	52/53	-	Aug. 3/05
COQUITLAM RIVER BRIDGE – COLUMN & PILE DETAILS 2/2	53/53	-	Aug. 3/05

Supplementary General Conditions

SUPPLEMENTARY GENERAL CONDITIONS

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1.0 DEFINITIONS

1.1 Abnormal Weather 1.1.1 **(Replace clause 1.1.1 as follows):**
Abnormal Weather" means temperature, precipitation, wind or other weather conditions in which the monthly average, differs from the statistical average for that condition in that period by more than one standard deviation, calculated based on data available from Environment Canada. Coquitlam's Burke Mountain Rain Gauge will be used to compare the rainfall summary versus the available data from Environment Canada.
City of Coquitlam Rainfall

2.0 DOCUMENTS

2.2 Interpretation 2.2.4 (1) **(Replace clause 2.2.4 (1) as follows):**
The Contract Documents shall govern and take precedence in the following order as listed in Schedule 1 of the Agreement, taking precedence over all Contract Documents.

4.0 CONTRACTOR

4.1 Control of the Work 4.1.1 ***(Add to clause 4.1.1 as follows):***
The *Contractor* is responsible for all survey layout for the construction of the Work to the design specifications and/or elevations as shown on the contract drawings or as amended on site by the Contract Administrator, unless otherwise described in the Contract Document.

4.1.2 ***(Add to clause 4.1.2 as follows):***
The Contractor shall not deposit any material upon any street, sidewalk, boulevard or other property, without the Contract Administrator's or the Owner's permission, nor shall they allow the same to remain longer than necessary. All surplus spoil and rubbish and other waste material shall be removed from the site so that the area of work is cleaned up and restored to as clean a condition as it was before the Contract started, within four days of the Contract Administrator's written request to do so, failing which the Owner may carry out the work or have the work carried out by others and recover the costs from the Contractor or may deduct the cost from any monies due or that may become due to the Contractor.

4.1.3 ***(Add new clause 4.1.3 as follows):***
Work can be performed during the normal weekday working hours of 0700h to 1900h, unless specified otherwise in Supplementary Specifications - Appendix A:

Traffic Management Detail Specifications. Written permission from the Contract Administrator will be required for any works to be performed outside of the normal working days of Monday to Friday.

No Sunday work will be permitted, except in case of emergency and then only with the written permission of the Contract Administrator and to such extent as he deems necessary.

In case the Contractor decides to work on a day which is a Statutory Holiday, they shall provide the Contract Administrator in writing at least (4) days in advance of such holiday, stating those places where said work is to be conducted. In case the Contractor fails to give such notice in advance of any Statutory Holiday, no work within the terms of the contract shall be done on such holiday.

The cost of inspections on a Sunday or on a Statutory Holiday by City staff/s will be at Contractor's expense.

4.2 Safety

4.2.2 ***(Add new clause 4.2.2 as follows):***
In an emergency, gas pipeline rupture or leak, Contact FortisBC's 24 Hour Emergency Line (1-800-663-9911) and Coquitlam Fire (911) immediately and then City of Coquitlam's Utility Control Centre (604-927-6287).

4.3 Protection of Work, Property and the Public

4.3.1 ***(Replace clause 4.3.1 as follows):***
In performing the Work, the Contractor shall protect the Work and the Owner's property and other person's property from damage. The Contractor shall at the Contractor's own expense make good any such damage which arises as the result of the Contractor's operations. If the Contractor causes damage to private property, the Contactor must obtain a written release from the owner of the damaged property.

4.3.5.1 ***(Add clause 4.3.5.1 as follows):***
The Contractor shall notify the Contract Administrator immediately if damage occurs to any City or third party utility or structure.

4.3.7 ***(Add new clause 4.3.7 as follows):***
Any lands other than those upon which the work is to be performed, which may be required for temporary facilities, storage purposes or access to the work site, other than those provided by the *Owner*, shall be provided by the *Contractor* at their own cost, with no liability to the *Owner*.

4.6 Construction Schedule

4.6.1 ***(Replace clause 4.6.1 as follows):***
The Contractor shall within the time set out in the Form of Tender prepare and submit to the Contract Administrator for their approval a construction schedule (the Baseline Construction Schedule) indicating the planned start and completion dates of major activities of the Work. The Baseline Construction Schedule shall be in more detail than the Preliminary Construction Schedule and shall indicate completion of the Work in compliance with any specified Milestone Dates, including Substantial Performance.

4.6.6 ***(Replace clause 4.6.6 as follows):***
The time for the performance of the Work shall commence on the date specified in the Notice to Proceed, or if not so specified, on the date the Notice to Proceed is issued. The Notice to Proceed will not be issued until the documentation required under paragraph 5.1.1 of the Form of Tender has been submitted and the construction schedule has been approved.

4.6.8 ***(Add new clause 4.6.8 as follows):***
Any requests to lengthen the work schedule shall be made in writing by the Contractor within five working days of knowledge of the reason for the extension. The Contract Administrator will adjust the schedule at their discretion upon receipt of a written request.

4.7 Superintendent

4.7.4 ***(Add new clause 4.7.4 as follows):***
The key personnel named in the Contractor's Tender response, shall remain in these key positions throughout the project. In the event that key personnel leave the Contractor's firm, or for any unknown reason are unable to continue fulfilling their role, the Contractor must propose a suitable replacement, and obtain written consent from the Owner. Acceptance of the proposed replacement is at the sole discretion of the Contract Administrator and the Owner.

4.8 Workers

4.8.2 ***(Add new clause 4.8.2 as follows):***
The Contractor shall, upon the request of the Contract Administrator, remove any person employed by them for the purposes of the Contract who, in the opinion of the Contract Administrator, is incompetent or has conducted themselves improperly, and the Contractor shall not permit a person who has been removed to return to the Place of Work.

4.9 Materials

4.9.3 ***(Add new clause 4.9.3 as follows):***

The Contractor shall, at their cost,

a) Be responsible for storing all of the materials supplied for the Work either by themselves or the Owner, until it has been incorporated into the completed Work;
b) Store all materials in a manner which will prevent damage from the weather, dirt, foreign matter, vandalism and theft;
c) Arrange for and/or verify the time of delivery of all materials to be supplied by themselves or the Owner to ensure that delivery will coincide with their work schedules.
d) Examine with the Contract Administrator the quantities and details of all materials supplied by the Owner at the time and place of delivery or those materials already at the Place of Work, and prepare and sign a Statement of Materials Acceptance, specifically noting and rejecting any defective material;
e) Replace all materials supplied by themselves or the Owner which are found to be stolen, missing or damaged while under their care;
f) Replace all materials found to be defective in manufacture which have been supplied by themselves.

4.11 Subcontractors

4.11.3 ***(Replace clause 4.11.3 as follows):***

The Contractor shall, upon notice of the Contract Administrator, remove any Subcontractor employed by them for the purposes of the Contract who, in the opinion of the Contract Administrator, is incompetent or has conducted themselves improperly, and the Contractor shall not permit the Subcontractor who has been removed to return to the Place of Work. The removal of a Subcontractor under this clause shall not be considered a Change and the Contract Price and the Contract Time shall not be adjusted.

4.12 Test and Inspections

4.12.1 ***(Replace clause 4.12.1 as follows):***

The Contractor shall perform or cause to be performed all tests, inspections and approvals of the Work as described in the Contract Documents or a required by the Contract Administrator as part of Quality Control. The Contractor shall complete all the necessary testing at the frequencies described in the Contract Document unless otherwise approved by the Contract Administrator.

Acceptable test and inspection results will not relieve the Contractor of its obligations under the Contract to correct defects or deficiencies in the Work.

4.12.11 ***(Add clause 4.12.11 as follows):***

Failure to follow DFO/FLNRO BMPs and the approved permit for Instream Works or as instructed by Contract Administrator will result in shut-down of the work. The Contractor must take all steps to mitigate impacts to aquatic resources, environment and habitats before work can re-start on site. No claim will be accepted by the Owner for costs associated with this work shut-down.

4.14 Final Clean-up 4.14.1 ***(Replace clause 4.14.1 as follows):***

Prior to applying for Substantial Performance, the Contractor shall remove all surplus products, tools, construction machinery and equipment relating to the Work that is not required for the performance of the remaining Work. The Contractor shall also remove waste, debris and waste products other than caused by the Owner or Other Contractors, and leave the Place of Work clean and suitable for occupancy by the Owner unless otherwise specified in the Contract Documents or directed by the Contract Administrator.

4.16 Notice of Disruption 4.16.2 ***(Add new clause 4.16.2 as follows):***

Written notice must be provided to all properties which may be physically affected by the construction not less than one week and not more than two weeks prior to construction.

Notify occupants directly affected by the work 48 hours in advance of commencement of construction. Cost of notifying area occupants of ensuing construction and delivery of the notices is incidental to the Contract.

7.0 CHANGES

7.1 Changes 7.1.3 ***(Replace clause 7.1.3 as follows):***

Additional work that the Owner may wished performed that does not satisfy the requirements of subparagraphs (a) and (b) of GC 7.1.1 is extra work (Extra Work) and is not a Change. Pursuant to GC 8, Extra Work may be declined by the Contractor or may, upon agreement between the parties, be undertaken as Extra Work.

7.4 Optional Work 7.4.2 ***(Add new clause 7.4.2 as follows):***

If there are Optional items or Provisional items included in the *Schedule of Quantities and Prices*, those items shall be used only as directed and at the sole discretion of the Contract Administrator through the issue of a Change Order. These items will be paid at the contract unit price as part of regular progress payments. Only quantities used will be eligible for payment. No claim will be accepted for

unused Optional or Provisional quantities. Clause 9.4 Quantity Variations will not be applicable for these items.

9.0 VALUATION OF CHANGES AND EXTRA WORK

9.2 Valuation Method

9.2.4 ***(Replace clause 9.2.4 as follows):***
Once a quotation is accepted by the Contract Administrator, or other agreement reached between the Contract Administrator and the Contractor regarding adjustments to the Contract Price or Contract Time on account of a Change or Extra Work, the Contractor shall not be entitled to claim or receive additional payment, or adjustment to the Contract Time on account of a Change or Extra Work.

9.4 Quantity Variations

9.4.1 ***(Replace clause 9.4.1 as follows):***
If for any reason, including an addition or deletion under GC 7.1.1(1) or 7.1.1(2) respectively, the actual quantity of a unit price item varies by more than plus or minus the Variance Threshold Percentage from the estimated quantity for that unit price item listed in the Schedule of Quantities and Prices (the "Tender Quantity") or as otherwise agreed to pursuant to these Contract Documents, then either the Owner or the Contractor may by written notice request the other party to agree to a revised unit price, considering the change in quantities. A party shall make a request for a revised unit price as soon as reasonably possible after the party concerned becomes aware of the quantity variation.

9.4.2 ***(Delete clause 9.4.2 (2)***

10.0 FORCE ACCOUNTS

10.1 Force Account Costs

10.1.1(1) ***(Add to clause 10.1.1(1) as follows):***
Costs for the Contractor's Superintendent, Project Managers, Health and Safety Personnel, and Office/Administration Staff are not eligible for labour costs as those costs are considered incidental to the mark up owing for overhead and labour.

10.1.1(4) ***(Replace clause 10.1.1(4) as follows):***
Force Account Work performed by a subcontractor shall be paid for in the lesser of: (i) the amount provided by subparagraphs (1), (2) and (3) of this GC, plus a mark-up of 5%, or (ii) the actual amount the Contractor pays the subcontractor including a mark-up of 10% on such actual costs to cover all overhead and profit.

12.0 HAZARDOUS MATERIALS

12.2 Discovery of Hazardous Materials 12.2.2

(Replace clause 12.2.2 as follows):
If the Contract Administrator observes any materials at the Place of Work that the Contract Administrator knows or suspects may be Hazardous Materials, then the Contract Administrator shall immediately give written notice to the Contractor and the Contractor shall immediately stop the Work or portion of the Work as required by GC 12.2.1(1).

13.0 DELAYS

13.1 Delay by Owner or Contract Administrator 13.1.2

(Add new clause 13.1.2 as follows):
The Owner may at any time suspend the work or any portion thereof provided they give the Contractor five (5) days' written notice of delay. The Contractor shall resume work upon written notice from the Owner. The Contractor shall be entitled to:

a) An extension of the Contract time equivalent to the length of suspension of work.
b) Reimbursement by the Owner for directly related out-of-pocket additional costs, reasonably and necessarily incurred by the Contractor as a result of such suspension. No additional payment will be made to the Contractor for any loss of profits or overhead.

13.3 Unavoidable Delay 13.3.1

(Add to clause 13.3.1 as follows):
Beyond the reasonable control of the Contractor also includes pandemic or community outbreak

13.8 Direction to Stop or Delay 13.8.3

(Add new clause 13.8.3 as follows):
The Contract Administrator may order the Contractor to stop work if at any time the Contract Administrator is of the opinion that there exists a danger to life or property.

13.9 Liquidated Damages for Late Completion 13.9.1

(Replace clause 13.9.1 as follows):
If the Contractor fails to meet the Milestone Date for Substantial Performance as set out in the Form of Tender, paragraph 2.2 as may be adjusted pursuant to the provisions of the Contract Documents, then the Owner may deduct from any monies owing to the Contractor for the Work:

(1) An amount of $1,000.00 for each calendar day the actual *Substantial Performance* is achieved after the Substantial Performance Milestone Date; plus

(2) All direct out of pocket costs, such as costs for safety, security or equipment rental, reasonably incurred by the Owner as a direct result of such delay.

If the monies owing to the Contractor are less than the total amount owing by the Contractor to the Owner under (1) and (2) then any shortfall shall immediately, upon written notice from the Owner, and upon Substantial Performance, be due and owing by the Contractor to the Owner.

18.0 PAYMENT

18.1 Preparation of Payment Certificate

18.1.1 ***(Replace clause 18.1.1 as follows):***
The Contract Administrator shall prepare and issue a certificate for the period ending the last calendar day of the month.

18.4 Holdbacks

18.4.2 ***(Add to clause 18.4.2 as follows):***
At the sole discretion of the Contract Administrator, an amount equivalent to 10% of the contract award value or 200% of a reasonable estimate, whichever is higher, may be held without interest until all deficiencies have been remedied and accepted by the Contract Administrator.

18.6 Substantial Performance

18.6.5 ***(Replace clause 18.6.5 as follows):***
The Owner may release any builders lien holdback on the 56th day following the date of Substantial Performance, or other date as required by law, but the Owner may hold back the amounts for any deficiencies or filed builders liens as provided in GC 18.4.2, 18.4.3 and 18.4.4.

18.6.6 ***(Replace clause 18.6.6 as follows):***
The *Contract Administrator*, as defined herein, shall be the *Payment Certifier* responsible under Section 7 of the *Builders Lien Act* for certifying *Substantial Performance* of the *Work* of the *Contractor*, but not the *Work* of *Subcontractors*. The *Contractor* shall cooperate with and assist the *Contract Administrator* by providing information and assistance in a timely manner as the *Contract Administrator* considers necessary to carry out the duties of the *Payment Certifier* for the *Contract*.

The *Contractor* shall be the *Payment Certifier* responsible under Section 7 of the *Builders Lien Act* for certifying *Substantial Performance* of the *Work* of each *Subcontractor*. Prior to certifying completion for a *Subcontractor*, the *Contractor* shall consult the *Contract Administrator* and obtain the *Contract Administrator's* comments on the status of completion by the *Subcontractor*, including any deficiencies or defects in the *Subcontractor's Work* noted by

the *Contract Administrator*. The *Contractor* will indemnify and save the *Owner* harmless from any and all liability the *Owner* may have to anyone arising out of the certification by the *Contractor* of *Substantial Performance* for that *Subcontractor*.

Notwithstanding any other provision of the *Contract*, no payments will be due or owing to the *Contractor* so long as a Lien filed by anyone claiming under or through the *Contractor* remains registered against the Project of any lands, or interest therein, on which *Work* for the project was performed. Failure of the *Contractor* to remove all Liens promptly will entitle the *Owner* to damages.

19.0 TAXES, DUTIES AND GST

19.4 Tariffs or Duties

19.4.1 Tariffs or Duties refer to taxes, levies, or charges imposed by any level of government (including foreign governments) on imported or domestic goods, materials, or equipment used in the performance of the Work. The Contract Price is based on the tariffs and duties in effect as of the date of the Tender Closing. If, after the Tender Closing Date, any new Tariffs or Duties are imposed, or existing rates are materially increased, and such changes directly and demonstrably affect the cost of materials or equipment required for the performance of the Work, the Contractor shall notify the Contract Administrator in writing within ten (10) Working Days of becoming aware of such change, providing supporting documentation, including but not limited to:

(1) Affected materials
(2) Quantity and cost impact
(3) Evidence of original and new tariff rates
(4) Reasonable efforts made to mitigate the cost impact (e.g., sourcing alternatives)

19.4.2 If the Contract Administrator is satisfied that the Contractor has incurred additional direct costs solely due to the change in Tariffs or Duties, the Owner will issue a Change Order to adjust the Contract Price accordingly. No adjustment shall be made for Tariffs or Duties that were publicly announced or reasonably foreseeable before the Tender Closing Date.

19.4.3 This clause does not apply to costs incurred due to delays caused by the Contractor's procurement or supply chain management. It also does not apply if the Contractor fails

to take reasonable steps to mitigate the impact of the change.

19.4.4 If the imposition of new Tariffs or Duties causes unavoidable delays in material delivery, the Contractor may request an extension of the Contract Time under GC 13.3, subject to approval by the Contract Administrator.

21.0 WORKERS COMPENSATION REGULATIONS

21.2 Contractor is "Prime Contractor"

21.2.1 ***(Add to clause 21.2.1 as follows):***
Prior to the issuance of the "Notice to Proceed" the Contractor must provide a signed "Prime Contractor Designation" form as provided in Appendix IV of these Supplementary General Conditions.

24.0 INSURANCE ***(Replace section 24.0 as follows):***

24.1 General

24.1.1 **Importance of Prompt Attention to Insurance Requirements:**
The Contractor shall provide the Owner with satisfactory evidence that the insurance required to be provided under this GC is in full force and effect.

24.1.2 **Acceptable Insurance Carriers:**
The insurer issuing any policy, or other document which is evidence of insurance to the Contractor, shall be an insurer licensed by the Superintendent of Insurance in the Province of British Columbia and registered with the Department of Insurance for Canada in Ottawa, except the Insurance Corporation of British Columbia, which is not subject to this condition.

24.1.3 **Owner's Right to Change Terms:**
Notwithstanding anything contained in the Contract Documents, the Owner will have the right to request a change to the specified terms and conditions respecting insurance at the sole option of the Owner. The Contractor will be notified in writing of any changes required by the Owner and will provide a quotation for such work.

24.1.4 **Delivery of Insurance Documents:**
All insurance policies or other acceptable specified documents shall be delivered to, and accepted by, the Owner before the Contract Documents are signed. No work shall be commenced by the Contractor or by anyone acting

on the instructions of the Contractor, until the required Insurance Documents have been accepted by the Owner and the Contract Documents have been duly signed by the Owner and the Contractor.

24.1.5 **Owner's Right to Insure:**
Should the Contractor for any reason not comply with the specified requirements with respect to the insurance, the Owner will, at the Owner's option, have the right to purchase all or any part of such insurance which, in the opinion of the Owner, may be required to provide the specified insurance, and, in the event of so doing, the Owner will have the right to pay the premiums for such insurance and to withhold the amount of premiums so paid from any amount due and payable to the Contractor under the Contract.

24.2 Required Insurance

24.2.1 **General**
Damage to work (excluding Building Contracts where Section 24.3, Paragraph 24.3.1, Further Responsibilities of Contractor, applies).

The Contractor shall be responsible for any and all loss, or damage, whatsoever which may occur on or to the works, completed or otherwise, until such time as the entire works have been completed and the Notice of Acceptance has been issued by the Owner, except that loss or damage caused solely by an act of the Owner. In the event of any loss or damage occurring, the Contractor shall, on notice from the Contract Administrator, immediately put the works into the condition it was immediately prior to such loss or damage, all at the

Contractor's expense, except where such loss or damage was caused solely by an act of the Owner.

The Contractor shall be responsible for any and all loss or damage whatsoever which may occur on or to the works, completed or otherwise, arising out of the negligence of the Contractor, any subcontractors, and the employees or agents of any of them.

24.2.2 **Public Liability Insurance:**
(Other than Automobile Third Party Liability Insurance):

Evidence of Insurance:
The Contractor shall deposit with the Owner, before the work commences, a Certificate of Insurance, signed by an

authorized representative of the insurer, such certificate to be as shown in Appendix III.

Effective Dates and Terms:
The effective date of the Certificate of Insurance shall be the date of the execution of the Contract Agreement and the term of this policy shall be from such effective date until a date not less than twelve (12) months after the date of Substantial Performance completion of all work under the Contract.

Limits of Liability:
For bodily injury and for property damage shall be inclusive limits not less than $5,000,000.

24.2.3 **Public Liability Insurance (Automobile):**
The Contractor shall deposit with the Owner before the work commences a Certificate of Insurance with respect to owned automobiles on ICBC Form No. APV 47 entitled "Confirmation of Insurance Coverage" and with respect to Non-Owned Automobiles including hired automobiles and Contractual Liability on ICBC non-owned automobile policy Form APV 29 (if non-owned automobile coverage is not included under the comprehensive general liability coverage) each signed by an authorized representative of the Insurance Corporation of British Columbia.

24.3 Physical Loss or Damage With Respect to New Buildings under Construction and/or Major Additions to Existing Structures

24.3.1 **Responsibility for Placing Insurance:**
The types of insurance required under this section will be provided and maintained at the expense of the City of Coquitlam during the term of the Contract and will be as follows unless otherwise changed by specific endorsement to these Insurance Specifications.

24.3.2 **Insurance Coverage Required:**
Builders Risk Completed Value "All Risks" Course of Construction Insurance. This policy will be written in the names of the City of Coquitlam and the Contractor with loss payable as their respective interests may appear.

24.3.3 **Responsibility of Contractor – Limitations of cover and deductibles:**
The insurance provided by the City of Coquitlam as described herein will not provide the Contractor with full protection against any and all kinds of loss or damage which may arise out of the Contract. It is, therefore, the

responsibility of the Contractor to fully understand the scope of the cover provided with particular attention to the exclusions, limitations of cover and deductible provisions contained in the Insuring Agreements of the policies and it is further the responsibility of the Contractor to take out at the Contractor's expense, whatever other additional insurance the Contractor may consider necessary or desirable for his protection subject as hereinafter provided. The Contractor shall act in the same manner on insurance made available through the City of Coquitlam as he would if he had arranged such insurance himself.

24.3.4 **Responsibility of Contractor – Direct Damage Insurance:**

If the Contractor fails to do all or anything that is required of them concerning insurance, the City of Coquitlam may do what is required and any monies expended by the City of Coquitlam for that purpose shall be repayable and recoverable from the Contractor. Should any action, failure or negligence of the Contractor result in higher insurance costs being incurred by the City of Coquitlam, such additional costs shall be payable or recoverable from the Contractor.

24.3.5 **Responsibility of Contractor – Machinery and Equipment Belonging to Others:**

Unless otherwise directed by the City of Coquitlam in writing, the Contractor shall carry insurance covering loss or damage to construction machinery, tools and equipment owned by and/or on bare rental from a third party or parties and used by the Contractor in performing the work, which insurance shall be in a form satisfactory to the City of Coquitlam and having coverage in accordance with the actual cash value of such construction machinery, tools and equipment. Such policies shall also provide for subrogation to be waived against the City of Coquitlam. A certified copy of the policy shall be delivered to the City of Coquitlam not later than thirty days after the commencement of work under the Contract.

24.3.6 **Contractor's Waiver of Liability to Coquitlam:**

The Contractor hereby releases the City of Coquitlam from any and all liability for damages to the extent that such damages are covered by the course of construction insurance referred to in Section 24.3 of these specifications.

24.3.7 **Liability of Contractor:**

Neither the providing of insurance by the Contractor or the City of Coquitlam in accordance with the requirements

hereof, nor the insolvency, bankruptcy, nor failure of any insurance company to pay any claim accruing shall be held to waive any of the provisions of this Contract with respect to the liability of the Contractor or otherwise.

24.3.8 **Responsibility of Contractor for protection of work, persons and property:**

The Contractor and all persons employed by the Contractor or under their control, and all employees and subcontractors, shall use due care that no person or property is injured, and that no rights are infringed in the prosecution of the work. Contractors shall take particular care to protect the work against loss or damage caused by riot, vandalism or malicious mischief and shall be at the expense of the Contractor provide all necessary safeguards in the form of watchmen and/or watch dog protection to prevent loss or damage of this type. The payment of deductibles is the responsibility of the Contractor and if not paid by the Contractor such amounts shall be deducted by the City of Coquitlam from payment due to the Contractor. These deductibles will normally be $250.00 each claim.

24.3.9 **Action to be taken in the event of loss or damage to the work covered by the Contract:**

When any loss or damage occurs to the work or to any materials and supplies on the site of the work, the Contractor shall remove any and all damaged or destroyed property and shall rebuild or replace the damaged or destroyed work, materials, or supplies and complete the work to the satisfaction of the Owner. For such removal, rebuilding, or replacing, the Contractor shall be entitled to receive from the Owner the amount of insurance monies received by the Owner pursuant to the said adjustment which amount shall be paid to the Contractor as the work of rebuilding or replacing proceeds, and in accordance with the Agreement. Damage or destruction of the whole or any part of the work shall not affect the rights and obligations of either party under the Agreement, except that in such event the Contractor shall be entitled to such reasonable extension of time to complete the work as the Architect and/or Contract Administrator may decide.

24.3.10 **Further responsibility of Contractor:**

Other than with respect to loss or damage arising out of insured risks and herein before specified, the Contractor shall be responsible for all loss or damage whatsoever which may occur on or to the works completed or otherwise, until such time as the entire works have been completed and the Notice of Acceptance has been issued by

the Owner, except that loss or damage caused solely by an act of the Owner.

In the event of any loss or damage occurring, the Contractor shall on notice from the Owner immediately put the works into the condition it was immediately prior to such loss or damage, all at the Contractor's expense except as previously stated.

24.3.11 **Owner Not Responsible for Loss or Damage or Loss of Use of Property of Contractors and their Employees:**
The Owner will not be responsible for securing or paying for insurance of any kind other than as specified in Section 24.3 of these specifications nor will the Owner have any responsibility whatsoever for loss or damage from whatever cause occurring to property owned, leased, or otherwise in the possession of the Contractor, subcontractors or their employees including, without restricting the generality of the foregoing, machinery, equipment, tools, supplies, and clothing at the construction site or elsewhere including loss of use of same.

24.4 Additional Insured

24.4.1 **The Contractor shall ensure the following are named as "additional insured" on the liability policy for this contract:**

- The City of Coquitlam

The City may identify private properties that are directly affected by construction. If so, the Contractor shall include the legal owners of these properties named as "additional insured" on the liability policy for this contract.

25.0 MAINTENANCE PERIOD

25.1 Correction of Defects

25.1.4 ***(Add new clause 25.1.4 as follows):***
The Owner is authorized to make repairs to defects or deficiencies if, ten days after giving written notice, the Contractor has failed to make or undertake with due diligence the required repairs. However, in the case of emergency where, in the opinion of the Owner, delay is not reasonable, repairs may be made without notice being sent to the Contractor. All expenses incurred by the Owner in connection with repairs made pursuant to GC 25 shall be paid by the Contractor or may be deducted from the Maintenance Security, or other holdbacks. The Contractor shall promptly pay any shortfall.

27.0 CONTRACTOR PERFORMANCE EVALUATION

27.1 ***(Add new clause 27.1 as follows):***

After the completion of the Contract, the Contractor will be evaluated on their performance of the Work. The evaluation will provide percentage scores on the following categories:

1. *Contract Administration*
2. *Construction Management*
3. *Schedule Management*
4. *Communications*
5. *Resource Management and Contractor Performance*
6. *Quality Management*

An evaluation summary report may be issued to the Contractor with scores for each of these categories. Upon request, the Contractor may attend a meeting with the City to discuss the evaluation.

This internal evaluation may be reviewed for reference on subsequent tenders with the City. Evaluation scores can form part of the tender analysis and influence contract award decisions.

Evaluation Scores in categories that are below 50% may result in a suspension of tendering privileges with the City.

APPENDIX I

PERFORMANCE BOND

NO._____ $_____

KNOW ALL MEN BY THESE PRESENTS THAT

_____
As Principal, hereinafter called the Principal, and

_____
As Surety, hereinafter called the Surety, are held and firmly bound unto

_____
As Obligee, hereinafter called the Obligee, in the amount of

_____Dollars
($)

lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a written contract with the Obligee, dated the_____

day of_____20_____, for

_____

_____

in accordance with the drawings and specifications submitted, therefore, which contract, drawings and specifications and addenda thereto, to the extent provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly and faithfully perform said Contract (including any addenda thereto, provided such addenda do not collectively increase the amount to be paid to the Principal by more than twenty per cent (20%) of the amount of the Contract except with the written consent of the Surety) then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

Whenever the Principal shall be, and declared by Obligee to be, in default under the Contract, the Obligee having performed Obligee's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the Contract in accordance with its terms and conditions, or
2. Obtain a bid or bids for submission to Obligee for completing the Contract in accordance with its terms and conditions, and upon determination by Obligee and Surety of the lowest responsible bidder, arrange for a contract between such bidder and Obligee and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term 'balance of the contract price', as used in this paragraph, shall mean the total amount payable by Obligee to Principal under the Contract less the amount properly paid by Obligee to Principal.

Any suit under this Bond must be instituted before the expiration of two (2) years from date on which the Notice of Acceptance under the Contract is issued.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Obligee named herein or the heirs, executors, administrators, or successors of Obligee.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its Attorney-in-fact, this_____day of_____20_____.

SIGNED, SEALED and DELIVERED
In the presence of

)
)
)
)
)

_____

_____
PRINCIPAL

_____
SURETY

APPENDIX II

LABOUR AND MATERIAL PAYMENT BOND

(Private Contracts – Trustee Form)

NO._____ $_____

Note: This Bond is issued simultaneously with another Bond in favour of the Obligee conditioned for the full and faithful performance of the Contract.

KNOW ALL MEN BY THESE PRESENTS THAT

_____

As Principal, hereinafter called the Principal, and

_____

As Surety, hereinafter called the Surety, are, subject to the conditions hereinafter contained, held and firmly bound unto

_____

As Trustee, hereinafter called the Obligee, for the use and benefit of the Claimants, their and each of their heirs, executors, administrators, successors and assigns in the amount of

_____Dollars

($) lawful money of Canada, for the payment of which sum well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

SIGNED AND SEALED this_____day of _____, 20____.

WHEREAS, the Principal has entered into a written contract with the Obligee dated the_____ day of_____, 20____, for

_____

_____

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall make payment to all Claimants for all labour and material used or reasonably required for use in the performance of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A Claimant for the purpose of this Bond, is defined as one having a direct contract with the Principal for labour, material, or both, used or reasonably required for use in the performance of the Contract, labour and material being construed to include the part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment directly applicable to the Contract provided that a person, firm or corporation who rents equipment to the Principal to be used in the performance of the Contract under a contract which provides that all or any part of the rent is to be applied towards the purchase price thereof shall only be a Claimant to the extent of the prevailing industrial rental value of such equipment for the period during which the equipment was used in the performance of the Contract. The prevailing industrial rental value of equipment shall be determined, insofar as it is practical to do so, in accordance with and in the manner provided for in the latest revised edition of the publication of the Canadian Construction Association entitled "Rental Rates on Contractors' Equipment" published prior to the period during which the equipment was used in the performance of the Contract.
2. The Principal and the Surety hereby jointly and severally agree with the Obligee as Trustee that every Claimant who has not been paid as provided for under the terms of his contract with the Principal before the expiration of a period of ninety (90) days after the date on which the last of such Claimant's work or labour was done or performed or materials were furnished by such Claimant, may as a beneficiary of the trust herein provided for, sue on this Bond, prosecute the suite to final judgment for such sum or sums as may be justly due to such Claimant under the terms of his said contract with the Principal and have execution thereon. Provided that the Obligee is not obliged to do or take any act, action or proceeding against the Surety on behalf of the Claimants or any of them to enforce the provisions of this Bond. If any act, action or proceeding is taken either in the name of the Obligee or by joining the Obligee as a party to such proceedings then such act, action or proceeding shall be taken on the understanding and basis that the Claimants or any of them who take such act, action or proceeding shall indemnify and save harmless the Obligee against all costs, charges and expense or liabilities incurred thereon and any loss or damage resulting to the Obligee by reasons thereof. Provided still further that subject to the foregoing terms and conditions, the Claimants or any of them may use the name of the Obligee to sue on and enforce the provisions of this Bond.
3. No suit or action shall be commenced hereunder by any Claimant:
    a) unless such Claimant shall have given written notice within the time limits hereinafter set forth to each of the Principal, Surety and Obligee, stating with substantial accuracy the amount claimed. Such notice shall be served by mailing the same by registered mail to the Principal, Surety and Obligee at any place where an office is regularly maintained for the transaction of business by such persons or served in any manner in which legal process may be served in the Province or other part of Canada in which the subject matter of the contract is located. Such notice shall be given (i) in respect of any claim for the amount or any portion thereof required to be held back from the Claimant by the Principal under either the terms of the Claimant's contract with the Principal or under the Mechanic's Liens Legislation applicable to the Claimant's contract with the Principal whichever is the greater within one hundred and twenty (120) days after such Claimant should have been paid in full under the Claimant's contract with the Principal; (ii) in respect of any claim other than for the holdback or portion thereof referred to above within one hundred and twenty (120) days after the date upon which such claimant did

or performed the last of the work or labour or furnished the last of the materials for which such claim is made under the Claimant's contract with the Principal.

b) after the expiration of one (1) year following the date on which Principal ceased work on the Contract including work performed under guarantees provided in the Contract.

c) Other than in a court of competent jurisdiction in the Province or District of Canada in which the subject matter of the Contract or any part thereof is situated and none elsewhere, and the parties hereto agree to submit to the jurisdiction of such court.

4. The amount of this Bond shall be reduced by and to the extent of any payments made in good further and in accordance with the provisions which may be filed of record against the subject matter of the Contract, whether or not claim for the amount of such lien be presented under and against this Bond.
5. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

IN TESTIMONY WHEREOF, the Principal has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its Attorney-in-fact the day and year first above written.

SIGNED, SEALED and DELIVERED
In the presence of

)
)
)
)
)

_____

_____
PRINCIPAL

_____
SURETY

APPENDIX III

CERTIFICATE OF INSURANCE

This Certificate issued to the City of Coquitlam is to certify that policies of insurance, as described below, have been issued to the Insured named below and are in force at this time. It is understood and agreed that thirty (30) days' prior written notice by registered mail of any material alterations, transfer, assignment or cancellation of any of the policies listed below, either in part or in whole, will be given to the holder of this Certificate.

A. This Certificate is issued to:

City of Coquitlam
3000 Guildford Way
Coquitlam, BC V3B 7N2

Named Insured and Mailing Address:

B. CONTRACT NUMBER AND/OR NAME

Description of the Work:

C. INSURANCE POLICY

Name of Insurer:
Policy Number:
Effective Date:

Liability Limit:
Expiry Date:

D. INSURANCE COVERAGE

COMMERCIAL GENERAL LIABILITY coverage is required to insure against liability from the activities arising out of operations or work in connection with the above-described project, including liability arising out of the use of City property.

D.1 The minimum limit shall be $5,000,000.00 inclusive per occurrence against bodily injury, personal injury and property damage.

D.2 The City of Coquitlam, its employees, officers, agents and volunteers are added as Additional Insureds, but only with respect to operations conducted by or on behalf of the Named Insured in connection with the above-described project, operations or work.

D.3 This insurance shall be primary as regards the City of Coquitlam, its employees, officers, agents and volunteers as Additional Insureds.

D.4 Any deductible or reimbursement clause contained in the policy shall not apply to the City of Coquitlam and shall be the sole responsibility of the Named Insured.

D.5 The insurance shall include the following coverages:

- D.5.1 Cross Liability Clause
- D.5.2 Non-Owned Automobile Liability
- D.5.3 Unlicensed Automobile Liability
- D.5.4 Blanket Contractual Liability
- D.5.5 Broad Form Property Damage Liability
- D.5.6 Owner's & Contractor's Protective Liability
- D.5.7 Products & Completed Operations Liability

D.6 Indicate provision of special coverage for this project as required by the City:

YES	NO	Special Coverage Description
( )	(**X**)	Shoring and Underpinning Hazard
( )	(**X**)	Pile Driving and Vibrations
(**X**)	( )	Excavation Hazard
( )	(**X**)	Demolition
( )	(**X**)	Blasting

Authorized Signature and Stamp

Date

Name and Title

City' broker to return to City Representative

Department

APPENDIX IV

PRIME CONTRACTOR DESIGNATION

Owner: **City of Coquitlam**
Contractor: _____
Contract / Permit #: **74770-2**
Project / Workplace: **Pipeline Rd and David Ave Improvements** (the "Project")

By signing this Prime Contractor Designation form, the Contractor hereby:

1. agrees to be, and accepts designation as, the "prime contractor" for the purposes of the Workers Compensation Act, R.S.B.C. 2019, c. 1 (the "Act") and the Occupational Health and Safety Regulation, B.C. Reg. 223/2022 (the "Regulation") in respect of the Project and Workplace noted above;
2. represents and warrants that the Contractor is qualified and capable to perform the duties of prime contractor and that the undersigned signatory has the authority to accept designation as prime contractor and to bind the Contractor;
3. accepts the duty and responsibility for ensuring the activities of employers, workers and other persons at the Workplace relating to occupational health and safety are coordinated and agrees to do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the Act and the Regulation in respect of the Workplace;
4. covenants and agrees to comply with the occupational health and safety provisions of the Act, the Regulation, any other applicable regulations under the Act, and any applicable orders;
5. acknowledges and agrees that the Owner has provided the Contractor 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
6. agrees that the designation as prime contractor hereunder may not be assigned or revoked without the prior written consent of the Owner.

Prime Contractor Name: _____

Prime Contractor Address: _____

_____ _____
Prime Contractor Signature **Date**

_____
Print Name

Please return a signed copy of this designation to the City of Coquitlam, 3000 Guildford Way, Coquitlam, BC, V3B 7N2. If you have any questions, please contact the City of Coquitlam Health & Safety Manager at 604-927-3070.

Supplementary Contract Specifications

Supplementary Contract Specifications

to the
MASTER MUNICIPAL SPECIFICATIONS
Volume II – Platinum Book

Pipeline Rd and David Ave Improvements

CONTRACT 74770-2

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1.00 CONTRACT SPECIFIC INSTRUCTIONS

1.01 Schedule of Work

All work under this Contract is to be completed by the designated Substantial Performance Date as described in the Contract Documents. The Contractor must provide sufficient resources in a continuous effort and site presence to complete all the work within the allotted time. As set out in the MMCD the Contractor must provide updates to the construction schedule biweekly.

1.02 Coordination of Work

The Contractor shall be responsible to consult with all affected businesses, residents, transportation companies regarding delays, detours, and any other works affecting any transit service in the area, and will be responsible to coordinate the works with City crews and other contractors working in the area. If working area is to become a multiple-employer workplace as defined by WorkSafe BC, the Contractor shall remain the Prime Contractor.

The Contractor must coordinate with the Pipeline Road Improvements Phase 1 and Shaughnessy Street Pavement Rehabilitation projects. The contractor may not start work on Pipeline Road until the Pipeline Road Improvements Phase 1 project is complete.

1.03 Outside Agency Approval

In accordance with the Contract Documents, the Contractor is responsible to consult with and obtain any approval required to meet and comply with all the conditions required from outside agency such as, but not limited to, BC One Call, Metro Vancouver, BC Hydro, Telus, Kinder Morgan, and Fortis BC in the area of the place of Work.

The works for this project are in the proximity of Metro Vancouver water mains. Permission to work in the proximity of the Metro Vancouver water mains must be obtained prior to any work taking place. The Contractor will be required to coordinate any required inspections or site meetings with 3rd Party Utility Owner representatives.

The Contractor will be required to conform to the conditions of that approval which will likely require hand digging or hydro excavation near the water mains under the presence of an inspector. Contractor to contact Metro Vancouver to arrange for an inspector a minimum of 10 business days prior to excavating within proximity of the watermain.

1.04 Waste Collection Coordination

1. Contractor is responsible to accommodate all waste collection vehicles and cart pick up schedules throughout construction. Collection schedule can be found in https://www.coquitlam.ca/157/Collection-Calendar-Guidelines .

2. If waste collection will be impacted the contractor is responsible to:
   a. Provide advanced notification to:
      i. The City's Solid Waste staff at 604-927-3500 or wastereduction@coquitlam.ca; and
      ii. The City's Contract Administrator.
   b. Provide access for collection trucks to closed streets due to road work; or
   c. Move waste carts for collection:
      i. The Contractor is required to ensure each cart is labelled with the property address and returned to the correct address after collection (each cart has its own individual cart identification code and is specifically assigned to each property). **Contractors will be responsible for the costs to replace missing carts.**

3. Contractor's Request for Change in Collection Time (e.g. PM to AM):
   i. The Contractor must provide residents with as much notice as possible – minimum 5 working days.

ii. The contractor must follow all conditions of Clause 1.04 and is responsible to deal with any missed collections. For example, taking garbage to the United Boulevard Recycling and Waste Centre or covering the cost associated for any missed collection to be rescheduled.

Questions: wastereduction@coquitlam.ca

1.05 Cooperation with Emergency and Maintenance Activities

The Contractor will be responsible to cooperate with regular maintenance or emergency vehicles and staff for access to the site when required including:

- Fire, Police, and Ambulance
- Waste Connections / GFL Environmental (garbage/recycling pick-up)
- City Utilities Maintenance (or representatives)
- Other Contractors

1.06 Site Safety

The Contractor is responsible to ensure the construction site is safe at all times for workers, pedestrians, and vehicle traffic. During non-working hours, the Contractor must ensure that the site has all potentially hazardous areas appropriately identified and protected, and also must provide appropriate signage, lighting, and markings for the direction of vehicle and pedestrian traffic, all to ensure the safety of the public. Supply and use of this equipment is considered incidental to the contract.

Manhole lids, valve boxes and other appurtenances within the roadway that may present a traffic hazard during construction must be clearly marked for traffic.

Manhole lids left raised in preparation for paving must have a rubberized protector ring painted with bright color for traffic safety. Supply and use of this equipment is considered incidental to the contract.

1.07 Lane Closure Restrictions

The contractor shall refer to Contract Supplementary Specifications Section 01 55 00S and to Appendix A: Traffic Management Detail Specifications.

The Contractor must take the above information into account in the preparation and submission of the Tender.

1.08 Survey Layout

Construction layout will be staked out by the City.

1.09 Location of Existing Utilities

The contractor is responsible to verify the depth and location of all utilities (watermains, storm mains, sanitary mains & etc.), including outside agency utilities (i.e. MV, Fortis BC Gas Mains & etc.) and service connections (water, storm & sanitary services at the mains & property lines) by hand digging or by Hydro-Vac in the presence of the Inspector.

Pre-locates must be completed as soon as possible after award of the contract so changes can be completed by the Engineer prior to site construction. Contact Metro Vancouver for location of their utilities and BC One for location of other outside agency utilities. The contactor will not receive any compensation or allowance for delays if work is halted due to utilities & services connections not located prior to commencing construction.

City of Coquitlam does not guarantee water, storm or sanitary services connections are perpendicular to the mains or property lines, the contractor will not receive any compensation for the time to locate these connections or for exposing hidden services at the property lines.

Payment for this work will be treated as incidental to payment for work described in other Sections.

1.10	**Manholes & Valves**	Access to manholes and valves must be maintained at all time for city utilities crews and external utility companies. In case of an emergency the cost for exposing any buried manhole or valve covers during construction will be paid by the contractor.
1.11	**Verification of Dimensions and Quantities**	Before proceeding with work the Contractor shall visit the site and check and verify dimensions and quantities. Report variations between drawings and site conditions to the Contract Administrator before proceeding with work. Payment for this work will be treated as incidental to payment for work described in other Sections.
1.12	**Precautions**	Protect areas under construction from damage caused by excessive erosion, flooding, heavy rains, etc. Repair or replace unprotected damaged areas as directed by the Contract Administrator at no cost to the Owner.
1.13	**Work by Others**	The Contractor is required to accommodate the City crews, Contractors, Developers and Utility companies in their scheduling and sequencing of work at no cost to the Owner.
1.14	**FORTIS BC Emergency Protocol**	In an emergency, gas pipeline rupture or leak, Contact Fortis BC 24 Hour Emergency Line (1-800-663-9911) & Fire Department (911) immediately and then City Coquitlam Utility Control Centre (604-927-6287)
1.15	**Temporary Asphalt Pavement Restoration**	The Contractor will be required to backfill all trenches (in paved areas) and place a temporary patch (50mm of hot mix asphalt), as per Coquitlam Standard Drawing COQ-G4, the same day excavation is made, unless otherwise approved by the Contract Administrator. Temporary asphalt patch on driveways is not required, but access must be maintained for property owners.
1.16	**Adjustment in elevation**	"Change in Design" is a significant alteration to the original design or for additional work not shown in contract drawings or described in contract documents. Adjustment in elevation of sidewalk/driveway is specified in the contract drawing and described in contract documents, and is not considered a "Change in Design". The need for a "Change in Design "will be determined by the Contract Administrator.
1.17	**Measurement for Payment**	Payment for all work performed under this section will be incidental to work in other Sections, unless otherwise described in Schedule of Quantities and Prices.
1.18	**Order of Construction**	The project must be completed in the following order: 1. Traffic signal works at David Ave and Shaughnessy St 2. Underground utility works on Pipeline Road* 3. Surface works on Pipeline Road* 4. Joint Replacement at Eleanor Ward Bridge 5. David Ave Pavement Rehabilitation 6. David Ave & Pipeline Road intersection* *Provided that Pipeline Road Improvements Phase 1 is complete
2.00	**CONSTRUCTION ACTIVITY**	
2.01	**Construction Materials in Sewer Manholes and Pipe**	The Contractor is responsible to ensure that construction activities do not deposit construction materials (e.g. gravels) into the storm sewer or sanitary sewer manholes or pipe. The City has a video record of the pipe before construction. Prior to Substantial Performance, the City may again video inspect the lines to ensure no problems exist due to construction activities under this contract. If problems are encountered, the Contractor will be responsible for the cost of the video and all costs associated with the cleaning of the pipe.
2.02	**Site Clean-up During Construction and End of Construction**	The Contractor will be responsible for the complete clean-up of the work site during construction & at the end of construction and prior to the Substantial Performance review. This work is considered incidental to the Contract.

The work will include cleaning of all catch basins periodically or as directed by the Contract Administrator within the Work area, or nearby location as affected by the Work, to the same or better condition of the catch basins prior to starting the Work. All cleaning is to be performed by vacuum truck to the satisfaction of the Contract Administrator and will include off-site disposal of waste material.

Payment for this work will be treated as incidental to payment for work described in other Sections.

2.03 Asphalt Milling Operations

Asphalt milling activities shall be done in such manner so as to cause the least disruption and inconvenience to traffic and area residents.

The Contractor will be required to provide a plan and schedule for milling sections and the subsequent paving activities and have that approved by the Contract Administrator. This schedule is to be updated as required and take into consideration weather conditions and weather forecasts to ensure work subsequent to milling can be completed in appropriate weather.

MILLING OF EXTENSIVE AREAS THAT CANNOT BE PAVED WITHIN 48 HOURS PERIOD (2 DAYS) WILL NOT BE PERMITTED.

3.00 MANDATORY MEETINGS AND CONTRACTOR REPRESENTATIVES AND SUBCONTRACTORS

3.01 Pre-Construction Meeting Requirements

After the Award of the Contract, the Contractor (Project Manager & Superintendent) will be required to attend a Pre-Construction Meeting with the Contract Administrator and provide all necessary information required by the Contract Administrator prior to provision of a Notice to Proceed. Items required to be provided at the meeting include:

1. A Detailed Construction Schedule showing the start date & completion date and the durations of major work components showing how all work will be completed within the Contract Duration.
2. Proof of insurance
3. Performance Bond and Labour and Materials Payment Bond
4. WCB Clearance Letter and copy of Notice of Project
5. City of Coquitlam Business License
6. A copy of portions of your Health and Safety Plan including the Title Page, Table of Contents, and portion showing latest revision date.

3.02 Contract Schedule, Contract Duration, and Charges

A detailed, realistic construction schedule for this project will be required to be presented at the pre-construction meeting. The schedule must show major components and durations.

All work under this project is to be completed within the designated Contract Duration as contained in the signed Contract Agreement, or as formally amended.

3.03 Contract Superintendent and Subcontractors

In compliance with the MMCD General Conditions, Section 4.7, Superintendent, the Contractor shall have a competent senior representative, (the “Superintendent”) in FULL TIME attendance at the Place of Work while work is being performed for the duration of the contract.

This (FULL TIME) attendance is also required when work is being performed by Subcontractors.

Work done by Subcontractors is to be directed by the Superintendent and monitored on site ensuring conformance to the Contract Documents and other particular direction to the Superintendent by the Contract Administrator.

The Owner and Contract Administrator are not responsible for the direction of Subcontractors.

3.04 Pre-Paving Site Meeting

The Contractor will be required to have a pre-paving meeting with their paving staff, on-site, just prior to paving to provide instruction regarding the existing grading and requirements for the paving process and the end product.

The Contractor must provide information to the Contract Administrator, for review, regarding proposed paving elevation control method, mat thickness control method, and rolling patterns.

The Contractor Administrator must be in attendance at this meeting. It will be the responsibility of the Contractor's Contract Superintendent to ensure continuity between the base preparation and the paving process.

3.05 Changes of Contractor Representatives & Subcontractors

The Superintendent and Subcontractors indicated in the Form of Tender shall not be changed unless:

1. The Owner requests a replacement.
2. The Contractor submits an application for a change, in writing, to the Contract Administrator with the change being approved in writing.

3.06 Mobilization and Demobilization

Payment for mobilization and demobilization of all equipment, labour and materials (both from the Contractor and all sub-contractors) shall be incidental.

END OF SECTION

1.0 GENERAL

1.3	**Submission**	Delete 1.3.2 and replace with the following	Submit one copy of an accurate project record document in final form prior to applying for Substantial Performance including any video report, test reports and Operation & Maintenance manual. Record documents to include changes in the Issued for Construction Drawings, new elevation, offsets & location of all utilities, manhole rim, catchbasin rim, vaults, valve boxes, inverts walkways/sidewalks, and any unknown/new utilities found on site. Legal holdbacks will not be released until complete record documents, including reports and manuals, have been submitted and accepted by the Contract Administrator. Contractor to get sign off letter duly signed by the property owners when private side side is affected by the work. Properties to get the sign off letters will be at the sole discretion of the Contract Administrator. Payment for all work performed under this section will be incidental to work in other Sections, unless otherwise described in Schedule of Quantities and Prices.

END OF SECTION

1.0 QUALITY

The Contractor shall provide a final product conforming to the Contract Documents and the intent of the work.

The work is to be accurate to the dimensional and tolerance requirements of the contract.

Payment will be subject to adjustments based on quality assurance tests performed by the Contract Administrator.

1.1 Quality Control (QC) by Contractor

The MMCD (2009) definition of "Quality Control" is the process by which the *Contractor* checks specific materials, products, and workmanship to ensure strict conformance with the Contract Documents.

The Contractor is fully responsible for quality control of the materials, production, and construction processes.

Quality control tests shall be performed by the Contractor, at their own expense, to ensure that products meet the contract specifications.

Failure by the Contractor to conduct adequate quality control testing during production and construction will negate the Contractor's ability to appeal the quality assurance tests used for acceptance/rejection of the work.

Under no circumstances will QC test results produced after completion of the Quality Assurance (QA) results be considered for appeal purposes.

Any changes in the Work with respect to the location, grade, or line shall be approved in advance by the Contract Administrator. Failure to notify the Contract Administrator of changes in writing may result in rejection of Work.

1.2 Inspection of Work, Quality Assurance, and Material Testing, by the Owner

The MMCD (2009) definition of "Quality Assurance" means the process by which the *Owner* evaluates if the work is being constructed in accordance with the Contract Documents. This definition will be used for this contract

The *Contract Administrator* may provide construction review through spot inspections and spot materials testing for Quality Assurance.

Any materials testing results indicating a non-conformance to the Contract Documents will require construction corrective action by the *Contractor*.

All subsequent testing to corrective action to verify conformance to the Contract Documents will be the full responsibility of the *Contractor*.

Inspection review by the Owner will not relieve the Contractor from providing a product that meets or exceeds the requirements of the Contract Documents.

1.3 Inspection

Materials testing shall be as described in MMCD General Conditions, Section 4.12 with the following change:

Delete Section 4.12.2(a) and insert the following:

Where the MMCD specification clauses for Inspection and Testing indicate the Contract Administrator will arrange for all testing for work described in this section will be amended to read The Contractor will arrange for and pay for all testing for work described in this section. The testing shall take place at the following prescribed rates and as directed by the Contract Administrator. The Contract Administrator has the authority to call for testing, up to the rates and frequencies specified, at the Contractors cost.

All testing covered under this item shall be performed by a CCIL certified laboratory and technicians with copies of all test results to be sent directly to the Contract Administrator. Re-testing resulting from failed first tests shall be at the Contractors expense.

1.4 Survey Layout

The Contractor shall be responsible for all survey layouts unless otherwise described in the document. All Survey Layout will be completed in accordance with the Contract Drawings and Coordinate System set out within them. The Contractor will be provided digital AutoCAD files but shall be responsible to confirm elevations and tie in locations and report any discrepancies prior to construction.

The Contractor shall be responsible for the preservation of all layout stakes and marks. If at any time during the progress of the work any error shall appear or arise in the position, levels, dimensions or alignment of any part of the work, the Contractor shall stop work on his portion of the project and shall notify the Contract Administrator. The Contractor shall make all the necessary corrections required.

1.5 Testing

Contractor shall carry out inspection and testing (QC) to ensure compliance with Contract Documents. Contractor shall submit test results within one week of testing to the Contract Administrator. The Contractor shall provide test results prior to the preparation of the payment certificate.

1.6 Contractors Responsibilities

Furnish labour and facilities to:

1. Provide access to work to be inspected
2. Facilitate inspections and tests
3. Make good work disturbed by inspection and tests

1.7 Access to Work

Allow inspection testing agencies access to Work.

1.8 Tests

Test rates and frequencies (excluding failed tests), when not defined in the MMCD or Detail Specifications Sections shall be at the following frequencies:

1. Trench Backfilling and Compaction
1.1 Compaction: 1 test / 10 lm / 300mm lift
1.2 Sieve: 1 test / placed material / 50 m^3

2. Granular Base
2.1 Compaction: 1 test/500m^2 / 100mm depth of granular base, min. 1 test if < 500m^2
2.2 Sieve: 1 test / placed material / 250 TONNES

3. Granular Subbase
3.1 Compaction: 1 test/500m^2/150mm depth of granular subbase, min. 1 test if <500m^2
3.2 Sieve: 1 test / placed material / 250 TONNES

4. Embankment (Subgrade)
4.1 Compaction: 1 test/ 50m^2 / 0.15m depth of fill, min. 1 test if < 50m^2
4.2 Sieve: 1 test / placed material / 100 TONNES

5. Asphalt
5.1 Marshall test: 1 test per 250 TONNES placed, per mix specified, min. 1 / day
ASTM D1559, D3203, C117, C136
5.2 Superpave: 1 test per 250 TONNES placed, per mix specified, min. 1 / day
CAI-SP2, ASTM D3203, C117, C136
5.3 Cores: 1 per 500 m^2/lift
5.4 Continuous asphalt density testing during paving.

6. Subgrade Preparation
6.1 Compaction & Moisture: 1 test / 500 m^2, min. 1 test if < 500m^2

7.Concrete Tests
7.1 Air, Slump & 1 Set Cylinders: 1 test / 10 m^3, min. 1 set / day

1.9 Measurement for Payment

Payment for all work performed under this section will be incidental to payment for work described in other Sections.

END OF SECTION

1.0	**GENERAL**	Add 1.0.6	The *Contractor* is responsible for all temporary traffic control on the streets required for completion of the work. The *Contractor* will be responsible to provide a Traffic Management Plan (TMP) for approval (10) ten working days prior to any lane closures taking place. TMP is to be prepared by a qualified professional to the satisfaction of the Contract Administrator. The TMP shall outline the approach to traffic management, show recognition and minimization of risks indicates signing locations, identify Traffic Control Persons (TCP) stations, show lane shifting and proposed closures. The Contractor is responsible to ensure and maintain all business/residential vehicles, cyclists and pedestrian accesses open at all times. The contractor may provide temporary accesses if the affected owner agrees. All costs associated with temporary accesses will be at the contractor's expense.
		Add 1.0.7	A Road and Sidewalk Closure Permit is required from Coquitlam for all work affecting pedestrian and traffic flow related to construction. A permit is required for each specific construction interference with pedestrian and traffic flow. The road and sidewalk closure permit form can be obtained for use from the City's website at http://www.coquitlam.ca. The Contractor must follow the approved TMP. Any changes to this TMP must be submitted to City's Traffic Operations for approval.
		Add 1.08	Refer to Appendix A – Traffic Management Detail Specifications.
		Add 1.09	The Contractor is responsible to maintain all business/residential vehicles and pedestrian accesses open at all times, the contractor may provide temporary accesses if the affected owner agrees. All costs associated with temporary accesses will be at the contractor's expense.
1.4	**Traffic Control**	Delete 1.4.1 and replace with the following	The Contractor shall conduct his operations so as to cause the minimum obstruction and inconvenience to traffic and to places of business and residences adjacent to the Place of Work. No greater quantity of work shall be undertaken at any one time than can be properly conducted with due regard to the rights and interests of the public as may be determined by the Contract Administrator. The Contractor is to provide at all times safe and convenient means of approach and entrance to adjoining lanes, driveways, buildings and property both for vehicles and pedestrians to the satisfaction of the Contract Administrator. For this purpose, he shall construct and maintain suitable and safe platforms, approaches, structures, bridges, diversions or other works. Where traffic must cross open trenches, the Contractor shall provide suitable bridges. Where trenches have been backfilled or where road improvements are incomplete the Contractor shall take any steps necessary to prevent potholes or other traffic hazards. Where the Contract Administrator so instructs or where Contract Specifications so require, the Contractor shall provide temporary asphalt patching of such hazards.

Add 1.4.9.3.1	The *Contractor,* as required by the *Contract Administrator* and the City, is to supply Construction Zone information signs (stationary), refer to MMCD 01 58 01 for the required identification signage. The *Contractor* is responsible for the removal of the signs at the completion of the work.
Delete 1.4.10.1.3 and replace with the following	When workmen or equipment are employed over travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
Delete 1.5.1 and replace with the following	Payment for all work, including the installation of temporary construction hoarding, includes supply, placement & removal and will be incidental to payment for work described in other Sections, unless shown otherwise in the Schedule of Quantities and Prices.

END OF SECTION

1.0 GENERAL

1.0.3	**Erosion and Sediment Control Supervisor**	Add 1.03	The Erosion and Sediment Control (ESC) Supervisor is the Qualified Professional who is experienced in implementing ESC Plans and who is responsible for the inspection and monitoring of ESC Facilities to ensure these are installed and maintained in accordance with the ESC Plan, and if necessary, are modified during construction to ensure compliance with the Stream and Drainage System Protection Bylaw No. 4403, 2013.
1.2	**Temporary Erosion and Sediment Controls**	Delete 1.2.1 and replace with the following	Properly drain all portions of the site. Protect the site and the watercourses to which it drains, directly or indirectly, against erosion and siltation in accordance with a Sediment Control Plan under the City of Coquitlam Stream and Drainage System Protection Bylaw No. 4403, 2013 during construction and until the maintenance period is completed. Ensure no silt, gravel, debris or other deleterious substance resulting from construction activity discharges into existing drainage systems or watercourses or onto highways or adjacent property. The *Contractor* is responsible for all damage that may be caused by water backing up or flowing over, through, from or along any part of the work or otherwise resulting from his operations. Keep existing culverts, drains, ditches and watercourses affected by the work clear of excavated material at all times. When it is necessary to remove or alter any existing drainage structure, provide suitable alternative measures for handling the drainage. Adequately support culverts and drainpipes across trenches to prevent displacement and interference with the proper flow of water due to trench settlement. Sweep streets, and clean catch basins, manhole sumps, detention tanks, and maintain siltation controls as often as the *Contract Administrator* and the City deems necessary.
		Delete 1.2.2.2 and replace with the following	Do not operate construction equipment in watercourses.
		Add 1.2.2.9	All work must be carried out during favorable and low water conditions.
		Add 1.2.2.10	Any fill used on this project shall be certified inert and from a source which is confirmed to be free of contaminants.
		Add 1.2.2.11	All work within a watercourse must be undertaken and completed in isolation of all flowing water to maintain downstream water quality and unrestricted flows.
1.4	**Environmental Protection**	Add 1.4.3.5	Immediately contain and clean up any leaks and spills of prohibited materials at the *Place of Work*.
		Add 1.4.3.6	Ensure that a well-stocked spill kit is on-site at all times and that the *Contractor*'s employees are familiar with appropriate spill response techniques.
		Add 1.4.3.7	Immediately notify the *Contract Administrator* and the City of any leaks or spills of prohibited materials that occur at the *Place of Work*.
		Add 1.4.3.8	Ensure that any fuel stored on-site is located at least 15 meters from the nearest stream, and is placed within a bermed and lined area, in order to prevent leaks or spills into the environment.

		Add 1.4.3.9	All equipment and machinery must be in good working condition (power washed), free of leaks or excess oil and grease. No equipment refueling or servicing shall be undertaken within a minimum of 15 meters of any water course or surface water drainage.
		Add 1.4.3.10	During all phases of the operation, the Contractor shall take precautions to abate nuisance caused by mud or dust by clean up, sweeping, sprinkling with water or dust control, or other means as necessary to accomplish results satisfactory to the Contract Administrator.
1.6	**Measurement and Payment**	Delete 1.6.1 and replace with the following	Payment for all work, unless included in the Schedule of Quantities and Prices, performed under this section will be incidental to payment for work described in other Sections.
		Add 1.6.2	Payment for the poly cover or temporary tarps over stock pile materials or exposed road subgrades shall be treated as incidental work.
1.9	**Archaeological / Historical Resources**	Add 1.9	Immediately cease work and inform the *Contract Administrator* and the City, if any archaeological or historical resources are encountered during construction. Leave these resources in place and do not disturb them in any way.

END OF SECTION

1.3	**Measurement and Payment**	Delete 1.3.1 and replace with the following	Payment for the installation of 1.2m x 1.2m static construction Information signs as shown in Appendix A – Traffic Management Detail Specifications includes supply, placement & removal and will be incidental to payment for work described in other Sections, unless shown otherwise in the Schedule of Quantities and Prices.
		Add 1.3.2	Payment for changeable message signs (CMS) includes supply, placement, communication management & removal as required for traffic & pedestrian safety, and as described in Schedule of Quantities, and in Appendix A – Traffic Management Detail Specifications.

END OF SECTION

1.4	**Measurement and Payment**	Delete 1.4.3 and replace with the following	Payment for machine placed or hand formed C5 wide base and median narrow concrete curb and gutter, excluding granular subbase & base, includes supply and placing of the concrete curb and gutter, tie-ins, transitions, subgrade preparation, compaction, saw cutting, and will cover all straight and curve sections and will be made separately for each specified type. Payment for excavation and disposal of excavated material will be made under payment item, Common Excavation – offsite disposal, in the Schedule of Quantities and Price. Payment for granular subbase and granular base under curb and gutter will be made under payment items in Section 32 11 16.1S and 32 11 23S, Granular Subbase and Granular Base, respectively.
		Delete 1.4.5 and replace with the following	Payment for concrete sidewalks, letdowns, driveways, walkways, raised concrete islands, stamp concrete, infills, concrete exposed aggregate and all concrete ramps includes supply and installation, saw cutting, regrading of driveways for proper tie-in, field fit and adjustments, granular base, subgrade preparation under the concrete sidewalks, in-fills, driveways and walkways, and will be made separately for each specified thickness and type of finish. Payment for excavation and disposal of native excavated material will be made under payment item, Common Excavation – offsite disposal, in the Schedule of Quantities and Price. Payment for granular subbase and granular base under curb and gutter will be made under payment items in Section 32 11 16.1S and 32 11 23S, Granular Subbase and Granular Base, respectively.
		Add 1.4.10	Payment for Detectable/Tactile Warning Surface Tile includes supply and placing of Access Tile Model # ACC-R-_x_ (or approved equal) Truncated Dome Detectable Warning Tactile Surface replaceable cast in place - Yellow Color, installation as per the Manufacture's Specifications and as specified in the Schedule of Quantities and Prices.
2.1	**Materials**	Delete 2.1.5.1 and replace with the following	Hand-formed and hand-placed concrete: Slump: 80 mm Air entrainment: 5 to 8%. Maximum aggregate size: 20 mm. Minimum cement content: 335 kg/m3. Minimum 28 day compressive strength: 32 MPa.
		Add 2.1.7	Tactile warning surface tile shall be replaceable cast-in-place style. Truncated domes shall be in square grid pattern with a 5 mm nominal raised height, base diameter of 23 mm and top diameter of 11.5 mm. Dome spacing range shall be between 40 mm – 60 mm. Color of the panel shall be Federal Yellow (Y) per US Federal Standard 595B Table IV, Color No. 335. Minimum size of the panel shall be 600 mm by 1200 mm.
3.0	**EXECUTION**		
3.5	**Concrete Placement**	Delete 3.5.9 and replace with the following	The *Contractor* is responsible for adjusting all utility manhole frames and valve boxes, belonging to Coquitlam and/or other agencies that are affected by the road works. All adjustments to utilities must be completed to the satisfaction of the utility owner. Riser rings will not be accepted.

The *Contractor* should note that certain utility owners may decide to complete their own adjustments. The *Contractor* will be required to cooperate with any utility company providing their own adjustments.

The *Contractor* shall be responsible to contact the appropriate utility company within a minimum of seventy-two (72) hours of the work. No adjustment shall be made without the written approval of the utility company. All manholes must be vertically adjusted a minimum of twenty-four (24) hours prior to concrete placement.

3.9	**Expansion Joints**	Delete 3.9.1 and replace with the following	Form transverse expansion joints at both ends of curb returns and at maximum spacing of 9.0 m for sidewalks, 30.0 m of curb and gutter, at each end of driveway crossing, at tangent point of circular work, and on either side of catch basins.

END OF SECTION

1.0 GENERAL

1.1	**Description**	Add 1.1.1	This section covers all Work associated with Joints including poured joint sealant, strip seals and compression seals.
1.2	**Submittals**	Add 1.2.1	Submit in accordance with the General Conditions and Section 01 33 01S – Project Record Documents.
		Add 1.2.2	Submit manufacturer's product data, printed product literature and PDS sheets for joint materials. Include product characteristics, performance criteria, installation instructions, physical size, finish and limitations.
1.3	**Delivery, Storage and Handling**	Add 1.3.1	Deliver, store and handle materials in accordance with manufacturer's written instructions.
		Add 1.3.2	Deliver materials to Site in original factory packaging, labelled with manufacturer's name and address.
		Add 1.3.3	Storage and handling requirements: 1. Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area. 2. Store and protect joint sealants from nicks, scratches, and blemishes. 3. Replace defective or damaged materials with new
1.4	**Measurement and Payment**	Add 1.4.1	Payment for Expansion Joint Replacement will be at the lump sum amount indicated, unless shown otherwise, in the Schedule of Quantities and Prices. The amount provided shall be considered full compensation for all work required to complete the installation as shown on the Contract Drawings. Work includes, but is not limited to, all submittals, removal of existing joint seal, armouring, and surrounding concrete, local asphalt demolition, concrete milling, cleaning and surface preparation, supply and installation of new joint seal including armouring and concrete, supply and installation of asphalt, supply and installation of new reinforcing steel, curing, access, and temporary cover plating if required. Payment will include all equipment, labour, materials, waste disposal, and everything supplied and done in connection therewith.
		Add 1.4.2	Payment will be at the unit rate indicated, unless shown otherwise, in the Schedule of Quantities and Prices. The amount provided shall be considered full compensation for all work required to complete the installation as shown on the Contract Drawings and as described in the Contract Documents.
		Add 1.4.3	Payment for Joint Sealants will be at the unit rate indicated, unless shown otherwise, in the Schedule of Quantities and Prices. The amount provided shall be considered full compensation for all work required to complete the installation as shown on the Contract Drawings and as described in the Contract Documents. Work includes, but is not limited to, all submittals, removal of existing joint sealants, cleaning and surface preparation, supply and installation of the joint sealants. Payment will include all equipment, labour, materials, waste disposal, and everything supplied and done in connection therewith.

2.0 PRODUCTS

2.1	**Materials**	Add 2.1.1	Grout materials for joints shall be in accordance with Section 03 30 53S – Structural Cast-in-Place Concrete
		Add 2.1.2	Steel for joints shall be in accordance with Section 05 53 00S – Metal Fabrications.

		Add 2.1.3	Compression seals shall be as shown on the Contract Drawings and shall be installed in accordance with the manufacturer's specification. The use of alternate equivalent compression seals requires acceptance by the Contract Administrator based on documentation provided by the Contractor.
		Add 2.1.4	Materials for joint sealant shall be as follows: 1. Vertical Joint Seams: Sealant shall be Sikaflex 1A or approved equivalent. 2. Horizontal Joint Seams: Sealant shall be Wabo Silicone Seal or approved equivalent.
		Add 2.1.5	All certified material test reports for the joints shall be submitted to, and accepted by, the Contract Administrator prior to installation.
3.0	**EXECUTION**		
3.1	**Site Conditions**	Add 3.1.1	Proceed with installation of pourable joint sealants only when: 1. Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer or are above 4.4 degrees C. 2. Joint substrates are dry. 3. Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use
		Add 3.1.2	Proceed with installation of joints only where joint widths are more than those allowed by joint manufacturer for applications indicated
3.2	**Installation**	Add 3.2.1	The Contractor shall form or excavate for each deck joint as shown in the Contract Drawings.
		Add 3.2.2	Each joint seal shall be supplied in a single length, without splices. Vulcanized locations for rubber seals shall be submitted to the Contractor Administrator for review prior to installation.
		Add 3.2.3	Following the removal of the existing seal, the surfaces of the concrete or steel to receive the new seal shall be cleaned of any residual that may be present by blast cleaning or other approved mechanical means. Ensure joint surfaces are dry and frost free. Following the cleaning, the joint should be blown free of debris using compressed air in accordance with the manufacturer's instructions.
		Add 3.2.4	The seal shall be installed in accordance with the manufacturer's recommendations, including requirements for lubricant adhesive.
		Add 3.2.5	After installation, deck joints shall be water tested by the Contractor in accordance with the Contract Drawings and to the approval of the Contract Administrator who shall be present for the tests. Contractor shall ensure joints are watertight. If joints are not watertight, joint seal shall be removed, reinstated, and retested.
		Add 3.2.6	<u>Flood Test</u> Deck joints to be flooded by the Contractor will have the Contract Administrator present and be checked for leaks to ensure they are watertight. The requirements for flood testing the joints are as follows: 1. The air, concrete, and deck joint assembly temperature shall be 2 °C or higher at time of testing.

2. After the epoxy has set and prior to acceptance, the joint shall be water tested over its entire length when there are no upturns. When there are upturns, the joint shall be tested between the gutter lines.

3. The water shall be continuously ponded for a minimum of one hour, maintaining a minimum depth of 25 mm along the tested length and a minimum depth of 100 mm above the deck joint assembly at the gutter lines. For superelevated decks, only the lower gutter line requires the testing at a depth of 100 mm.

4. The width shall extend 50 mm beyond the concrete dams on both sides of the deck joint assembly.

5. When the staging of traffic is required, the joint shall be tested in overlapping sections. The Contract Administrator shall be present for the entirety of the test.

Leakage of water through the deck joint assembly during this test, including the interface between the preformed seal and the seal retainers, concrete to steel interfaces, and the concrete construction joints, shall constitute failure of the deck joint assembly.

If such failure occurs, the deck joint assembly shall be repaired or replaced and the water test repeated. The method of repair shall be submitted in writing to the Contract Administrator for review prior to commencement of repair work.

The water test and any related corrective work shall be completed prior to any seasonal shutdowns. When this is not feasible, a proposal detailing an alternative solution shall be submitted to the Contractor Administrator for approval.

Pour test

Sidewalk joints to be water tested by the Contractor will have the Contract Administrator present and be checked for leaks to ensure they are watertight. The requirements for water testing the joints are as follows:

1. Contractor shall pour water over each completed joint and note any water leaks below the joint.
2. A minimum of 5 litres of water shall be used in joint testing.
3. Water shall be poured over the entire length of the joint.
4. A passing test will only be given if no water is observed passing through the joint from the underside of the bridge. If water ingress is observed, the contractor shall reset the joint seal.

3.3 Surface Preparation

Add 3.3.1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.

Add 3.3.3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

3.4 Priming

Add 3.4.1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.

Add 3.4.2 Prime sides of joints in accordance with joint manufacturer's instructions immediately prior to installation.

		Add 3.4.1	Apply bond breaker tape where required to manufacturer's instructions. Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.
3.5	**Application**	Add 3.5.1	Sealant: 1. Apply sealant in continuous beads. 2. Apply sealant using gun with proper size nozzle. 3. Use sufficient pressure to fill voids and joints solid. 4. Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities. 5. Tool exposed surfaces before skinning begins to give slightly concave shape. 6. Remove excess compound promptly as work progresses and upon completion
		Add 3.5.2	Curing 1. Cure sealants in accordance with sealant manufacturer’s instructions. 2. Do not cover up sealants until proper curing has taken place.
3.6	**Protection**	Add 3.6.1	Protect installed products and components from damage during construction.
		Add 3.6.2	Repair damage to adjacent materials caused by joint sealant installation.

END OF SECTION

1.0	**GENERAL**		
1.3	**Shop Drawings**	Delete 1.3.4 and replace with the following	Shop drawings for pole structures, where required, to be sealed by a Professional Engineer registered in British Columbia.
1.4	**Electrical Energy Supply**	Add 1.4.4	The Electrical *Contractor* shall process a letter of application to the City of Coquitlam for the Utility Company and attain all required permits.
1.5	**Contractor Qualifications**	Add 1.5.3	All on-site traffic signal installations shall be under the responsibility of a primary journeyman electrician with IMSA Level 1 Roadway Lighting Certification and have a minimum of three (3) years experience maintaining and installing street lighting systems. This primary journeyman electrician is expected to be on the work site and report work progress to City of Coquitlam's Traffic Operations staff, in addition to reporting to the *Contract Administrator*.
1.6	**Permits and Tests**	Add 1.6.4	*Contractor* shall provide the BC Safety Electrical Permit, and arrange all inspections with the City. The inspection entails, but not limited to, Coquitlam's Street Lighting Inspection Report, which can be obtained from Coquitlam's Traffic Operations staff.
		Add 1.6.5	*Contractor* to obtain approval of all buried portions of the installation from the City Inspector before any backfill is commenced.
1.8	**Record Drawings**	Add 1.8.2	Final payment(s) will be withheld until record drawings are received.
1.9	**Measurement and Payment**	Add 1.9.1	Lump sum payment for roadway and pedestrian lighting includes supply and installation of all labor, equipment and materials required to complete the installation as specified in the contract and/or shown on Contract Drawings. Payment includes import backfill and all work as described in Clause 1.9.2.
		Add 1.9.4	Supply and installation of conduits / ducts to include all labor, equipment and materials required to complete the installation as specified in the contract and/or shown on Contract Drawings. Payment includes coordinating with Third Party Utilities. Payment will be for each complete set of joint trench crossing as specified in the contract documents.
2.0	**PRODUCTS**		
2.1	**General**	Delete 2.1.2 and replace with the following	All products supplied to be new, in accordance with *Contract Documents*. All products are to meet Canadian Electrical Code requirements and be certified by either CSA, UL©, or Intertek Testing Systems (Warnock Hersey) and be supplied with the certifier's label.
		Delete 2.1.3 and replace with the following	All products shall be in accordance with the City of Coquitlam's List of Approved Materials and Products List. Any products not listed with in the Approved List shall default to the current BCMOTI specification.
		Delete 2.1.5 and replace with the following	Equipment models listed within the City of Coquitlam's List of Approved Materials and Products shall be confirmed with the City immediately prior to their order to ensure that they are current. Cut-sheets, equipment make, model and serial number list to be provided to the City by the *Contractor*.

2.2	**Conduit**	Add 2.2.1.3	All exposed metallic surfaces to be hot dip galvanized.
2.3	**Trench marker Tape**	Add 2.3.2	Detectable (Magnetic) marker tape shall be used in all trenches containing interconnection (communications) conduit.
2.6	**Concrete Bases**	Add 2.6.2	Maximum of four (4) conduits shall enter the base of a luminaire pole, however more than four (4) may enter a service base.
2.8	**Conductors and Cables**	Add 2.8.5	.1 Minimum conductor size to be as follows, unless specified otherwise on *Contract Drawing*: .1 No 6 AWG for feeder conductors in conduit. .2 No 8 AWG for bond conductors in conduit. .3 No 12 AWG for luminaire conductors in poles.
2.9	**Conductor Tags**	Delete 2.9 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.11	**Fuses and Fuse Holders**	Delete 2.11 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.13	**Receptacles**	Add 2.13.3	Receptacles shall have a spring loaded cast aluminum covers.
		Add 2.13.4	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.14	**Luminaires**	Add 2.14.6	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.19	**Service Panels**	Add 2.19.1	Type 40A 120/240V, 60A 120/240V roadway lighting and 100A 120/240V combination roadway lighting / traffic signal, per *Contract Drawing* to include items listed within the 2009 MMCD Section 34 41 13 - Traffic Signals - 2.11.2
		Add 2.19.2	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.20	**Wire Anti-Theft Devices**	Add 2.20.1	Handhole access shall utilize security covers with reinforced backing bars.
3.0	**EXECUTION**		
3.1	**General**	Add 3.1.5	During the installation of the lighting system, maintain the existing system as noted on the *Contract Drawing*. If temporary or permanent relocations of related lighting equipment are required, such equipment shall be reinstated as required under the *Contract Documents* or as directed by the *Contract Administrator*.
3.3	**Concrete Bases**	Add 3.3.7	Concrete service bases detailed on Standard Detail Drawings CE1.3 and CE1.4, Type C1 and C3 service bases shall have five (5) conduits. See Coquitlam Standard Detail Drawing SS-E7.3.
		Add 3.3.8	All concrete bases shall be pre-cast concrete only, unless noted on *Contract Drawing* or directed by the *Contract Administrator*.

3.4	**Junction Boxes and Vaults**	Delete 3.4.1 and replace with the following	Install junction boxes as shown on Standard Detail Drawings E2.2 to E2.4. Install vaults as shown on Coquitlam Standard Detail Drawing SS-E2.5.
		Add 3.4.5	Bell end fittings shall be installed in all conduits entering junction boxes or vaults.
		Add 3.4.6	All junction boxes shall be provided with RPVC bars to support electrical connections and fuse holders. The RPVC bars shall be attached into the junction box side walls with the electrical connections/fuse holders tie-wrapped in place and installed in the up-right position.
		Add 3.4.7	Junction boxes requiring 3 or more sections must be approved by the City of Coquitlam's Traffic Operations staff.
3.5	**Underground Conduit**	Delete 3.5.2 and replace with the following	Minimum cover over conduits to be 600 mm in boulevard areas and 900 mm in roadway areas.
		Delete 3.5.3 and replace with the following	Place trench marker tape 300 mm above installed conduit in trench. Trench marker tape not required for conduits installed via trenchless technology.
		Delete 3.5.5 and replace with the following	Empty conduits shall have a No. 8 HB Yellow/Green Mk pull string and capped at both ends.
		Add 3.5.6	Conduit run shall contain no more than the equivalent of 4 – 90-degree bends.
		Add 3.5.7	Conduits shall be blown out with compressed air, from both ends if necessary, then swabbed out to remove stones, dirt, water and other material which may have entered during installation.
		Add 3.5.8	All conduits entering poles and cabinets shall be sealed with "Duct Seal".
		Add 3.5.9	Conduit depth of bury to be recorded when a trenchless technology method is used.
		Add 3.5.10	Conduit shall not be bent in the field. Only factory bends will be accepted.
3.7	**Electrical**	Delete 3.7.2 and replace with the following	Mount electrical service panels in service base or on poles as shown on Standard Detail Drawings E7.2, E7.6 to E7.9, as well as Coquitlam Standard Detail Drawings SS-E7.3 to SS-E7.5.
3.8	**Wiring**	Delete 3.8.3 and replace with the following	Make conductor splices in handholes. See Standard Detail Drawing E7.11 for splice details.
		Delete 3.8.6 and replace with the following	Wire each luminaire and receptacle separately from the base of pole.
		Delete 3.8.7 and replace with the following	Neatly arrange and bundle wiring in junction boxes, pole handholes and service panels. Conductor connections in all access points to be installed in the up-right position, allowing for easy access

		Delete 3.8.11 and replace with the following	Bond all luminaires and receptacles with No. 12 RW90 green conductor, and steel junction box lids with No. 8 RW90 green conductor.
3.9	**Pole Mounted Receptacle**	Delete 3.9.1 and replace with the following	Pole mounted receptacles to be installed as detailed on the *Contract Drawing* and Coquitlam Standard Detail Drawings SS-E7.19 to SS-E7.23.
3.10	**Luminaires and Photocells**	Add 3.10.4	NEMA wattage label shall be visible at the bottom of the luminaire on all fixtures.
3.11	**Grounding & Bonding**	Add 3.11.5	Ground plates and grounding conductors are to have a minimum of 5 meters clearance between them and other utility grounding.
		Add 3.11.6	Remove all paint around bonding studs on inside of pole to expose the galvanized or metal surface prior to bonding equipment.
3.13	**Pole Finish Application**	Delete 3.13 and replace with the following	.1 Prior to producing a powder finish product the supplier must provide a Certificate of Compliance indicating that they have met or exceeded the following specifications. The supplier will name their independent testing agency and this information will be submitted to the City for their files. .2 The application process will be as follows: .1 The pole or product will be hot dip galvanized. .2 Powder will only be applied after the product is completely fabricated. No welding or bending will take place after the powder is applied. .3 The pole or product will be thoroughly cleaned by brush blasting in accordance with SSPC-SP7. The brush blast will maintain a minimum profile of 0.5 mils. If brush blasting is done off site then the product will be covered and shielded from any dirt or moisture during its return to the powder applicators facility. Where poles or products are not kept clean and dry or have any signs of flash rust they will be returned for further brush blasting. .4 Once at the applicators facility the pole or product will be thoroughly cleaned and dried with an air gun. All hand marks or grease spots will be cleaned with a mild solvent. .5 After brush blasting the entire pole or product will be pre-baked in an oven at 220 degrees C for at least 30 minutes to 1 hour, depending on steel thickness. The pre-baking must be done to prevent out-gassing during the curing cycle. .6 The base powder coat will then be applied electrostatically while the pole or product is cooling from the 220 degrees C pre-bake period to allow the powder to melt and fuse to the surface. The base coat will be a minimum of 3 mils in thickness. .7 After base coat is applied and set the topcoat will be applied to a thickness of 3 to 5 mils. The pole or product will be returned to the oven and heated to 190 to 220 degrees C (temperature will not exceed pre-bake) for a minimum of 25 minutes, depending on steel thickness. Thicker product material may require longer bake cycles to fully cure. Upon removal of the pole or product from the oven it will be left to rest until the pole or product is cool enough to the touch.

.8 Once the topcoat has cured and the poles or product cooled, they will then be individually wrapped (min 4" overlapping method) with 1/8" foam wrap over the entire pole or product. The poles or product will be bundled together and separated with suitable wood dunnage to avoid contact between the poles, product or other bundles. All bundles themselves will be fully wrapped with foam and with stretch-wrap as noted above. The poles or products will be handled and shipped with great care to prevent damage; damaged product will be cause for rejection of the item(s).

.3 Testing process will be as follows:

.1 Each run of product in an oven will have at least one sample tested for:

.2 Adhesion – The finished powder surface will have minimum pull-off strength exceeding 1000 PSI as tested in accordance with ASTM D4541.

.3 Quality – The finished powder surface will be free from any holidays (skips or misses) as tested in accordance with ASTM D4541. The product will also be free from wrinkles, orange peel, cracking, pinholes, fish eyes, blisters, etc by visual inspection.

.4 Color – The color will be verified to be within 3 DE of specialized color.

.5 An independent firm such as CanSpec Testing who are qualified to test powder finish will do the testing at the supplier's expense. The result of tests must accompany the Certificate of Compliance and will be made available to the City or their representative upon request. A supplier who fails to test product as noted above will have their product rejected until the testing is completed and the product deemed acceptable by the testing agency.

.6 Where the tested product fails on a given production run then a minimum of 30 % of the entire production run will be tested. If no other failures are found then the individual failed product will be stripped, reapplied and re-tested until it passes. If any of the 30% of product tested fails then the entire order will be stripped, reapplied and retested until it passes.

.4 Field repairs will be undertaken as required to fix any scratches or imperfections in the final finish. Field repairs will be done as follows:

.1 Feather the damaged area with sandpaper.

.2 Clean area with solvent.

.3 Let dry.

.4 Neatly brush on an application of Aliphatic Urethane Acrylic Semi-Gloss High Build applied at 2-4 mils DFT over the entire sanded and damaged area. The ambient conditions will be dry and over 10 degrees C when the paint is applied.

.5 The pole supplier will warranty the integrity of the surface for a minimum of 1 year from the date of installation. The warranty will include all labour and materials required to provide replacement product if required. The powder finish will be the responsibility of the pole supplier. The

warranty will apply to fading, blistering, cracking or chipping of the surface.

END OF SECTION

2.0 PRODUCTS

2.3 Pit Run Gravel

Add to 2.3.2

The use of recycled concrete shall be approved by the *Contract Administrator* and the City prior to use.

Add 2.3.3

Asphalt millings free from contaminated and other extraneous material, conforming to the specified gradations may be used as pit run gravel. The use of asphalt millings shall be approved by the *Contract Administrator* and the City prior to use.

2.7 Granular Pipe Bedding and Surround Material

Add to 2.7.1

All recycled or other extraneous materials shall be approved by *Contract Administrator* and the City prior to use.

2.10 Granular Base

Delete 2.10.2

Add 2.10.3

All 25 mm minus granular base is to conform to the following gradation specifications for Collector / Arterial Roads:

Sieve Designation (mm)	Percent Passing (%)
25	100
19	80-100
12.5	75-90
9.5	50-85
4.75	35-70
2.36	25-50
1.18	15-35
0.30	5-20
0.075	0-5

Add 2.10.4

The intention of the Gradation Chart is to identify the desired mix of size of aggregate in the granular base. The Target Percentage Passing is the middle of the shown Range.

Tests that show sieve values of Percent Passing that are consistently low or consistently high in two (2) or more consecutive tests will be considered to be non-conforming.

2.11 Recycled Aggregate Material

Delete 2.11.1 and replace with the following

Aggregates containing recycled material may be utilized if approved by the Contract Administrator and the City. In addition to meeting all other conditions of the specifications, recycled material should not reduce the quality of the construction achievable with quarried materials. Recycled material shall consist only of aggregates, crushed portland cement concrete, or asphalt that is free of impurities.

END OF SECTION

1.4	**Measurement and Payment**	Delete 1.4.1 and replace with the following	Payment for all clearing and grubbing will be made at lump sum price and include removal and disposal of all branches, stumps, hedges, trees less than 300mm dia, debris, hedges, timbers, logs and vegetation to complete the work and as shown on the Contract Drawings or as directed by the Contract Administrator. Works include cutting of branches & falling of trees affected by Work to create the necessary clearance to accommodate the construction and intended function of the Work, and as shown on Contract Drawing. Trimming to have minimium 2.5m vertical and 0.5m horizontal clearance from sidewalk and MUP, unless otherwise directed by the Contract Administrator. Payment includes trimming of small branches from trees or hedges as required, branch cutting/pruning to have a clean cut flush to branch collar and use of an approved tree paint to repair damage to surviving vegetation where branches have been removed. Existing grass and top soil removal will be paid under Common Excavation, less the portion under Grubbing as defined in Clause 1.2.

END OF SECTION

1.3	**Measurement and Payment**	Delete 1.3.1 and replace with the following	Payment for all work, unless included in the Schedule of Quantities and Prices, performed under this section will be incidental to payment for work described in other Sections.
		Add 1.3.2	Payment by allowance for Hydro Excavation or dry vac and air spade around existing trees includes all labor, material, equipment, removal and disposal to complete the work as shown on the Contract Drawings or as directed by the Contract Administrator. Payment includes coordinating the work of all locations requiring hydro excavation or dry vac and air spade to maximize the use of the hydro excavation or dry vac and air spade machines and coordination with the Site Arborist.
2.0	**PRODUCTS**		
2.1	**Materials**	Add 2.1.10	Protective Fencing: Posts - Pressure treated wood 100 mm dia.; Post to be 1.8 m to 2.0m in height at 2.0 m O.C. Snow fence as per Coquitlam Approved Products List; Flagging Tape - 4" Orange glow - 'Tree Retention Area'.
3.0	**EXECUTION**		
3.1	**Existing Trees**	Add 3.1.7	The *Contractor* is responsible to minimize damage to all trees which are to remain.
		Add 3.1.8	The *Contractor* will be responsible for all claims and costs including the cost of examination by an Arborist, repair, removal and replacement of trees, as required by the Arborist, the *Contract Administrator* and the City for tree damage where proper notification was not received from the *Contractor*. Damage will be assessed based on the International Society of Arboriculture Guidelines. The term shall be for a period of one year following the date of Substantial Performance of the *Work*.
		Add 3.1.9	Place protective fencing/barricades as per Coquitlam Standard Detail Drawings COQ-R26, where identified on the Contract Drawings. *Contractor* shall maintain fence in good condition during construction.
		Add 3.1.10	When work is to be performed inside fenced areas, *Contractor* shall take care to avoid damage to existing vegetation. Work to be done inside areas of existing vegetation to be retained includes: .1 Removal of isolated trees as directed by the *Contract Administrator* and the City. .2 Selective pruning and tree removal at edges to create tidy and well-shaped forest edge. .3 Placing planting soil and planting of trees.
		Add 3.1.11	Do not park, service or fuel vehicles within the vegetation retention areas.
3.4	**Pruning**	Add 3.4.2	Do not cut roots or branches of retained trees without approval of the *Contract Administrator* and the City.

END OF SECTION

1.4	**Measurement and Payment**	Delete 1.4 in its entirety and replace with the following	Payment for all work performed under this Section will be incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices.

END OF SECTION

1.4	**Measurement and Payment**	Delete 1.4.1 to 1.4.4 and replace with 1.4.1 with the following	Payment for all work performed under this Section will be incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices.

END OF SECTION

1.0	**GENERAL**		
1.8	**Limitations of Open Trench**	1.8.1 Replace last sentence with the following	If circumstances do not permit complete backfilling of all trenches, and where permitted by the *Contract Administrator* and the City, adequately protect all open trenches or excavations with approved fencing or barricades and, where required, with flashing lights.
		Add 1.8.2	The use of road plates to cover excavations and restore travel lanes is not permitted in late Fall, Winter or if forecast indicates temperature equal or below 2 degrees Celsius, unless otherwise permitted by the Contract Administrator. Where construction necessitates the use of road plates, the Contractor is responsible for properly securing them (either pinned or recessed into the pavement) and feathered a minimum of 300mm with existing road asphalt on all four sides. The Contractor is responsible for repairing any pavement damage related to the plate installation.
2.0	**PRODUCTS**		
2.2	**Use of Specified Materials**	Delete 2.2.1.2	Delete Pit Run Sand
		Delete 2.2.3.3	Delete Pit Run Sand
3.0	**EXECUTION**		
3.3	**Excavation**	Delete 3.3.1.2 and replace with the following	Connections to existing waterworks systems are to be made by the *Contractor* under the inspection / supervision of the *Contract Administrator* and the City.
3.6	**Surface Restoration**	Delete 3.6.2.4 and replace with the following	Restore lawns with approved topsoil and sod to match existing lawn.
		Delete 3.6.3.1 and replace with the following	Restore surface with a minimum 100 mm of 19 mm granular road base material.
		Delete 3.6.7.5 and replace with the following	Restore Pavement as detailed on Coquitlam Standard Detail Drawing COQ-G4. Temporary patch shall be a minimum thickness of 50 mm thickness. Permanent restoration to existing asphalt thickness (minimum of 75 mm) with a 35 mm key where existing thickness permits. A 50 mm key is required on Arterial and Collector Roadways. Dry if necessary and paint clean, dry edge with asphalt emulsion (tack coat).

END OF SECTION

1.8 Measurement and Payment

Delete 1.8.4 and replace with the following

Payment under this item will only apply to removal of the components included in this item under a separate operation as shown on the Contract Drawings or as directed by the Contractor Administrator. No payment will be made under this item for removal of these components as part of the operation for common excavation, and such removal will be treated as common excavation.

Payment will be made at the respective unit prices bid in the Schedule of Quantities and Prices and will include all labour, and equipment required to complete the work, including offsite disposal. It is the responsibility of the contractor to locate and verify all utilities.

Delete 1.8.5 and replace with the following

Payment for Common Excavation includes:

1. Unless noted in the Schedule of Quantities and Prices as removal in square meters, common excavation will be measured in cubic meters calculated from measurements taken by the Contract Administrator in the areas of excavation for road widening areas.
2. Cross-sections will be taken after clearing and grubbing and after stripping of existing topsoil immediately prior to excavation of material to be incorporated into work.
3. Where determined by the Contract Administrator that truck box volume will be used to determine excavation quantities the volume per load shall be determined using 75% of the truck load quantity. The following is to be used for payment:

Truck Type	Material Type	Volume (cu.m)
Tandem	ordinary material	7
Tandem	asphalt/concrete/pipe	4
Triaxle	ordinary material	8
Triaxle	asphalt/concrete/pipe	5
Tandem and Pony	ordinary material	11
Tandem and Pony	asphalt/concrete/pipe	7.5
Triaxle and Pony	ordinary material	13
Triaxle and Pony	asphalt/concrete/pipe	9
Tandem and Transfer	ordinary material	19
Tandem and Transfer	asphalt/concrete/pipe	13

4. Contractor to provide truck slips detailing location type of common excavation, time loaded and location of dump site. The slips are to be given to Contract Administrator by the end of shift or Contract Administrator can deny quantities subsequently submitted.
5. Payment for on site re-use includes excavation, transport, temporary stockpiling, placement, compaction, boning, adjustment of moisture content, spreading and grading of material anywhere on site or within the work zone, as needed, to establish the roadway & pathway cross-section.

Payment will be made at the respective unit prices bid in the Schedule of Quantities and Prices and will include all labour, and equipment required to complete the work, including offsite disposal. It is the responsibility of the contractor to locate and verify all utilities.

		Delete 1.8.10 and replace with the following	Payment for replacement of areas of unsuitable granular base, granular subbase or sub-grade revealed during proof rooling will include excavation with off-site disposal, installation & compaction of granular base material (25 mm minus), and all remedial work required to achieve a suitable base. Payment with be based on the cubic metre volume removed.
2.0	**PRODUCTS**		
2.2	**Specified Materials**	Delete 2.2.1.3	Pit Run Sand
		Delete 2.2.1.4	River Sand
		Delete 2.2.2	

END OF SECTION

1.5 Measurement and Payment Add 1.5.4

Payment for this item will be made for the depth specified in the Schedule of Quantities in the Form of Tender. Payment will be made for the removal of existing asphalt, granular and native materials within the roadway to the depth specified, as detailed in the Contract Documents.

Payment will be made for each square metre of asphalt removed and includes the off-site disposal of all milled material. Payment includes mobilization, demobilization, demonstration milling test section, the cost of transport and disposal off-site, saw cutting, street sweeping or cleaning to allow for the placement of required thickness of asphaltic concrete. Saw cutting and milled key at project limits will be incidental under payment item 32 12 16 – Hot Mix Asphaltic Concrete Paving.

MILLING OF EXTENSIVE AREAS THAT CANNOT BE PAVED WITHIN 48 HOURS PERIOD (2 DAYS) WILL NOT BE PERMITTED UNLESS OTHERWISE APPROVED BY THE CONTRACT ADMINISTATOR.

No additional payment will be made for multiple passes or remobilization, as required, to mill to the depth(s) specified in the Schedule of Quantities in the Form of Tender.

END OF SECTION

1.4	**Measurement and Payment**	Delete 1.4.1 and replace with the following	Measurement for granular subbase of variable thickness will be for actual quantity placed based on weigh tickets provided to Contract Administrator as loads are delivered.
		Delete 1.4.2 and replace with the following	Measurement for granular subbase for each specified thickness will be for the actual area placed.
		Delete 1.4.3 and replace with the following	Payment for Subsection 1.4.1 & 1.4.2 above includes supply, placement and compaction of granular subbase material, adjustment of moisture content, and boning to establish the road cross-section, shall be included in the unit price bid in the Schedule of Quantities and Prices.
		Delete 1.4.4 and replace with the following	Payment for removal of unsuitable subgrade including disposal off-site prior to direct placement of granular subbase will be made under Section 31 24 13 – 1.8.5 Common Excavation.
2.0	**PRODUCTS**		
2.1	**Specified Materials**	Delete	2.1.1.1: Select Granular Subbase 2.1.1.2: 75 mm Pit Run Gravel 2.1.1.4: Pit Run Sand 2.1.1.5: Approved Native Material 2.1.1.7: River Sand

END OF SECTION

1.4	**Measurement and Payment**	Delete 1.4.1 and replace with the following	Measurement for granular base of variable thickness will be for actual quantity placed based on weigh tickets provided to Contract Administrator as loads are delivered.
		Delete 1.4.2 and replace with the following	Measurement for granular base for each specified thickness will be for the actual area placed.
		Delete 1.4.3 and replace with the following	Payment for Subsection 1.4.1 & 1.4.2 above includes supply, placement and compaction of granular base material, adjustment of moisture content, and boning to establish the road cross-section, shall be included in the unit price bid in the Schedule of Quantities and Prices.
		Delete 1.4.4 and replace with the following	Payment for removal of unsuitable subgrade including disposal off-site prior to direct placement of granular subbase will be made under Section 31 24 13 – 1.8.5 Common Excavation.
2.0	**PRODUCTS**		
2.1	**Granular Base**	Add 2.1.1.3	25 mm minus crushed gravel conforming to the gradation specifications for Collector/Arterial Roads under Section 31 05 17S – 2.10.3.
3.0	**EXECUTION**		
3.5	**Proof Rolling**	Delete 3.5.1 and replace with the following	For proof rolling, use fully loaded single axle, to 80 KN (18, 000 lb) minimum, dump truck.
		Add 3.5.7	Prior to paving with asphalt concrete, the base surface shall be checked by the *Contract Administrator* and the City, for deflections utilizing a Benkelman Beam, in order to insure that the final rebound requirements can be obtained with the asphalt pavement. In the event that such deflection is in excess of those required to produce the final standards, then the base shall be adequately strengthened by additional gravel or asphalt concrete to insure that final deflections as follows are not exceeded. The Benkelman spring rebound value of the completed pavement surface shall not at any point exceed 0.75 mm for arterial industrial roads and lanes, 1.15 mm for collector roads, and 1.5 mm for local roads and lanes as determined in the procedures outlined in the Transportation Association of Canada publication "Pavement Management Guide."

END OF SECTION

1.5	**Measurement and Payment**	Delete 1.5.1 and replace with the following	Payment for all work performed under this Section will be incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices.
		Delete 1.5.2 and replace with the following	Pavement surface cleaning, as per section 32 01 11, and all other work incidental to the application of tack coat is deemed to be incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices.
3.0	**EXECUTION**		
3.2	**Application**	Add to 3.2.3	Asphalt tack coat to be applied using a truck mounted spray bar unless otherwise approved by the *Contract Administrator* and the City. Contractor shall demonstrate, to the *Contract Administrator* and the City, prior to application that all spray nozzles are operational and providing a consistent application.

END OF SECTION

1.0	**GENERAL**		
1.4	**Submission of Mix Design**	Delete 1.4.1 and replace with the following	Submit asphalt concrete mix design, including RAP content and trial mix test results to Contract Administrator for review at least two weeks prior to commencing work.
1.5	**Measurement and Payment**	Delete 1.5.1 and replace with the following	Payment for asphaltic concrete paving includes all construction joint preparation, surface cleaning and preparation, reshaping, asphaltic surface milling to tie into existing asphalt, saw cutting, supply and placing of the asphaltic concrete, tack coat, compaction and cleaning frames, covers and lids of castings affected and taped temporary pavement markings. Measurement for asphaltic concrete paving for the specified design mixes will be made at the respective unit prices bid in the Schedule of Quantities and Prices and incorporated into Work will be asphalt concrete actually based on weigh tickets provided to the Contract Administrator as loads are delivered. The contractor will not receive any additional compensation above the respective unit prices bid in the Schedule of Quantities and Prices for Hand Work, Special Equipment & Machinery to complete the Hot Mix Asphaltic Paving Work as shown on the Contract Drawings or as directed by the Contract Administrator. For measurement and payment purposes, Contract Administrator may calculate payment on actual area paved to the thickness specified in in the Schedule of Quantities and Prices and as shown on the Contract Drawings.
		Delete 1.5.3 and replace with the following	Payment for asphaltic concrete sidewalks, pathways, driveways, and infill strips paving includes all construction joint preparation, surface cleaning and preparation, saw cutting, supply and placing of the asphaltic concrete, tack coat, compaction and cleaning frames, covers and lids of castings affected. Measurement for asphaltic concrete paving for the specified design mixes for will be made at the respective unit prices bid in the Schedule of Quantities and Prices and incorporated into Work will be asphalt concrete actually based on weigh tickets provided to the Contract Administrator as loads are delivered. Payment for this item includes all applicable materials and work described in 1.5.1. Work includes all necessary adjustments on site during construction to achieve proper tie-in to existing driveways as directed by Contract Administrator. Adjustments performed under this section shall be incidental to payment for work described in other Sections.
1.6	**Inspection and Testing**	Add 1.6.3	Test cores will be taken by the *Contract Administrator* in the areas of new paving and will include cores along construction joints to ensure compliance with the required design and compaction.
2.0	**PRODUCTS**		
2.1	**Materials**	Add 2.1.2.1	Usage of recycled asphalt shingles will not be permitted.
		Add 2.1.2.2	Usage of softening agents, rejuvenators, or recycling agents will not be permitted.

2.2	**Mix Design**	Delete 2.2.2 and replace with the following	Mix may contain up to a maximum of 15 % by mass of RAP for Upper Course Asphalt and 20 % by mass of RAP for Lower Course Asphalt without a special mix design. The *Contract Administrator* and the City may approve higher proportion of RAP if *Contractor* demonstrates ability to produce mix meeting requirements of the specification.
		Delete 2.2.3.2 Marshall Stability and replace with the following	Marshall Stability at 60^{o}C for both lower and upper courses to be 10 KN min.
3.0	**EXECUTION**		
3.3	**Preparation**	Delete 3.3.3 and replace with the following	The *Contractor* is responsible for adjusting all utility manhole frames and valve boxes, belonging to Coquitlam and/or other agencies that are affected by the road works. All adjustments to utilities must be completed to the satisfaction of the utility owner. Utility adjustment within the paved surface will be considered incidental to the *Work* unless otherwise noted in the *Contract Documents*. The *Contractor* should note that certain utility owners may decide to complete their own adjustments. The *Contractor* will be required to cooperate with any utility company providing their own adjustments. The *Contractor* shall be responsible to contact the appropriate utility company with in minimum of seventy-two (72) hours of the work. No adjustment shall be made without the written approval of the utility company. <u>All manholes must be vertically adjusted a minimum of twenty-four (24) hours prior to paving.</u> The use of riser rings for adjusting manhole frames and value boxes will not be permitted.
3.7	**Joints**	Delete 3.7.5 and replace with the following	Construct butt joints at locations as shown on the *Contract Drawing* and as directed in the field by the *Contract Administrator* and the City.

END OF SECTION

1.0 GENERAL

1.2	**Scope**	Delete 1.2.1 and replace with the following	Pavement Markings: Miscellaneous taped temporary and permanent pavement paint markings including pedestrian crosswalk, merge and diverge markings, stop lines, solid and broken line road lane markings including edge lines of merge and diverge markings, bike symbols, etc. to be provided as shown on the *Contract Drawing*.
1.5	**Measurement and Payment**	Delete 1.5.2 and replace with the following	All permanent markings shall be marked with thermoplastic road markings as specified under Section 32 17 23S, 2.1 Materials, unless shown otherwise in the Schedule of Quantities and Prices.
		Delete 1.5.3 and replace with the following	The lump sum payment for permanent thermoplastic pavement markings or MMA Solid Green covers removal of existing markings, supplying all materials and completing all the permanent thermoplastic pavement markings or MMA necessary to provide markings as shown on the Contract Drawings. NOTE: PAYMENT FOR PERMANENT THERMPOPLASTIC PAVEMENT MARKINGS WILL NOT BE MADE UNTIL ALL TEMPORARY PAVEMENT MARKINGS AND REFLECTIVE DEVICES HAVE BEEN REMOVED.
		Delete 1.5.4 and replace with the following	Payment for signage includes all sign poles, bases, sleeves, sign relocations, temporary removal, cleaning and re-installation of existing, disposal of unused materilas, and sign installations (complete). The City will supply signs to supplement existing signs as required. Payment includes all labor, materials and incidentals to complete the work. 1. Installation of each new sign pole, cap, sleeve and trapezoidal base includes all costs to supply all materials, labour and equipment and incidentals, as shown on Standard Detail Drawings SS-E11.1 & SS-E11.2, necessary to the install sign structure as shown on the Contract Drawings and as directed by the Contract Administrator. 2. Installation of each new sign pole, cap, sleeve, galvanized steel bracket for no post barrier, as per MOT Drawing # SP635-3.8.3, includes all costs to supply all materials, labour and equipment and incidentals necessary to the sign structure as shown on the Contract Drawings and as directed by the Contract Administrator. 3. The unit price payment is for each city supplied aluminum sign installed on a sign pole includes sign mount clamps & all costs to supply all materials, labour and equipment and incidentals necessary to install each sign as directed by the Contract Administrator. 4. Installation of each aluminum sign on a lamp standard pole or sign pole includes sign mount clamps and all costs to supply all materials, labour and equipment and incidentals necessary to install each sign as directed by the Contract Administrator.
		Add 1.5.5	Payment for the removal and disposal of all existing signages that are no longer required on site, as described in contract drawings or as directed by the Contract Administrator will include removal and disposal of signs, poles, bases, and all labour and equipment to complete the work.

2.0 PRODUCTS

2.1 Materials

Delete 2.1.1 and replace with the following

All permanent paint markings shall be marked with thermoplastic manufactured by LAFRENTZ Road Markings, HITEX North America (HiBrite Extrude Thermoplastic), or ENNIS-FLINT (Extruded Thermoplastic).

Delete 2.1.6 and replace with the following

Pavement Markings:

Delete 2.1.7 and replace with the following

Thermoplastic material

.1 Material composition shall be at the discretion of the manufacturer subject to the approval of the Contract Administrator and the City. Each formulation shall be identified by a code number.

.2 No retained water when tested by ASTM D-570.

.3 Specific gravity of the supplied product shall be within 3 % of that specified for the selected formulation.

.4 Material shall not deteriorate upon contact with deicing chemicals, gasoline, diesel fuel or grease dropped by traffic.

.5 Material shall not break down, deteriorate, scorch or discolour, if held within the application temperature range specified by the manufacturer for a period of four hours and it must be able to be reheated from room temperature to the application temperature four (4) times without showing any of these detrimental effects.

.6 When applied at the temperature recommended by the manufacturer and at a film thickness of 2 to 4 mm, the material shall set solid and show no tracking under traffic after elapsed times as follows:

.1 Two (2) minutes at an air temperature of 10^{o} C, relative humidity less than 75 %, and road surface temperature from 10^{o} C to 20^{o} C.

.2 Five (5) minutes at an air temperature of 32^{o} C, relative humidity less than 75 %, and road surface temperature from 35^{o} C to 50^{o} C.

.3 The drying time under conditions intermediate between the two air temperatures shall be interpolated using a straight line model.

.7 The quantity, type, and gradation of the component reflecting glass spheres premixed in the thermoplastic material shall be at the discretion of the manufacturer, but shall provide retroreflection levels specified below.

3.0 EXECUTION

3.3 Application

Add to 3.3.1.3

Temporary raised pavement markings (TRPMs) are to be provided on all multi-lane roadways as directed by the *Contract Administrator* and the City.

Delete 3.3.3.3 and replace with the following

Thermoplastic material shall be heated in the melter to a temperature of 382 ˚F.

END OF SECTION

1 GENERAL

1.1 SECTION INCLUDES

.1 Design, labour, Products, equipment and services necessary for irrigation work in accordance with the Contract Documents.

General Requirements

.2 Section 32 84 23 refers to those portions of Works that are unique to the supply and installation of sleeves, piping, valves and valve chambers, backflow preventers, sprinklers, controllers, pumps, and all related appurtenances necessary to provide a properly operating automatic irrigation system to cover all the applicable landscapes.

.3 This Section must be referenced to and interpreted simultaneously with all other sections pertinent to the Works described herein.

.4 All details not specifically covered in this Section shall comply with the City of Coquitlam waterworks specifications and with respective AWWA standards, the BC Building Code (current edition) Part 7 - Plumbing Services and/or manuals of practice as specified in these Contract Documents.

.5 All irrigation systems to be designed by an IIABC Certified Designer and installed and maintained by a registered member in good standing of the IIABC.

.6 All irrigation plans shall include an 'Irrigation Key' with all system design calculations.

.7 All irrigation designs shall include Data Industrial Flow sensors.

.8 The irrigation system installation and components shall be as per these Specifications and the City of Coquitlam Water Meter Specifications.

1.2 REFERENCES

.1 CSA B137.3, Rigid Polyvinyl Chloride (PVC) Pipe for Pressure Applications (Withdrawn, No Replacement).

.2 ASTM D1248, Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.

.3 ASTM D2466, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.

.4 ASTM D3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

.5 BC Building Code(current edition) Part 7 - Plumbing Services.

.6 B.C.W.W.A Cross Connection Control Manual.

.7 Master Municipal Construction Documents(MMCD) Volume II 2009 Platinum Edition

Related Work

.8 Section 31 23 01 - Excavating, Trenching and Backfilling

.9 Section 33 44 01 - Manholes and Catch Basins

.10 Section 03 20 01 - Concrete Reinforcement

.11 Section 03 30 53 - Cast-in-Place Concrete

.12 Section 31 05 17 - Aggregates and Granular Materials

1.3 CODES AND PERMITS

.1 All work shall be installed in accordance with the requirements of local and applicable provincial and federal regulations. Any work shown on the drawings or described in the specifications which is at variance with the regulations shall be changed to comply with the requisite authority at no cost to the City.

.2 WorkSafe BC regulations shall be followed.

.3 The Subcontractor shall be responsible for obtaining all permits and licenses required to undertake and complete the work. Include costs for required permits and approvals in tendered prices.

.4 Provide the Consultant with signed and approved copies of all required permits, including the following:

- .1 Backflow test report.
- .2 Technical Safety BC Electrical Contractor Authorization and Declaration of Compliance Electrical Inspection Request Form.

Interpretation of the Work

.5 The Irrigation Contractor shall be fully acquainted with the existing site and shall fully understand the difficulties and restrictions attending the execution of the *Works* under this contract. Interpretations by the Irrigation Contractor of the meaning of any section of the contract drawings and specifications herein prior to submitting a tendered price shall not remove the responsibility of completing the *Works* as per the directions of the City Representative, including all costs associated with that *Works*, should the Irrigation Contractor's interpretation be incorrect. Prior to submitting a tendered price for the *Works*, the Irrigation Contractor must

seek clarification from the City Representative and Consultant for any items within the contract drawings and specifications that may appear to be unclear or conflicting.

1.4 SUBMITTALS

.1 Provide a Certified Irrigation Contractor certificate and proof of good standing with the Irrigation Industry Association of BC or the Irrigation Association within 5 days of receipt of the Notice to Proceed.

.2 Provide FSR C R Low Energy field safety representative certificate of qualification and Electrical Contractor License within 5 days of receipt of Notice to Proceed.

.3 Provide Backflow Assembly tester certificate within 5 days of receipt of Notice to Proceed.

.4 If required, the Subcontractor shall submit evidence of project personnel having certification in High-Density Polyethylene Butt Fusion within 5 days of the Notice to Proceed.

.5 The Subcontractor shall submit Shop Drawings for approval by the Consultant prior to construction. Shop Drawings of the irrigation system are required for all aspects of the irrigation system not included in the Drawings. This includes but is not limited to:

- .1 Revisions to irrigation system design not previously addressed in Contract Documents, including revisions to irrigation system design which markedly alter the original design, as determined by the Consultant.
- .2 Installation details for irrigation components are not addressed in the Contract Documents.
- .3 Details are required by the consultant for the review of proposed substitutes.
- .4 Tasks identified in project specifications as requiring a Shop Drawing.
- .5 Submit shop drawings to the consultant for review, comment, approval, or rejection.
- .6 The Subcontractor shall submit product literature for approval by the Consultant prior to the start of construction.
- .7 Provide Electrical Installation Permit and Electrical Contractor Authorization and Declaration of Compliance Electrical Inspection Request upon permit issuance.
- .8 Submit a complete set of Record Drawings to the Consultant prior to the issuance of a Certificate of Substantial Performance. Submit a digital copy in .pdf and .dwg format, hard copies in full and half-sized, and a half-sized laminated copy in the controller cabinet.
- .9 Submit the complete Operating Manual to the Consultant prior to issuance of Substantial Performance. Provide one (1) hard copy in a binder and one (1) digital copy.
- .10 Submit a written guarantee to the Consultant prior to issuance of Substantial Performance.

1.5 IRRIGATION RECORD DRAWINGS

.1 Maintain accurate scaled records of the installed irrigation system and its components on a marked-up set of Contract Documents daily during Construction. Show all deviations from the Contract Drawings. Make marked-up Contract Drawings available to the Consultant upon request.

.2 For sports fields and large parks, retain a qualified survey instrument operator to record the exact locations of all installed irrigation components, including changes of pipe direction.

.3 The Record Drawings shall be submitted within 14 days of issuance of Substantial Performance. Submit one (1) full-sized copy, one (1) half-sized copy, and one (1) half-sized laminated copy. Submit digital copies in .pdf and .dwg format with the digital submission of the Operating Manual.

.4 The Record Drawings must clearly and legibly show all components of the irrigation system as installed, including wire splices. The Record Drawings must include the following:

- .1 Identify each zone numerically, complete with precipitation rate and GPMs per zone.
- .2 Scale and north arrow.
- .3 Legend of all equipment installed, complete with make and model of each product.
- .4 Date of installation.
- .5 Irrigation watering schedule.

.5 The Subcontractor shall maintain the as-built record drawing throughout the maintenance and warranty period and issue a revised as-built Irrigation Drawing at Final Acceptance if any changes are made. The as-built drawings shall be certified by the landscaping subcontractor as being an accurate record of the installation.

1.6 OPERATING MANUAL

.1 Prepare a complete Operating Manual for the installed irrigation system. The Operating Manual shall be submitted within 14 days of issuance of Substantial Completion. The content of the Operating Manual must include:

- .1 Product literature and warranty documentation
- .2 Equipment operating instructions.
- .3 Maintenance instructions, including spring start-up and winterization procedures.
- .4 Copies of all irrigation inspection reports and test results.
- .5 Copies of the backflow test report and Electrical Permit.

.2 A written guarantee statement covering workmanship and materials shall be provided to the City for at least one (1) year from the date of Substantial Performance. The Subcontractor shall warranty maintenance on the system for at least one (1) year, including but not limited to spring start-up, adjustments and maintenance operations as required, and winterization. The Subcontractor will also attend a warranty inspection before handover.

.3 Provide any special tools as provided by the manufacturer for servicing of the irrigation equipment installed.

1.7 QUALITY ASSURANCE

.1 The Subcontractor performing this work shall be a "Certified Irrigation Contractor," having met the certification standards established by the Irrigation Industry Association of British Columbia or the Irrigation Association and having experienced, trained, and insured personnel qualified for the scope of work.

.2 Be certified as a Class C R Low Energy field safety representative (FSR) registered with Technical Safety BC as an Electrical Contractor.

.3 If the design involves High-Density Polyethylene Pipe (HDPE), the Subcontractor shall be certified in High-Density Polyethylene Butt Fusion as certified by the British Columbia Institute of Technology or approved equivalent.

.4 Manufactured products, including but not limited to irrigation heads, quick couplers, controllers, valve boxes and valves, will be warranted as per the manufacturer's standard warranty period or a minimum of one (1) year, whichever is greater.

.5 The double-check valve assembly and meter shall be installed and tested by a certified and licensed backflow tester with B.C.W.W.A.

.6 All electrical components or products specified or used in the construction of the proposed irrigation system must be CSA-approved and installed in accordance with all local, provincial, and national electrical codes.

.7 All materials are to be new and without flaws.

.8 The completed irrigation system is to efficiently and uniformly irrigate all areas and perform as required by these specifications.

.9 A written guarantee of the installed irrigation system shall be provided to the City covering workmanship and materials for at least one (1) year from the date of substantial completion. The Subcontractor shall warranty maintenance on the system for at least one (1) year, including but not limited to spring start-up, adjustments and maintenance operations as required, and winterization.

1.8 TESTS AND INSPECTIONS

.1 Inspection and testing of components will be required at various milestones during construction to ensure the irrigation system's performance meets expected standards.

.2 Provide equipment and personnel necessary for the performance of inspections and tests.

.3 The Subcontractor shall provide a minimum of 3 days' notice to the Consultant of required inspections.

.4 Conduct all inspections and tests in the presence of the Consultant and request the Consultant issue a signed report to the Subcontractor within three days regarding each test result.

.5 Keep work uncovered and accessible until successful completion of inspection or test.

.6 As a condition of issuance of a Certificate of Substantial Performance, confirm in writing to the Consultant the following inspections and successful tests:

- .1 Backflow prevention test.
- .2 Point of Connection Inspection.
- .3 Mainline Inspection.
- .4 Mainline pressure test.
- .5 Mainline pressure test.
- .6 HDPE pipe strap test.

.7 System installation inspections shall be held regularly.

.8 Backflow Assembly Test:

- .1 Conduct backflow prevention assembly test as per BC Water Works Association standards using qualified personnel.
- .2 Conduct backflow upon backflow assembly installation and submit the report to the Consultant.

.9 POC Inspection:

- .1 Inspect the point of connection. Inspect all components, connections, wire splices, supports, and sizing.
- .2 Call for inspection upon completing the installation of the point of connection.

.10 Mainline Inspection:

- .1 Inspect the mainline trench, depth, sand bedding, welds, connections, caution tape, and wire.
- .2 Call for inspection once 50% of the mainline is installed.

.11 Mainline Pressure Test:

- .1 Perform mainline pressure test to identify potential leaks and ensure mainline can operate at design pressure and maintain pressure.
- .2 Conduct mainline pressure test before backfilling of mainline.
- .3 Fill the mainline with water and expel all air from the pipe. Maintain water in the pipe for 3 hours.
- .4 Subject mainline to hydrostatic pressure of 120psi or twice the optimum design pressure of the mainline and not to exceed 160psi.
- .5 Stop the make-up water supply from going to the mainline and record hydrostatic pressure.
- .6 Visually inspect mainline and fittings for leaks.
- .7 Record hydrostatic pressure in the mainline 3 hours after the supply of make-up water stopped.
- .8 The test result is determined based on the difference in recorded pressures at the beginning and end of the test. A 5% difference or less is considered a pass.
- .9 Identify the source of the leak and replace all defective material and workmanship as necessary to eliminate the leak.
- .10 Repeat the mainline pressure test and make replacements as necessary until a passed result is achieved.

.12 System Coverage and Operation Test:

- .1 Conduct coverage and operation tests after installation and operation of the complete irrigation system. Conduct inspection to confirm that:
  - .1 Head spacing does not exceed the distances shown on Contract Drawings, and head-to-head coverage is achieved.
  - .2 Where applicable, irrigation piping should be installed to follow the contours of the land to minimize low-head drainage situations.

.3 Heads, boxes, vaults, and trenches are at a specified elevation relevant to the finished grade and are not subject to settlement or lifting.

.4 Valves are installed with the required clearances, materials, products, and connections.

.5 All irrigation components are installed with all required clearances, materials, products, and connections.

.2 Conduct operational tests to verify that:

.1 The controller can be programmed manually and remotely via the City's central control system.

.2 The controller can send and receive communication with the City's central control system 10 consecutive times without a missed communication.

.3 The controller responds to the flow sensor.

.4 Operating pressure is within design parameters.

.5 Each zone can be operated automatically and in succession via the programmed controller.

.6 There is no overspray onto different control zones, hard surfaces, or other improvements.

.13 Dripline Emitter Test:

.1 Perform inspection and testing of the dripline/emitter manifold and lines to identify potential leaks and confirm that the manifold, driplines, and emitters can operate at design pressure. Conduct inspection and testing prior to backfilling the manifold, driplines, or emitters.

.2 Fill the manifold and lines with water at operating pressure and maintain pressure for 15 minutes. Visually inspect the manifold, driplines, and fittings for leaks. Confirm that emitters are functioning correctly. Identify sources of leaks and replace all defective materials and workmanship as necessary to eliminate the leak.

.3 Repeat inspection and testing and make replacements as necessary until no further leaks are identified.

.14 HDPE Pipe Strap Test:

.1 Conduct an HDPE pipe strap test at least 1 hour after the fusion weld has been made before backfilling of HDPE pipe on those fusion welds where, upon visual or tactile inspection, the bead does not roll back properly or is inconsistent in height or width.

.2 HDPE pipe strap consists of:

.1 Cut fusion weld from pipe, allowing 200mm on either side of weld to work with.

.2 Cut pipe lengthways through fusion weld to create a strap 25mm wide.

.3 Bend strap back on itself.

.4 If weld breaks repeat test on another fusion weld, chosen by the Consultant. If second fusion weld fails, then all welds become suspect, and the HDPE pipe cannot be installed until the reason for the fusion joint failures is determined.

.5 If the fusion weld does not break, then the weld is acceptable, and no further testing of similar welds is required.

.6 Replace or repair the tested pipe strap.

.15 Vault Drainage Test:

.1 Conduct vault drainage test when the vault is installed and backfilled.

.2 Plug the drain, fill the vault with water to a depth of 300mm, and leave the water to drain.

.3 Determine the test result based on the time required for the water to drain. To pass this test, the water must drain in 60 minutes or less.

1.9 SUBSTITUTIONS

.1 Where materials are specified by brand name and model number, such specifications shall be deemed to facilitate a description of the materials and material quality and shall establish a standard for performance and quality against which proposed substitutes shall be evaluated.

.2 Substitution requests shall not be considered unless submitted in writing with sufficient descriptive literature and product samples to permit product comparison.

.3 All product substitutions shall be equal to or greater than the original design in performance, value, and water efficiency. All proposed sprinkler substitutions must be accompanied by verifiable water efficiency performance data provided by the manufacturer or an independent industry source such as the Centre for Irrigation Technology (CIT), Fresno.

.4 Alternate materials shall match the specified materials in performance, flow, and pressure loss so as not to compromise the intent of the design.

.5 The consultant's written approval is required for the use of materials different from those shown in the design. Materials installed that have not been preapproved by the Consultant are subject to removal and replacement with approved materials at the Subcontractor's expense.

.6 Substitution requests by the Subcontractor shall have no impact on Milestone Dates.

1.10 SITE CONDITIONS

.1 Verify the existence and location of all underground utilities and services before the commencement of the work.

.2 Consult with the Consultant to adjust the design, if necessary, to suit existing site conditions and grades before the work commences.

.3 Ensure that sequencing of irrigation work is carried out in coordination with the work of other trades and that sleeves, wire, pipes, valves, and other equipment are installed when appropriate.

.4 Plan, schedule and execute work to ensure a water supply is available for landscape establishment and maintenance purposes at the appropriate time, in adequate amounts, and operating at design pressures to ensure satisfactory irrigation of all landscaped areas.

.5 Report to the Consultant in writing any conditions or defects encountered on the site during or before construction upon which the work of this section depends and which may adversely affect its performance.

.6 Protect existing landscape features, plant material, structures, irrigation work in progress, and the work of other trades from damage.

1.11 MEASUREMENT AND PAYMENT

.1 The Irrigation Contractor shall furnish all services, labour, materials, equipment, plant and operations to supply and install a fully functioning irrigation system based upon the respective unit prices in the *Schedule of Quantities and Prices.*

.2 Measurement and Payment for this item will be payable when the irrigation system is completely installed, commissioned and operating in an efficient and effective manner as determined by the City Representative/Consultant.

.3 Payment shall include the excavation, trenching, backfilling and offsite disposal of any excess excavated materials, supply and installation of all materials shown on the drawings, and all materials incidental to the completion of the work, and shall include all costs for the maintenance and guarantee of the system.

.4 Payment will not be made for materials delivered and stored onsite that have not been properly installed and the finished system must irrigate all areas to be covered and shall prove satisfactory in all aspects to accepted industry standards.

2 PRODUCTS

2.1 ELECTRICAL PRODUCTS

.1 All electrical products shall be CSA-approved and bear the CSA label. Alternatively, where a product does not bear the required CSA label, it shall be approved in writing by the authority having jurisdiction.

.2 The wiring conduit shall be a Grey PVC DB2 non-metallic electric conduit, as shown on the drawings, with a minimum diameter of 50 mm.

2.2 ELECTRICAL SERVICE AND METER

.1 Unless already installed or otherwise required by the electrical utility having jurisdiction over the site, provide a metered electrical service, including but not limited to:
- .1 Electrical permit.
- .2 Electrical meter.
- .3 Establish and verify the electrical account with the appropriate utility provider.

.2 The type and size of electrical service are to be specified in the contract drawings.

.3 Unless specified otherwise, an electric meter is to be supplied and installed according to the electrical utility's standards and specifications.

2.3 IRRIGATION CONTROLLER

.1 Acceptable controllers are the Toro DXi Central Control Assemblies series. Refer to the design for specific models.

.2 The controller must include the following to provide handheld radio compatibility:
- .1 Maxxon radio unit
- .2 Radio antenna & different cell modem kit compatible with radio

.3 Where power is not available, acceptable battery-operated controllers are:
- .1 Rain Bird ESP-BAT-BT
- .2 Toro Tempus DC Series

2.4 CONTROLLER CABINET

.1 Acceptable controller cabinets include the following:
- .1 DXi Stainless Steel Wall Mount Cabinet.
- .2 DXi Stainless Steel Pedestal Type 1.
- .3 Or as shown on the Contract Drawings.

2.5 CONTROL WIRE

.1 The control wire from the irrigation controller to the electric control valve is to be a minimum of #14 gauge, with direct burial and type TWU 40 wire. It may be any colour other than white, blue, purple, or red.

.2 The common wire from the irrigation controller to the electric control valve must be a minimum #14 gauge direct burial, type TWU 40 wire, and white in colour.

.3 The master valve wire from the controller to the valve must be a minimum #14 gauge direct burial, type TWU 40 wire, and it must be red in colour.

.4 The spare control wire is to be blue in colour.

.5 Spare common wire to be white in colour.

.6 All connectors will be new, two-step, CSA-approved for watertight applications and assembled according to the manufacturer's recommendations.

2.6 TWO-WIRE CONDUCTOR

.1 The Paige Electric P7350D shall be used to communicate between the controller and the field decoders at the electric control valves.

.2 Single conductor spare decoder wire shall be CSA-approved #14 AWG Blue.

.3 All control wires installed shall use a Polyethylene outer jacket.

.4 All connectors are to be new, two-step, CSA-approved for watertight applications and assembled according to the manufacturer's recommendations.

2.7 GROUNDING AND BONDING

.1 Ground assembly consists of CSA and BC Electrical Code-endorsed products per the irrigation controller manufacturer's recommendations for grounding.

2.8 WIRE SPLICE BOXES

.1 The wire splice box, matching lid, and extensions are to be commercial grade and grey in colour. The wire splice box is to have a locking overlapping lid with a stainless steel bolt locking device and appropriate washers.

2.9 WATER SERVICE AND METER

.1 Unless already installed or otherwise required by the water utility having jurisdiction over the site, provide a metered water service, including but not limited to:

- .1 Permit.
- .2 Backflow prevention assembly. Backflow prevention units shall be of the size and type shown. Install backflow prevention units in accordance with all applicable codes and bylaws, with positive drainage and room for servicing.
- .3 Establish and verify water accounts with the appropriate utility provider.
- .4 Supply and install a water meter in accordance with the requirements of the water utility.
- .5 Conform water meter size to mainline diameter and allow for minimal pressure losses.

2.10 VAULT AND LID

.1 Refer to Contract Drawings for acceptable vaults and lids for point-of-connection components.

.2 Lids to have recessed hinges and locking hardware.

2.11 VAULT DRAIN

.1 Perforated Schedule 40 PVC pipe, 100mm diameter with threaded inlet cover having 13mm grated openings.

2.12 BACKFLOW PREVENTION ASSEMBLY

.1 Acceptable double-check valve assemblies are:

- .1 Watts Series 007 Double Check Valve Assembly.
- .2 Apollo 4A 100 Double Check Valve Assembly.

2.13 FLOW SENSORS

.1 Flow sensors are to be PVC, sized to match system low and high flows. Acceptable flow sensors are:

- .1 Toro TFS 050.
- .2 Toro TFS 075.
- .3 Toro TFS 100.
- .4 Toro TFS 150.
- .5 Toro TFS 200.
- .6 Toro TFS 300.
- .7 Toro TFS 400.

.2 Acceptable wires for the flow sensor shall be shielded, direct burial communication cable and include the following:

- .1 Regency Wire PE 39 Communication Cable.
- .2 Paige Electric P71R2D.
- .3 Approved equal.

2.14 MASTER VALVE

.1 Acceptable master valves are as follows:

- .1 Rain Bird PEB Series.
- .2 Toro P220 Series.

.2 Master valve to be sized to maximum and minimum flow parameters as shown on Contract Drawings.

2.15 PRESSURE REDUCING VALVE

.1 Acceptable water pressure-reducing valves are Watts Series 25AUB Z3.

2.16 BLOW-OUT ASSEMBLY

.1 Blowout assembly to consist of a tee with a 25 mm ball valve with a plug.

2.17 QUICK-COUPLING VALVE

.1 Acceptable quick coupling valves are as follows:
- .1 19mm Rain Bird 3 RC.
- .2 25mm Rain Bird 5 RC.

2.18 GATE VALVE

.1 For gate valves sized up to 50mm, acceptable gate valves include the following:
- .1 Red White #280.
- .2 Toyo #206A.

.2 Acceptable gate valves that are sized greater than 50 mm are as shown on Contract Drawings.

2.19 POLYVINYL CHLORIDE (PVC) PIPE

.1 Conform to CSA B137.3.

.2 New condition, extruded from virgin, high impact materials, solvent weldable with belled ends, continually and permanently marked showing manufacturer's name, material, size, and pressure rating.

.3 Acceptable PVC pipe to be as follows:
- .1 Class 200 PVC.
- .2 Schedule 40 PVC.

2.20 POLYETHYLENE (PE) PIPE

.1 New condition Series 100, in new condition, extruded from virgin materials, continually and permanently marked showing manufacturer name, material, size, and pressure rating.

2.21 HIGH DENSITY POLYETHYLENE (HDPE) PIPE

.1 New condition CSA Approved, extruded from virgin materials, continually and permanently marked showing manufacturer's name, materials, size, and pressure rating.

.2 Material to be listed by the Canadian Standards Association (CSA) and Plastic Pipe Institute (PPI) as a PE 3408 resin with a hydrostatic design basis (HDB) of 1600 psi for water at 231C. Material to comply with ASTM D1248 as a Type III Class C, Category 5, Grade P34 material and with ASTM D3350 as a 345434C cell material.

.3 Acceptable HDPE pipe is dependent on operating pressure and to have Standard Density Ratios (SDR) as follows:
- .1 Max. pressure up to 100psi: SDR 17.0.
- .2 Max. pressure exceeding 100psi: SDR 11.0.

2.22 SLEEVING

.1 Schedule 40 PVC for irrigation sleeve in a bored hole or under the hard surface.

.2 Irrigation sleeve diameter is to be a minimum of 50mm or twice the diameter of the pipe running through it, whichever is greater.

.3 Control wire conduit to be a minimum of 50mm diameter CSA Approved electrical conduit.

2.23 FITTINGS

.1 New condition Schedule 40 PVC is conforming to ASTM D2466 standards and is of the same material as the pipe. Fittings are to be designed for solvent welding to PVC pipe except where valves and risers require threaded joints.

.2 Nipples are to be threaded Schedule 80 PVC and manufactured from the same material as pipe.

.3 At the point where the supply source changes from metal to PVC pipe, the metal end of the pipe must be an FIPT (female) adapter and the PVC fitting a MIPT (male) adapter.

.4 Flange couplers may be used upon approval of the Consultant.

.5 The fittings for the LDPE pipe are to be Spears insert fittings complete with stainless steel gear clamps.

.6 Fittings for HDPE pipe to be butt fusion type for end-to-end joints.

.7 The SDR rating of HDPE fittings must match the SDR rating of the HDPE pipe specified.

.8 HDPE pipe fittings are to be moulded or fabricated by the pipe manufacturer. HDPE pipe fittings and flange adapters made by contractors or distributors are prohibited.

.9 Fittings for dripline and drip emitters to be compatible with specified dripline or emitter and as recommended by the manufacturer.

.10 All pipes and fittings installed in the irrigation vault are to be Schedule 80 per Drawings.

2.24 PIPE SOLVENT AND PRIMER

.1 PVC pipe solvent and primer combinations are recommended by the manufacturer and suitable for use with specified materials and applications.

.2 Use solvent and primer as directed by the manufacturer. Use only solvent and primer that meets local codes.

.3 The use of wet and dry solvents and primers is prohibited.

2.25 VALVE BOXES

.1 Acceptable irrigation valve boxes are:
- .1 Rain Bird VB Series Valve Boxes.
- .2 NDS Pro-Spec Series.

.2 Valve box and matching T Cover Lid and extensions to be commercial grade and green in colour.

.3 The valve box is to have a locking lid with a stainless steel bolt locking device and appropriate washers.

2.26 ELECTRICAL CONTROL VALVE

.1 Acceptable electric control valves are:
- .1 Rain Bird PEB Series.
- .2 Toro P 220 Series.

.2 Size the electric control valve in accordance with the valve manufacturer's recommendations for the design flow.

2.27 SWING JOINT ASSEMBLY

.1 Acceptable swing joint assemblies for sprinklers flowing up to 8 gpm:
- .1 Rain Bird SA Series Swing Assembly.

.2 For sprinklers flowing greater than 8gpm, use swing joints with three (3) threaded Schedule 40 PVC elbows and one threaded Schedule 80 PVC nipple.

.3 The length of the nipple shall be such a length to permit the installed head or valve to be set as specified.

.4 The diameter of the nipple to match the inlet for the valve or head is shown on the Contract Drawings.

2.28 SPRINKLERS - SPRAYHEADS

.1 Acceptable sprayhead sprinklers are as follows:

.1 Rain Bird 1806 SAM-PRS, 1806 SAM P45, 1812-SAM-PRS, 1812-SAM-P45 Series.
.2 Rain Bird RD1800 Series Spray Heads.

.2 Acceptable nozzles are Rain Bird MPR fixed arc nozzles. Where fixed arc nozzles do not fit the desired irrigated area, use Rain Bird HE VANs.

2.29 SPRINKLERS - ROTORS

.1 Acceptable rotors are as follows:
.1 Rain Bird 5004 + SAM R Series.
.2 Rain Bird Falcon 6504 Series.
.3 Rain Bird 8005-SS Series for sports field applications.
.4 Rain Bird 8005.

2.30 ROOT WATERING SYSTEM

.1 Acceptable root watering systems are Rain Bird RWS Series, and the size and depth are specified on the contract drawings.

.2 Root watering systems shall be outfitted with a Rain Bird RWS SOCK when installed.

2.31 DRIP ZONE KITS

.1 Acceptable drip zone kits are as follows:
.1 0.3 to 20 GPM: Rain Bird XCZ 100 PRB COM.
.2 15 to 40 GPM: Rain Bird XCZ 150 LCS.

2.32 FILTERS

.1 Acceptable filters are as shown on the Contract Drawings.

.2 Filter to be commercial grade appropriate for designed flow rates and manufactured by Rain Bird.

2.33 LANDSCAPE DRIPLINE

.1 Acceptable driplines are as follows:
.1 Rain Bird XFD On Surface Dripline.
.2 Rain Bird XFS Sub Surface Dripline.
.3 Rain Bird XFS CV Dripline.

2.34 DRIP EMITTERS

.1 Acceptable emitters are Rain Bird Xeri bugs, sized as shown on Contract Drawing.

2.35 LATERAL FLUSH ASSEMBLY

.1 Ball valve with a street elbow on swing joint assembly complete with Rain Bird VB10RND valve box.

2.36 AIR RELIEF VALVES

.1 Acceptable air relief vales are Rain Bird ARV050 Air/Vacuum relief valves.

2.37 THRUST BLOCK

.1 Thrust blocks to be 20MPa at 28-day strength. Thrust blocks can be either:
.1 Poured in place concrete.
.2 Pre-cast concrete block.

2.38 BACKFILL MATERIAL

.1 Native excavated material shall be clean excavated soil, free from organic matter, stones larger than 25mm, building debris, and other foreign substances.

.2 Sand: pit run sand.

3 EXECUTION

3.1 EXAMINATION

.1 Report existing conditions at variance with Contract Drawings to the Consultant.

.2 Verify locations of underground utilities before commencing excavation and conduct work to prevent interruption and damage to services and utilities. Make good all damages to same at Subcontractor's cost.

.3 Verify the location of all services in building walls before boring or drilling holes. Make good all damages to same at Subcontractor's cost.

.4 Protect existing conditions and complete work from disturbance during work. Make good all damages to same at Subcontractor's cost.

.5 Adjustments to the irrigation system installation to avoid existing conditions, completed work, and utilities will be permitted subject to prior approval by the Consultant.

3.2 LAYOUT

.1 Locations of irrigation components shown on plans are schematic in nature. Coordinate the actual location of irrigation components with landscaping, building and physical features of the site. Confirm proposed changes to the location of irrigation components in writing with the Consultant before installation. Changes that markedly alter the irrigation design, in the consultant's opinion, require the submission of Shop Drawings and an updated Design Report to the Consultant for their permission to proceed. Record all approved revisions on a marked-up set of Contract Drawings.

.2 Layout and stake irrigation system per Contract Drawings to confirm:

- .1 The layout is within the project boundary and property lines.
- .2 Site grades are consistent with Contract Drawings.
- .3 Damage to the root system of existing trees is minimized.
- .4 Installation of irrigation components to be a minimum of 1 meter outside the dripline of existing trees.
- .5 Minimum horizontal and vertical clearances from electrical and other utilities are met.
- .6 Location of all sleeving, mainlines, pedestals, vaults, valve boxes, and splice boxes.

3.3 EXCAVATION

.1 Excavate to ensure depth and bedding requirements are met.

.2 All excavation is unclassified. Report any material or site condition that cannot be excavated by normal mechanical or normal means, or that may affect excavation to the required depth to the Consultant before excavation.

.3 Identify and recycle all suitable materials recovered during construction.

.4 Remove and dispose of buried debris exposed during excavation, including decommissioned irrigation materials and underground utilities, which may impede the proper installation and operation of the irrigation system.

3.4 IRRIGATION CONTROLLER

.1 Install irrigation controller in the cabinet as per Contract Drawings.

.2 Coordinate controller installation with other electrical components.

.3 Install controller and wiring in accordance with local, provincial, and national electrical codes.

.4 Install communication components per the manufacturer's recommendations and establish communication between the controller and the City's Central Control System, including relays or boosters as necessary.

.5 Before issuance of Certificate of Substantial Performance, request irrigation program from the Consultant and set controller program accordingly.

3.5 CONTROLLER CABINET

.1 Install the controller cabinet in the location shown on Contract Drawings or in an alternate location approved or directed by the Consultant.

.2 Orient alignment of the controller cabinet as approved by the Consultant, to provide optimal observation of the irrigation system in operation.

.3 Install the controller cabinet using a poured-in-place concrete pad mount.

.4 Provide electrical service to controller cabinet as shown in Contract Drawings.

3.6 CONTROL WIRE

.1 Install control wire per code by qualified personnel employed by the company holding the electrical permit.

.2 Bury control wire per applicable code and in no case above the bottom side of the parallel pipe.

.3 Bed control wire in sand with a minimum of 50 mm sand around the control wire. Where the control wire is in the same trench as the pipe, place the wire beside the pipe with a horizontal clearance of a minimum of 50 mm and in accordance with BC Electrical Code depth.

.4 Bundle multiple lengths of wire in the same trench or conduit with ties at a maximum of 3.0m intervals.

.5 Install wire with 600 mm length of coiled slack at all direction changes, in wire splice boxes and at connections to controlled components.

.6 Identify all control wires entering the controller cabinet with a permanent label or tag indicating the zone number of the valve operated by each control wire.

.7 Maintain consistent wire colour through wire splice box.

.8 Minimize wire splices. Where wire splices are unavoidable, make splices only in the wire splice box using a specified connector.

.9 Identify spliced wire with permanent label or tag indicating zone number of the spliced control valve.

.10 Where specified on Contract Drawings, install extra control wire to wire splice box. Provide 600 mm of coiled slack of each wire end in the wire splice box. Identify extra control wire as 'extra' wire with a permanent label or tag.

3.7 GROUNDING AND BONDING

.1 Install ground assembly in the location shown on Contract Drawings or the revised location approved by the Consultant.

.2 Use the rod, plate and wire configuration as recommended by the manufacturer of the irrigation controller and per BC Electrical Code.

3.8 WIRE SPLICE BOX

.1 Where possible, locate the wire splice box in the planting bed for ease of access, maintenance, and testing.

.2 Install the wire splice box per the drawings and arrange it neatly and in an orderly manner.

.3 Do not install valves in the wire splice box.

.4 The wire splice box is to be a Rain Bird VB10RND valve box.

3.9 WATER SERVICE AND ACCOUNT

.1 Establish a water utility account and obtain permits and approvals necessary to install and operate irrigation systems.

.2 Review regulations and restrictions imposed by applicable water utility with a Certified Irrigation Designer and advise the Consultant of any regulations or restrictions that will affect the operation of the proposed irrigation system. Provide the Consultant with the options necessary to respond to any regulations or restrictions affecting the operation of the proposed irrigation system.

.3 Coordinate with water utility as required to confirm availability, suitability, and location of an acceptable service connection.

.4 Isolate water service before installation of any irrigation components.

.5 Install water service to the point of connection. Refer to City requirements for irrigation water service.

3.10 VAULT AND LID

.1 Install vault in location on Contract Drawings or in an alternate location approved or directed by the Consultant.

.2 Support and brace point of connection components, piping and valves within the vault using adjustable aluminum pipe stands complete with riser, pipe clamps, base plate, and stainless steel fittings in the quantity per service size indicated as follows:

.1 19 mm: 2 supports.
.2 50 mm: 3 supports.
.3 64 mm and greater: 3 supports per vault.

.3 Use Schedule 80 Pipe and fittings for inside vault and extend outside the vault a minimum of 300mm beyond the vault.

.4 Connect PVC and metal pipes using male threads on PVC and female threads on metal pipes.

.5 Install vault drain and connect to drain pit, dry well, manhole or catch basin.

3.11 VAULT DRAIN

.1 The vault drain consists of a minimum of 2m3 of 25mm drain rock wrapped in landscape fabric.

.2 The pipe from the vault shall have a minimum of 0.5% slope from the vault to the drain pit.

3.12 BACKFLOW PREVENTION DEVICE

.1 Install the Double Check Valve Assembly (DCVA) in a lockable concrete vault or a locked mechanical room, per the Contract Drawings.

.2 Install the backflow prevention assembly in accordance with all applicable codes and bylaws and the current Cross Connection Control Manual Accepted Procedure and Practice (BCWWA).

.3 Support backflow prevention assembly with specified supports per the manufacturer's recommendations for locations of the support points.

3.13 FLOW SENSOR

.1 Install flow sensor in the location specified by Drawings.

.2 The flow sensor wire is to run continuously, with no splices, between the flow sensor and irrigation controller.

.3 There must be an unrestricted pipe for at least 10x the pipe's diameter upstream and 5x the pipe's diameter downstream of the tee.

.4 Follow the manufacturer's recommendations for the installation of a flow sensor and wiring.

3.14 MASTER VALVE

.1 Install master valve per Contract Drawings.

3.15 PRESSURE REDUCING VALVE

.1 Install a pressure-reducing valve as shown on Contract Drawings.

3.16 BLOW-OUT ASSEMBLY

.1 Install the blow-out assembly immediately in a vault at the point of connection. If the point of connection is inside a building, install the blow-out connection immediately downstream of the isolation valve where the mainline pipe exits the building.

3.17 QUICK COUPLERS

.1 Install in valve box per manufacturer's recommendations and Contract Drawings.

3.18 GATE VALVE

.1 Install in valve box per manufacturer's recommendations and Contract Drawings.

.2 Where points of connections are located within a building, install an isolation valve immediately downstream of where the pipe exits the building, in a rectangular valve box.

3.19 PIPES AND FITTINGS

.1 Verify that all pipes, fittings, primer, and cement are compatible for proper installation.

.2 Do not locate the open side of the trench any closer than 300 mm from the hard surface or feature.

.3 Keep the inside and outside of the pipe and its ends clean at all times. Cap or plug open pipe ends to keep out dirt and debris.

.4 Cut PVC pipe ends at a right angle to pipe length, and clean burrs before joining pipe and fittings.

.5 Immediately before joining pipe and fittings, wipe contact surfaces clean with primer.

.6 Apply a light coat pipe of cement on the inside of the fitting and a heavier coat on the outside of the pipe. Insert the pipe into the fitting and give a quarter turn to seat cement. Wipe excess cement from outside of the pipe.

.7 Consultant reserves the right to request that the Contract remove and replace any solvent weld joints that are

.8 Wrap male threads of threaded fittings with a minimum of 3 wraps of Teflon tape immediately prior to making a connection.

.9 Flush all irrigation pipes fully to remove accumulation of dirt and debris before installation of heads, dripline, emitters, and filters. Flush all laterals in a manner approved by the manufacturer to prevent clogging of screens, nozzles, and emitters.

.10 Conduct mainline pressure test and HDPE pipe strap test and obtain approval from the consultant before backfilling lines.

.11 Sidewall fusion of HDPE is not acceptable.

.12 Set mainlines and laterals on and backfill them with sand to the clearance limit shown on the drawings.

.13 Install thrust blocks at all changes in the direction of PVC pipe 64mm in diameter or greater and for any change in the direction of gasketed pipe.

.14 Install lateral piping at a depth of 300 mm to 600 mm (12" to 24").

.15 Install mainline piping at a depth of 450 mm to 800 mm (18" to 32").

3.20 SLEEVING

.1 Install irrigation sleeves in locations shown on Contract Drawings.

.2 Install irrigation sleeve to depth as follows:

- .1 Mainline Piping:
  - .1 600 mm below walkways
  - .2 900 mm below driveways, roads and plazas
- .2 Lateral Piping:
  - .1 300 mm below walkways
  - .2 600 mm below driveways, roads and plazas

.3 Install sleeves to extend 1.0 m past the edge of the hard surface into the soft landscape surface.

.4 Cap sleeve with removable plug or cover. Maintain plug in sleeve until the pipe or wire is ready to be

installed.

.5 Bed sleeves as follows:
- .1 Under walkways, 100 mm of sand is placed all around.
- .2 Under driveways, roads, and plazas, compacted base aggregate all around per materials shown on Drawings.

.6 Bury a piece of detectable metal on top of each end of the sleeve to enable the location of the sleeve end by a metal detector after burial.

.7 Stake location of each end of the sleeve prior to backfilling such that the top of the stake is 300 mm above finished grade and maintained. Label the exposed end of the stake with the word "sleeve".

.8 Record the location of sleeve ends and label the size of the sleeve on record drawings.

.9 Remove the sleeve stake after submitting the Record Drawings.

3.21 VALVE BOXES

.1 Install manual and electric control valves, control zone kits, and quick coupler valves in valve boxes or concrete vaults, as shown on the Drawings.

.2 Except as shown otherwise on Contract Drawings or approved otherwise by the Consultant, locate valve boxes in planting beds and locate for ease of access, maintenance, and testing.

.3 Install the valve box flush with the finish grade and arrange it in a neat and orderly manner.

.4 Provide a minimum 50 mm clearance between the valve box and all components within.

.5 The valve box must not contact the irrigation pipe. Use 300mm height-matching valve box extensions as required.

.6 Up to three (3) 25 mm control valves or two (2) 38 mm control valves may be contained within a single valve box provided 100mm of clearance between valves. Install valves 50 mm and larger in their own valve box.

.7 Install a minimum of four (4) bricks below all corners of the valve box. The bricks shall not intrude into the valve box's space.

.8 Wrap all valve boxes in landscape fabric before burial to prevent material from sloughing into the valve box.

3.22 ELECTRICAL CONTROL VALVE

.1 Install in valve box per manufacturer's recommendations and Contract Drawings.

.2 Identify the electric control valve with a permanent label or tag indicating the zone number of the valve.

.3 Install a 25 mm Schedule 40 PVC ball valve upstream of each 25mm; for larger valves, install a gate valve sized to match the valve.

.4 Ensure a 50 mm gap between the bottom of the valve and the top of the drain rock.

.5 Install valve box on bed 150mm depth of 25mm drain rock that extends 100mm past all edges of the valve box.

3.23 SWING JOINT ASSEMBLY

.1 Fabricate the assembly of a triple swing joint using three threaded Schedule 40 PVC elbows and one threaded Schedule 80 PVC nipple for sprinklers flowing more than 8gpm and preassembled Rain Bird swing joint assemblies for sprinklers flowing up to 8gpm.

.2 Install swing joint assembly to rotate counterclockwise when depressed.

.3 Tape threads of PVC fittings with Teflon tape and make hand tight.

.4 Install pre-fabricated swing joints per the manufacturer's recommendations.

3.24 SPRINKLERS

.1 Install per manufacturer's recommendations and in the location shown on Contract Drawings.

.2 The location of heads, as illustrated on the Contract Drawings, is intended as a guide to the layout of heads. Establish actual head locations in the field to ensure complete and adequate coverage of all areas to be irrigated and no overspray onto adjacent surfaces and improvements. Do not exceed the head spacing shown on the Contract Drawings.

.3 Where obstructions or site improvements hinder or block head-to-head coverage, advise the Consultant and determine the best method to maximize coverage.

.4 For flat surfaces, install head plumb to finished grade. For sloped surfaces, install a head perpendicular to half the grade of the slope.

.5 Mount pop-up heads on the triple swing joint assembly. Connect the sprinkler's bottom inlet to the swing joint assembly, not the side inlet. Adjust the swing joint assembly to set the head flush with the finish grade. Tape the threads of the PVC fittings with Teflon tape and make the hand tight.

.6 Adjust arc, the radius of coverage and flow at each sprinkler to achieve even head-to-head coverage of the area to be irrigated, with minimum over-spray onto other surfaces.

3.25 ROOT WATERING SYSTEM

.1 Install root watering system as follows:

- .1 Install sock over the canister.
- .2 Position units evenly spaced around the root ball and adjacent to the root zone within the tree canopy.
- .3 Fill the canister with pea gravel to 50mm below the bubbler.
- .4 Connect to lateral pipe with Rain Bird SPX Series Swing Pipe and Rain Bird SB Series Spiral Barb fittings.
- .5 Cover the grate with duct tape or landscape fabric to prevent the ingress of foreign material during construction. Remove it prior to Substantial Performance.

3.26 DRIP ZONE KITS

.1 Install in valve box per manufacturer's recommendations and Contract Drawings.

.2 Identify the electric control valve with a permanent label or tag indicating the zone number of the valve.

.3 Drip zone kits shall include one (1) schedule 40 PVC ball valve and filter.

.4 Drip zone kits are to include a ball valve, filter, and pressure regulating module.

.5 Ensure a 50mm gap between the bottom of the valve and the top of the drain rock.

.6 Install valve box on bed 150mm depth of 25mm drain rock that extends 100mm past all edges of the valve box.

3.27 FILTERS

.1 Install the filter in the same valve box as a valve, per the manufacturer's recommendations and Contract Drawings.

3.28 LANDSCAPE DRIPLINE

.1 Do not install driplines or emitters of different flow lengths or spacing on the same zone.

.2 Place the dripline on the prepared surface. The surface must be free of sharp rocks or other objects that may damage it. It must also be at the grade necessary for the dripline to be at the specified depth after the remainder of the topsoil or growing medium is placed.

.3 Placement of dripline by trenching using hand or mechanical methods permitted only if specified as such on Contract Drawings or upon written approval of the Consultant.

.4 Thoroughly flush each zone after installation and before beginning regular operation of the drip zone.

.5 Stake dripline in beds every 450 mm on centre.

.6 Make all zone connections and test the manifold, lines, and fittings for leaks prior to placing topsoil or growing medium over the manifold, headers, dripline, and emitters.

3.29 DRIP EMITTERS

.1 Install per manufacturer's recommendations and as shown on Contract Drawings.

3.30 LATERAL FLUSH ASSEMBLY

.1 Install flush assembly on the swing joint in the valve box.

.2 Install flush valve assembly at the end of each leg or section of drip line and at the end of each leg of lateral on a root watering system zone.

3.31 AIR RELIEF VALVE

.1 Install an air relief valve at the highest point in the zone or bed.

3.32 THRUST BLOCK

.1 Place a thrust block to support the pipe joints from separating, not to prevent the pipe from heaving. Do not cover the top of the pipe with concrete thrust blocking at change from a horizontal alignment to a vertical alignment.

.2 For thrust blocks installed in disturbed soils, increase the thrust block area by 50%.

.3 Place 2 ply of 6 mil polyethylene between the pipe and thrust block.

.4 Allow the concrete to set before backfilling the trench or pressurizing the line.

.5 Obtain approval from the Consultant before backfilling the thrust block.

3.33 CLEAN-UP AND RESTORATION

.1 Remove all waste and debris from the site resulting from irrigation installation.

.2 Restore all disturbed surfaces to original condition or better, and repair all trench settlements.

3.34 INSTRUCTIONS TO CITY (OWNER)

.1 Instruct the City in complete operating and maintenance procedures for the irrigation system, including start-up, winterization, and programming.

.2 Review Record Drawings and Operating Manual with the City on site.

3.35 GENERAL MAINTENANCE

.1 Inspect, operate, maintain, and adjust the irrigation system through the Landscape Maintenance Period until issuance of Certificate of Acceptance to ensure it operates as intended, including but not limited to:

- .1 Adjust irrigation schedule to ensure survival, health and growth of plant material and respond to soil conditions, and climate.
- .2 Clean sprinkler heads and adjust coverage to eliminate over watering, under watering and overspray onto adjacent surfaces.
- .3 Monitor and clean filtration equipment.
- .4 Restore grass areas, planting beds, and hard surfaces, as well as improvements affected by trench settlement and erosion.
- .5 Respond to requests from the Consultant for program adjustments, servicing, adjustments, and repairs.

3.36 WINTERIZATION MAINTENANCE

.1 During the Maintenance Period, be responsible for the winterization of the irrigation system at the end of the growing season and before the onset of air temperatures below 01 Celsius. Be liable for any damage resulting from late or improper winterization.

.2 Request the presence of the City at winterization at least 5 days prior to the proposed winterization date.

.3 Winterization includes but is not limited to:

.1 Deactivation of controller

.2 Drainage and blow-out assembly of the entire irrigation system.

3.37 MAINTENANCE SPRING START-UP

.1 During the Maintenance Period, be responsible for the spring start-up of the irrigation system at the beginning of the growing season or within 10 days of the request for start-up from the City. Be liable for any damage resulting from late or improper start-up.

.2 Ensure the City is present for spring start-up. Request the city's presence at least five (5) days before the proposed start-up.

.3 Spring start-up includes but is not limited to:

.1 Checking and testing for leaks.

.2 Cycling irrigation control program through all zones to ensure proper function and performance.

.3 Checking and adjusting heads and emitters to achieve even coverage with minimum overspray onto other surfaces.

.4 Test backflow prevention assembly. Submit test results to the Consultant.

.5 Saturation of soil with water to a depth of 300 mm to provide deep watering of all lawn areas, planting beds and tree pits

3.38 GUARANTEE

.1 Submit a written guarantee, in approved form, stating that all work showing defects in materials, workmanship or operation will be repaired or replaced at no cost to the City for a period of one (1) year from the date of Substantial Performance.

.2 Guarantee includes the supply of labour, materials and equipment necessary for the repair and replacement of damaged or defective materials and workmanship. Guarantee also includes spring start up, winterization, maintenance, necessary testing, program corrections or adjustments and restoration of settled trenches.

.3 Guarantee will not apply to materials or workmanship damaged after Substantial Performance by causes beyond the Subcontractor's control, such as vandalism or abuse.

END OF SECTION

1.0 GENERAL

.1 Section 32 91 13.23 refers to the labour, materials, and equipment necessary for the supply and installation of materials specified herein.

1. Structural soil
2. Filter fabric

1.1 Related Works and Standards

.1	Excavating, Trenching and Backfilling	Section 31 23 01
.2	Clearing and Grubbing	Section 31 11 01
.3	Shrub and Tree Preservation	Section 31 11 41
.4	Waterworks	Section 33 11 01
.5	Storm Sewers	Section 33 40 01
.6	Manholes and Catch Basins	Section 33 44 01
.7	Irrigation System	Section 32 94 01S
.8	Trees, Shrubs and Ornamentals	Section 32 93 10S

1.2 Quality Assurance

.1 All structural soil material used in planting shall be from a source approved by the Contract Administrator and all similar materials supplied to the site shall be of similar nature and from a single source. 21 days prior to supplying any material to the site, inform the Contract Administrator of proposed source and provide a copy of an analysis undertaken by a recognized testing agency appointed by the Contract Administrator, at the Contractor's expense and indicating the particle size characteristics of the proposed material in written form as laid out in 2.1.1 of this Section.

.2 All nutritive admixtures to structural soil material supplied to the site shall be from a source approved by the Contract Administrator and all similar nutritive admixtures supplied to the site shall be of similar nature and from a single source. 21 days prior to supplying any nutritive admixture, inform the Contract Administrator of proposed source and provide a copy of an analysis undertaken by a recognized testing agency appointed by the Contract Administrator, at the Contractor's expense and indicating the following characteristics of the proposed nutritive admixture:

1. Gravel, sand and fines content each as a percentage of dry weight mineral fractions.
2. Organic material content as a percentage of dry weight. Acidity (pH).
3. Salinity in millimhos/cm at 25oC.
4. Basic fertility (total nitrogen available K, Ca, Mg, P).
5. Recommendations for incorporation of necessary amendments.

.3 Costs of imported materials shall include cost of modifications from source to ensure that these materials meet specifications.

.4 The Owner may appoint a qualified Contract Administrator for the purpose of interpreting and evaluating the quality of the installation and materials used before, during and after construction.

.5 Acceptance of material at source does not preclude future rejection if material fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.

.6 Structural Soil volume requirements for a tree is calculated at 60m3 per tree in beds shared with other trees and 100m3 per tree for isolated trees based on 25% planting median by volume.

1.3 Scheduling

.1 Obtain approval from Contract Administrator of Schedule 14 days in advance of structural soil preparation or delivery of material to site.

Schedule to include:

1. Date for commencement of preparation of structural soil at source.
2. Shipping dates.
3. Arrival dates on site.
4. Installation dates.

1.4 Field Review

.1 Start-up meeting with Contract Administrator is required to confirm the areas of installation and mixing. If not previously submitted, ensure growing medium sample and test report, aggregate stone sample and structural soil sample and report are supplied at the start-up meeting.

.2 Coordinate site meeting with Contract Administrator at the following times:

1. Drainage installation and connection;
2. Irrigation installation;
3. Mixing of structural soil mixture;
4. Installation of structural soil mixture;
5. Sub-grade preparation and layout; and
6. Installation of trees.

1.5 Samples

.1 Provide 2 kg samples of all materials required for the preparation of structural soil minimum 14 days prior to commencement of installation as required by the Contract Administrator.

1.6 Product Handling

.1 All materials used in the composition of structural soil shall not be prepared, worked or travelled upon when in a wet or frozen condition.

.2 Limestone and other chemical amendments shall be supplied and handled in standard sealed, waterproof containers with net weight and product analysis clearly marked on the exterior package

1.7 Delivery, Storage and Protection

.1 For structural soil prepared at source and delivered to site, deliver all materials to site in such a manner as to prevent damage to or separation of all materials used in the preparation of structural soil.

.2 On-site storage of prepared structural soil shall be undertaken in such a manner as to prevent damage of separation of any materials.

.3 Structural soils to be installed as soon as practicable after mixing, any structural soils stored overnight whether on-site or at source shall be covered with tarpaulin of material approved by the Contract Administrator until such time as material is installed.

.4 All material to be stockpiled shall be protected in accordance with B.C. Ministry of Environment guidelines.

1.8 Measurement and Payment

.1 Measurement for structural soil will be for actual quantity placed based on weight tickets provided to Contract Administrator as loads are delivered. Payment will include supply, installation, compaction of soil, and filter cloth (Non Woven Geotexitile - Nilex 4535 or approved equal). All other costs will be considered incidental to the payment item.

2.0 PRODUCTS

2.1 Soil Stabilizer / Nutritive Admixture

.1

1. Unless indicated otherwise, all material shall be imported from a source approved by the Contract Administrator.

2. Material shall be friable, containing a minimum of four percent (4%) and maximum six percent (6%) organic matter by dry weight or 25% by volume (whichever is higher), free from stones and debris over 30mm. Acidity (pH) shall be in the range 5.5 to 7.5. Carbon to nitrogen ratio shall not exceed 40:1, and salinity shall not exceed 3.0 millimhos at 25 degrees Celsius. Gravel greater than 2mm shall not exceed ten percent (10%) of total by weight.
3. Non-toxic organic binder to be approved by the Contract Administrator prior to inclusion in any structural soil mixture.
    1) "Humus Builder" by The Answer! Garden Products
    2) "The Natural Solution" by Sport Turf Inc.
    3) Equivalent product approved by Contract Administrator prior to commencement of mixing operations.
    4) Submit 5 kg sample of mixture to Contract Administrator prior to commencement of large scale mixing procedures.
4. Planting Medium
    1) Provide all growing medium required to complete the work.
    2) Comply with the requirements of table below.
    3) Organic material in the growing medium must be well decomposed to prevent oxygen consumption caused as a result of decomposition of the organic matter in the soil

GROWING MEDIUM PROPERTIES FOR GAP-GRADED MIXTURE

Texture*	Percentage of Mixture
Gravel: greater than 2 mm – less than 75 mm	0%
Sand: greater than 0.05 mm – less than 2 mm	maximum 30%
Silt: greater than 0.002 mm – less than 0.05 mm	maximum 50%
Clay: less than 0.002 mm	maximum 30%
Clay & Silt Combined	maximum 60%
Acidity (pH)	6.0-7.0
Drainage: Minimum saturated hydraulic conductivity (cm/hr) in place	3.0
Salinity: Saturated extract conductivity shall not exceed:	3.0 millimhos/cm at 25oC
Organic Content: Percent of Dry Weight (%)	8 – 12%

* Particle size classes by the Canadian System of Soil Classification

2.2 Stone

.1 Clean inert stone of high angularity is preferred over washed gravel.

.2 Stone dimension aspect ratio should approach 1:1:1 with a maximum of 2:1:1 length: width: depth.

.3 Single size stone, 60 mm to 75 mm clear sieve designation: Blasted Quarry Rock.

.4 Aggregate to be used for structural soil shall be free of any foreign elements or material. Provide samples and test reports as described in Section 1.5 and 1.8.

.5 Aggregate quality: Material shall be sound hard, durable, free from soft, thin, elongated or laminated particles, organic material, clay lumps or material, or other substances that would act in a deleterious manner for use intended.

2.3 Granular Base

.1 To Master Municipal Specification Section 31 05 17 – Aggregates and Granular Materials.

2.4 Filter Fabric

.1 Non-woven filter fabric shall be installed as a separation layer directly above the compacted structural soil mixture. Do not install fabric until adequate compaction of the structural soil mixture has been confirmed.

.2 Filter fabric shall be selected and designed to withstand wear and tear during construction without deterioration of its strength and filtering properties. Conform to the following ASTM designations.

1.	Grab Tensile Strength	ASTM-D-4632	.400 kN
2.	Tensile Elongation	ASTM-D-4632	50%
3.	Mullen Burst	ASTM-D-3786	1270 kPa
4.	Flow Rate	ASTM-D-4491	6110 1/min/m2

.3 Fabric shall be Nilex 4535 or approved equivalent.

3.0 EXECUTION

3.1 Existing Subgrade

.1 Excavate subgrade to establish tree pit/trench as indicated.

.2 Areas designated as tree pits/trench for street tree planting shall be prepared to ninety five percent (95%) Modified Proctor Density and shall be free of stones, debris, roots branches, toxic materials, building materials and other deleterious materials, greater than 30 mm.

3.2 Preparation of Existing Grade

.1 Verify that grades are correct. If discrepancies occur, notify Contract Administrator and do not commence work until directed.

.2 Subgrade elevations shall slope parallel to the finished grades and/or toward the subsurface drain lines as indicated on the civil engineering drawings.

.3 Do not proceed with the installation of the structural soil material until all walls, curbs, and utility work in the area has been installed.

.4 Re-compact subgrade to requirements of Master Municipal Specifications and civil engineering drawings.

3.3 Mixing of Structural Soil

.1 Ensure consistent even distribution of all components by thorough mixing. The ratio of components will vary and may require adjustment to ensure the soil volume is adequate to fill all voids.

.2 Base Ratio of Materials for Structural Soil.

1) Mix structural soil to create a homogeneous product to the following table.

MATERIAL	AMOUNT	REFERENCE
Stone	4 m3	Part 2.3
Growing Medium	1 m3	Part 2.2
Soil Stabilizer	2 kg	Part 2.1

.3 Moisten mixture with fine spray of clean potable water while mixing to activate soil stabilizer product.

.4 Do not OVER MIX, OVER HANDLING can result in separation of the constituent materials. Further and final mixing will occur during the placement of the material.

.5 All mixing shall be performed at the contractor's yard using appropriate soil mixing equipment. No mixing of soils at the project site shall be permitted unless approved by the Contract Administrator.

3.4 Placement of Structural Soil

.1 Subgrade shall be approved by the Contract Administrator and unfrozen prior to placing structural soil.

.2 Structural soil shall be moist, twenty-five to seventy-five percent (25%-75%) of field capacity, but not saturated with water when placed. Placement shall be handled to avoid damage to drainage structures, irrigation equipment, concrete structures or pavement.

.3 Place mixture in 300mm lifts through entire area of structural soil mixture. Compact each lift to 95% MPD prior to placement of next lift.

.4 Place structural soil such that finished grades are achieved as indicated and compact to achieve 95% of MPD.

.5 Provide stamped Professional Engineer's Report to confirm compaction. Test to ensure uniform compaction rates have been achieved for each lift and in all areas of structural soil mixture. Refer to Quality Assurance, Section 1.4.

3.5 Installation of Filter Fabric

.1 After approval of structural soil mixture compaction, install filter fabric, as indicated.

.2 Ensure minimum 60cm overlap of all fabric seams and beyond edge of structural soil.

3.6 Finish Grading, Restoration and Reinstatement

.1 All areas shall be graded to contours and elevations as indicated on contract drawings. Eliminate rough spots and low areas to ensure positive drainage.

.2 Finish grade shall be as indicated and shall follow a level line

3.7 Tolerances

.1 Finish grade shall be to within 15 mm of proposed grades within 3.0 m of any adjacent fixed elevation points and to within 15 mm of proposed grades over any other 3.0 m length. Finish grades shall be neither uniformly high nor low.

3.8 Surplus Material and Clean-Up

.1 Dispose of surplus material off site to location approved by the Contract Administrator.

.2 Leave all hard surfaces groomed clean of soil, amendments and debris following completion of structural soil preparation and placement.

END SECTION

1.0 GENERAL

1.0 General Requirements

Delete 1.0.1 and replace with the following

.1 Section 32 91 21 refers to those portions of the *Works* that are unique to the supply, placement and finish grading of *Growing Medium*. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the *Works* described herein.

For the purpose of this specification, the term *"Growing Medium"* shall mean a soil produced offsite by homogeneous blending of mineral particulates, micro-organisms and organic matter which provides suitable medium for supporting intended plant growth and the term *"Topsoil"* shall mean on-site native or surface soil material which may be used as *Growing Medium* provided it meets standards set for imported material *Growing Medium* and can be modified to meet the requirements set out for specified *Growing Medium*.

Add 1.0.3

.3 For the purpose of this specification, the term *'Soil-Testing Laboratory'* shall mean an independent laboratory, recognized by the landscape nursery industry, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

1.4 Measurement and Payment

Delete 1.4.1 and replace with the following

Payment includes supply and installation of growing medium, boulevard tree trench and imported top soil that is free from any noxious weeds, fungal growth, mushroom, and any contaminants, and as described in the Schedule of Quantities and Proces. Payment will be made separately and includes supply of material, on-site handling, preparing the landscape area subgrade, placing, grading, raking, compacting top soil and application of fertilizers.

Payment for growing medium boulevard tree planting trench includes excavation, disposal of excavated and unsuitable material, backfill and growing medium.

Payment for imported top soil will be for actual volume placed onsite at specified thickness.

Add 1.4.4

Payment includes supply and installation of growing medium, boulevard tree trench and imported top soil that is free from any noxious weeds, fungal growth, mushroom, and any contaminants, and as described in the Schedule of Quantities and Proces. Payment will be made separately and includes supply of material, on-site handling, preparing the landscape area subgrade, placing, grading, raking, compacting top soil and application of fertilizers.

1.5 Inspection and Testing

Delete 1.5 and replace with the following

.1 The *Contractor* is responsible for testing imported *Growing Medium* and all related cost incurred. Testing shall be carried out by an approved *Soil Testing Laboratory*.

.2 The sample analysis shall be of tests done on the proposed *Growing Medium* from samples taken at the supply source within a minimum of 14 days in advance of *Growing Medium* placement. Allow 7 days for soil testing by the laboratory for each sample. The sample shall be picked up by the *Soil Testing Laboratory* from the supply source. The *Growing Medium* sample shall be a composite of at least three (3) samplings for

the proposed source and shall be at least one (1) litre in volume.

.3 Forward a copy of all test results directly to the *Contract Administrator* and the City for review. The analysis shall outline the testing laboratory's required amendments such as sand, organic matter, fertilizers and lime to achieve adequate growing conditions.

.4 The *Contractor* shall not deliver any *Growing Medium* to the site until the test results have been reviewed and approved by the *Contract Administrator* and the City.

.5 All submitted soil analysis must be dated and include supplier name and phone number, project location and submitted to *Contract Administrator* and the City for approval prior to commencing work. Soil analysis shall include measurements of:

.1 Percent sand, fines, silt and clay
.2 Organic matter to 100%
.3 pH, acidifying additive required to achieve noted herein
.4 Water soluble salts
.5 Total carbon to nitrogen ration
.6 Total nitrogen and available levels of phosphorus, potassium, calcium & magnesium

.6 At the discretion of the *Contract Administrator* and the City submit up to two (2) additional samples, at intervals outlined by the *Contract Administrator* and the City, of *Growing Medium* taken from material delivered to the site. Samples shall be taken form a minimum of three (3) random locations and mixed to create a single uniform sample of testing. Results of these tests shall be forwarded to the *Contract Administrator* and the City for review.

.7 The *Contractor* is responsible for soil analysis and requirements for amendments to supply *Growing Medium* as specified. Failure to satisfy these contractual requirements could result in the *Contractor* being required to remove unacceptable *Growing Medium* at their expense.

.8 Notify the Contract Administrator at least forty-eight (48) hours prior to Growing Medium placement for inspection.

.9 Refer to General Conditions, Clause 4.12 Tests and Inspections.

1.6 Product Handling Add 1.6

.1 All materials to be handled and adequately protected to prevent damage. Do not handle *Growing Medium* in an excessively wet, extremely dry, frozen condition or in any manner in which structure may be adversely affected. *Growing Medium* whose structure has been damaged by handling under these conditions shall be rejected and shall be replaced by the *Contractor* at their expense.

.2 Stockpile materials in bulk form in paved areas or in pre-approved areas of the site. Provide additional protection of storage under roof or tarpaulins.

.3 Take all precautions to prevent contamination of *Growing Medium* and amendments from windblown soil particles, weed seeds and from insects. Contamination of the *Growing Medium* and amendments may result in their rejection for use.

.4 Store fertilizer and chemical amendments in the manufacturer's original containers.

.5 All *Growing Medium* shall be delivered to site premixed from a recognized *Growing Medium* source ensuring consistency throughout the mix.

2.0 PRODUCTS Delete 2.0 and replace with the following

2.1 Materials

.1 *Growing Medium* Preparation

.1 Shall be prepared from Compost Material with Sand and other Soil Amendments as required to meet the specifications herein.

.2 Ensure commercial processing and mixing of *Growing Medium* components are done thoroughly by a mechanized screening process. Do not mix the components by hand. Ensure the resulting product is a homogeneous mixture having the required properties throughout free of stones 25 mm or larger in any dimension, woody plant parts, toxic materials, foreign object and other extraneous materials harmful to plant growth. Provide composted soil free from crabgrass, couch grass, equisetum, convolvulus, or other noxious weeds or seed or parts thereof.

.2 Inorganic Soil Amendments

.1 Sand: Imported pit sand or river pump sand, free of impurities, chemicals, horsetails, and other noxious weeds. The saturation extract electrical conductivity of salinity shall not be greater than 3.0 millimhos/cm at 25 degrees C.

Sieve Size (mm)	Percent passing (%)
4.75	95-100
0.50	0-40
0.050	0-5

.2 Fertilizers: Uniform in composition, free flowing and dry, granular, pill form, or pelleted commercial product with 50% of total nitrogen (if applicable) derived from natural organic material in a slowly available form delivered in unopened water proof containers with the manufacturer's guaranteed N-P-K analysis, type and trade name attached to each container. The planting soil test results will specify a formulation and application rate to achieve the levels of nitrogen, phosphorous and potassium required. Fertilizer to meet the requirements of the Canada Fertilizer Act.

.1 Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:

.1 Class: Class T, with a minimum 99 percent passing through No. 8 (2.36 mm) sieve and a minimum 75 percent passing through No. 60 (0.25 mm) sieve.

.2 Provide lime in form of dolomitic limestone.

.3 Perlite: Horticultural perlite, soil amendment grade.

.3 Organic Soil Amendments

.1 Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 25 mm sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

.1 Organic Matter Content: 50 to 60 percent of dry weight containing no cedar, redwood, wood or bark.
.2 Colour: dark brown to black in colour.

.2 Peat:
.1 Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.

.3 Wood Residual
.1 Content of wood residuals such as Fir or Hemlock sawdust present in the *Growing Medium* shall not cause the total carbon to total Nitrogen ration to exceed 40:1.
.2 Cedar or redwood sawdust shall not be present in *Growing Medium*.

.4 Manure
.1 Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth and free from salt or other harmful chemicals, such as any used to artificially hasten decomposition.
.2 All particles in manure to pass a 6.35 mmm sieve.
.3 Salt content shall give a reading of less than 0.5 millimhos/cm at 25 degrees C.

2.2 Nutrient Requirements

.1 Nutrient requirements shall meet the BCSLA/BCNTA Landscape Standard *Growing Medium* requirements for nitrogen, phosphorus, potassium, calcium, magnesium, boron, sodium cation exchange capacity, carbon to nitrogen ratio.
.1 Boron: not to exceed 1.0ppm
.2 Sodium: Sodium absorption ratio(SAR) not to exceed 8.0
.3 Total Nitrogen: to be 0.2-0.4% by weight
.4 Available Phosphorous: to be 50-100 ppm
.5 Available Potassium: to be 50-70 ppm
.6 Cation Exchange Capacity: to be 30 to 50 meq.
.7 Carbon to nitrogen ratio: Maximum 40:1.

2.3 Salinity

.1 The electrical conductivity of the liquid taken from the soil pH evaluation shall not exceed 3.0 millimhos/cm at 25 degrees C before additions of fertilizers and/or liming agents.

2.4 Drainage Rate

.1 Percolation shall be such that mixing, handling and placement to be done in such a manner that the minimum saturated hydraulic conductivity show on Table – *'Growing Medium Properties for Different Applications'* (found herein these specifications) is achieved and no standing water is visible 60 minutes after at least 10 minutes of moderate to heavy rain or irrigation.

2.5 Growing Medium Source

.1 Import planting medium or manufactured planting medium from off-site sources. Do not obtain from agricultural land, bogs or marshes.
.2 Supplier of Growing Medium shall be as per the Coquitlam Approved Products List.

2.6 Bark Mulch

.1 Mulch backfilled surfaces of planting beds and other areas indicated on drawings.

.1 Organic Mulch: Apply 50 mm average thickness of organic mulch, and finish level with adjacent *Finish Grade*s. Do not place mulch against plant stems.

.2 Supplier of Bark Mulch shall be as per the Coquitlam Approved Products List.

.3 Dark brown in colour and free of all soil, stones, roots or other extraneous matter, and free of weeds, seeds and spores.

2.7 Growing Medium Properties for Different Applications

Properties	**Low Traffic Lawn Areas, Trees and Large Shrubs**	**High Traffic Lawn Areas**	**Planting Areas, Planters Shrubs & Groundcover**
Texture: Particle size classes by Canadian System of Soil Classification	Percent of Dry Weight Mineral Fraction (%)		
Gravel (greater than 2 mm less than 75 mm)	0-10	0	0
Sand (greater than 0.05 mm and less than 2 mm)	50-70	80-90	50-70
Silt (larger than 0.002 mm and less than 0.5 mm)	10-30	5-20	10-30
Clay (less than 0.002 mm)	7-20	2-5	7-20
Organic Content Percent of Dry Weight	5-10	3-5	25-30
Drainage Minimum saturated hydraulic conductivity (cm/hr) in place	2.0	7.0	2.0
Acidity (pH)	6.0-6.5	6.0-6.5	5.0-6.0

2.8 Miscellaneous Products

.1 Root Barrier: 400x610 mm linear root barrier, copolymer polypropylene, 50% recycled plastic, black in colour. Supplier of Root Barrier shall be as per the Coquitlam Approved Products List.

.2 Construction Adhesive shall be as per the Coquitlam Approved Products List.

.3 Drain Mat: Light duty, uv stable, impermeable cuspated core bonded to a layer of non-woven filter fabric with the following minimum properties:

.1 Compressive Strength -718 kN/m2 as per ASTM D-1621

.2 Flow Rate – 188 l/min/Metre as per ASTM D-4716

.3 Approximate profile thickness of 10 mm.

.4 Supplier of Drain Mat shall be as per the Coquitlam Approved Products List.

.4 Filter Fabric: Install root barriers in accordance with manufacturer's reviewed installation instructions where indicated on reviewed drawings with vertical root directing ribs

facing inwards towards trees or plants; connect panels together as required.

1. Supplier of Filter Fabric shall be as per the Coquitlam Approved Products List.

.5 Drain Rock: Shall consist of clean round stone or crushed rock. Acceptable material includes 19 mm drain rock or torpedo gravel conforming to the following gradations.

Percent Passing		
Sieve Designation	Coarse	Fine (Torpedo gravel)
25 mm	100	
19 mm	0-100	
9.5 mm	0-5	100
4.75 mm	0	50-100
2.36 mm		10-35
1.18 mm		5-15
0.60 mm		0-8
0.30 mm		0-5
0.15 mm		0-2

2.9 Structural Soil

.1 Soil stabilizer shall be friable, containing a minimum of 4% and maximum of 6% organic matter by dry weight, free from stones and debris over 30 mm. Acidity (ph.) shall be in the range 5.5-7.5. Carbon to nitrogen ratio shall not exceed 40:1, and salinity shall not exceed 3.0 milliohms at 25 deg C. Gravel greater than 2 mm shall not exceed 10% of total weight.

.2 Supplier of Structural Soil shall be as per the Coquitlam Approved Products List.

.3 *Growing Medium* to be a gap-graded mixture.

.4

Texture of Growing Media	Percentage of mixture
Gravel: greater than 2 mm-less than 75 mm	0%
Sand: greater than 0.0 5mm-less than 2 mm	max 60%
Silt: greater than 0.002-less than 0.0 5mm	max 35%
Clay: less than 0.002mm	max 15%
Clay and silt combined	max 40%
Acidity (pH)	6.0-7.0
Drainage: minimum saturated hydraulic Conductivity (cm/hr) in place	3.0
Salinity: saturated extract conductivity shall not exceed at 25 degC	3.0 milliohms/cm
Organic content: percent of dry weight	8-12%

.5 Stone ballast: Clean inert stone of high angularity is preferred over washed gravel. Stone dimension aspect ratio should be 1:1:1 with a maximum 2:1:1 length: width: depth. Single size stone, 60 mm-75 mm clear sieve designation: Blasted Quarry Rock. Aggregate to be used for structural soil shall be free of any foreign elements or material.

.6 Structural Geotextile

Shall be installed as a structural filter layer directly above the compacted structural soil mixture. Do not install fabric until adequate compaction of the structural soil mixture has been confirmed. Filter fabric shall be selected and deigned to withstand wear and tear during construction without deterioration of its strength and filtering properties.

.1 Supplier of Geotextile shall be as per the Coquitlam Approved Products List.

.7 Ground dolomite limestone containing no less than 85% of its total weight as calcium carbonate and magnesium carbonate shall be used to control ph level. The degree of grind for the limestone shall allow 100% of the total weight to pass a #10 (2 mm) sieve, 90% to pass a #18 (1 mm) sieve and 20% to pass a #40 (0.105 mm) sieve. Spread-easy fertilizer shall be used as a slow release fertilizer source of calcium and magnesium.

.8 Mixing of structural soil:
Blend as per following ratios:
.1 5 metric tones (MT) of aggregate
.2 1 cubic meter of growing media
.3 2 kg soil stabilizer

.9 Moisten mixture with fine spray of clean potable water while mixing to activate soil stabilizer product. Do not over mix. Place mixture in 300 mm lifts through entire area of structural soil mixture. Compact each lift to 95% MPD prior to placement of next lift. Install filter fabric such to ensure a minimum of 60 cm overlap of all fabric seams and beyond edge of structural soil.

3.0 EXECUTION

3.2 Preparation of Subgrade

Delete 3.2.4 and replace with the following

Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials, soil contaminated with calcium chloride, toxic materials and petroleum products, and debris which protrudes more than 25 mm above the surface. Dispose of all removed material off site to approved offsite disposal area at no additional cost to the *Owner*.

Delete 3.2.5 and replace with the following

Course cultivate entire area which is to receive *Growing Medium* to depth of 250mm. Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

Add 3.2.6

Grade transitions shall be smooth and even and shall blend into surrounding areas as determined by the *Contract Administrator* and the City.

Add 3.2.7

Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 Processing Growing Medium

Add 3.3.4

Growing Medium shall be imported and stockpiled on site in a location approved by the *Contract Administrator* and the City.

.1 Carry out stock piling operation such that the *Growing Medium* structure is not compromised through compaction, vibration or other actions.

.2 Stock piled *Growing Medium* shall be protected from rain, drying and contaminants.

.3 *Growing Medium* shall be free of subsoil, pests, roots, wood, construction debris, undesirable grasses including crabgrass or couch grass, noxious or weeds and weed seeds or parts thereof foreign objects and toxic materials. Presence of these

contaminates shall be grounds for rejection of *Growing Medium* and replacement at no cost to the *Owner*.

3.4	**Placing Growing Medium**	Delete 3.4.2 and replace with the following	Place *Growing Medium* to the required finished grades with adequate moisture, in uniform lifts of 100 mm to 150 mm compacted to 80 MPD during dry weather, over dry, unfrozen *Sub Grade* where planting is indicated free of any standing water.
		Delete 3.4.5 and replace with the following	Minimum depths after settlement and 80% compaction: .1 Trees pits: 900 mm .2 Shrub beds: 450 mm .3 Ground cover areas: 300 mm .4 Lawn areas: 300 mm .5 Blvd. areas: 150 mm
		Add 3.4.6	Increase sand content to 90% in the planting soil below lawns where heavy wear by pedestrians or maintenance equipment is anticipated. Increase sand content in a 1.5m wide strip at the bottom of swales, banks or other wet areas and as directed by the Landscape Architect. On steep south or west facing banks, reduce sand content in lawns and planting beds to 50 - 60% for better moisture retention.
3.5	**Applying Fertilizers**	Delete 3.5 and replace with the following	.1 Addition of amendment components shall be at the rates indicated in the *Growing Medium* analysis recommendations via the following methods: .1 Lime: Applied with mechanical spreaders over entire planting areas and contained planters. .1 Do not apply by hand. .2 Mix thoroughly into the top 100 mm of *Growing Medium*. .3 Do not allow lime to come into direct contact with nitrogen - phosphate - potash fertilizers. .2 Fertilizer: Applied with mechanical spreaders over entire planting areas and contained planters. Do not apply by hand. Do not mix into *Growing Medium*.
3.6	**Finish Grading**	Delete 3.6.1 and replace with the following	Manually fine grade *Growing Medium* installation to contours and elevations shown on drawings or as directed by *Contract Administrator* and the City. Eliminate rough spots and low areas to ensure positive drainage.
		Add 3.6.3	*Finish Grade* of *Growing Medium* shall be 25 mm from finished elevation of adjacent curb or planter wall unless otherwise noted on drawings.
3.9	**Clean-up**	Delete 3.9 and add the following	.1 Ensure all paved areas, tops of planters, adjacent surfaces have been thoroughly cleaned. Ensure all discoloration of adjacent surfaces as a result of *Growing Medium* installation have been removed. .2 Dispose of materials not required and repair any damage to adjacent surfaces (as determined by the *Contract Administrator* and the City) off site at no additional cost to the *Owner*.
3.10	**Weed Control**	Add 3.10	.1 Ensure all weeds and weed roots that have germinated during the course of work of this section have been eliminated from Growing Medium. .2 Provide the City Representative and Consultant with a written outline of weed removal methodology seven (7) days prior to starting weed removal operations.

3.11	**Structural Soil**	Add 3.11	.1	Refer to 2.9 in this specification and as shown on the Contract Drawings.

END OF SECTION

1.0	**GENERAL**	Delete 1.0.2 and replace with the following	This section is based on the "British Columbia Landscape Standards and the B.C. Nursery Trades Association. This standard is intended to set a level of quality which is equaled or bettered in the construction documents.
1.4	**Handling and Storage**	Delete 1.4.3 and replace with the following	Schedule sod deliveries such that sod installation occurs within twenty-four (24) hours of being lifted from the source sod farm.
		Delete 1.4.4 and replace with the following	Sod shall be neatly stacked or rolled at the source sod farm, delivered and unloaded on sturdy pallets which are no more than 3 pallets high.
1.5	**Drainage Control**	Delete 1.5.1 and replace with the following	Provide for proper water management and drainage of site during work of this section. Water management shall include silt traps, erosion control measures, temporary water collection ditches, as well as their adequate maintenance to ensure that storm water which may become laden with soil, growing medium or hydraulic seed is detained and cleaned prior to discharge from *Place of Work*.
1.6	**Samples**	Add 1.6.2	Submit one (1) square meter of sod to the *Contract Administrator* and the City for review. Ensure sample is complete with name of sod farm, base soil type, seed mix percentage.
		Add 1.6.3	*Contract Administrator* and the City shall review sod sample for approval prior to installation. The sample accepted by the review will form the standard by which the project will be supplied.
		Add 1.6.4	Should the *Contractor* require the source of sod supply to change during the construction a written request must be provided to the *Contract Administrator* and the City 48 hours in advance. The request shall be followed up by submission of proposed sod substitution sample and include the name of sod farm, base soil type, seed mix percentage for *Contract Administrator* and the City review prior to the delivery.
1.8	**Measurement and Payment**	Delete 1.8.1 and replace with the following	Payment for nursery sod includes supply and placing of sod as shown on the Contract Drawings or as directed by the Contract Administrator and grass maintenance to meet Conditions of Total Performance. Payment includes protection from damage caused by any living creature.
2.0	**PRODUCTS**		
2.1	**Sod**	Delete 2.1.1 and replace with the following	Sod to be approved by the *Contract Administrator* and the City and to be nursery grown, true to type, conforming to standards of nursery Sod Growers' Association and their Nursery Sod Specifications. Sod to be quality, cultured turf grass grown from seed approved by Canada Department of Agriculture, free of disease, clovers, stones, pests and debris.
		Add 2.1.1.1	Nursery sod: .1 Shall be No. 1 Premium grade and contain only species of grass indicated on the supplier's certificate. .2 Sod shall be 'non-netted'
		Add 2.1.1.2	Table Guideline of Approved Sod Mix Ratios

Supreme Soil Base Sod	
(Elka II) Perennial Ryegrass	40%
(Shamrock) Kentucky Bluegrass	30%
(Cindy) Chewing Red Fescue	30%

Seed Rate: 50g per square metre	

Add 2.1.8

All sod shall be completely free of invasive and/or noxious broadleaf weeds, grasses including but not limited to poa annua, disease, fungi, detrimental nematodes and detrimental insects.

2.2 Water

Delete 2.2.1 and replace with the following

Potable, free of impurities that would inhibit seed germination. *Contractor* to ensure adequate water is available to maintain seeded areas during germination and in a vigorously growing, healthy state until *Total Performance* of work of this section.

2.3 Fertilizer

Add 2.3.2

Fertilizer shall be complete synthetic slow release fertilizer. Type and application shall be as required by the growing medium analysis report.

2.4 Wooden Pegs

Add 2.4

.1 Wooden Pegs shall be 19 mm x 19 mm x 150 mm long No. 1 grade or better Hem/fir.

2.5 Binder Twine

Add 2.5

.1 Binder Twine shall be hemp based multiple strand string.

2.6 Flagging Tape

Add 2.6

.1 Flagging Tape shall be 30 mm wide, biodegradable ribbon tape made of non-woven cellulosic material, and red color, or an approved equivalent.

3.0 EXECUTION

3.1 Finish Grade Preparation

Delete 3.1.2 and replace with the following

Prior to the placement of sod *Contract Administrator* and the City to review and direct minor adjustments and refinements of finish grades prior to the *Contractor* proceeding. Review includes grades, growing medium depth and condition of finished surface. Subsequent to the *Contract Administrator* and the City review the *Contractor* shall re-grade, add growing medium and make adjustments as directed by *Contract Administrator* and the City.

Delete 3.1.5 and replace with the following

Fine grade growing medium to lines and levels shown on Contract Drawings. Ensure that all low spots, humps and irregularities are eliminated prior to review by *Contract Administrator* and the City.

3.2 Sodding

Delete 3.2 and replace with the following

.1 Sod shall not be placed during hot dry summer periods, at freezing temperatures, or over frozen growing medium.

.2 Allow sod to dry sufficiently during wet weather to prevent tearing during lifting and handling.

.3 Handle sod carefully to minimize tearing and dropping of soil.

.4 Placement of Sod:

- .1 Lay sod in rows smooth and flush to adjoining grass areas and paving and top surfaces of curbs unless shown otherwise on *Contract Drawing*. Ensure there is a full roll width between the new sod and any adjoining surfaces. Small cut pieces from a full roll will not be accepted.
- .2 Stagger joints and ensure that sod sections are butted closely together without overlapping or leaving gaps between sections.
- .3 Cut out irregular or thin sections with a sharp knife.
- .4 Cut sod to fit tight around landscape elements.
- .5 Cut sod to create clean, smooth lines along all plant beds.

.5 Placement of Sod on Slopes:
- .1 Lay sod with the length of each sod section parallel to slope taking extra care to ensure that sod sections are butt tight and each sod section is set in a staggered formation.
- .2 On slopes exceeding 3:1 gradient ensure sod is secured with wooden pegs at intervals of not more that 450 mm along the center of each section. Ensure wooden pegs are driven flush with the sod.
- .3 Prior to acceptance of sod areas that have been secured with wooden pegs either remove the wooden pegs or drive each wooden peg at least 50 mm below finished grade.
- .4 Where required, place erosion control mesh or netting and secure with stakes or staples sunk firmly into ground to a minimum depth of 150 mm at maximum intervals of 4 meters along pitch of slope. Place stakes or staples horizontally across slope at intervals equal to width of mesh or netting minus 150 mm and drive flush with top of sod.

.6 Use a light roller to ensure that there is full, close contact between sod and growing medium. Use of a heavy roller to correct irregularities in grade is not permitted.

.7 Ensure all sodded areas are watered immediately after installation. Verify that water applied to has penetrated through sod into top 100 mm of growing medium. Continue watering operations as needed to ensure that adequate moisture content is maintain to encourage deep root growth and healthy, vigorous leaf growth.

.8 Protect newly placed sod from heavy foot traffic during installation and until acceptance by the *Contract Administrator* and the City. Protection shall include but is not limited to placement of wood planks or plywood of sufficient thickness to bear the imposed weight and prevent damage to sod or displacement and/or compaction of sod/growing medium.

.9 Sod that has been damaged by construction operation, construction / site personnel or construction traffic shall be replaced at no cost to the *Owner*. Replacement shall include removal of growing medium, regarding of sub grade, replacing growing medium and sod as required.

.10 Water sod area immediately with sufficient amounts to saturate sod and upper 100 mm of growing medium. Do not allow the sod to dry out so that the joints become visible.

3.4 Grass Maintenance — Delete 3.4 and replace with the following

.1 Maintenance of sodded areas shall begin immediately after sodded operation and shall continue until all deficiencies noted in the *Substantial Performance* review have been rectified to the satisfaction of the *Contract Administrator* and the City and conditions for *Total Performance* have been achieved. The *Contractor* is to notify the *Contract Administrator* and the City in writing forty eight hours (48) prior to stopping maintenance operations.

.2 Sod Cutting: After the 'first' cut of sodded lawn areas cutting operations shall be carried out on a weekly (seven day) basis until *Total Performance* by *Contract Administrator* and the City:
- .1 First cut of sodded lawn areas shall occur when a uniform grass height of 75 mm has been attained. First cut shall be to a height of 65 mm.

.2 Continue regular weekly cutting at a height of 65 mm until *Total Performance*.
.3 Cutting operations shall be such that each cut is at right angles to the previous cut.
.4 *Contractor* to remove grass clippings after each cut and dispose of offsite.
.5 Roll when required to remove any minor depressions or irregularities.
.6 Immediately repair seeded areas that show deterioration or bare spots. Top-dress all areas showing shrinkage due to lack of watering and seed with seed mix that matches the original seed mix.

.3 Fertilizer analysis shall conform to recommendations provided with growing medium analysis. Application of fertilizer shall follow manufacturers' recommendations noting that after October 1 lawn areas shall not be fertilized until April 15th of the following spring.

.4 Sodded lawn areas shall be kept free of invasive and/or noxious broadleaf weeds, grasses including but not limited to poa annua, disease, fungi, detrimental nematodes and detrimental insects.

.5 All maintenance equipment and practices are to conform to the BC Landscape Standard Level 2 'Groomed'.

.6 Protect all sodded areas against trespassing and from damage at all times clearly marked, staked, string and flagging tape.

.1 Perimeter Protection: Where directed by the *Contract Administrator* and the City, sodded areas shall be surrounded by a 900 mm high barrier made up of the following components:
.1 Wood posts placed at 1.8 meters on centre.
.2 Wood Posts to be driven to a depth of 300mm.
.3 String two (2) strands of hemp based binder twine (or equal product) between posts. Insure one full wrap of twine around each post.
.4 Tie 300 mm strands of 'red' flagging tape at 450 mm intervals along the entire length of both strands of twine.
.5 Maintain perimeter protection until *Total Performance* issued. Upon acceptance by *Contract Administrator* and the City, remove perimeter fence and dispose of off site.

3.5 Condition for Total Performance

Delete 3.5.1 and replace with the following

Conditions for *Total Performance* of Sodded areas:
.1 Sodded areas exhibit fully established root systems.
.2 No seams are visible between sod sections.
.3 Sod areas are smooth and evenly graded. No depressions, foot marks or vehicle tracks.
.4 Sod is free of bare and dead spots and does not have any broadleaf weeds, noxious grasses including but not limited to poa annua.
.5 No surface growing medium is visible when grass has been cut to height of 65 mm.
.6 Sodded areas have been cut a minimum of two (2) times, at seven (7) day intervals.
.7 Sodded areas are a uniform green colour with no discoloured sections or patches.

			.8 Sodded areas exhibit a thick, dense, uniform and healthy appearance.
		Add 3.5.2	Lawns sodded after September 30th will be not be reviewed for *Total Performance* until April 30th the next year.
3.6	**Guarantee / Maintenance**	Delete 3.6.1 and replace with the following	The *Contractor* hereby guarantees that the sod will remain free of weeds and defects for a period of one (1) year from the date of *Substantial Performance*. The *Contractor* shall make all corrections, adjustments and replacements required as a result of failure of all products in this section. During the *Maintenance Period*, the *Contractor* will replace sodded areas, determined by *Contract Administrator* and the City, to be dead or failing at the end of the *Maintenance Period*. Replacements to be made at next appropriate season and, conditions of guarantee will apply to all replacement seeding for one full growing season.
		Delete 3.6.2 and replace with the following	The Owner reserves the right to extend the *Contractor*'s *Maintenance Period* and responsibilities for one (1) additional year if, at end of the initial guarantee period, the development and growth of the sod is not sufficient to ensure future survival.

END OF SECTION

1.0	**GENERAL**	Delete 1.0.1 and replace with the following	Section 32 93 01 refers to those portions of the Work that are unique to the sourcing, supplying, placing and maintaining the plant material indicated on the *Contract Drawing* and the Plant List(s). This section must be referenced to and interpreted simultaneously with all other sections pertinent to the Work described herein.
1.2	**References**	Delete 1.2.2 and replace with the following	Canadian Nursery & Landscape Association (CNLA) Standard for Nursery Stock (current edition).
		Add 1.2.4	The British Columbia Landscape & Nursery Association (BCLNA).
		Add 1.2.5	ANSI A-300 Tree Pruning Guidelines
1.3	**Source Quality Control**	Delete 1.3 and replace with the following	.1 Seven (7) days prior to the *Contract Administrator* and the City review of plant material at source the *Contractor* shall confirm in writing availability of plant material noted on plant list. .2 Plant material will be supplied from nurseries who are certified by the Clean Plants program, Canadian Nursery Certification Institute (CNCI), current certification standard http://cleanplants.ca/. The certification shall include but is not limited to the requirements of the current active module(s), e.g. P. Ramorum module. The certification must extend to all fields and allied nursery operations where plant material is sourced. Only nurseries, fields and allied nursery operations that are certified will be permitted to supply plant material for this project. .1 Prior to the review of plant material by the *Contract Administrator* and the City the *Contractor* shall submit written documentation with CNCI certification stamp stating that the nursery has undergone all components of a certification program and has been audited to verify that all components are properly implemented. .2 The documentation submitted shall include but is not limited to the nurseries CNCI Clean Plants certification number. .3 Plant Material Review at the source nursery. .1 *Contractor* shall request for review of the plant material at source nursery to be a minimum of seven (7) days prior to scheduled review. .2 Shipping of plant material to the *Place of Work* shall not proceed until *Contract Administrator* has reviewed the plant material at the source nursery. .3 *Contract Administrator* and the City shall make one (1) visit to source nursery for review of plant material for entire project. .4 All plant material, including substitutions shall be gathered at one location for review. .5 *Contractor* shall accompany *Contract Administrator* during plant material review at the source nursery. .4 Plant Material Review at the *Place of Work* .1 All plant material shall be reviewed at the *Place of Work* by the *Contract Administrator* and the City prior to planting. .2 Plant material that is rejected by the *Contract Administrator* shall be immediately removed from the *Place of Work* and replaced at the *Contractor`s* expense.

.5 Imported Plant Material
.1 Plant material imported from out of province and out of country shall be accompanied with necessary federal and provincial permits and import licenses.
.2 The *Contractor* shall conform to all federal and provincial laws and regulations with regard to horticultural inspection of domestic and imported plant material.

.6 Condition of Plant Material
.1 Plant rootballs and containers shall be completely free of noxious weeds and volunteer plants including Horsetail and Morning Glory.

Plant materials grown or supplied in Fabric Containers are not acceptable.

.7 All materials and execution to conform to the latest edition of the BCNTA Guide Specifications for Nursery Stock and the BCNTA Guide Specifications for Landscape Construction.

1.4 Submittals and Scheduling

Delete 1.4 and replace with the following

.1 Submit inspection certificates as required by law for each shipment of plant material.

.2 *Contractor* shall provide in writing to the *Contract Administrator* and the City a minimum of seven (7) days prior to review of plant material at the source nursery a plant list confirming the quantity, botanical name, common name and size of plants specified.

.3 Substitutions
.1 *Contractor* shall provide in writing to the *Contract Administrator* and the City a minimum of seven (7) days prior to review of plant material at the source nursery a list of proposed substitutions for review.
.2 Plant substitutions shall be of similar genus and species and of equal or greater size as those originally specified. The list shall contain the following information:
.1 Botanical name, common name of the specified plant
.2 Botanical name, common name of the proposed substitute plant
.3 Pot size and plant size in the nursery

.4 Planting Schedule
.1 *Contractor* shall provide in writing to the *Contract Administrator* and the City upon award of the *Contract* a detailed Planting Schedule outlining dates and duration of planting operations.
.2 Revisions to the Planting Schedule as a result of delays of any kind shall be submitted to the *Contract Administrator* and the City in a timely manner prior to the start of planting operations.
.3 Schedule all planting to ensure optimum environmental protection, grading, growing medium placement, planting, seeding, or sodding operations as outlined in these Specifications. Organize scheduling to ensure a minimum duration of on-site storage of plant material, minimum movement and compaction of growing medium, and prompt mulching and watering operations. Coordinate Work schedule with schedule of other trades on-site.
.4 Coordinate and schedule plating such that no damage occurs to plant material before and after placement. In particular, meet requirements of living plant material.

.5 Product Data

.1 *Contractor* to submit a one (1) litre sample of Composted Mulch to the *Contract Administrator* and the City for review prior to delivery.
.2 *Contractor* to submit a one (1) litre sample of the Prepared Growing Medium to the *Contract Administrator* and the City for review prior to delivery.
.3 *Contractor* to submit three (3) copies of the anti-desiccant manufacturer product data and specification for *Contract Administrator* and the City review.
.4 *Contractor* to submit three (3) copies of the fertilizer manufacturer product data and specification for *Contract Administrator* and the City review.

Contractor to submit three (3) copies of the Guying assembly including clamps, collar, guying wire, anchors and wire tighteners manufacturer product data and specifications for *Contract Administrator* and the City review.

1.5 Handling and Storage

Delete 1.5 and replace with the following

.1 Coordinate shipping of plant material and excavation of planting pits to ensure minimum time lapse between nursery digging and on site planting.

.2 Ensure branches of trees and shrubs are bound securely into a confined mass during handling and transport.

.3 Do not bind planting stock with rope or wire that would damage bark, break or damage branches or damage the natural shape of the plant.

.4 Protect plant material against abrasion, and exposure to extreme temperature change during transit.

.5 Cover plant foliage and branches with tarpaulin to prevent loss of moisture during transit.

.6 Fully support root ball of large trees during all lifting operations.

.7 Do not lift trees or shrub by the trunk or branches. Plant material to be moved by lifting the root ball or container.

.8 Remove broken and damaged roots with clean cuts using sharp pruning shears.

.9 Temporary Storage/ Heel-In of Plant Material onsite
.1 Temporarily store trees, shrubs and miscellaneous plant material that cannot be planted immediately by heeling-in. Acceptable heel-in material include approved growing medium or sawdust.
.2 Ensure temporary storage/heel-in area is shaded and protected from the wind.
.3 Provide sufficient water at regular intervals to ensure health of plant material in the temporary storage/heel-in area.
.4 Plant material that has not been properly maintained in the storage/heel-in area and illustrates signs of degradation or stress will be rejected by the *Contract Administrator* and the City. Rejected plant material shall be replaced by the *Contractor*.

1.9 Measurement and Payment

Delete 1.9.1 and replace with the following

Payment for trees will be for each tree of size & species specified. Payment for shrubs, grass, perennials, plugs and ground cover will be for each size & species specified. The unit price includes all preparatory work, supply and planting of the trees, support stakes, Treegator, shrubs, bark mulch and as shown on Contract Drawing, and other

			incidental specified under this Section including watering and maintenance to meet Conditions of Total Performance.
		Add 1.9.3	Payment for 400mm deep Root Barrier includes supply of all materials, labour, and equipment required to complete installations.
1.11	**Substitutions**	Add 1.11	.1 If it is impossible to obtain the particular plant material listed on the Landscape Drawing, the *Contractor* may be permitted to suggest substitutions with types and variations possessing the same characteristics. The *Contractor* must request any substitutions of trees in writing at least one (1) month and shrubs and groundcover at least one (1) month prior to planting. Substitutions must be approved by the *Contract Administrator* and the City.
1.12	**Plant Material Supply and Search Area**	Add 1.12	.1 Before substitutions of plant material are proposed, documented proof that materials are not available through search on the west coast of Canada and United States must be provided. Area of supply shall include, but not be limited to, all of Western North America.
1.13	**Plant Material Identification**	Add 1.13	.1 Plant materials that has been located by the *Contract Administrator* and the City and tagged for the project is to have the identification tags removed only after inspection and instruction by the *Contract Administrator* and the City after delivery to the *Place of Work*.
1.14	**Plant Material Replacement**	Add 1.14	1. The *Contractor* shall remove from the *Place of Work* and immediately replace any plant material that has been determined by the *Contract Administrator* and the City to have died or failed to grow in a satisfactory manner during the guarantee or maintenance period. .2 The *Contractor* shall extend the guarantee on this replacement plant material for one (1) year from the date of replacement. .3 The *Contractor* shall continue such replacement and guarantee of plant material until the *Contract Administrator* and the City has determined that the *Conditions for Total Performance* have been met. .4 All required replacements shall be plants of the same size and species as specified on the plant list and shall be supplied and planted in accordance with the drawings, specifications and change orders thereto. .5 The cost of replacements resulting from theft, accidental damage, vandalism, carelessness, neglect on the part of others, shall be borne by the *Contractor* until the date of *Substantial Performance*.
2.0	**PRODUCTS**		
2.1	**Plant Material**	Delete 2.1 and replace with the following	.1 Plant Material Size .1 Overall plant spread to be measured when branches are in their natural position. .2 Height and spread dimensions refer to main body of plant and not from branch tip to branch tip. .2 Grade of plant material to be No. 1 grade or better. .3 Plant material obtained from areas with milder climatic conditions from those of the *Place of Work* is acceptable provided:

.1 Plant material is moved to the *Place of Work* prior to the breaking of buds at their original climatic zone.
.2 Plant material is heeled-in at a protected area until the climatic conditions are suitable for planting.

.4 Plant materials shall have structurally sound, strong fibrous root system free of disease, insects, defects or injuries. All plants, typical of their species or variety, have a normal habit of growth and shall be first quality, sound, healthy, vigorous, well branched, and densely foliated, free of disease, insect pests, eggs or larvae.

.5 Root Pruning at Source Nursery
.1 Plant material shall have been root pruned on a regular basis at the source nursery.
.2 Plant material shall be root pruned at least one growing season prior to delivery.
.3 Large trees shall be half root pruned during each of two successive growing seasons. The second root pruning shall have carried out a minimum of one growing season prior to delivery.

.6 Shade, Ornamental and Evergreen Trees:
.1 Trees shall have straight trunks and a well-formed branch system which is characteristic of the species
.2 Trees shall exhibit clear signs of vigorous growth.
.3 Trees shall have good twig extension growth, branch spacing and trunk taper.
.4 Tree foliage shall be evenly distributed on upper 2/3 of the tree.
.5 Trees shall not have upright branches other than leaders.
.6 Trees shall have spreading branches with a single trunk and a single leader and, unless otherwise noted on plans or plant list.
.7 Tree trunks and branches shall not have any mechanical damage.
.8 Trees shall be in good health with no presence of insects or disease.
.9 Trees shall not have been 'headed back'.
.10 Tree root balls shall be solid, kept moist at all times and/or protected from drying.
.11 Trees shall not exhibit symptoms of root circling or girdling.

.7 Container Grown Plant Material:
.1 Root ball to container relationship shall be of sufficient ratio to ensure room for healthy, vigorous root development.
.2 Plant material shall have been container grown for a minimum of one (1) growing season but not longer than two (2) growing seasons.
.3 The plant root systems that do not have the ability to "hold" growing medium when removed from the container will be rejected.
.4 Root bound plant material will be rejected.

.8 Balled and Burlapped Plant Material:
.1 Coniferous and broadleafed evergreens over 2.4-meter-tall shall be dug with firm soil root ball.
.2 Deciduous trees in excess of 3.0-meter height shall be dug with firm soil root ball.

.3 Root ball diameter shall be a minimum of 230 mm (for each 25 mm caliper size.
.4 Secure root-balls with burlap, heavy twine and rope.
.5 Large tree root balls shall be double layer burlap wrapped. Burlap to be secured with drum laces made up of 10 mm (minimum) diameter rope.

.9 Tree Spade Dug Plant Material
.1 Plant material shall be dug with mechanized hydraulic spade or clamshell type digging equipment.
.2 Root ball diameter shall be a minimum of 230 mm for each 25 mm caliper size.
.3 Wire basket shall be lined with burlap. Root ball shall be laced and tied to wire basket with heavy rope.
.4 Ensure trunk of tree is not damaged by wire basket, ties or rope.

2.2	**Water**	Delete 2.2.1 and replace with the following	Potable and free of minerals and impurities which are detrimental to plant growth.
2.3	**Fertilizer**	Add 2.3.2	Fertilizer shall be prolonged-release fertilizer tablets containing a minimum of 20% nitrogen, 10% phosphoric acid, and 5% potash (20-10-5) as per Approved Products List. Store in weatherproof storage space.
2.4	**Mulch**	Delete 2.4.1 and replace with the following	Composed mulch shall be 9 mm black/brown in colour with no cedar or redwood bark or wood material as per Approved Products List.
2.5	**Stakes**	Delete 2.5.1 and replace with the following	Stakes shall be pressure treated Hem/Fir, 75 mm dia. round, 2500 mm long. Stake fasteners shall be hot dipped galvanized or stainless steel.
2.8	**Guying Wire**	Delete 2.8.1 and replace with the following	Guying wire shall be direct burial or screw type disc guy anchor and guy system as per Approved Products List.
2.11	**Anti-Desiccant**	Delete 2.11.1 and replace with the following	Anti-Desiccant shall be wax-like emulsion, as per Approved Products List, that will provide a transpiration reducing film over the plant surface.
2.12	**Flagging Tape**	Delete 2.12.1 and replace with the following	Flagging tape shall be 30mm wide 'Red' PVC flagging tape as per Approved Products List.
2.13	**Tree Trunk Protection**	Add 2.13	.1 Tree trunk protections shall be extrusion mold process, polyethylene with UV protectors as per Approved Products List.
2.14	**Burlap**	Add 2.14	.1 Burlap shall be untreated, free from toxic contaminants and of sufficient strength to hold the rootball in a compact, stable mass that does not move relative to the main stem(s) of the tree or shrub.
2.15	**Wire Baskets**	Add 2.15	.1 Wire baskets shall be non-galvanized metal basket designed and manufactured for the purpose of tree moving. Basket shall be shaped to ensure that the root ball will allow a stable planting condition in accordance with standards noted.
2.16	**Tree Ties**	Add 2.16	.1 Tree ties shall be Flat woven polypropylene material. 20 mm wide, 544 Kg, break strength. extrusion mold process, polyethylene with UV protectors as per Approved Products List.

3.1 Pre-Planting Operations

Delete 3.1 and replace with the following

.1 Place stakes on site to identify location trees, shrubs and plant beds in accordance to the Landscape Plans.

.2 *Contract Administrator* and the City to review all tree locations and plant bed layout prior to start of plant bed preparation and planting operation.

.3 Anti-desiccants shall be applied only as directed by the *Contract Administrator* and the City. Application of anti-desiccant shall be in accordance with manufacturer's instructions.

.4 Coordinate planting operations with other trades and project schedule.

.5 All planting operations shall be done in a timely manner in accordance to the Planting Schedule.

.6 Planting Schedule shall be updated as required by the *Contractor* to coincide with status of site and coordination with other trades. Provide the *Contract Administrator* and the City with updates to the schedule as required throughout the planting process.

3.2 Subgrade Preparation

Delete 3.2 and replace with the following

.1 The *Contractor* is responsible for confirming the location and extent of existing utilities prior to the start of all planting operations. All attempts should be made to ensure that utility services are maintained to all on and off site parties throughout the entire planting operation.

2. Tree Pits
   - .1 Tree Pit Depth 900 mm minimum.
   - .2 Width of tree pit shall be a minimum of 450 mm to 600 mm greater than diameter of the root ball.
   - .3 Prior to the placement of growing medium scarify the sides and bottom of tree pits created with a tree spade to eliminate glazed surface.

.3 Ensure tree pits dug in heavy or compacted soils exhibit the ability to drain freely by filling each tree pit with a minimum of 20 litres of water. Water should freely drain through subsoil within ten (10) minutes.
   - .1 Notify *Contract Administrator* and the City if tree pits in any soil condition do not drain freely or if tree pit fills with ground water.
   - .2 There shall be no standing water in the bottom of tree pit at time of planting.

.4 Protect bottom of tree pit(s) against freezing.

.5 Ensure tree pits and plant beds are kept well drained and free of contaminants and construction debris.

.6 Planting Areas shall be excavated to the following depths:
   - .1 Shrub beds, perennials, ornamental grasses shall be 450 mm.
   - .2 Ground covers and annual flowers shall be 300 mm.
   - .3 Trees shall be 900 mm.

3.3 Planting

Delete 3.3 and replace with the following

.1 Planting operations shall be carried out under conditions that are conducive to healthy, vigorous growth of plant material.

.2 Plant material shall be planted vertical, straight and plumb at locations staked in field and or noted on landscape plans.

.3 Ensure orientation of plant material will give best appearance in relation to views from adjacent buildings, roads, walks or use areas.

.4 Ensure planting depth of root ball is equal to the depth of root ball originally established in the nursery. The top of root ball shall be level with adjacent growing medium.

.5 Ball and Burlap Plant Material: After plant has been lowered into plant bed or tree pit cut away all root ball ties from around trunk. Loosen burlap from around trunk and cut away minimum top 1/3 without disturbing root ball.

.6 Container Grown Plant Material: Remove entire container (including biodegradable containers) without disturbing root ball. Score root ball vertically at six (6) locations evenly spaced around entire root ball to minimize girdling of roots.

.7 Tree Spade Dug Root Balls: Cut wire basket around entire perimeter of root ball. Bend down top 2/3 of wire basket without disturbing root ball. Cut away all root ball ties from around trunk. Loosen burlap from around trunk and cut away minimum top 1/3 without disturbing root ball.

.8 Backfill planting areas in 150 mm lifts to 2/3 of the depth tamping each lift of growing medium around root system to eliminate air voids. Do not use frozen or saturated growing medium for backfill operation.

.9 Prior to placing remaining growing medium, thoroughly water planting areas, fill tree pits with water. Complete backfill operation only after water has completely penetrated into growing medium.

.10 Build 100 mm high by 150 mm wide (4” high by 6” wide) saucer around outer edge of tree pit to assist with maintenance watering.

.11 Tree Stabilization

- .1 Guy or stake trees as directed by *Contract Administrator* and the City.
- .2 Ensure guy pins and stakes are not placed through the root ball.
- .3 Trees that have had root balls penetrated by guy pins and stakes will be rejected.
- .4 Tie one (1) to two (2) flagging tape flags to all guy wires at a height that is clearly visible.

.12 Place tree trunk protection around base of tree trunk as per manufacturer instructions.

- .1 Trees 100mm caliper or less shall have one protector. Do not interlock ends of tree protector.
- .2 Trees greater than 100mm caliper shall have a minimum of two interlocked protectors. Do not interlock outside ends.

.13 Fertilize as per recommendations based on soil testing and place planting tablets at the following rates in prepared planting holes. Spread the tablets in each hole before planting.

	Plant/Container Size	Table Size	Tablets per Plant
.1	Trees	21g	1 per every 1.25mm of trunk caliper
.2	#15/ 45 cm tub	21g	3
.3	#7/ 35 cm tub	21g	3
.4	#5/ 30 cm pot	21g	2
.5	#3/ 27 cm pot	21g	2
.6	#2/ 21 cm pot	21g	1
.7	#1/ 15 cm pot	21g	1

3.4 Tree Support

Delete 3.4 and replace with the following

.1 Guy and stake all trees immediately after planting. Plant material not guyed or staked immediately shall be replaced if damaged.

.2 Drive one (1) stake per tree vertically into the ground to a depth of 750 – 1000 mm, in such a manner so as not to injure the root or root ball.

.3 Fasten tree to the crotch and midway between the crotch and the ground with galvanized wire protected by hose.

.4 Trees to stand plumb upon completion of this operation.

3.6 Pruning

Delete 3.6 and replace with the following

.1 All pruning cuts shall be made with pruning saws or hook and blade pruning tools designed and manufactured for pruning operations. Anvil-type pruning tools shall not be used in any pruning operations.

.2 Prune trees and shrubs after planting operation as directed by *Contract Administrator* and the City.

.3 Prune each tree and shrub planted to preserve the natural character of the plant and in a manner appropriate to its particular requirement in the landscape design. Pruning in general shall be heavier on collected than on nursery-grown plants. Remove all soft wood sucker growth and all broken or badly bruised branches with a clean cut.

.4 Employ clean sharp tools and make cuts without damaging the branch collar.

.5 Do not damage the leader or lead branches. Plants which have had the main leader or lead branches damaged or removed will be rejected and replaced by the *Contractor* at no cost to the *Owner*.

.6 Do not remove minor twig branches along the main structural branches.

3.7 Mulching

Delete 3.7 and replace with the following

1. Prior to the application of composted mulch;
   - .1 Manually remove all weeds and weed roots from root balls and adjacent growing medium.
   - .2 Remove all deleterious material and debris from planting areas.
   - .3 All fine grading shall be completed, the growing medium shall be loose and friable.
   - .4 The *Contract Administrator* and the City has reviewed of all planting areas.

.2 Spread composted mulch to minimum depth of 50 mm.

.1 Ensure finish composted mulch layer is a minimum of 12 mm below adjacent hard landscape surfaces and edges.
.2 Ensure mulch is kept 125 mm away from tree trunks and 75 mm away from stems of shrubs.

3.8 Clean-up

Delete 3.8 and replace with the following

.1 Growing medium spilled onto pavement and growing medium stains on pavement or adjacent hard surfaces shall be cleaned up immediately.

.2 Remove from the site all pots, cans, surplus materials, and other debris resulting from planting operations.

.3 Ensure complete removal of planting tags, labels, strings, or other materials prior to substantial completion.

.4 Neatly dress and finish all planting areas and flush all walks and paved areas clean to the satisfaction of the Consultant and *Owner*.

3.9 Maintenance

Delete 3.9 and replace with the following

.1 Maintenance of plants shall begin immediately after planting operation and shall continue in an uninterrupted fashion until all deficiencies noted in the *Substantial Performance* review have been rectified and the *Contract Administrator* and the City has provided to the *Contractor* written confirmation of the date of *Total Performance*.

.2 If for any reason the *Contractor* elects, on his own without the written consent of the *Contract Administrator* and the City to suspend maintenance operations, the *Contractor* shall provide the *Contract Administrator* and the City written notice of such action. Any damages or requirement for the replacement of plant material that as a result of the suspension of maintenance operations shall be the borne by the *Contractor* at no cost to the *Owner*.

.3 Maintenance of plant material includes but is not limited to watering at intervals sufficient to maintain healthy, vigorous growth, weeding of plant beds and tree pits, cultivating of growing medium, pruning, treatment of insects, molds, fungi or disease to the Level 2 “Groomed’ as per the BCNLA Landscape Standard, Current Edition or as directed by consultant.

.4 Plant material shall be deep watered at least once per day when temperatures exceed 25 degrees Celsius.

.5 Water sufficiently to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion.

.6 Supply equipment such as pumps, portable sprinklers systems, tank trucks, hose and sprinklers required for watering operations. Water trucks, if used for watering operations, must service the site from adjacent roads until irrigation system is operational.

.7 *Contractor* to ensure adequate moisture in plant root zone prior to winter freeze-up.

.8 Reset all plants that have settled to plant depths approved by the *Contract Administrator* and the City prior to the placement of composted mulch.

.9 Ensure tree guards, stakes, flagging tape on tree guy wire and tree ties are kept secure, taught and in proper repair.

3.10 Conditions for Total Performance

Delete 3.10 and and replace with the following

.1 Conditions for *Total Performance*:

.1 *Substantial Performance* shall have been granted by the *Contract Administrator* and the City and, Final Inspection at the end of the guarantee/warranty period.

.2 All plant material is healthy; exhibiting signs of vigorous growth and meets the requirements of this specification.

.3 Plant material installed less than ninety (90) days prior to frost will be accepted in following spring, thirty (30) days after start of growing season provided that final acceptance conditions are fulfilled.

.4 Unless otherwise indicated in the *Contract Drawing* the original shape and form of the plant as reviewed by the *Contract Administrator* and the City has been maintained, leaders are in tact, there are no wounds or abrasions on trunks or branches.

.5 Mulch has been maintained to specified depths.

.6 All planting areas continue to be free draining with no signs of standing water.

.7 All plant beds are completely free of weeds and noxious grasses.

.2 The *Contractor* shall continue to maintain the work of this section until the *Contract Administrator* and the City provides written confirmation that *Total Performance* conditions have been met.

END OF SECTION

1.6	**Measurement and Payment**	Delete 1.6.1 and replace with the following	Payment for storm sewer will be made at the unit price bid for storm sewer (regardless of depth) consistent with pipe materials, diameters and backfill requirements shown on the Contract Drawings and described under individual payment items in the Schedule of Quantities.
		Delete 1.6.2 and replace with the following	Payment for storm sewers includes trench excavation, dewatering, bypass pumping, on-site reuse of surplus/displaced material, removal and disposal of existing pipes, supply and installation of all pipe, wyes, cap, fittings and related materials, tie-ins to existing or new storm pipe or manhole other than noted in Clause 1.6.9, construction joints, bedding, import backfill, native backfill, , granular base, granular Subbase, cleaning and flushing, testing (if applicable), videoing and all other work and materials necessary to complete installation as shown on Contract Drawings and specified under this Section; and Measurement for storm sewer will be made horizontally from manhole centerline to manhole centerline over surface work has been completed. Native excavated material approved for re-use as trench backfill shall be at the sole discretion of the Contract Administrator. All cobbles greater than 150 mm diameter removed and disposed off-site and shall be granular in nature and free from organic materials. Native excavated material shall not be used as trench backfill where moisture content does not permit compaction to specified density. Where native excavated material is unacceptable for use as trench backfill, imported trench backfill shall be supplied, placed, and compacted to specified density. Payment for concrete driveway and curb & gutter will be made under Section 03 30 20S. Payment includes by-pass pumping to include all pumps, labour and materials required to facilitate the work. Payment for the by-pass pumping will be incidental. Measurement for storm sewer will be made along the ground from the start of new pvc pipe to the terminus of the new pvc pipe.
		Delete 1.6.3 and replace with	Payment for new service connections includes 150mm SDR28 PVC pipe, shear band couplers, bends, increaser, pvc wye, stubs, caps, sanded stubs, manhole preparation, inserta tee, Le-Ron inspection chamber c/w locking collar and green lid and all related fittings and components specified and/or shown on Standard Detail Drawings. Payment includes all applicable service pipes, materials and work described in 1.6.2. Measurement for service connection will be for each complete service installed, including the inspection chamber, length of service pipe installed and length of riser. Payment for the permanent capping of existing services, where required, will be considered incidental to work in other sections.
		Add 1.6.3.1	Payment for storm service connection repair/replacement includes 150mm SDR28 PVC pipe, shear band couplers, bends, sanded stubs, inserta tee, increaser, stubs and all related fittings and components specified and/or shown on Standard Detail Drawings. Payment includes all applicable service pipes, materials and work described in

			1.6.2 unless specified otherwise in the Schedule of Quantities and Prices. Measurement and payment for storm lead repair/replacement will be made at the unit price bid per lineal meter of service lead installed as measured along the ground from the downstream end of work done in Clause 1.6.4 to the terminus of the repair.
		Delete 1.6.4 and replace with	The lump sum payment is to supply and install Le-Ron molded storm inspection chambers c/w locking collar & green lid including the riser as per COQ-S7A, COQ-S8A and MMCD S9 at each location. The tendered price is to include all labour, shear band couplers, 2m PVC SDR 28 pipe stubs and all related fittings and components specified and/or shown on Standard Detail Drawings and all such other items that may be required to complete the work as specified. Payment includes all applicable materials and work described in 1.6.2. A City crew will be inspecting the service connection by hand video prior to the Contractor's installing the IC. The Contractor shall notify the City inspector once the section of the service connection is ready for hand video. Payment includes assisting City crew in hand videoing the service connection. Based on the hand video result, City assessment or apparent condition of the pipe, repair/replacement is to be done under Clause 1.6.3.1. Repair/replacement shall only be done as approved by Contract Administrator or City inspector. **NOTE: Depth specified on the utility connection record without an IC is typically measured from the top of the clean out wye.** Brooks Boxes with a steel lid are to be provided for inspection chambers located in driveways as necessary. Payment for the Brooks Boxes on a driveway will be incidental. Payment includes support of poles if necessary and manhole barrel preparation to accommodate the service connection.
		Delete 1.6.5 and replace with the following	Payment for catchbasin or lawn basin leads include all applicable materials and work described in 1.6.2 Measurement for catchbasin leads or lawn basin leads will be made horizontally from mainline pipe to centreline of catchbasin or lawn basin for each pipe size installed with no regards to depth range.
2.0	**PRODUCTS**		
2.2	**PVC Pipe, Mainline Smooth Wall**	Delete 2.2.1 pipe size ranges and replace with the following	200 mm dia. – 375 mm dia. to ASTM D3034 450 mm dia. – 1,200 mm dia. to ASTM F679
2.3	**PVC Pipe, Mainline Profile**	Delete 2.3	
2.6	**Service Connections**	Delete 2.6.1 and replace with the following	Storm service connections to be PVC DR 28 150 mm diameter minimum or as specified on *Contract Drawings*.
		Delete 2.6.8.1	

		Delete 2.6.8.2 and replace with the following	Connections to PVC pipe to be made with a performed wye fitting where mainline pipe is 300 mm diameter or smaller. For connections to PVC mainline pipe larger than 300 mm diameter an insertable tee for PVC pipe is permitted.
		Add 2.6.8.3	Insertable tee fitting shall have a rubber collar which inserts into the mainline pipe to form a tight seal and shall have stainless steel band to secure the tee insert. The tee insert shall be a standard bell end with depth control lugs. The joint shall provide a minimum seal of 90 kPa on concrete and polyethylene pipe, and 190 kPa on PVC pipe.
2.9	**Granular Pipe Bedding and Surround Material**	Delete 2.9.3	Pipe bedding shall be 19 mm clear crushed rock or as approved by the *Contract Administrator* and the City.
3.0	**EXECUTION**		
3.8	**Connections to Existing Mainline Pipe**	Delete 3.8.3 and replace with the following	For new connections to existing, smooth wall or profile, mainline sewers 300 mm and smaller, shall be made by removal of the section of the main and replacement with a preformed PVC wye fitting complete with stubs and double hub PVC couplings for PVC mains and approved shear band couplings for other mainline materials. For new connections to existing mainline greater than 300 mm, use of insertable tee will be permitted.
3.10	**Service Connection Installation**	Delete 3.10.3 replace with the following	Inspection chambers shall be provided on all storm service connections as per Standard Detail Drawing S7. If inspection chamber is located in driveway, lane, or paved surface, Series 37 Brooks concrete box with lid shall be installed as per Standard Detail Drawing S9.
3.12	**Inspection and Testing**		The contractor shall video inspect completed storm sewers under 900 mm in diameter and all service connections following completion of the installation. The video inspection report shall be in a form specified by the Contract Administrator and the City. Copies of the video DVD and written report shall be forwarded to the Contract Administrator and the City. Refer to Section 33 01 30.1 and 33 01 30.1S CCTV Inspection of Pipelines.
3.16	**Permanent Capping of Service Connections**	Add 3.16.1	Permanent capping of existing storm sewer connections to be completed as per Coquitlam Standard Detail Drawing COQ-S18.
		Add 3.16.2	A trenchless method of permanently capping a service may be required on an arterial road or on a road which has been paved within 5 years, as directed by the Manager. The trenchless technology used to cap the service must be approved by the Manager.

END OF SECTION

1.0 GENERAL

1.1	**Related Work**	Add 1.1.6	Hot Mix Asphalt Concrete Pavement	Section 32 12 16
		Add 1.1.7	Portland Cement Concrete Paving	Section 32 13 13

1.5 Measurement and Payment

Delete 1.5.1 and replace with the following

Lump sum payment includes all labor, material and equipment required to complete the installation as shown on Contract Drawings and specified under this Section. Payment includes subgrade preparation, compaction of base material, all in-situ concrete work, supply and installation of concrete base, lid suitable for H20 loading and as per City standard, metal frame, concrete lid, barrel and riser sections including ladder rungs, manhole benching, and all associated works as shown on the Contract Drawings and as described in Schedule of Quantities and Prices.

Payment includes manhole preparation to accommodate tie-ins, excavation, disposal of surplus excavated material, base preparation, bedding and import backfill.

No payment will be made under this item carried out as part of operation of items described in other Sections.

Delete 1.5.2 and replace with the following

Payment includes supply and installation of new catchbasin/lawnbasin as described in Schedule of Quantities and Prices including catch basin base, concrete barrel, concrete riser, pvc sanded stub, donut ring, off-set sump, H20 rated concrete frame/lid, metal frame, top inlet and grate, aluminum trapping hood and all labor, material and equipment required to complete the work from specified invert to finishing level and as per Standard Detail Drawing as described in Schedule of Quantities and Prices. Payment includes excavation, disposal of surplus excavated material, base preparation, bedding, import backfill, catchbasin/lawnbasin preparation to accommodate catchbasin/lawnbasin connection, installation of all in-situ concrete work, all labor, material, equipment and necessary work for installing the catchbasin/lawnbasin.

Catchbasin/lawnbasin lead work will be made under Section 33 40 01S – Clause 1.6.5.

Delete 1.5.3 and replace with the following

Adjustment of tops of existing units will be measured in units adjusted as defined below and paid for under their respective Item in the Schedule of Quantities.

<u>No payment will be made under these items for cleaning Valve Boxes, Monument Boxes, Manhole Frames & Covers and Lids of Castings as part of the operation for asphaltic concrete paving.</u>

<u>No Payment will be made for adjusting External Utilities Valve Boxes, Monument Boxes, Gas valve boxes, Lawn Drains, Cleanouts and Inspection Chambers, these adjustments will be treated as incidental work unless otherwise specified.</u>

<u>All manholes & valve boxes must be vertically adjusted a minimum of 24 hours prior to paving.</u>

1. Manhole frames and lids adjustment and replacement will be defined as supplying and installing a new manhole frame and lid and setting to the finished grade. Adjustments and replacements shall include

jackhammering, removal and disposal of the existing frame and lid, replacement, removal of concrete bricks, addition or removal of precast concrete riser rings, cement mortar, supply and installation of new manhole frame and lid set to final grade, temporary asphalt ramping and all other incidental work.

Manhole frames and lids adjustments ONLY is the re-use of existing frames and lids and all the necessary work as decribed above.

2. Water Valve Box replacements will be defined as supplying and installing a new Nelson Type Terminal City Water Valve Box frame & lid and setting to the finished grade. Replacements shall include jackhammering, removal and disposal of the existing frame and lid and all other incidental work.

3. Catchbasins frame and lid replacement will be defined as setting as supplying and installing a new catchbasin frame & lid to the correct elevation. Adjustments shall include jackhammering, removal of the existing grating and frame and all other incidental work. Payment includes excavation, disposal, removal of concrete bricks, removal or addition of precast concrete riser rings, cement mortar, disposal of surplus excavated material, cast-in-place concrete, pipes, fittings and related materials together with all labour, materials and equipment required. Catch basin lead work is considered to be incidental to payment for catch basin lead work described in other sections.

4. Adjustment ONLY will be defined as re-using the frames, lids, grates, or valve boxes to complete the Work as described above.

The use of Steel/Metal Casting Risers Rings will not be accepted to adjust manholes or water valves to the final asphalt elevation.

2.0 PRODUCTS

2.1	**Materials**	Add 2.1.7.3	Any frame and cover assembly creating a point load on the concrete riser rings will not be permitted.
		Delete 2.1.12 and replace with the following	Catchbasin lids manufactured to ASTM C478M
		Delete 2.1.16.2	
		Delete 2.1.17	

3.0 EXECUTION

3.1	**Excavation and Backfill**	Add 3.1.2	For manholes, when base gravels are complete, excavate for grade rings and manhole frame assembly. Do not disturb the compacted road base beyond the excavation requirement.
3.3	**Manhole Installation**	Delete 3.3.12.2 and replace with the following	Allowable products are precast concrete risers and cast-in-place form system. Individual riser heights shall be 50mm, 75mm, or 100mm.

		Delete 3.3.12.5 and replace with the following	Proper layer of grout between the spacers, covering the entire surface of the rings, should be utilized.
		Delete 3.3.15 and replace with the following	Install drop structures as shown on the contract drawings to Coquitlam Standard Detail Drawing COQ-S4 and Standard Detail Drawing S3. Maximum allowable inside ramp shall be 250 mm invert to invert.
		Delete 3.3.17 and replace with the following	Ensure frames conform to design contour of pavement or existing surface. Manhole lids left raised in preparation for overlay paving shall have a rubberized protector ring or asphalt ramp. The use of riser rings for adjusting manhole frames will not be permitted.
3.5	**Catchbasin Installation**	Delete 3.5.1 and replace with the following	Install catchbasins as shown on Coquitlam Standard Detail Drawings COQ-S11A, COQ-S11B and Standard Detail Drawing S11, to general standards and installation procedures described under 3.3 of this Section.

END OF SECTION

1.0	**GENERAL**		
1.3	**Shop Drawings**	Delete 1.3.4 and replace with the following	Shop drawings for pole structures, where required, to be sealed by a Professional Engineer registered in British Columbia.
1.4	**Electrical Energy Supply**	Add 1.4.4	The Electrical *Contractor* will process a letter of application to the City of Coquitlam for the Utility Company and attain all required permits.
1.5	**Contractor Qualifications**	Add 1.5.3	All on-site traffic signal installations shall be under the responsibility of a primary journeyman electrician with IMSA Level 2 Signal Certification and have successfully completed at least five (5) traffic signal system installations. This primary journeyman electrician is expected to have to be at the *Place of Work* and report work progress to City of Coquitlam's Traffic Operations staff, in addition to reporting to the *Contract Administrator*.
		Add 1.5.4	<u>Fibre Optic Cable:</u> .1 All fibre optic cable installations workmanship, material and/or installation practices and activity will be equal to or better than the standards established by the CAN/CSA T529-530-M90 Standards and the Canadian Electrical Code. .2 Those retained to complete the work must be authorized, trained and certified by the manufacturers they represent. They must have a minimum of two (2) years experience installing and testing multimode and single mode cables of all types as well as experience with LC and SC connectors. .3 Those retained to complete the work must have experience installing cabling for FDDI (Distribution System Data Interface) compliant 100 Mbit/sec, SONET, ATM, Token Ring or Ethernet networks using industry accepted systems and practices. Experience with leading manufactures fiber products and systems would be beneficial. .4 Those retained to complete the work must be prepared, trained and equipped to properly test the fibre cabling system, including the fibre transmission media and connectors. Each optical fibre of each section of cable will be tested using an "Optical Time Domain Reflectometer" (OTDR) and will meet the specifications before installation. After installation an "Optical Light-loss Testing Sets" (OLTS) will be mandatory to determine cable length, locate any fibre breaks or anomalies, measure attenuation of fibre's, connectors and assess fibre uniformity. Those retained to complete the work will provide a report showing all values measured during these tests.
1.6	**Permits and Tests**	Add 1.6.5	*Contractor* shall provide the BC Safety Electrical Permit, and arrange all inspections with the City. The inspection entails, but not limited to, Coquitlam's "Intersection and Cabinet Start-up Checklist", which can be obtained from Coquitlam's Traffic Operations staff.
1.8	**Record Drawings**	Add 1.8.2	Final payment(s) will be withheld until record drawings are received.
1.9	**Measurement and Payment**	Delete 1.9.2 and replace with the following	The traffic signal lump sum price includes all labour, equipment, and materials to complete the works as shown on the Contract Drawings and as specified in the Contract Documents. This shall consist of all permits and fees for electrical inspections, testing, other costs associated with electrical works undertaken by others, import backfill, temporary and permanent asphalt restoration within conduit trench as described in the Contract Drawings and as described in these supplementary contract specifications.

			The *installation* also includes pickup, delivery and installation of all materials supplied by the City, from the City' works yard, at 500 Mariner Way.
		Add 1.9.4	Payment for detector loop removal and reinstatement includes all labour, equipment and materials to complete the works as Shown on the Contract Drawings.
2.0	**PRODUCTS**		
2.1	**General**	Delete 2.1.2 and replace with the following	All products supplied to be new, in accordance with *Contract Documents*. All products are to meet Canadian Electrical Code requirements and be certified by either CSA, UL©, or Intertek Testing Systems (Warnock Hersey) and be supplied with the certifier's label.
		Delete 2.1.3 and replace with the following	All products shall be in accordance with the City of Coquitlam's List of Approved Materials and Products List. Any products not listed with in the Approved List shall default to the current BCMOTI specification.
		Delete 2.1.5 and replace with the following	Equipment models listed within the City of Coquitlam's List of Approved Materials and Products shall be confirmed with the City immediately prior to their order to ensure that they are current. Cut-sheets, equipment make, model and serial number list to be provided to the City by the *Contractor* for each traffic signal location. Material supplied by City of Coquitlam and installed by *Contractor*, shall be shown in the *Contract Documents*.
2.2	**Conduit**	Add 2.2.1.3	All exposed metallic surfaces to be hot dip galvanized.
2.3	**Trench marker Tape**	Add 2.3.2	Detectable (manetic) market tape shall be used in all trenches containing interconnecton (communications) conduit.
2.5	**Concrete Junction Boxes**	Delete 2.5 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products. For Concrete Vaults: Refer to Coquitlam Standard Detail Drawing SS-E2.5.
2.8	**Conductor Tags**	Delete 2.8 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.10	**Fuse and Fuse Holders**	Delete 2.10 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.11	**Service Panels**	Add 2.11.5	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.16	**Traffic and Pedestrian Signals**	Delete 2.16.1 and replace with the following	Traffic signal heads to be yellow polycarbonate with 300 mm round signal indications, and conform to Section 601 Signal and Pedestrian Heads BCMOTI E&SMS V1. All primary and secondary signal heads shall have yellow aluminum backboards with 75 mm border of yellow prismatic retro-reflective sheeting (3M™ Scotchlite™ Diamond Grade™ VIP Reflective Sheeting Series 3990 or approved alternate).
		Delete 2.16.2 and replace with the following	Fire signal head assembly as per Coquitlam Standard Detail Drawing SS-E5.19.
		Add 2.16.3	Signal head backboards with plumbizer gaps or knock out sections will not be accepted for adjustable bracket signal head mounting method.

2.17	**LED Signal Modules**	Delete 2.17 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.19	**Signal Mounting Hardware**	Add 2.19.8	Primary signal head safety cable to be 3/32" galvanized steel aircraft cable.
		Add 2.19.9	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.20	**Audible Signals**	Delete 2.20 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.21	**Pedestrian /Cyclist Pushbuttons**	Delete 2.21 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products.
		Add 2.21.1	Pedestrian (PYRO) and bicycle (ZELT) eco-counters are to be manufactured together, to form a pedestrian and bicycle eco-counter (MULTI).
2.22	**Luminaires**	Add 2.22.6	Refer to the City of Coquitlam's List of Approved Materials and Products.
2.29	**Illuminated Crosswalk Signs**	Delete 2.29 and replace with the following	Refer to the City of Coquitlam's List of Approved Materials and Products. Illuminated sign safety cable to be 3/32" galvanized steel aircraft cable.
3.0	**EXECUTION**		
3.1	**General**	Add 3.1.5	During the installation of the traffic signal system, maintain the existing traffic signal and/or signs as noted on the *Contract Drawing*. If temporary or permanent relocations of related traffic signal equipment or signs are required, such equipment shall be reinstated as required under the *Contract Documents* or as directed by the *Contract Administrator*.
3.3	**Concrete Bases**	Add 3.3.7	Concrete service bases detailed on Standard Detail Drawings CE1.3 and CE1.4, Type C1 and C3 service bases shall have five (5) conduits. See Coquitlam Standard Detail Drawing SS-E7.3.
		Add 3.3.8	Lifting cables on concrete controller bases shall be removed after base installation.
		Add 3.3.9	All concrete bases shall be pre-cast concrete only, unless noted on *Contract Drawing* or directed by the *Contract Administrator*.
3.4	**Junction Boxes and Vaults**	Delete 3.4.1 and replace with the following	Install junction boxes as shown on Standard Detail Drawings E2.2 to E2.4. Install vaults as shown on Coquitlam Standard Detail Drawing SS-E2.5.
		Add 3.4.5	Bell end fittings shall be installed in all conduits entering junction boxes or vaults.
		Add 3.4.6	Junction boxes requiring 3 or more sections must be approved by the City of Coquitlam's Traffic Operations staff.
		Add 3.4.7	All junction boxes shall be provided with RPVC bars to support electrical connections and fuse holders. The RPVC bars shall be attached into the junction box side walls with the electrical connections/fuse holders tie-wrapped in place and installed in the up-right position.

3.5	**Underground Conduit**	Delete 3.5.2 and replace with the following	Minimum cover over conduits to be 600 mm in boulevard areas and 900 mm in roadway areas.
		Delete 3.5.3 and replace with the following	Place trench marker tape 300 mm above installed conduit in trench. Trench marker tape not required for conduits installed via trenchless technology.
		Delete 3.5.5 and replace with the following	Empty conduits shall have a No. 8 HB Yellow/Green Mk pull string and capped at both ends.
		Add 3.5.6	Conduit run shall contain no more than the equivalent of 4 – 90 degree bends.
		Add 3.5.7	Conduits shall be blown out with compressed air, from both ends if necessary, then swabbed out to remove stones, dirt, water and other material which may have entered during installation.
		Add 3.5.8	All conduits entering poles and cabinets shall be sealed with “Duct Seal”.
		Add 3.5.9	Conduit depth of bury to be recorded when a trenchless technology method is used.
		Add 3.5.10	Traffic signal communications conduit shall enter and leave junction boxes through bell end fittings in the horizontal position (no bends) and shall run straight through the junction box unless a change in alignment occurs, or as otherwise specified on the *Contract Drawing*.
		Add 3.5.11	Conduit shall not be bent in the field. Only factory bends will be accepted.
3.7	**Traffic Signal and Pedestrian Head Mounting**	Delete 3.7.1 and replace with the following	Install traffic signal and pedestrian signal heads as shown and Standard Detail Drawings E5.2 and E5.9 only. Banding straps shall be used for primary signal heads.
		Add 3.7.5	Primary traffic signal heads shall be safety cabled to the traffic signal pole arm using 3/32” galvanized steel aircraft cable looped through the traffic signal backboard and fastened with a rope clip.
3.8	**Audible Signals**	Delete 3.8.1 and replace with the following	Install audible signal in accordance with Coquitlam Standard Detail Drawing SS-E5.12.
3.10	**Luminaires and Photocells**	Add 3.10.4	NEMA wattage label shall be visible at the bottom of the luminaire on all fixtures.
3.13	**Electrical Service Panels**	Delete 3.13.1 and replace with the following	Mount electrical service panels in service base or on poles as shown on Standard Detail Drawings E7.2, E7.6 to E7.9, as well as Coquitlam Standard Detail Drawings SS-E7.3 to SS-E7.5.
3.14	**Wiring**	Delete 3.14.3 and replace with the following	With the exception of conductor spliced of detector loop wires to shield cables, make conductor splice in pole handholes. Make splices of detector loop wires to shielded cable in junction boxes.
		Delete 3.14.13 and replace with the following	Bond all signal heads and luminaires with No. 12 RW90 green conductor, and steel junction box lids with No. 8 RW90 green conductor.

		Add 3.14.14	Detector loop cable splices shall be soldered with rosin core solder (no acid core or acid flux) then cap with waterproof gel filled wire nut and tape with vinyl di-electric tape. Suspend and ty-wrap splices at top of junction box with open end of wire nut pointing down. Loop shield drain conductor shall cut and be isolated from the system ground. See Coquitlam Standard Detail Drawing SS-E8.4.
3.16	**Traffic Controller**	Add 3.16.8	Silicone sealant shall be applied to both sides of the rubber gasket, which is placed between the traffic signal cabinet and the concrete base to ensure a weather tight seal.
		Add 3.16.9	Traffic cabinet interior shall be kept dry during inclement weather.
3.17	**Detector Loops**	Delete 3.17.1 and replace with the following	Detector loops are to be round type or as specified on the *Contract Drawing* and approved by the City of Coquitlam's Traffic Operations staff. Install in accordance with Standard Detail Drawings E8.1, E8.3 and Coquitlam Standard Detail Drawings SS-E8.2 and SS-E8.4. Detector loops are to be installed in the base lift of asphalt.
		Add 3.17.3	Loops in adjacent lanes shall be wound in opposite directions, i.e.; clockwise, counter clockwise, clockwise, etc.
		Add 3.17.4	Detector loops should be installed in the base lift of asphalt, unless otherwise specified by the Contract Administrator.
3.19	**Advance Warning Signs**	Add 3.19.2	Contrary to Standard Detail Drawing E10.3, Item A shall be a 300 mm signal head section with LED display.
		Add 3.19.3	Advance warning signs shall have yellow prismatic retro-reflective sheeting (3M™ Scotchlite™ Diamond Grade™ VIP Reflective Sheeting Series 3990 or approved alternate).
3.20	**Grounding & Bonding**	Add 3.20.5	Ground plates and grounding conductors are to have a minimum of 5 meters clearance between them and other utility grounding.
		Add 3.20.6	Grounding rod or plate electrodes shall not be installed inside the traffic signal cabinet base.
		Add 3.20.7	Remove all paint around bonding studs on inside of pole to expose the galvanized or metal surface prior to bonding equipment.
3.22	**Pole Finish Application**	Delete 3.22 and replace with the following	.1 Prior to producing a powder finish product the supplier must provide a Certificate of Compliance indicating that they have met or exceeded the following specifications. The supplier will name their independent testing agency and this information will be submitted to the City for their files. .2 The application process will be as follows: .1 The pole or product will be hot dip galvanized. .2 Powder will only be applied after the product is completely fabricated. No welding or bending will take place after the powder is applied. .3 The pole or product will be thoroughly cleaned by brush blasting in accordance with SSPC-SP7. The brush blast will maintain a minimum profile of 0.5 mils. If brush blasting is done off site then the product will be covered and shielded from any dirt or moisture during its return to the powder applicators facility. Where poles or products are not kept clean and dry or have any signs of flash rust they will be returned for further brush blasting.

.4 Once at the applicators facility the pole or product will be thoroughly cleaned and dried with an air gun. All hand marks or grease spots will be cleaned with a mild solvent.

.5 After brush blasting the entire pole or product will be pre-baked in an oven at 220 degrees C for at least 30 minutes to 1 hour, depending on steel thickness. The pre-baking must be done to prevent out-gassing during the curing cycle.

.6 The base powder coat will then be applied electrostatically while the pole or product is cooling from the 220 degrees C pre-bake period to allow the powder to melt and fuse to the surface. The base coat will be a minimum of 3 mils in thickness.

.7 After base coat is applied and set the topcoat will be applied to a thickness of 3 to 5 mils. The pole or product will be returned to the oven and heated to 190 to 220 degrees C (temperature will not exceed pre-bake) for a minimum of 25 minutes, depending on steel thickness. Thicker product material may require longer bake cycles to fully cure. Upon removal of the pole or product from the oven it will be left to rest until the pole or product is cool enough to the touch.

.8 Once the topcoat has cured and the poles or product cooled, they will then be individually wrapped (min 4" overlapping method) with 1/8" foam wrap over the entire pole or product. The poles or product will be bundled together and separated with suitable wood dunnage to avoid contact between the poles, product or other bundles. All bundles themselves will be fully wrapped with foam and with stretch-wrap as noted above. The poles or products will be handled and shipped with great care to prevent damage; damaged product will be cause for rejection of the item(s).

.3 Testing process will be as follows:

.1 Each run of product in an oven will have at least one sample tested for:

.2 Adhesion – The finished powder surface will have minimum pull-off strength exceeding 1000 PSI as tested in accordance with ASTM D4541.

.3 Quality – The finished powder surface will be free from any holidays (skips or misses) as tested in accordance with ASTM D4541. The product will also be free from wrinkles, orange peel, cracking, pinholes, fish eyes, blisters, etc by visual inspection.

.4 Color – The color will be verified to be within 3 DE of specialized color.

.5 An independent firm such as CanSpec Testing who are qualified to test powder finish will do the testing at the supplier's expense. The result of tests must accompany the Certificate of Compliance and will be made available to the City or their representative upon request. A supplier who fails to test product as noted above will have their product rejected until the testing is completed and the product deemed acceptable by the testing agency.

.6 Where the tested product fails on a given production run then a minimum of 30 % of the entire production run will be tested. If no other failures are found then the individual

failed product will be stripped, reapplied and re-tested until it passes. If any of the 30% of product tested fails then the entire order will be stripped, reapplied and retested until it passes.

.4 Field repairs will be undertaken as required to fix any scratches or imperfections in the final finish. Field repairs will be done as follows:

.1 Feather the damaged area with sandpaper.

.2 Clean area with solvent.

.3 Let dry.

.4 Neatly brush on an application of Aliphatic Urethane Acrylic Semi-Gloss High Build applied at 2-4 mils DFT over the entire sanded and damaged area. The ambient conditions will be dry and over 10 degrees C when the paint is applied.

.5 The pole supplier will warranty the integrity of the surface for a minimum of 1 year from the date of installation. The warranty will include all labour and materials required to provide replacement product if required. The powder finish will be the responsibility of the pole supplier. The warranty will apply to fading, blistering, cracking or chipping of the surface.

3.26	**Uninterruptable Power Supply**	Add 3.26.2	Uninterruptable power supply/cabinet to be installed on the side of the traffic controller cabinet as detailed on the *Contract Drawing* and Coquitlam Standard Detail Drawing SS-E7.24.
3.28	**Illuminated Street Name Signs**	Add 3.28.1	Install illuminated street name signs as detailed on the *Contract Drawing* and Coquitlam Standard Detail Drawing SS-E5.18
		Add 3.28.2	Illuminated street name signs shall be safety cabled to the traffic signal pole arm using 3/32” galvanized steel aircraft cable.
3.29	**Emergency Vehicle Pre-emption**	Add 3.29.1	Emergency vehicle pre-emption system to be installed as detailed on the *Contract Drawing* and Coquitlam Standard Detail Drawing SS-E5.16.
		Add 3.29.2	Cable shall be continuous with a minimum of 2m of cable slack to be provided at each end, with no splices. Cabinet termination to be completed by City.
3.30	**PTZ/CCTV Cameras**	Add 3.30.1	PTZ/CCTV cameras to be installed as detailed on the *Contract Drawing*. Contact the City of Coquitlam’s Traffic Operations staff prior to installation.
		Add 3.30.2	Cable shall be continuous with a minimum of 2m of cable slack to be provided at each end, with no splices. Cabinet termination to be completed by City.
3.31	**Radio Communications Equipment**	Add 3.31.1	Radio communications equipment to be installed as detailed on the *Contract Drawing*. Contact the City of Coquitlam’s Traffic Operations staff prior to installation.
		Add 3.31.2	Cable shall be continuous with a minimum of 2m of cable slack to be provided at each end, and with no splices. Cabinet termination to be completed by City.
3.32	**Owner Supplied Materials**	Add 3.32.1	Those retained to complete the work must notify the City in writing (seven) 7 days prior to the time materials are required.

Add 3.32.2

Unless otherwise noted, those retained to complete the work will make all necessary arrangements and pay all costs for the collection of the materials and for delivery to the *Place of Work*. They will assume responsibility for materials at the time they are picked up.

Add 3.32.3

Owner supplied materials generally consist of the following:

.1 Traffic controller equipment and cabinet.
.2 Uninterruptable power supply equipment and cabinet.
.3 Emergency pre-emption equipment.

The exact list of materials supplied by the Owner to be confirmed with the City of Coquitlam Traffic Operations staff and *Contract Administrator*. In the case of private development projects requiring City supplied materials, the cost for supply and installation of these materials will be borne by the Developer.

3.33 Fibre Optic Cable

Add 3.33

.1 Fibre optic cables will be terminated to a twelve (12) port LC coupler panel.

.2 When installing Fibre Optic Communications Conduit, Fibre optic warning tape (150 mm wide orange plastic tape labelled "WARNING FIBRE OPTIC COMMUNICATIONS CABLE") and Detectable (Magnetic) marker tape is to be placed over all conduits containing fibre optic cable.

.3 During installation of new boxes or with all existing boxes ensure that they have been cleared of any soil, sand or gravel and other materials that have accumulated in the base of the junction box. Ensure that all empty conduits have a proper RPVC coupling and cap inserted (friction fit - DO NOT GLUE) into each duct. Once the conduit is populated, replace cap with bell coupling and glue in place.

.4 All communication conduits will be flushed with water and dried with compressed air. This process will be followed by pulling through a suitable size Blowing Mouse, a clean soft cloth and new No. 8 HB Yellow/Green Mk pull string

.5 Perform a visual inspection of the proposed cable route and be aware of any potential problem areas. Locations in which cables will be terminated must be inspected and plans made for hardware and cable slack storage. Space and access for termination of the cable should be considered prior to starting the job. Develop a cable placement plan based upon the cable route survey and your available equipment and personnel resources. Submit a plan to the City for acceptance prior to starting work.

.6 Be aware that any damage due to excessive pulling, bending, or crushing, may alter the cable's transmission characteristics to the extent that the cable section will have to be replaced at the Project’s expense.

.7 Fibre optic cables will be installed in continuous runs in conduit between the traffic signal controller cabinets (no splices are allowed).

.8 DO NOT EXCEED THE MINIMUM BEND RADIUS OF THE FIBRE. During installation do not exceed the minimum bend radius as specified by the manufacture.

.9 DO NOT IMPROPERLY PULL OR EXCEED THE CABLE'S RATED PULLING TENSION as specified by the cable manufacturer. Excess pulling may not actually break the fibre, but it can cause

the fibre attenuation to increase so that the installed system may not operate within the specified requirements.

.10 DO NOT EXCEED THE VERTICAL RISE SPECIFICATION as specified by the cable manufacturer unless intermediate tension relief is used. Secure the cable to new or existing supports wherever possible.

.11 Take precautions to protect reeled and unreeled cable from any source of damage, whether attended or unattended. Be particularly careful with pre-connected sections of cable produced to meet specific length requirements as any damage to the cable may require replacement of the entire section.

.12 If the cable must be unreeled during installation, the "figure--eight" configuration should be used to prevent kinking or twisting. Do not coil the cable in a continuous direction except for lengths of 30 meters or less. The preferred size of the "figure-eight" is about 4.5 meters in length, with each loop about 1.5 meters to 2.4 meters in diameter.

.13 If a cable puller is used, ensure that the recommended pulling tension of the cable is not exceeded. Do not pull through junction boxes, especially 90-degree conduit fittings, unless precautions are taken to maintain the minimum bend radius.

.14 When installing cable in conduits, ensure the conduit does not exceed the minimum bend radius. Avoid pull boxes unless the maximum bend radius can be maintained. In controller cabinets, fibre optic cables will be tied together with ty-wraps. Each cable will be labelled within 10 cm of the terminated ends with a tag and text stating the street intersection of the opposite cable end. Cables will be tagged in the controller cabinet and all other access points with "CAUTION, FIBRE OPTIC CABLE" tags. Leave enough cable slack at termination points to allow the cable to be routed through the termination hardware to a polishing/splicing table, plus a minimum of 3 meters additional slack. Cable slack will be coiled and secured with Velcro ties for breakaway protection. Cable to termination panel will be secured to cabinet with ty-wraps

.15 If cable lubricants are necessary, ensure that they are compatible with the cable's outer sheath. Refer to the lubricant specification sheet to ensure compatibility. In all cases avoid the use of detergent-based lubricants, as these types of lubricants promote stress cracks.

.16 Excess cable inside pull boxes will be coiled and mechanically secured in place with Velcro straps such that the minimum bend radius is not exceeded and the cable is suspended above the pull box. The Velcro straps are to provide `breakaway' protection in the event of an accidental dig-up between pull boxes.

.17 Adhesive warning labels 3M – 5016 – FO type or accepted alternate will be affixed to each fibre optic cable in each access point. Access points include pull boxes and traffic signal controller cabinets. Decal strip holders, 3M – 5012 or accepted alternate, will be used and will be secured in place using cable ties. Warning labels will be oriented so they are visible and are not blocked by other cables or equipment.

.18 After installation, each segment of each fibre will be tested using an Optical Time Domain Reflectometer (OTDR) and power meter equipment. Testing will be done in each direction on each fibre

and at both 1310nm and 1550nm wavelengths. Launch cable will be used as per the OTDR manufacturer's specifications. Those retained to complete the work will provide a report detailing the results of each test including OTDR test results in graphical format, cable length, any fibre breaks or anomalies, attenuation of fibre's, connectors and fibre uniformity.

.19 Final testing and inspection of the cable installation will be conducted with the City on-site.

END OF SECTION

Appendix A -
Traffic Management Detail Specifications

1.0 GENERAL

.1 This Traffic Management detail specification refers to the Contractor's specific plans to identify project traffic risks affecting the *Work*, provide Traffic Control Plans, and to implement the traffic control for the safe passage of vehicles and pedestrian through the work zone.

1.1 Related Works

.1 Traffic Control, Vehicle Access and Parking MMCD Section 01 55 00S.

1.2 References

.1 WorkSafe BC, Occupational Health and Safety (OHS) Regulation, Section 18 – Traffic Control.

.2 B.C. Ministry of Transportation and Infrastructure (MOTI) Traffic Management Manual for Work on Roadways

1.3 Project Requirements

.1 A Road and Sidewalk Closure Permit is required by Coquitlam for all work affecting traffic flow related to construction. A permit is required for each specific construction interference with traffic flow. The Road and Sidewalk Closure Permit Request form is attached as **Appendix 1** to this document. A digital copy of the Road and Sidewalk Closure Permit form can be obtained for use during the contract from the City's website at: Road & Sidewalk Closure Permit Application.

A Road and Sidewalk Closure Permit form application must be submitted to City's Traffic Operation Division 10 working days prior to start of work.

1.4 Measurement and Payment

.1 For this Contract, payment for all work performed under this section, unless included in the Schedule of Quantities and Prices shall be treated as incidental work, including a Traffic Management Plan (TMP), Traffic Control Persons (TMP), traffic markings & all temporary traffic signs, devices as required for traffic & pedestrian safety; and all other items described in the Section 01 55 00S.

2.0 PRODUCTS

2.1 Traffic Management Plan

.1 The Contractor is required to assign a Traffic Manager for the Contract with the responsibility of preparing the Traffic Management Plan and the Traffic Control Plans, as well as the responsibility for continuing implementation of traffic control for the Work.

.2 The Traffic Management Plan (TMP) will consist of the following components:

- .1 Category identification through risks and project category assessment as per MOTI Traffic Management Manual for Work on Roadways;
- .2 Traffic Control Plans for individual stages of the construction;
- .3 Incident Management Plan for the response to an unplanned event and recording of incident information;
- .4 Category 3 TMP must be signed and sealed by a qualified Professional Engineer.
- .5 David Avenue is a Category 3. Please refer to Appendix E – Traffic Management Plans – MOTT Project Category Determination.

.3 Submission of the TMP is to be made to the *Contract Administrator* within five (5) working days after the *Notice of Award* of the *Contract*, and must be approved by the *Contract Administrator* prior to start of the *Work*.

.4 Review of the TMP will be performed by the Contract Administrator. Comments for revisions to the TMP will be returned to the *Traffic Manager* for implementations.

.5 The Contractor shall comply with all the requirements of applicable laws, rules, regulations, codes and orders of the municipal and other appropriate authorities concerned with work on streets or highways and shall post proper notices and/or signals, and provide necessary barriers, guards, lights, flagmen or watchmen as may be necessary for proper maintenance of traffic and protection of persons and property from injury or damage. All costs involved in respect to the above requirements will be deemed to be included in the Contract Price.

.6 The Contractor shall give due notice to local police and fire departments prior to beginning construction and shall comply in all respects with their requirements.

.7 The Contractor, during the progress of the work, shall make adequate provision to accommodate the normal traffic along streets and highways immediately adjacent to or crossing the work so as to cause the minimum of inconvenience to the general public.

.8 The Contractor is required to maintain local traffic and driveway access during all stages of construction. This includes maintaining a 1.5m width walkway or pathway through the construction site for pedestrians.

.9 Where existing streets or roads are not available as detours, all traffic shall be permitted to pass through the work with as little inconvenience and delay as possible unless otherwise provided or authorized. If half the street only is under improvement, the other half shall be conditioned and maintained as detour.

2.2 Incident Management and Reporting

.1 The Contractor shall facilitate incident response vehicles and staff and move traffic safely and expeditiously through or around an incident on site and provide assistance to emergency response personnel as required. An incident includes, but is not limited to, motor vehicle accidents, emergency road repairs, disabled vehicles, and debris on the road. The immediate response to an emergency shall by necessity make use of available devices and equipment.

.2 If an incident occurs on site, the Contractor will be required to submit a report to the Contract Administrator documenting details of the incident including event, location, date, time, action taken, duration and restoration of site.

2.3 Traffic Control Plans

.1 The Contractor shall designate a qualified Traffic Control Supervisor for the works, per the requirements of WCB regulations Section 18.

The designated Traffic Control Supervisor may be the same individual that is designated as the Traffic Manager, or may be a separate individual qualified for the responsibilities of this function.

.2 The Contractor shall prepare weekly the anticipated traffic control activities, locations, and durations for the upcoming week.

.3 Permissible delays shall only be considered outside Peak Hours. Permissible delays are categorized as follows:

a) Minor Delays - Less than two (2) minutes in duration; for occasional interruption due to construction activities. These delays shall be coordinated with available breaks in the traffic flow.

b) Major Delays - Maximum ten (10) minutes in duration; for occasional interruption of traffic for construction activities if traffic volumes permit.

.4 The Contractor is responsible for ensuring that the flow of traffic is unimpeded by construction-related activities.

3.0 EXECUTION

3.1 Traffic Control Plan

.1 A copy of the approved current Traffic Plan must be held on site by both the Site Superintendent as well as the person/company responsible for the traffic control implementation.

.2 Failure to produce a valid approved Traffic Plan on site, or having work not follow the Traffic Control Plan will result in immediate shut-down of the work. The Contractor will be required to safely restore facility conditions to allow traffic flow at their expense. The Contractor must take all steps to acquire an approved Traffic Control Plan before work can re-start on site. No claim will be accepted by the Owner for costs associated with this work shut-down.

3.2 Road and Sidewalk Closure Permits

.1 The Contractor must have, on-site, a copy of an approved Road and Sidewalk Closure Permit valid for the work being done. Failure to produce a valid Road and Sidewalk Closure Permit on-site will result in shut-down of the work. Failure to comply on what is stated on the approved permit will result in shut-down of the work. The Contractor will be required to safely restore facility conditions to allow traffic flow at their expense. The Contractor must take all steps to acquire a Road and Sidewalk Closure Permit before work can re-start on site. No claim will be accepted by the Owner for costs associated with this work shut-down.

3.3 Traffic Control Personnel & Equipment

.1 The Contractor shall supply all necessary traffic control devices required to perform traffic control services for the project. Signs and traffic control devices not applying to existing conditions shall be removed. Where operations are carried out in stages, only those traffic control devices that apply to the current stage are to be left in place.

.2 There must be sufficient Traffic Control Persons (TCPs) on site to appropriately and safely direct traffic in all sections of the Work.

3.4	Signage	Supply, installation, maintenance and removal of all works-related signs shall be the responsibility of the Contractor. The location and type of each sign shall be indicated on the approved Traffic Control Plan, for each stage of the works. Traffic control signs and devices must be positioned and used as specified in the Traffic Control Plan and signs and devices must be located so as to allow traffic to move by or through the work area in a controlled manner and, if necessary, to come to a controlled stop with due regard for the prevailing weather and road conditions. Signs shall be checked daily for legibility, damage, suitability and location. Signs and delineators shall be cleaned as frequently as necessary to ensure full legibility and reflectance.
3.5	Detours	Any proposed detours must be approved by the Contract Administrator and conducted in accordance with the approved Traffic Plan and the Traffic Control Manual for Work on Roadways.
3.6	Abrupt Changes in Surface Elevations	The Contractor shall minimize any abrupt changes in roadway elevation left exposed to traffic during both working and non-working hours. The use of road plates to cover excavations and restore travel lanes is not permitted in late Fall, Winter or if forecast indicates temperature equal or below 2 degrees Celsius, unless otherwise permitted by the Contract Administrator. Where construction necessitates the use of road plates, the Contractor is responsible for properly securing them (either pinned or recessed into the pavement) and a wedge of asphalt must be used as a transition to vertical differences in travelled areas and have a slope of 4:1 or less. The Contractor is responsible for repairing any pavement damage related to the plate installation. A wedge of asphalt must be used as a transition to vertical differences in travelled areas and have a slope of 4:1 or less.
3.7	Cyclist and Pedestrian Access	The Contractor shall make provision for pedestrians, wheel chairs and bicycles to have safe access across the work zone at all times. If this cannot be readily accommodated, then acceptable detours and appropriate signs shall be provided.
3.8	Good Neighbor Practice	The Contractor, crew and subcontractors, shall not park their private vehicles on the same street they will be working on. Contractor is responsible to find alternative parking accommodation to minimize any inconvenience to the residents.
3.9	Temporary Pavement Markings	The Contractor shall be responsible for the application and removal of all temporary pavement markings and reflective devices. All temporary markings must be removed after installation of permanent markings.

4.0 TRAFFIC RESTRICTIONS

4.1 Road and Sidewalk Closure Permits

.1 Minimum of Single Lane Traffic in each direction must be accommodated at all times. If necessary and only at the discretion of the Contract Administrator, Single Lane Alternating Traffic may also be approved at one block at a time.

.2 A Road and Sidewalk Closure Permit is required for each instance of closure and will be valid for a maximum period of one (1) week and, if still necessary, re-submittal of a Road and Sidewalk Closure Request is required.

A copy of the approved Road and Sidewalk Closure Permit must be held on site by both the Site Superintendent and the person/company responsible for the traffic control implementation.

.3 Total Road Closure Is Not Permitted.

.4 Detours will only be permitted as approved by the Contract Administrator and must have a complete Traffic Control Plan indicating detour route, signing, and duration. Detours will not be allowed without sufficient lead time for commercial and retail operation to react appropriately to detour information provided to them.

4.2 Lane Closure Restrictions

.1 **For each of the road sections affected:**
- Road and Sidewalk Closures will be reviewed for appropriateness during the allowable hours of work.
- Access to properties to be maintained
- Sufficient Traffic Control Persons are required for each Road and Sidewalk Closure (or any work activities), <u>including side street intersections,</u> to safely guide traffic through the work site.

5.0 HOURS OF WORK

5.1 Allowable Hours of Work

.1 Some allowances may be made for paving operations, depending on a proposal acceptable to the Contract Administrator.

.2 Line Marking work may be performed at night, (21:00 to 05:00). No work is allowed on Sundays without specific written permission from the Contract Administrator.

.3 The hours of work are outlined in the table below:

LOCATION	**ALLOWABLE TIME** (includes set-up and take down)	**COMMENTS**
Pipeline Road	Monday to Friday 7:00AM to 7:00PM Saturday 9:00AM to 5:00PM	Minimum 1-lane traffic in each direction must be maintained. Pedestrian traffic must be re-routed to use controlled road crossings.

		All sidewalks and traffic lanes must be re-opened during the day in safe conditions. Steel road plates can be installed over trenches, where permitted by the Contract Administrator, and the Contractor must provide asphalt ramps to plates (per Clause 3.6) and speed control/uneven surface warning signage.
David Avenue	Monday to Saturday 8:00PM to 5:00AM	Minimum 1-lane traffic in each direction must be maintained. Pedestrian traffic must be re-routed to use controlled road crossings.
David Avenue/Shaughnessy Street Traffic Signal Upgrades	Monday to Friday Eastbound: 9:00AM to 7:00PM Westbound: 7:00AM to 3:00PM, 5:00PM to 7:00PM Saturday 9:00AM to 5:00PM	Minimum 1-lane traffic in each direction must be maintained. Pedestrian traffic must be re-routed to use controlled road crossings.

6.0 CONSTRUCTION OPERATIONS

6.1 Truck Routes

.1 The Contractor is restricted to the City's designated Truck Routes. The current Truck Route Map is available on the City's website at www.coquitlam.ca and can be found under **Residents, Transit & Transportation, Trucking Routes**.

6.2 Road Specific Considerations

.1 The Contractor shall ensure safe passage of all pedestrians and all types of vehicles. The Traffic Management Plan must accommodate businesses, school, residences and pedestrian during construction activities.

***All travel lanes must be open to all traffic at the end of working hours.**

All City Traffic Counts are available on the City's web site at:
Coquitlam Traffic Data

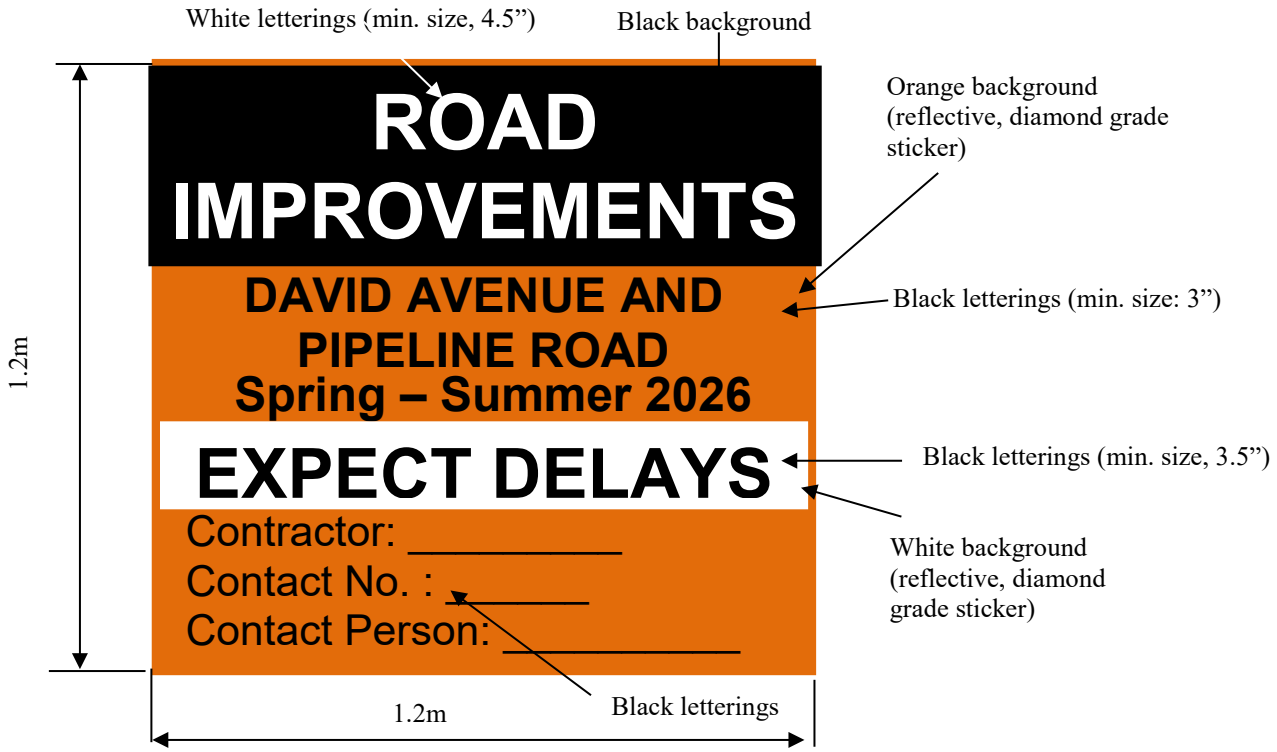
.2 Contractor shall not schedule paving during garbage pick-up day.

.3 **Pipeline Road is a route to Ecole Nestor Elementary and Town Centre Park. The last day of school before summer vacation is June 26, 2025. Road paving operations must occur during summer break in order to avoid delays for students and staff, unless single lane in each direction can be maintained or as approved at the sole discretion of the Contract Administrator.**

.4 **David Avenue pavement rehabilitation must be done as night work.**

6.3	Work Stoppage Due to Traffic	The City will not control or direct traffic control activities of the Contractor, but may require an immediate stop to any work where, in the sole opinion of the Contract Administrator, the provided traffic management plan is ineffective. Contractor is responsible for the costs associated with this work shut-down.
6.4	Construction Activity and Signage	The Contractor will be responsible to place other construction information signs as required to inform the public of construction activities, and ensure safe travel through the work site.
6.5	Changeable Message Sign (CMS) Board	The following locations will require Changeable Message Signs (CMS) for the duration of the project: 1. Northbound on Pipeline, south of Guildford (Median) 2. Southbound on Pipeline, north of David 3. Westbound on David, east of Shaughnessy 4. Eastbound on David, west of Pinetree (Median) Exact locations to be determined on site by Contract Administrator.
6.6	Construction Zone Information Signs	The Contractor is required to provide, one week prior to start of work and for the duration of the Contract, stationary signs to inform traffic of existing and anticipated conditions at the following locations: - westbound, NW corner of David Ave & Oxford St - eastbound, SE corner David Ave & Johnson Way - northbound, NE corner Pipeline Road & Guildford Way - southbound, SW corner Pipeline Road & Robson Drive - northbound, NE corner Pinetree Way and Trevor Wingrove Way - southbound, SW corner Pinetree Way and Robson Drive - northbound, NE corner Shaughnessy St and Elizabeth Drive Exact locations to be determined on site by Contract Administrator. Ensure that signs and locations are addressed in the Traffic Management Plan. All signs are to be removed at the end of the construction period.

Construction Zone Information Signs to follow specifications below:



APPENDIX 1

Coquitlam

City of Coquitlam
Road and Sidewalk Closure Permit Request

Traffic and Street Use Management Section
3000 Guildford Way, Coquitlam BC V3B 7N2
Phone: 604-927-6250 Email: StreetPermits@coquitlam.ca

~~Initial Permit: $150 ☐ Renewal Permit: $75 ☐~~

Application Date: _____ **City Project or Film Permit Number** (if applicable): 74770-2

- An Initial Permit is required for all new applications and when the location, type of work, or the type of traffic controls change from what was approved for the Initial Permit. The application needs to be received a minimum of 10 business days prior to the intended closure date.
- A Renewal Permit extends the rights and privileges of the approved Initial Permit and is required when the timeline needs to be extended. The application must be received a minimum of 5 business days prior to the intended extension date.

Development Site Address (if applicable): _____

Work location (street name, block number, to/from, at, etc.) _____

Contact Information

Applicant Company Name: _____

Applicant (person completing application form)

Name: _____ **Title:** _____

Phone: _____ **Email:** _____

Applicant's Signature: _____

Company Name (Prime Contractor): _____

Site Superintendent

Name: _____ **Title:** _____

Phone: _____ **Mobile:** _____ **Email:** _____

Permit Information

Start Date: _____ **End Date:** _____

Day(s) and Time(s): ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday From: 00:00 To: 00:00
☐ Saturday From: 00:00 To: 00:00 ☐ Sunday From: 00:00 To: 00:00

Specific Lanes: ☐ Curb ☐ Inside/Centre Lane ☐ Left Turn Lane ☐ Right Turn Lane ☐ Parking Lane
☐ All Lanes ☐ Sidewalk/MUP ☐ Bicycle Lane

Direction: ☐ Northbound ☐ Southbound ☐ Westbound ☐ Eastbound

Purpose of Work: ☐ Concrete Pour ☐ Utility Installation ☐ Curb Installation ☐ Other _____

This permit is related to: ☐ City Design and Construction ☐ City Parks ☐ External Environmental
☐ Development ☐ External/Utilities

City Contact (if applicable): _____

Office Use Only

Permit Conditions/Comments:

_____

_____ _____

Approved by *Date*

Application Checklist

⚠ **The following information must be provided. Incomplete applications will not be reviewed.**

1. ☐ Traffic Management Plan (TMP); **OR**
   ☐ Traffic Management Manual for Work on Roadways Figure Number: _____
2. ☐ **Project Category Determination** (per 2020 Traffic Manual for Work or Roadways).
   ☐ Initial Project Category Assessment
   ☐ Project Risk Analysis
   ☐ Category 1 ☐ Category 2 ☐ Category 3
3. ☐ **Prime Contractor Designation Letter**
4. ☐ **City of Coquitlam Certificate of Insurance**
5. ☐ **Notification Letter and Map** (required for all full road closures). A Notification Letter must be provided to all affected residents and businesses.
   ☐ Yes ☐ No ☐ Not Applicable
6. ☐ **Traffic Control Persons** (flag persons) **required?** All operations within the road right-of-way must comply with WorkSafe BC regulations and BC Ministry of Transportation standards for work on roadways.
   ☐ Yes ☐ No If yes, how many? _____
7. ☐ **Bus routes/stops impacted?** Applicant is to contact Coast Mountain Bus Company (with a minimum of 3 days' notice) Temporary Transit Changes Request Form. General information can be found by visiting Temporary Transit Changes.
8. ☐ **City of Coquitlam Solid Waste has been contacted?** Coquitlam Environmental Services contacted regarding impact to garbage/recycling routes and pick up Phone: 604-927-4300 Email: wastereduction@coquitlam.ca
   ☐ Yes ☐ No
   Are operations impacted? ☐ Yes ☐ No
   If Yes:
   - a plan to ensure continuous collection has been provided: ☐ Yes ☐ No
   - Day(s) of the week impacted: _____
   - Time(s) of the day impacted: ☐ a.m. ☐ p.m.
9. ☐ **Pedestrian / Bike Lanes impacted?** Please describe sidewalks and/or bicycle facilities that will be impacted by the proposed work.

   _____

   _____
10. ☐ **Is the work on, or will it impact a road along our Major Road Network?**
    ☐ Yes ☐ No

Additional information

- Only vehicles actively engaged in the performance of cleaning, clearing, maintenance, repair, construction or other work are permitted within work zones. Vehicles being used by Superintendents, Traffic Control Persons, and other construction personnel that are not actively engaged in work described above are not permitted within the work zone and are not permitted parking /stopping prohibitions.
- Closures of sidewalks, cycling facilities, lanes, and full road closures are only permitted during the time periods indicated on the approved permit. Traffic controls are not permitted outside of these approved permit hours.

Appendix B -

Archaeological Chance Find Procedures

Archaeological Chance Find Procedures

City of Coquitlam

DRAFT 2

November 2021 (version 2)

BROWN & OAKES
ARCHAEOLOGY

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Introduction

This document is presented as an accompaniment to Kwikwetlem Cultural Heritage and Archaeology Chance Find Procedures training provided by Brown & Oakes Archaeology to City of Coquitlam (or the “City”) staff and contractors.

The Chance Find Procedure (CFP) is intended to provide City planners and onsite project personnel guidelines for the appropriate response to an unanticipated discovery of known or suspected archaeological or cultural heritage materials during City operations. A CFP is NOT a substitute for professional archaeological assessment of project areas considered to hold archaeological potential. Thorough archaeological assessment will always reduce project risk of harms to protected archaeological sites and minimize the potential for encountering unanticipated material. This CFP training is intended to promote the preservation and proper management of heritage resources that are unexpectedly encountered during City activities.

The document presents a summary of archaeology site protection legislation, steps to follow in the case of suspected or observed archaeological materials, a list of appropriate authorities to contact in the case of archaeological site encounters, and a guide to archaeological site and materials recognition. Information on Kwikwetlem culture history and connections to traditional lands is not presented in this document and this information is best shared via virtual or in-person presentations.

Purpose

The purpose of CFP documentation is to aid in the protection and proper management of archaeological materials encountered during City of Coquitlam activities. Many land-altering activities have the potential to expose and/or negatively impact undocumented archaeological materials.

The purpose of this document is to:

- Ensure project personnel are aware that undocumented archaeological sites are likely to be present in the City of Coquitlam.
- Promote awareness of activities that may lead to the exposure of archaeological materials, including excavations, vegetation clearing, field survey and inspections, and more.
- Provide personnel the appropriate steps to follow if suspected or observed archaeological resources are encountered during work or personal activities.
- Provide education and resources to assist recognition of archaeological site types and materials in the lower Fraser River region.

Archaeological Sites in British Columbia

Archaeological sites are places that exhibit physical evidence of past human activity. Archaeological sites in British Columbia are automatically protected under the *Heritage Conservation Act* (HCA) when located on provincial, crown, municipal, or private land[1]. The vast majority of archaeological sites in BC include places and belongings of Indigenous peoples. Some post-1846 sites related to newcomer history may also be registered and protected under the HCA if of significance to a place, industry, or region, for example. HCA protection is extended to ship and plane wrecks more than 2 years old.

Many First Nations consider the widely accepted definition of an archaeological site as a place featuring only the material remains of human activity too restrictive and instead advocate for the recognition and protection of a wider range of "cultural heritage" site types, including places of spiritual significance, named locales, known travel routes, and other places of cultural value.

The majority of the City of Coquitlam has not been surveyed for archaeological sites and it is reasonable to expect that many archaeological sites are buried and/or undetected. These sites are collectively referred to as undocumented archaeological sites.

HCA Legislation and Policies

Archaeological sites are automatically protected under the terms of the *Heritage Conservation Act* whether known or undocumented. Sites are protected whether previously disturbed by historic activities or intact. The HCA prohibits the alteration or disturbance of archaeological sites in whole or in part, on provincial public and private lands, whether impacts are intentional or inadvertent, and irrespective of previous land disturbance.

The HCA provides substantial penalties for the destruction or unauthorized disturbance of archaeological sites including imprisonment for up to two years and fines of up to $1,000,000.

Alterations to archaeological sites may proceed under appropriate HCA permits held by professional archaeologists following provincial assessment guidelines[2]. Work plans and methodologies related to archaeological site investigations must meet provincial regulatory standards and are expected to conform to participating First Nation cultural heritage policies and best-practice standards.

Archaeological materials on federally managed lands may be protected by other legislation and policies. Many federal agencies will adhere to the requirements outlined in the *HCA* when managing archaeological sites.

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[1] http://www.for.gov.bc.ca/archaeology/index.htm.

[2] The HCA is administered by the Archaeology Branch, Ministry of Forests, Lands, Natural Resources and Rural Development.

First Nation Cultural Heritage Management

Many BC First Nations maintain cultural heritage policies and/or heritage permitting systems to assert oversight over Indigenous cultural heritage management and to ensure a high standard of archaeological practice. Contact should be made with locally affected Nations prior to any heritage study or project work with the potential to encounter cultural heritage materials to ensure adherence to Nation-preferred heritage protections, permits, and policy.

Potential to Encounter Archaeological Sites

Any project involving ground alterations has the potential to expose undocumented archaeological sites. Common forms of ground disturbances that have led to site discoveries include land grading, vegetation clearing/grubbing, excavation, asphalt/concrete removal, geotechnical drilling, access road or trail building, foundation demolition, heavy equipment movement, habitat planting, stream and pond channeling or dredging.

Other kinds of work activities where teams may encounter undocumented archaeological sites include field teams working in proximity to natural, undeveloped or minimally disturbed terrain. Teams involved in field surveys, field inspections, or inventories of natural ground and waterways, riparian areas, municipal parks and trails, forested areas, cut bank or erosion area, and so on may encounter exposed archaeological materials.

City workers or contractors engaged in any activity that may result in archaeological materials identification should be made aware of HCA site protection legislation and field supervisors properly versed CFP procedures.

Types of Archaeological Sites

The following site types are well-known across the lower Fraser River region and may be encountered in the City of Coquitlam. The following site types may contain a range of artifact types and sediment signatures.

- **Stone tool sites** containing isolated artifacts or accumulations of stone tool working debris.
- **Habitation sites** show accumulations of food remains, tools, and evidence such as hearths indicating short term and seasonal camps and settlements used for travel and resource procurement as well as large and permanent villages.
- **Surface features** such as cultural depressions created by former habitations, earthen fortifications, burial mounds, and rock cairns.
- **Wet sites** contain preserved organic materials like woven basketry or wood tools in addition to other cultural material; these sites form under special preservation conditions typically anaerobic water saturated sediments along waterways and floodplains.
- **Culturally Modified Trees (CMTs)** include bark stripped trees, planks, and territory markers.
- **Rock art** including pictographs (painted rock images) and petroglyphs (images carved or pecked into rockfaces or boulders).

Archaeological Chance Find Procedure

In the event of found or suspected archaeological material, follow the procedures outlined below.

STEP 1: WATCH for potential archaeological materials

- ⇨ Know that undocumented archaeological sites are expected throughout Coquitlam.
- ⇨ Know that archaeological materials are protected by law and must be reported.
- ⇨ If you believe you may have encountered archaeological materials (either intact or disturbed) follow the steps outlined below.

STEP 2: STOP work in proximity to the material

- ⇨ If known or suspected archaeological materials are encountered, STOP work in the immediate vicinity.
- ⇨ Do not disturb, move, relocate, or collect the material.

STEP 3: REPORT observed materials

- ⇨ Alert the site supervisor that suspected archaeological materials have been observed.
- ⇨ The site supervisor will ensure appropriate contact is made with City managers who will in turn reach out to archaeological professionals.

STEP 4: CONTACT archaeological professionals

- ⇨ Seek immediate advice from an archaeological professional.
- ⇨ Teams may be advised to protect the area with flagging or cones until the area can be assessed by the appropriate representative.
- ⇨ Teams may be requested to provide locational details or photographs of the material.

STEP 5: AWAIT advisement

- ⇨ Wait for instructions from the appropriate representative; do not begin ground disturbing work until cleared to do so.
- ⇨ Prepare and submit an incident report to ensure compliance with appropriate regulators and interest groups.

Archaeological Chance Find Procedure - Suspected Ancestral (Human) Remains

In the event of found or suspected human remains, follow the procedures outlined below*.

STEP 1: STOP all activity at the job site immediately, including the removal of backfill. Do not rebury the remains.

STEP 2: REPORT to the City Project Manager. The Project Manager will contact an archaeological professional and determine the appropriate course of action. In most cases, the archaeology professional will visit the site to determine if the materials are reasonably expected to be human and archaeological. If warranted, the consultant will notify the Archaeology Branch and the RCMP, the Office of the Coroner, and affected First Nations. The Coroner will affirm whether the remains are archaeological and not of forensic concern. The archaeologist will inform the Archaeology Branch and First Nations will be consulted to determine culturally appropriate handling protocols and subsequent project management options.

STEP 3: PROTECT the affected location with flagging or cones to prevent additional disturbance and for privacy. Do not photograph the material.

STEP 4: TREAT the remains with dignity and respect. Do not allow bystanders to take photographs or video.

STEP 5: AWAIT advisement.

* If it is reasonable to think the human remains are not archaeological but forensic in nature, an immediate call to the RCMP is required.

Management Options

If determined that an archaeological or cultural heritage site (intact or disturbed) is present, an archaeologist will coordinate communications with the City, local affected First Nations, and the Archaeology Branch to evaluate management options. Archaeology Branch and First Nations approval and additional permitting may be required prior to the implementation of management options.

Examples of potential management options are provided below. Options will vary based on site characteristics, proponent needs, and Archaeology Branch and First Nation requirements.

Option A: Site avoidance through project redesign or relocation. Site avoidance is always preferred. Avoidance minimizes impacts to irreplaceable archaeological sites and reduces cost and schedule impacts.

Option B: Systematic data recovery through controlled archaeological excavation or other method. Data recovery is destructive to archaeological sites and will entail consideration of costs and schedule coordination.

Option C: Monitoring of construction activities by a professional archaeological team. Monitoring is appropriate where project impacts cannot be evaluated before construction (due to impenetrable surfaces or underground facilities, for example) or where potential to encounter archaeological materials is present following impact assessment or systematic data recovery.

Best Practices for CFP Implementation

- A Chance Find Procedure is best applied as an outcome stemming from archaeological assessment – as a last step verification that archaeological materials have not been overlooked in project area assessments, or where there is a professional assessment that documents a low expectation for encountering archaeological materials in a work area.
- A Chance Find Procedure is not an acceptable replacement for a professional archaeological overview (AOA) or archaeological impact assessment (AIA) or a well-designed and implemented archaeological construction monitoring plan for many areas. Engagement with professional archaeological teams, affected First Nations, or the Archaeology Branch will assist in appropriate heritage study approaches.
- Chance Find Procedure training must be delivered by professional archaeologists and local area First Nations who wish to contribute to CFP presentations.
- Chance Find Procedures should be summarized regularly as part of job or project requirements, and CFP training repeated by the archaeological and First Nation team for new employees, project teams, and subcontractors.
- Chance Find Procedures do not supersede any requirements or policies pertaining to cultural heritage management by First Nations with interests in the area. Proponents are encouraged to seek input from interested First Nations on area-specific CFPs as part of any project engagement process.

Contact List

Archaeology Branch

Paula Thorogood	Planning and Assessment Manager	250-953-3300	Paula.Thorogood@gov.bc.ca
Nathan Friesen	Planning and Assessment Supervisor	250-953-3306	Nathan.P.Friesen@gov.bc.ca

City of Coquitlam

Main Reception		604-927-3000

Police and Coroner

RCMP (Non-emergency)	Coquitlam	604-945-1550
BC Coroners Service	Lower Mainland Region	604-660-7708

Area First Nations

Kwikwetlem First Nation	604-540-0680
Katzie First Nation	604-465-8961
Kwantlen Nation	604-888-2488
Musqueam Indian Band	604-263-3261
Stó:lō Nation	604-824-2420
Tsleil Waututh Nation	604-929-3454

Archaeological Site and Materials Identification

The following archaeological sites and artifacts are common to the lower Fraser River region. This guide is to assist in the recognition and protection of archaeological materials found by chance. If you identify any archaeological material, stop work immediately and contact a professional archaeologist.

Artifacts

Artifacts are objects made or modified by humans and may be formed of stone, bone, antler or wood. Bone, antler and wood tools were produced in abundance, but stone artifacts are the most common artifacts found in the lower Fraser region because of the preservation durability of stone. Bone and antler were fashioned into a variety of items, including needles, knives, points, jewelry, awls and scrapers. Wood was used to make implements like spoons and bowls, handles, ceremonial objects, canoes, houses, and much more.

Photo Credit: RBCM, Archaeology Collection. Antler and wood tools (https://learning.royalbcmuseam.bc.ca)

Stone tools common to this region include projectile points, knives, adzes (axes), scrapers, mauls (hammers), net weights, beads, and more. Archaeologists distinguish chipped stone from ground stone artifacts, each distinguished by the mode of manufacture, either flaking scars or grinding and polishing marks. Stone flakes or ‘debitage’ is produced during the process of making stone tools. These flakes were sometimes used as tools themselves or were left behind at the stone tool working site. Culturally produced debitage shows features distinctive from naturally broken rock, gravel or crush, but these signatures can be difficult to identify to an untrained eye. Stone artifacts were produced from dacite, quartzite, slate and nephrite as well as obsidian, chert, and other materials. Stone was acquired locally or transported or traded over long distances; high-quality materials like obsidian has been traced to locations from Prince Rupert to Oregon and beyond.

Artifacts may be found as isolated finds or in association with other cultural materials.

Photo Credit: B&OA, Chipped stone artifacts from Coquitlam Lake.

Photo Credit (left): B&OA, Nephrite ground stone adze from Port Coquitlam. Photo Credit (right): RBCM, Archaeology Collection. Ground stone hand mauls (https://learning.royalbcmuseam.bc.ca)

Photo Credit: B&OA, Stone tool debitage from BC Interior.

Beads

Beads were made from a variety of materials including stone, shell, bone and glass (in more recent times). Shell and stone disc beads were used in jewelry, regalia and in mortuary practices across the Northwest Coast. On the Lower Fraser it is most common to find stone beads at archaeological sites fashioned from mud or silt stone, slate, or other softer stone. At some burial sites, individuals of rank were laid to rest with thousands of stone and shell beads.

Photo Credit: B&OA, Ground stone beads from near Agassiz.

Indigenous Historical Artifacts

Indigenous use of European materials in the years following contact are often found in early historic sites. Ceramics, glass, and metal were valued for their strength, durability, ease of access, or aesthetic properties. Glass was worked using traditional stone tool techniques in the same way as obsidian (a natural volcanic glass). Clay pipes were adopted by Indigenous peoples who several centuries earlier had introduced the practice of tobacco smoking to European traders. Glass beads were used by European fur traders to trade with Indigenous peoples; trade beads were initially valued for their vibrant colour and the expectation of beads as a wealth item.

Photo Credit (left): B&OA, Worked glass and clay stone pipe, Coquitlam.

Photo Credit (middle): https://www.canadashistory.ca/explore/fur-trade/tobacco-pipes. Photo Credit: Oregon Museum of Natural and Cultural History, Glass trade beads (https://mnch.uoregon.edu/index.php/collections-galleries).

Hearths

Hearths are the remnants of fires identifiable by dense black charcoal, ash and heat oxidized sediments. While natural forest fires may also leave traces of burning, hearths tend to be more defined and frequently show concave bases, evidence of repeated use, and contain or are in proximity to burned bone, fire-altered rock, and artifacts.

Fire-Altered Rock

Fire-altered rock (FAR) is rock modified by repeated heating and cooling. Heating small, rounded river cobbles and immersing the hot stones in water filled baskets or boxes was a frequently used cooking technique called ‘stone boiling’. Heated stones were also used to warm clothing and bedding. The repeated heating and cooling of FAR created distinctive fracture and colour patterns that are easily distinguished from naturally broken rock. FAR shows irregular breakage patterns, is frequently deeply pitted, is often deep rust or black in colour, and may be found mixed in charcoal and ash laden sediments. As FAR is often found in abundance around settlement areas or near cooking features and hearths, it is a frequent first indicator of the presence of archaeological sites. Often mixed in FAR deposits are boiling stones—small, rounded pebbles that have not yet been fractured by thermal processes

Photo Credit: B&OA, Fire altered rock, Coquitlam.

Shell and Non-Shell Midden

Midden deposits are generally indicative of camp or village sites. Middens accumulate through the repeated, ongoing use of an area where food remnants or the debris of daily living build up in layers at a site over time. In coastal areas, shellfish provided an abundant food source and, middens contain abundant fragmented or whole shell typically embedded in dark, greasy, sediments rich in charcoal, ash, fire cracked rock, burnt materials, and artifacts. Because shell neutralizes the acidity in soil, shell middens enhance preservation of organic food remains and tools, and fish and mammal bone, wood, antler, and botanical remains are often well-preserved in shell midden sites.

Non-shell middens are accumulations of living materials formed at camps and settlements away from marine waterways. Non-shell midden shows layered deposits of dark sediments, ash, and sometimes sand and clay in sediments with little to no shell. These deposits rarely contain bone, antler, or wood remains due to poorer preservation environments.

In Coquitlam, non-shell middens are the more common site type but there are a few examples of inland shell midden sites associated with camps or settlements where shellfish was transported to locations by travel or trade.

Photo Credit (left): B&OA, Non-shell stratified midden Port Coquitlam. Photo Credit (right): Shell midden, Vancouver Island (*https://learning.royalbcmuseum.bc.ca/pathways/can-)*

Surface Features

Surface features are non-portable cultural formations visible on the landscape. Features may include pits or depressions, earthen mounds or rock cairns, petroforms (rock arrangements) or trails. Cultural depressions may indicate the location of semi-subterranean winter dwellings, plank houses where midden accumulated around the outside of structures, cache pits used for tool or food storage, or pits and trenches used for food cooking or processing. Cultural depressions are identifiable by their uniform shape (usually round or rectangular), a berm may be present around the edge of features, the presence of associated artifacts, or concentrations of charcoal, ash, and fire altered rock.

Cultural mounds or rock cairns are other familiar surface features. Earthen burial mounds and rock cairns are part of a mortuary tradition found throughout the lower Fraser region over the past 1,500 years. Cultural mounds and cairns range in size from around a meter in diameter to more than 12 meters across. Individual occurrences or clusters of well-formed oval or circular mounds of earth and rock should trigger archaeological assessment.

Photo Credit: SFU Museum, Winter pit house village, Lilloeet.

Rock Shelters and Caves

Rock shelters were used, among other purposes, as camps, spiritual or burial locations, and storage caches. Shelters can be found associated with overhangs of large boulders, indentations in rock bluffs or in caves. Shelters often associate with artifacts, rock art, and hearth features.

Ancestral (Human) Remains

Human remains are especially sensitive and significant finds. Any potential human bone requires immediate implementation of the CFP. Ancestral remains are frequently present at archaeological locations and may be found articulated in a burial context or as scattered fragments.

Petroglyphs and Pictographs (Rock Art)

Northwest Coast rock art includes images depicted on boulders, rock overhangs, rock faces, or other exposed rock surfaces. Pictographs are drawings or designs painted on rock using pigments like ochre or charcoal mixed with grease. Petroglyphs are images incised or pecked into stone. Designs vary widely and often depict animals, humans, or an extensive variety of geometric shapes.

Photo Credit: B&OA, Portion of petroglyph panel at Petroglyph Provincial Park, Nanaimo.

Photo Credit: B&OA, Portion of pictograph panel at Pitt Lake.

Fish Weirs and Traps

Fish weirs are structures constructed to funnel and trap fish for harvesting. Traps were built in intertidal areas along marine and river shorelines and near stream mouths. Weirs vary in form and structure depending on water and shoreline conditions, fish species targeted for harvest, intended volume of harvest, and community preferences. Fish weir sites are identifiable by linear or patterned arrangements of wooden stakes protruding from beach or bank edges or boulder alignments along waterways.

Photo Credit: Washington State Archives, Yelm Jim Fish Trap 1885 (http://www.digitalarchives.wa.gov/Record/View/DAA73FC7A57E989D65B6DBEA419FC89E)

Wet Sites

Wet sites are special preservation environments that form in low oxygen water saturated environments along waterways, in bogs and on floodplains. These locations permit enhanced preservation of organic artifacts like wood, bark, and botanicals. Artifacts found in wet sites have included basketry, twine and rope, wooden tools and weapons, architectural structures, and ceremonial implements made of wood and bone.

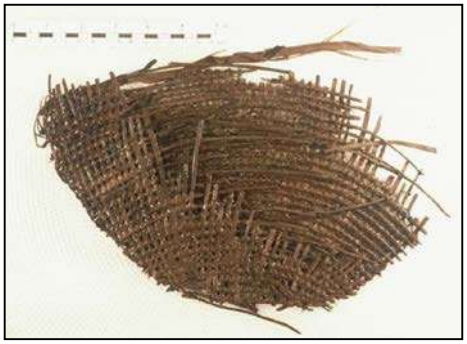


Photo Credit (left): Mike Blake. Ground slate knife with wooden handle, Agassiz. Photo Credit (right): Katherine Bernick, Waterlogged and preserved basket, Coquitlam.

Culturally Modified Trees (CMTs)

Culturally Modified Trees are trees that have been utilized by Indigenous Peoples for a broad range of cultural uses. Wood was used to build houses, canoes, tools, and weapons. Branches, boughs, and leaves were used to fashion tools, for medicine and in cultural ceremony. Harvesting cedar bark and roots was undertaken regularly to make clothing, cordage, basketry, and sleeping mats, ceremonial regalia, and much more.

Triangular bark stripped cedars are the most common form of CMT; a long, linear triangular bark scar will show where bark was removed from the trunk of a living tree. The exposed scar will heal over time creating a seam on the outer tree bark. This form of sustainable harvesting allowed the same tree to be used multiple times for bark harvesting. CMTs can also show evidence of wood removal where wedges were used to pry rectangular planks of wood from standing, living trees.

Logging and clearing throughout much of Coquitlam municipality reduces the chance that archaeological CMTs remain in most forested areas today, but more recent CMTs where bark or wood was harvested from second-growth forest by Kwikwetlem for cultural uses may be present.

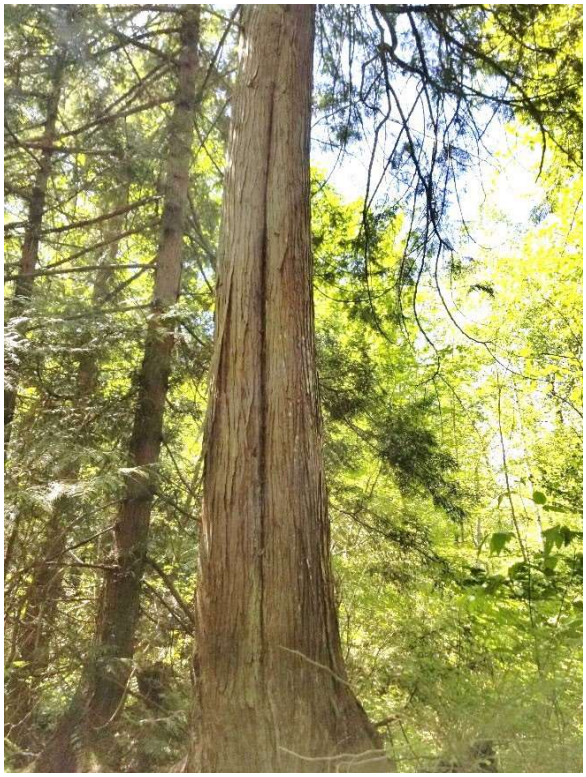


Photo Credit: B&OA, Bark stripped cedars, Coquitlam.

Additional Resources

Learning Portal, Royal BC Museum - https://learning.royalbcmuseum.bc.ca

SFU Museum of Archaeology & Ethnology - https://www.sfu.ca/archaeology/museum.html

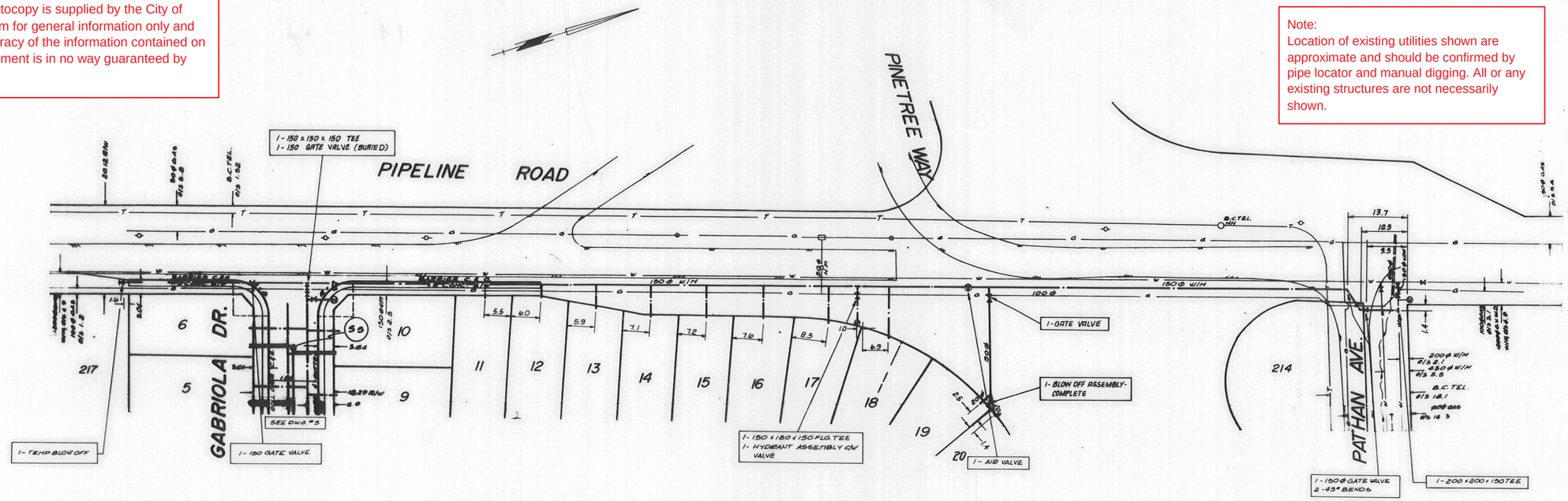
References Cited

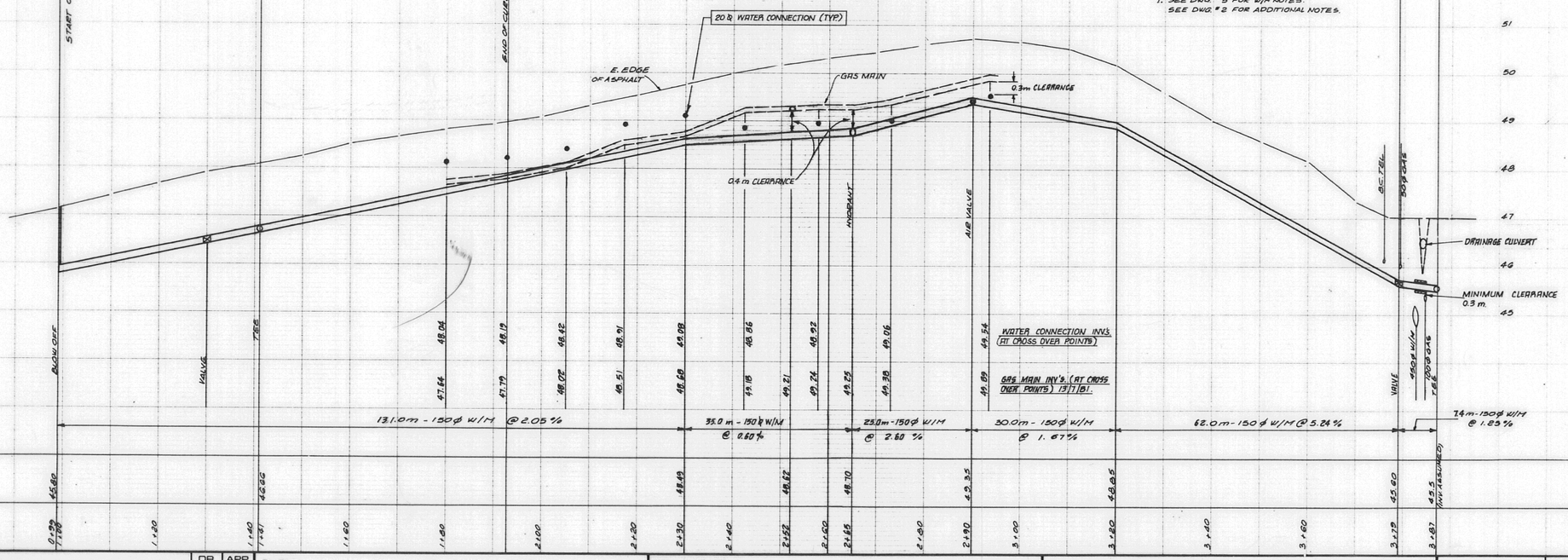
Archaeology Branch (1999). Found Human Remains. On file with the Archaeology Branch, Victoria, BC. From http://www.tca.gov.bc.ca/archaeology/policies/found_human_remains.htm

Archaeology Branch (2010). Heritage Conservation Act (RSBC 1996). On file with the Ministry of Tourism, Culture, and the Arts, Victoria, BC. From

Appendix C -
As-build Records

Note:
Location of existing utilities shown are approximate and should be confirmed by pipe locator and manual digging. All or any existing structures are not necessarily shown.





W-798-1

REV.	DATE		DR.	APP.
A	26/5/81	REVISED TO MUNICIPAL REQ.	E.S.	D.W.L.
B	23/6/81	REVISED TO MUNICIPAL REQ.	R.H.	D.W.L.
C	14/7/81	GAS INV'S. ADDED	D.C.	D.C.
D	15/12/81	AS CONSTRUCTED	R.H.	D.W.L.

CLIENT
AVAN DEVELOPMENT COMPANY LTD.

PROJECT DISTRICT OF COQUITLAM NO. 3-3641

DRAWING TITLE
"AS CONSTRUCTED"
WATERWORKS
PIPELINE ROAD

HUNTER, LAIRD
ENGINEERING LTD.
CONSULTING CIVIL ENGINEERS
NEW WESTMINSTER, B.C.

SCALE	DESIGNED D.C.	DATE DEC. 1980
HOR. 1 : 500	DRAWN E.S.	DRAWING NO.
VER. 1 : 50	CHECKED D.W.L.	5 OF 9
FB. 235 P.		JOB NO. E 975

WATERMAIN INVERT

STATION

NO - 280

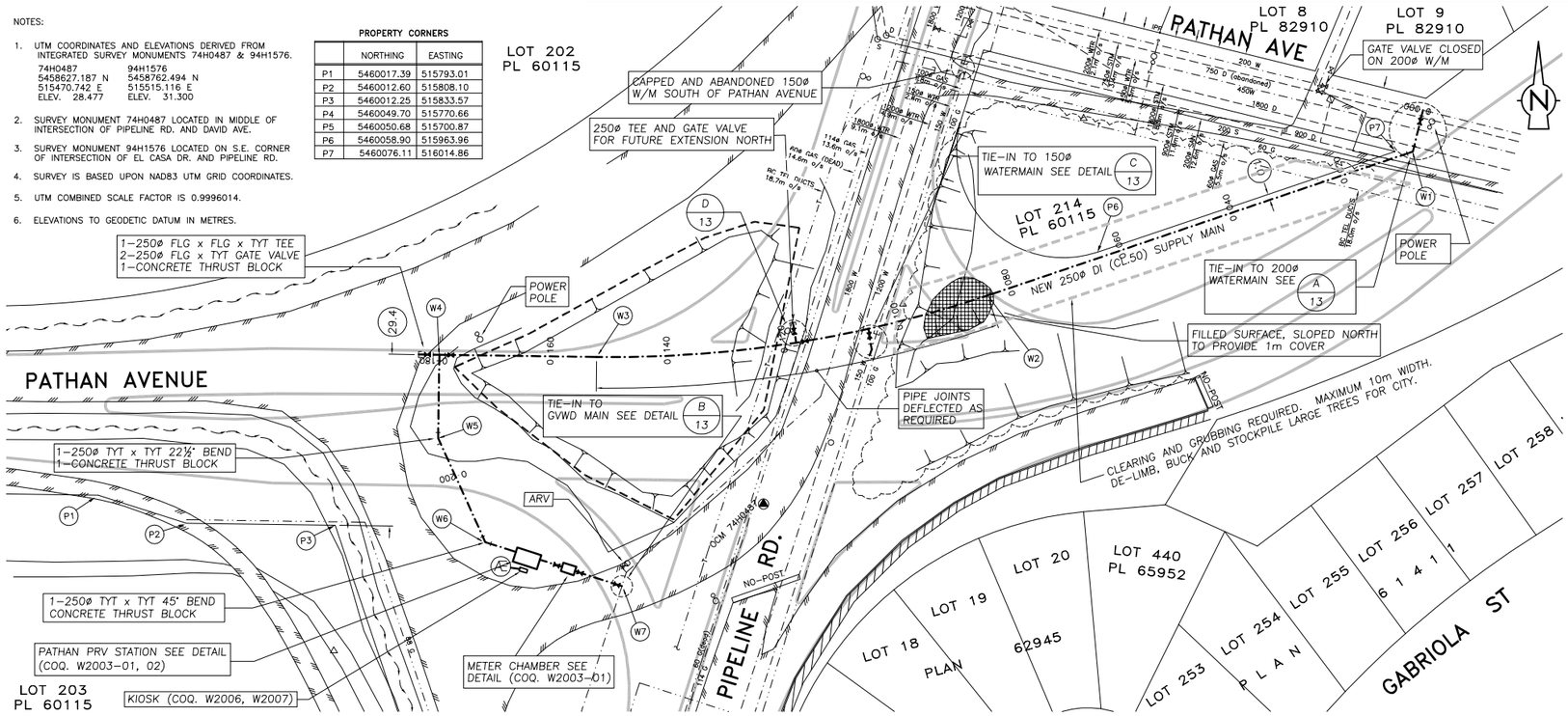
DESTROY PRINTS OF THIS DRAWING BEARING PREVIOUS LETTERS

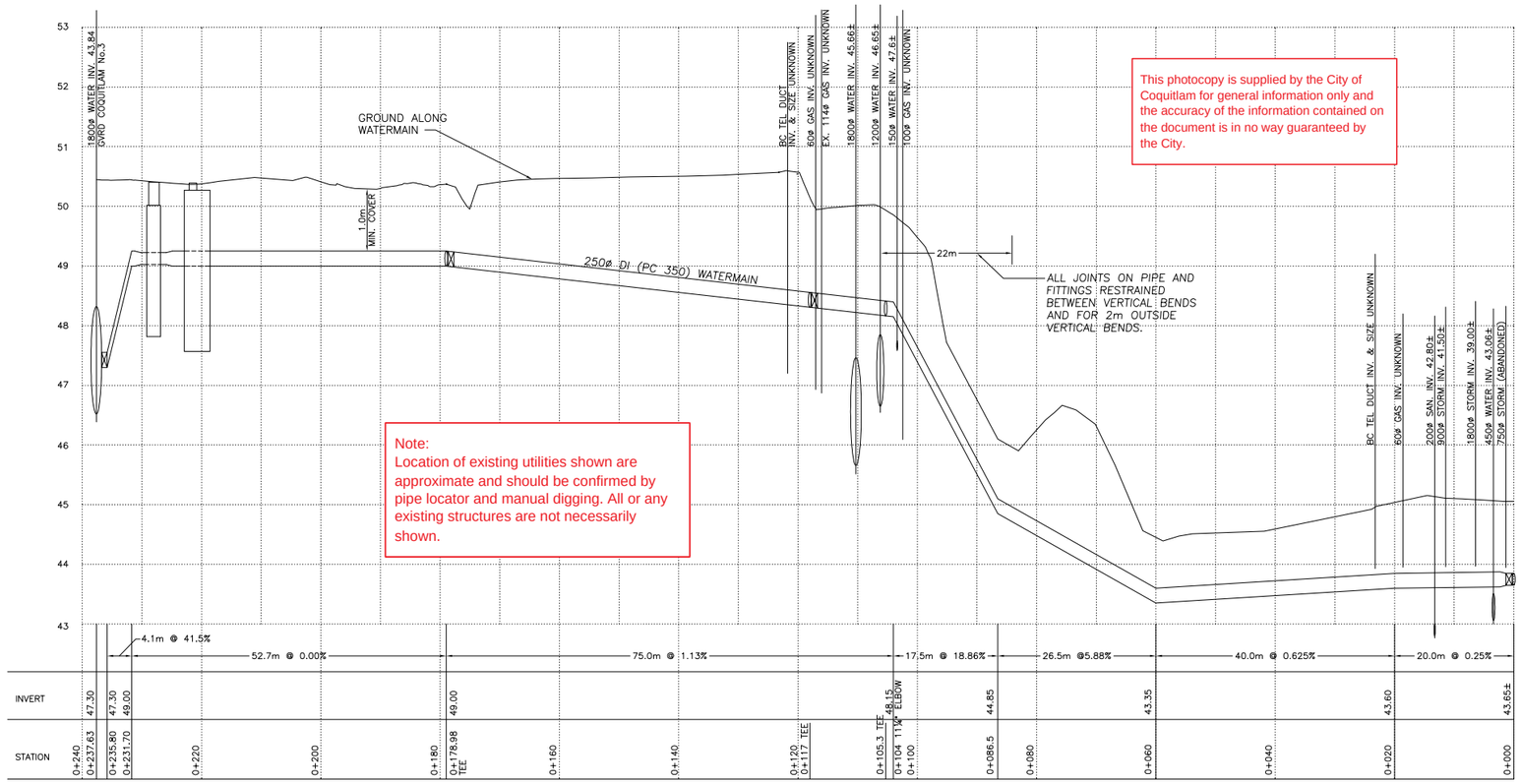
NOTES:

1. UTM COORDINATES AND ELEVATIONS DERIVED FROM INTEGRATED SURVEY MONUMENTS 74H0487 & 94H1576.
   74H0487 — 5458627.187 N, 515470.742 E, ELEV. 28.477
   94H1576 — 5458762.494 N, 515515.116 E, ELEV. 31.300
2. SURVEY MONUMENT 74H0487 LOCATED IN MIDDLE OF INTERSECTION OF PIPELINE RD. AND DAVID AVE.
3. SURVEY MONUMENT 94H1576 LOCATED ON S.E. CORNER OF INTERSECTION OF EL CASA DR. AND PIPELINE RD.
4. SURVEY IS BASED UPON NAD83 UTM GRID COORDINATES.
5. UTM COMBINED SCALE FACTOR IS 0.9996014.
6. ELEVATIONS TO GEODETIC DATUM IN METRES.

PROPERTY CORNERS

	NORTHING	EASTING
P1	5460017.39	515793.01
P2	5460012.60	515808.10
P3	5460012.25	515833.57
P4	5460049.70	515770.66
P5	5460050.68	515700.87
P6	5460058.90	515963.96
P7	5460076.11	516014.86





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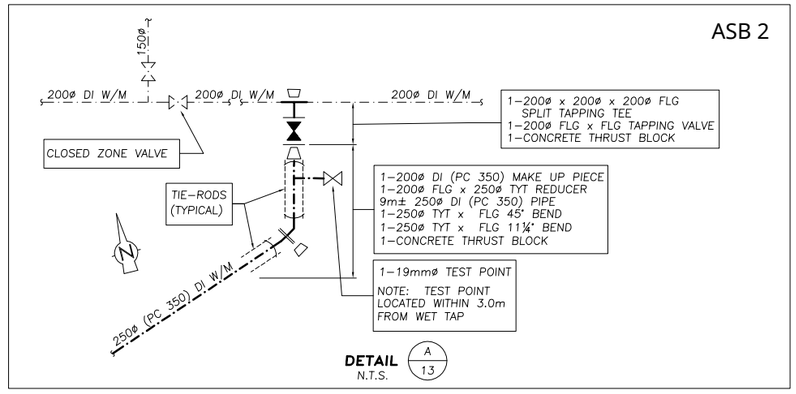
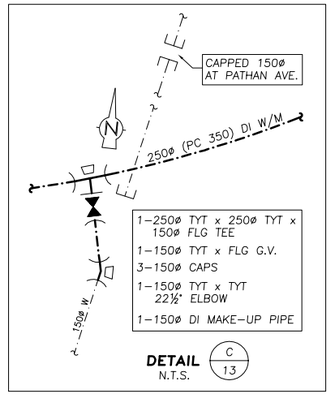
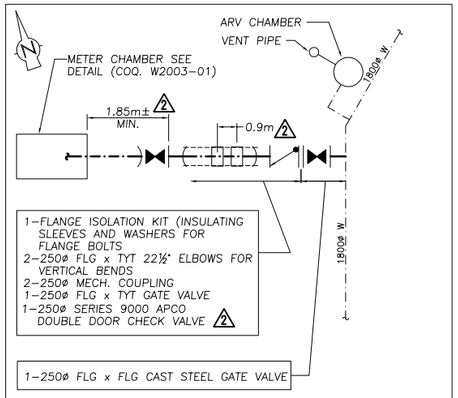
ASB 2



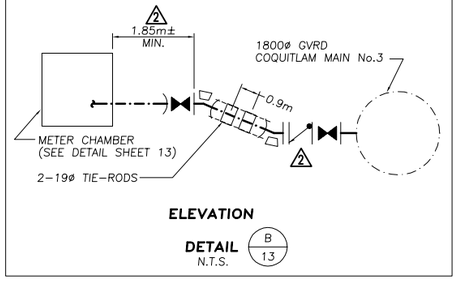
DETAIL A 13 N.T.S.



DETAIL C 13 N.T.S.

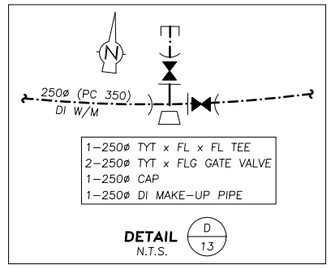


PLAN



ELEVATION

DETAIL B 13 N.T.S.



DETAIL D 13 N.T.S.

(AC) DENOTES LOCATION OF ANTENNA POLE

MATERIAL LIST
GATE VALVES – CLOW
FITTINGS – A.C.S.
HYDRANTS – T.C. COMPRESSION
WATERMAIN – D.I. PC 350

See W1990 for Index and Key Plan

WATER UTILITY FEATURES

	NORTHING	EASTING	ELEVATION	TYPE
W1	5460076.02	516017.83	43.6±	PROP. COMBINED 250ø 45° & 11¼° HOR. BEND
W2	5460051.48	515945.12	44.47	BEGIN HOR. CURVE ON PROP. 250ø W/M @ 0+080.06
W3	5460040.97	515878.27	48.69	END HOR. CURVE ON PROP. 250ø W/M @ 0+152.06
W4	5460041.35	515851.35	49.00	PROP 250ø TEE ON W/M AT 0+178.98
W5	5460027.10	515851.15	49.00	PROP. 250ø 22½° ELBOW
W6	5460009.36	515859.21	49.00	PROP. 250ø 45° ELBOW
W7	5458782.96	515511.46	46.5±	INVERT OF EXISTING 1800ø WATERMAIN AT PROP. TIE–IN

DAYTON & KNIGHT LTD.
Consulting Engineers
612 Clyde Ave., West Vancouver, BC
Tel: (604) 922–3255
Fax: (604) 922–3253

COQ. AsBUILT No.
W 2002

LEGEND

	EXISTING	PROPOSED
Edge of pavement		
Asphalt curb		
Concrete sidewalk		
Concrete curb		
Watermain and valve	W	W
Watermain, capped end	W	W
Hydrant		
Water blowoff		
Water temporary blowoff		
Drainage sewer and MH		
Drainage sewer capped end		
Catch basin, top inlet		
Catch basin, side inlet		
Catch basin, round		
Swale		
Ditch		
Culvert		
Inlet Structure		
Sanitary sewer and MH		
Sanitary sewer, capped end		
Sanitary sewer, forcemain		
U/G electrical duct and MH		
Utility pole		
Utility pole with light		
Junction box		
U/G telephone and MH		
U/G gas main and valve		
U/G signal/light duct		
Streetlight, davit		
Streetlight, post top		
Traffic signal pole		
Traffic signal post		
Traffic controller		
Service box		
Signal fixture		
Traffic street sign		

REV'D	DATE	DR'N	CH'D	
3	06/02/03	PTL	JL	AS CONSTRUCTED
2	11/08/01	KS	JT	CV ADDED FOR GVWD CONNECTION
1	06/11/01	KS	J.T.	ISSUED FOR TENDER

Destroy All Prints Bearing Previous Rev. No.

CITY OF COQUITLAM

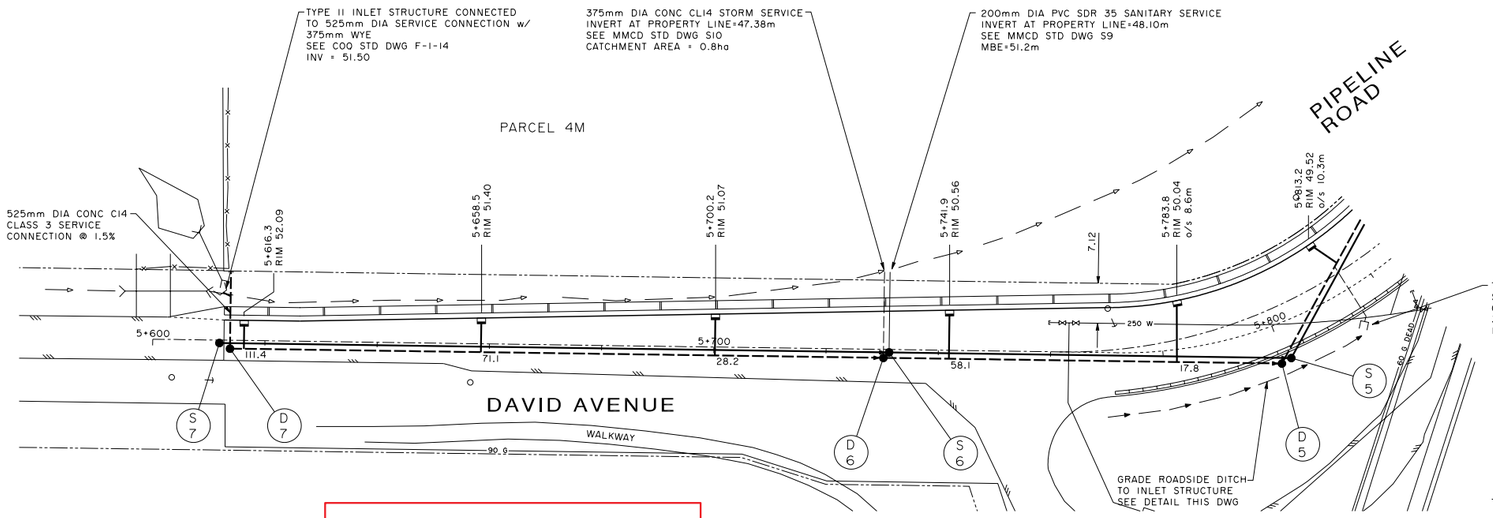
Operations

DESIGNED – J.T./G.S.
DRAWN – K.R.C.
METRIC SCALE – Horiz. 1:500 Vert. 1:50
APPROVED –
DATE – MAR 12 01

DAVID AVENUE SUPPLY MAIN
PLAN & PROFILE

FILE – 138.40.1
CONSULTANTS DWG No– 138–40–1_13
COQ. PROJECT No– C 91856–1
SHEET 13 OF 21
PLOT DATE/TIME: Sep 04, 2003–4:48pm

ASB 3



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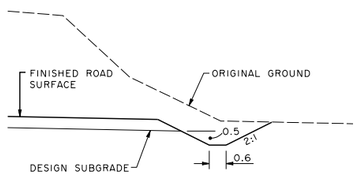
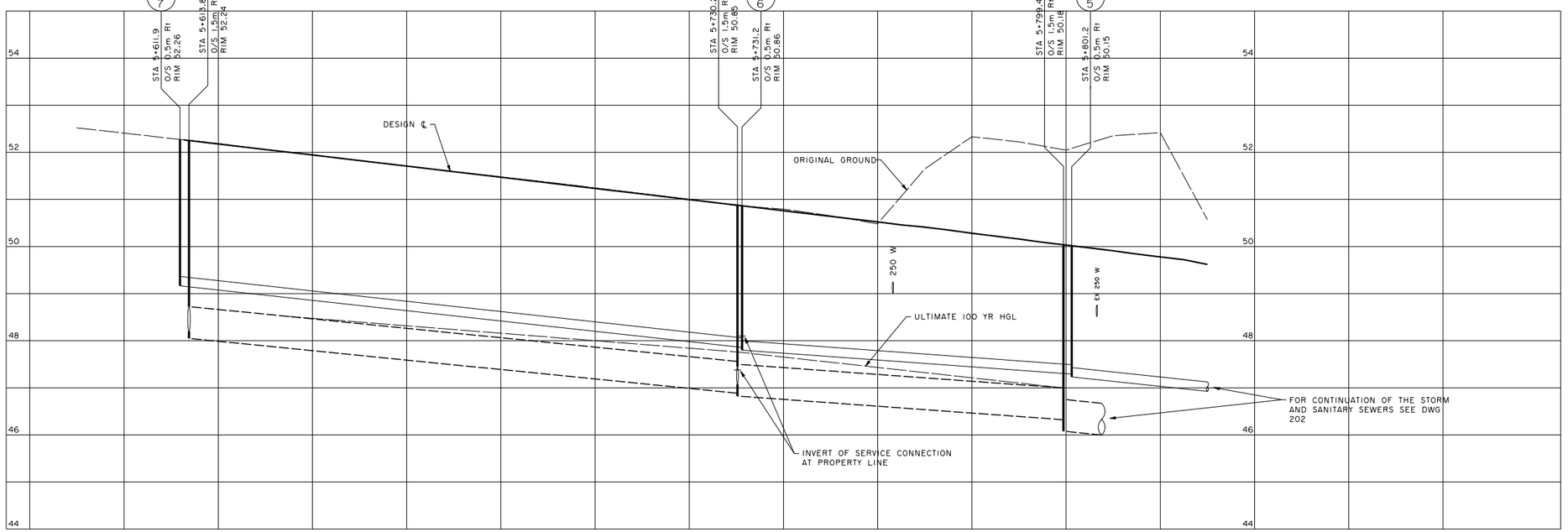


TYPICAL ROADSIDE DITCH SECTION



℄ STATION	5+600	5+620	5+640	5+660	5+680	5+700	5+720	5+740	5+760	5+780	5+800	5+820	5+840	5+860	5+880
STORM SEWER	N 48.20 E 48.05			116.4m - 675mm DIA CONC C14 CLASS 3 @ 1.0%			W 46.86 N 47.06 E 46.80		71.0m - 675mm DIA CONC C14 CLASS 3 @ 1.0%		W 46.12 E 46.05	70.7m - 675mm DIA CONC C14 CLASS 3 @ 1.1%			
SANITARY SEWER	E 49.16			119.3m - 200mm DIA PVC SDR 35 @ 1.1%			W 47.86 E 47.80		71.7m - 200mm DIA PVC SDR 35 @ 0.7%		W 47.29 E 47.23	67.4m - 200mm DIA PVC SDR 35 @ 3.0%			

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InterCAD
CONSULTING ENGINEERS

AS CONSTRUCTED

MATERIALS LIST

1. PVC PIPE DR28-DR35: "IPEX"
2. CONCRETE PIPE: LANGLEY TILE & CONCRETE
3. MANHOLE BARRELS, CB'S, AND PRECAST SECTIONS: LANGLEY TILE & CONCRETE

NO.	REVISION	DATE	BY
2	AS-CONSTRUCTED	03-10-31	TN
1	AS PER CITY COMMENTS	03-05-26	MJL

DESIGNED G.W. DRAWN M.L.
SCALE 1:500 DATE JANUARY 2003

● D2373
S1741

WESBILD PROPERTIES

WESTWOOD PLATEAU DEVELOPMENT

PARCEL 4L
OFF-SITE SERVICES

STORM AND SANITARY SEWERS

DAVID AVENUE

DRAWING NO. AA63-4L-201 REV. 2

c:\copy\aa63\41-201.dgn 06 JUL 104 10:15:50

NOTES:

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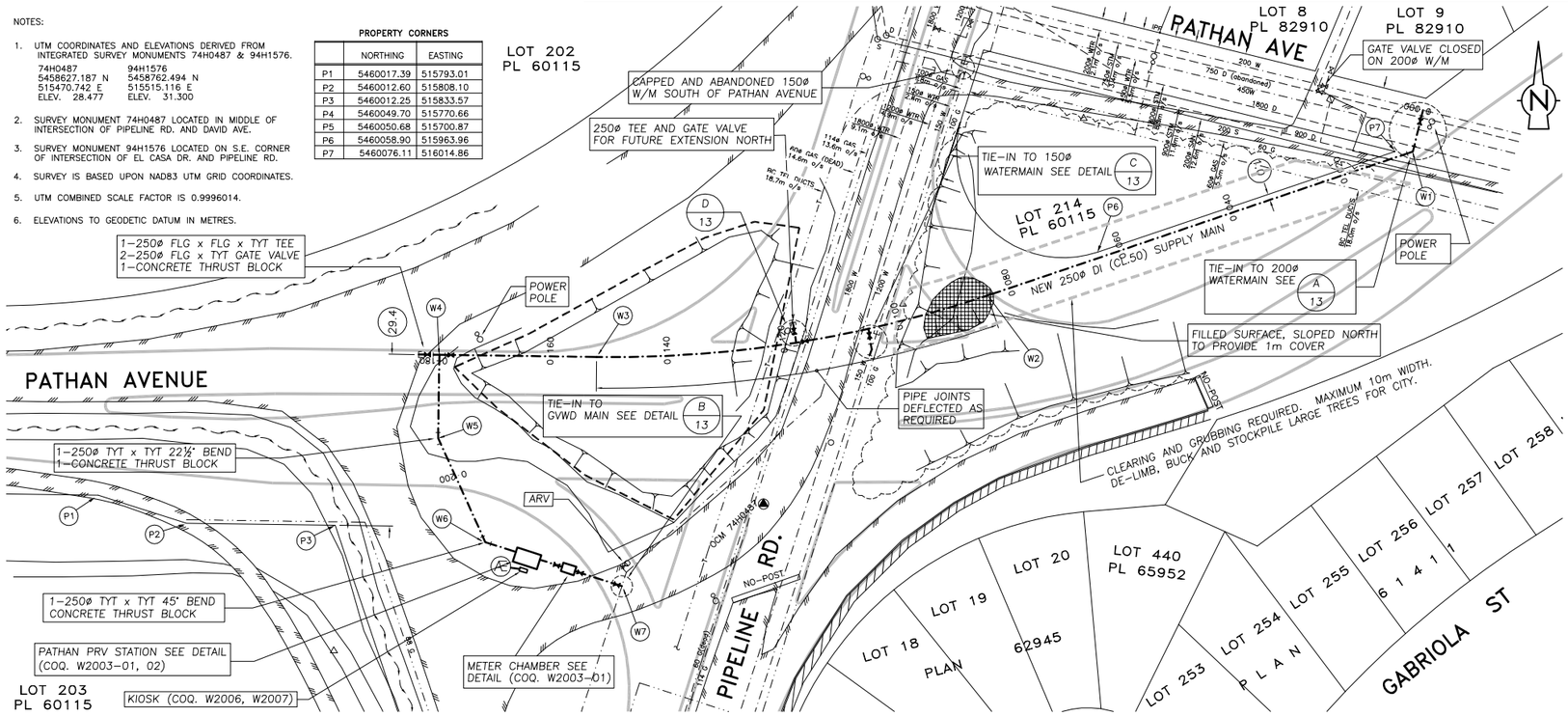
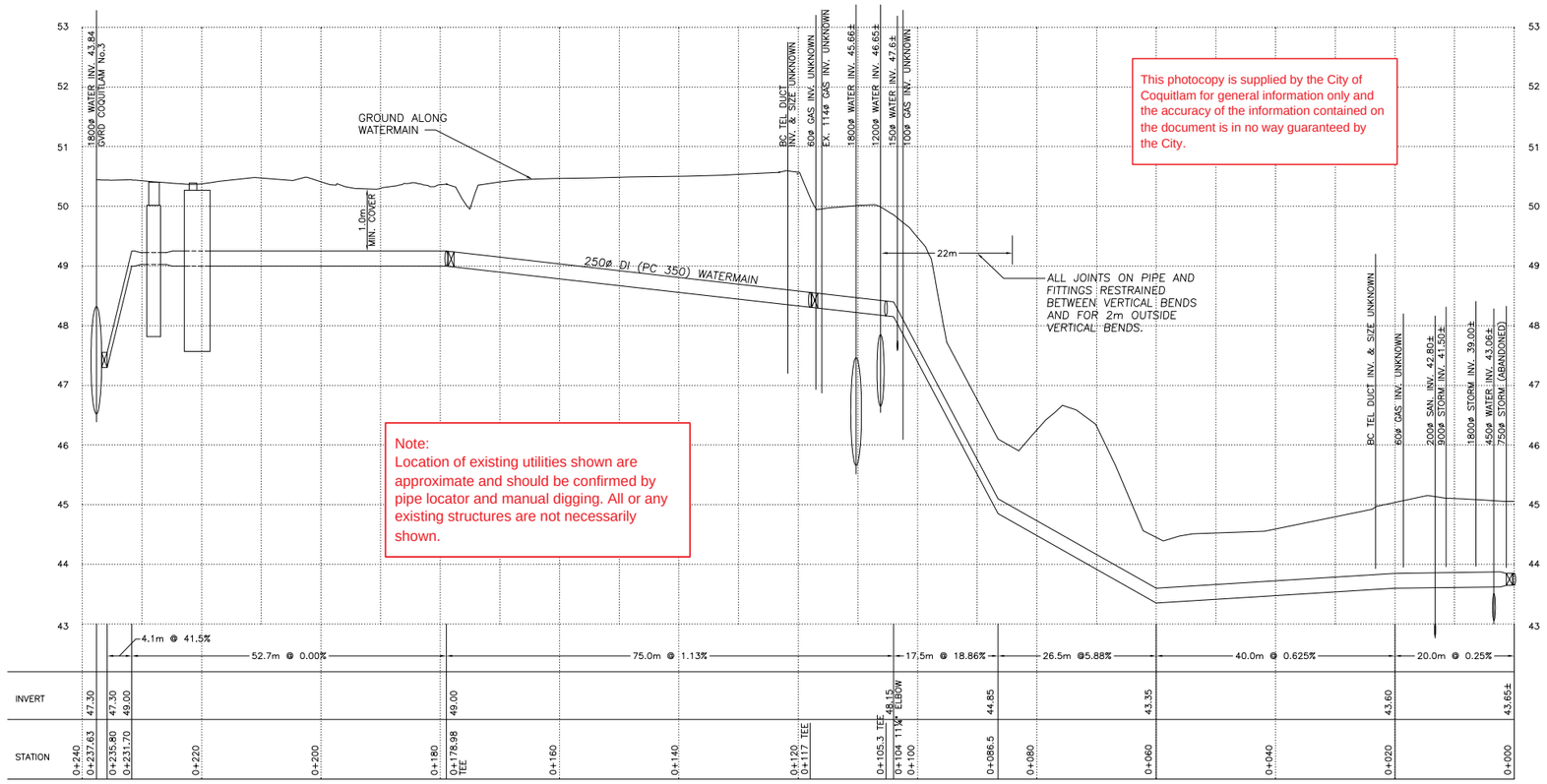
P6	5460058.90	515963.96
P7	5460076.11	516014.86





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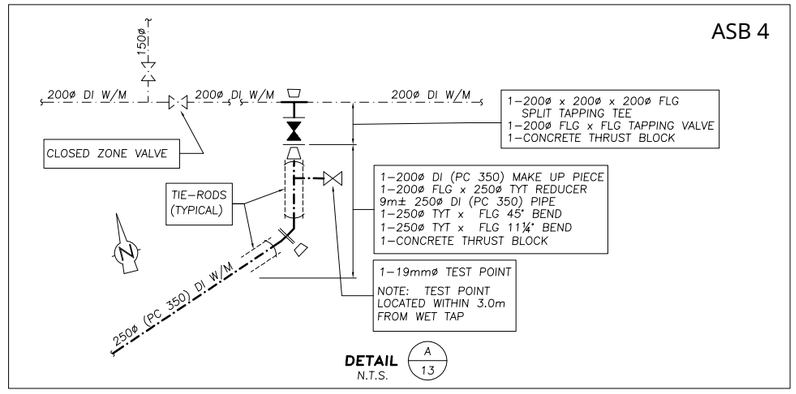
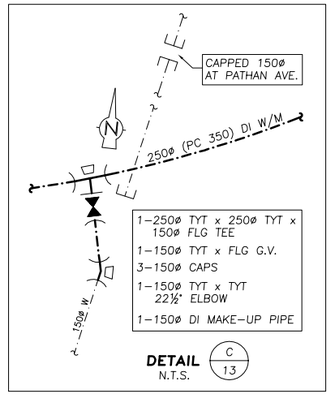
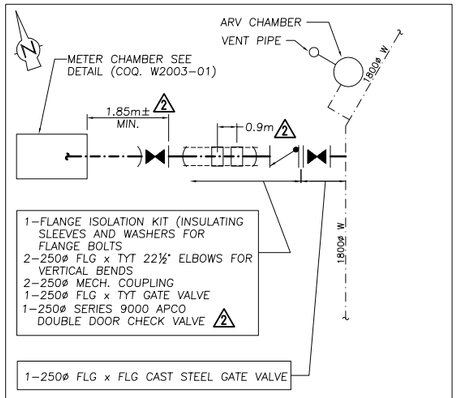
ASB 4

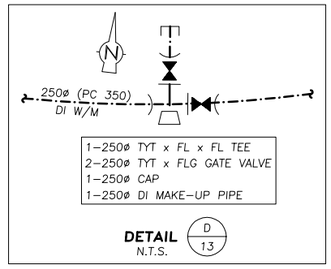


DETAIL A 13 N.T.S.



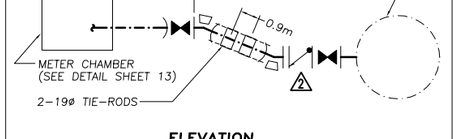
DETAIL C 13 N.T.S.





DETAIL D 13 N.T.S.

PLAN



ELEVATION

DETAIL B 13 N.T.S.

Ⓐ DENOTES LOCATION OF ANTENNA POLE

MATERIAL LIST
GATE VALVES – CLOW
FITTINGS – A.C.S.
HYDRANTS – T.C. COMPRESSION
WATERMAIN – D.I. PC 350

See W1990 for Index and Key Plan

WATER UTILITY FEATURES

	NORTHING	EASTING	ELEVATION	TYPE
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DAYTON & KNIGHT LTD.
Consulting Engineers
612 Clyde Ave., West Vancouver, BC
Tel: (604) 922–3255
Fax: (604) 922–3253

COQ. AsBUILT No.
W 2002

LEGEND

	EXISTING	PROPOSED
Edge of pavement		
Asphalt curb		
Concrete sidewalk		
Concrete curb		
Watermain and valve	W	W
Watermain, capped end	W	W
Hydrant		
Water blowoff		
Water temporary blowoff		
Drainage sewer and MH		
Drainage sewer capped end		
Catch basin, top inlet		
Catch basin, side inlet		
Catch basin, round		
Swale		
Ditch		
Culvert		
Inlet Structure		
Sanitary sewer and MH		
Sanitary sewer, capped end		
Sanitary sewer, forcemain		
U/G electrical duct and MH		
Utility pole		
Utility pole with light		
Junction box		
U/G telephone and MH		
U/G gas main and valve		
U/G signal/light duct		
Streetlight, davit		
Streetlight, post top		
Traffic signal pole		
Traffic signal post		
Traffic controller		
Service box		
Signal fixture		
Traffic street sign		

REV'D	DATE	DR'N	CH'D	
3	06/02/03	PTL	JL	AS CONSTRUCTED
2	11/08/01	KS	JT	CV ADDED FOR GVWD CONNECTION
1	06/11/01	KS	J.T.	ISSUED FOR TENDER

Destroy All Prints Bearing Previous Rev. No.

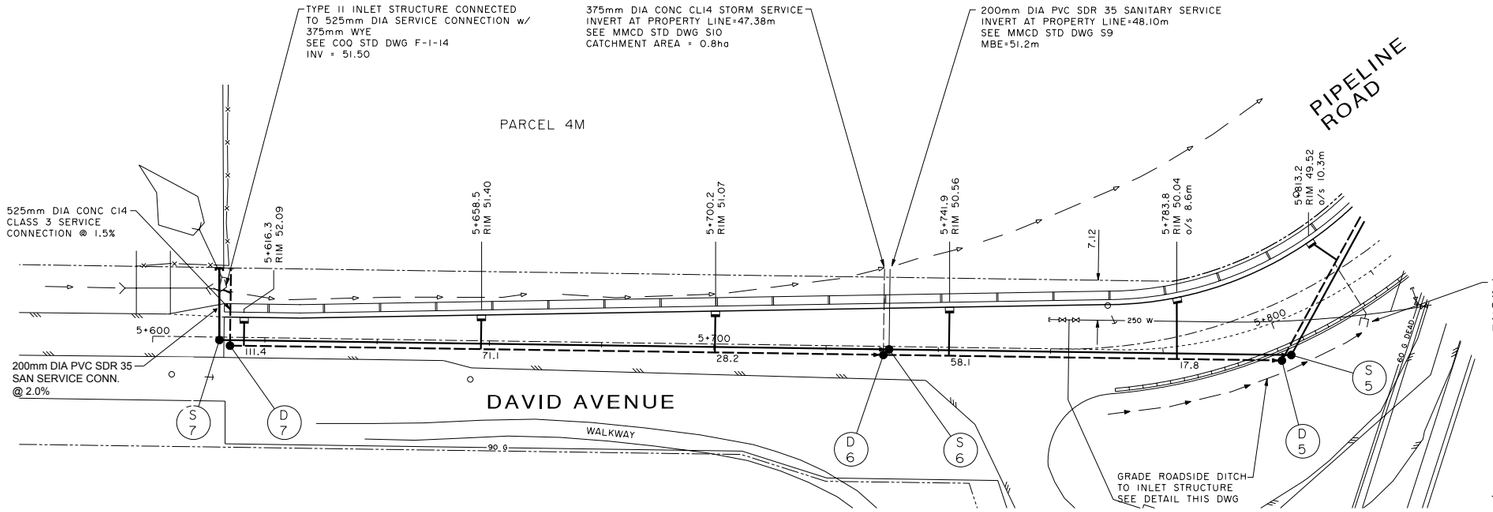
CITY OF COQUITLAM

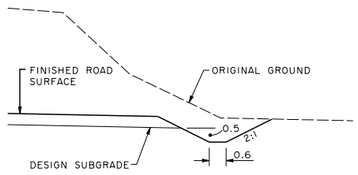
Operations

DESIGNED – J.T./G.S.
DRAWN – K.R.C.
METRIC SCALE – Horiz. 1:500 Vert. 1:50
APPROVED –
DATE – MAR 12 01

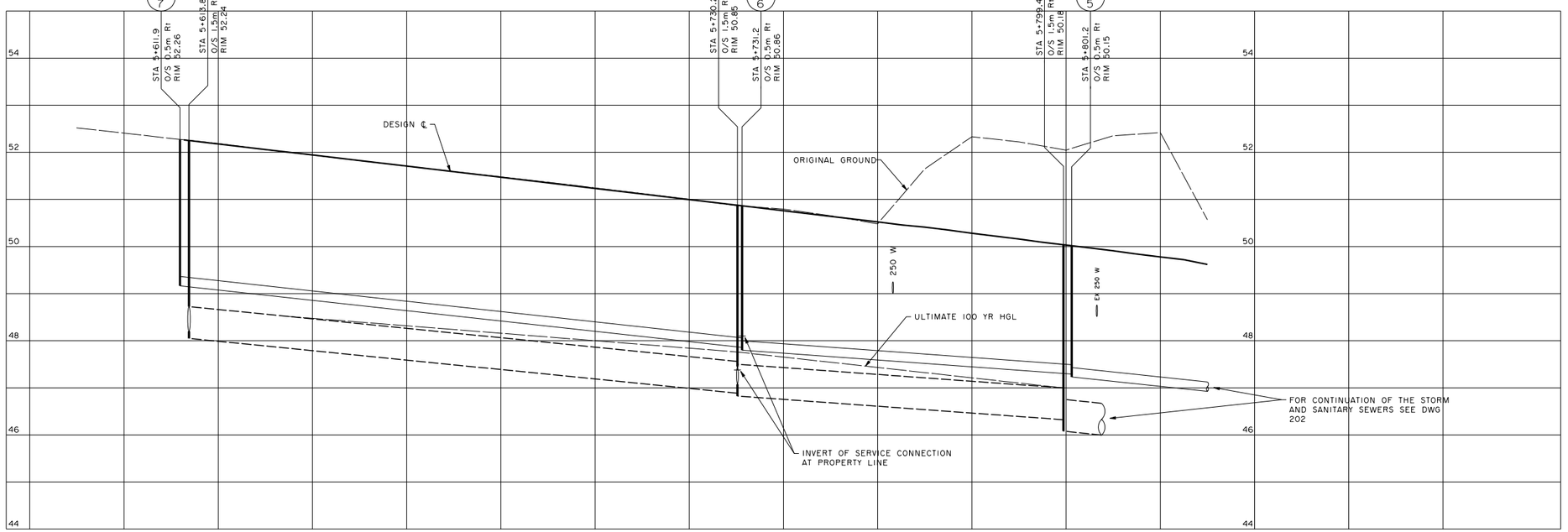
DAVID AVENUE SUPPLY MAIN
PLAN & PROFILE

FILE – 138.40.1
CONSULTANTS DWG No– 138–40–1_13
COQ. PROJECT No– C 91856–1
SHEET 13 OF 21
PLOT DATE/TIME: Sep 04, 2003–4:48pm





TYPICAL ROADSIDE DITCH SECTION



℄ STATION	5+600	5+620	5+640	5+660	5+680	5+700	5+720	5+740	5+760	5+780	5+800	5+820	5+840	5+860	5+880
STORM SEWER	N 48.20 E 48.05			116.4m - 675mm DIA CONC C14 CLASS 3 @ 1.0%			W 46.86 N 47.06 E 46.80		71.0m - 675mm DIA CONC C14 CLASS 3 @ 1.0%		W 46.12 E 46.05	70.7m - 675mm DIA CONC C14 CLASS 3 @ 1.1%			
SANITARY SEWER	E 49.16			119.3m - 200mm DIA PVC SDR 35 @ 1.1%			W 47.86 E 47.80		71.7m - 200mm DIA PVC SDR 35 @ 0.7%		W 47.29 E 47.23	67.4m - 200mm DIA PVC SDR 35 @ 3.0%			

IMPORTANT:
HYDRO, GAS AND TELEPHONE **ARE NOT SHOWN** ON THE CITY OF COQUITLAM AS-BUILTS OR RECORD DRAWINGS. **CONTACT BC HYDRO, TERASEN GAS AND TELUS FOR CURRENT AS-BUILTS PERTAINING TO THESE UTILITIES.**

NOTE:
LOCATION OF EXISTING UTILITIES SHOWN ARE **APPROXIMATE ONLY** AND **SHOULD BE CONFIRMED BY A PIPE LOCATOR AND MANUAL DIGGING**. ALL OR ANY EXISTING STRUCTURES ARE NOT NECESSARILY SHOWN.

InterCAD
CONSULTING ENGINEERS

AS CONSTRUCTED

MATERIALS LIST

1. PVC PIPE DR28-DR35: "IPEX"
2. CONCRETE PIPE: LANGLEY TILE & CONCRETE
3. MANHOLE BARRELS, CB'S, AND PRECAST SECTIONS: LANGLEY TILE & CONCRETE

NO.	REVISION	DATE	BY
2	AS-CONSTRUCTED	03-10-31	TN
1	AS PER CITY COMMENTS	03-05-26	MJL

DESIGNED G.W. DRAWN M.L.
SCALE 1:500 DATE JANUARY 2003

D2373
•S1741

WESBILD PROPERTIES

WESTWOOD PLATEAU DEVELOPMENT

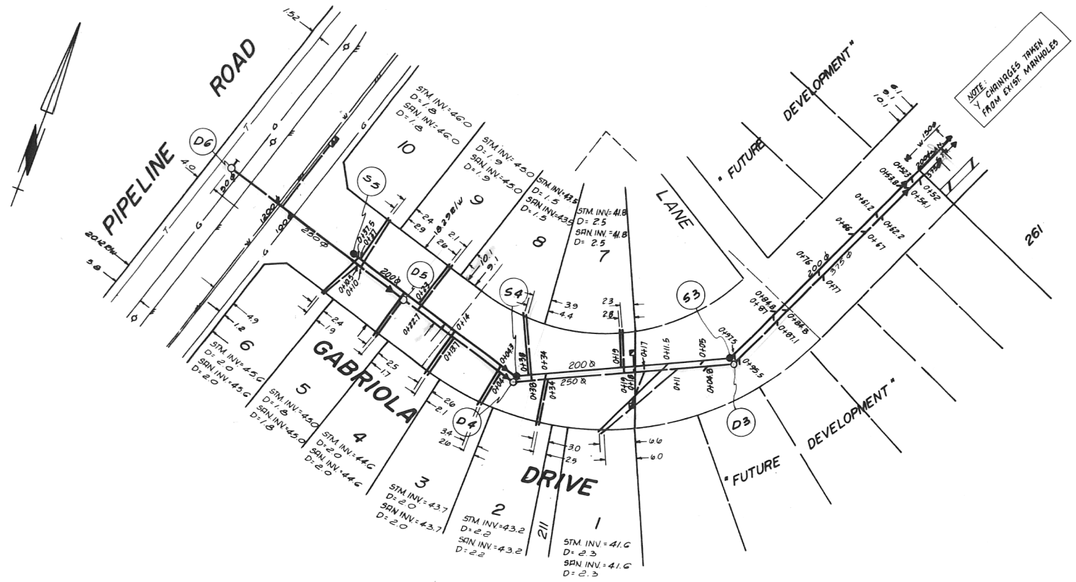
PARCEL 4L
OFF-SITE SERVICES

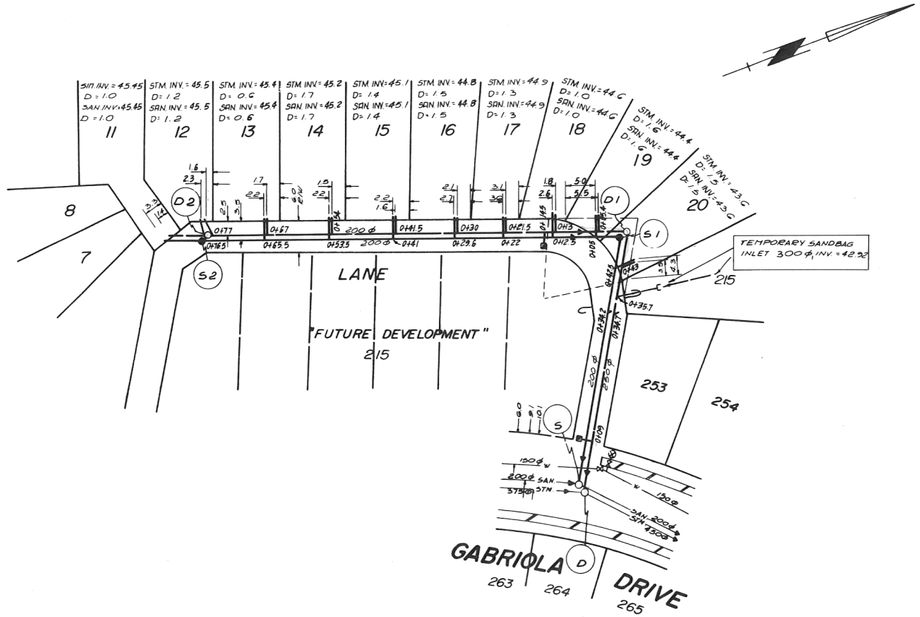
STORM AND SANITARY SEWERS

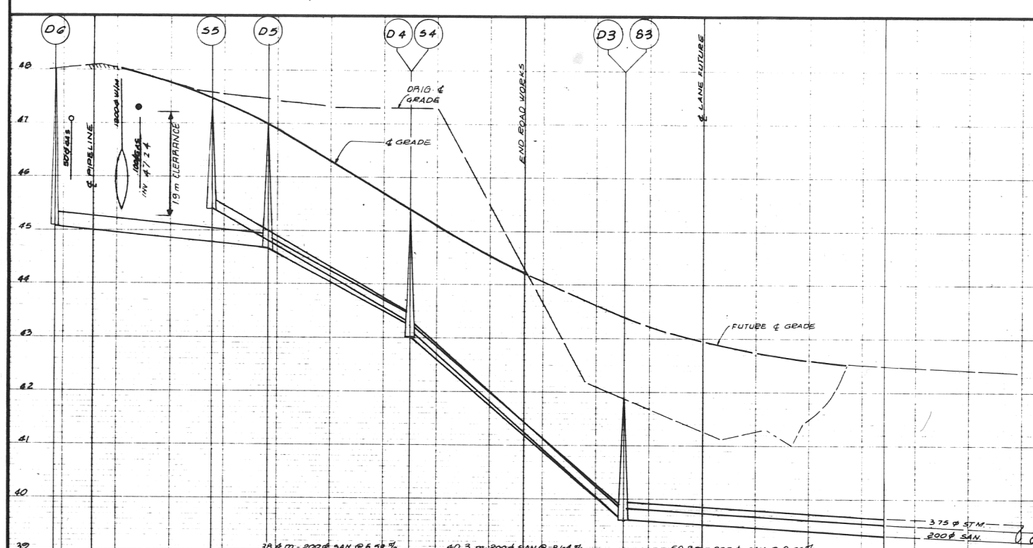
DAVID AVENUE

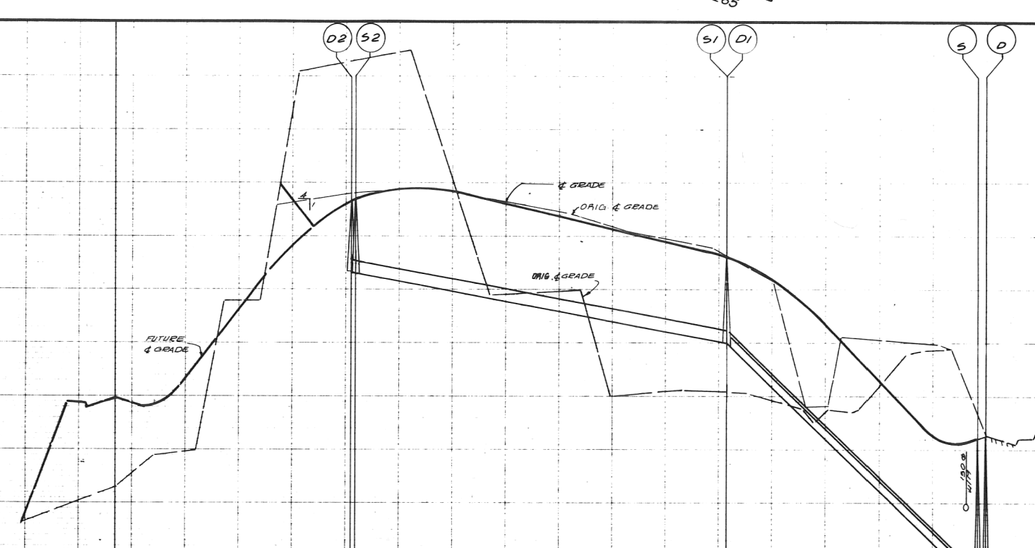
DRAWING NO. AA63-4L-201 REV. 2

ASB 6









REV.	DATE		DR.	APP.
A	29/5/81	REVISED TO MUNICIPAL REQ.	E.S.	D.W.L.
B	25/6/81	REVISED TO MUNICIPAL REQ.	R.H.	D.W.L.
C	14/7/81	GAS INVERT ADDED	D.C.	D.C.
D	15/12/81	AS CONSTRUCTED	R.H.	D.W.L.

CLIENT
AVAN DEVELOPMENT COMPANY LTD.

PROJECT DISTRICT OF COQUITLAM NO. 3-3641

DRAWING TITLE
"AS CONSTRUCTED"
STORM ~~& SANITARY~~ SEWERS
GABRIOLA DR. & LANE

HUNTER, LAIRD ENGINEERING LTD.
CONSULTING CIVIL ENGINEERS
NEW WESTMINSTER, B.C.

SCALE	DESIGNED D.C.	DATE DEC. 1980
HOR. 1:500	DRAWN E.S.	DRAWING NO.
VER. 1:50	CHECKED D.W.L.	7 OF 9
FB. 235 P.		JOB NO. E 975

D-528

NO - 250

DESTROY PRINTS OF THIS DRAWING BEARING PREVIOUS LETTERS

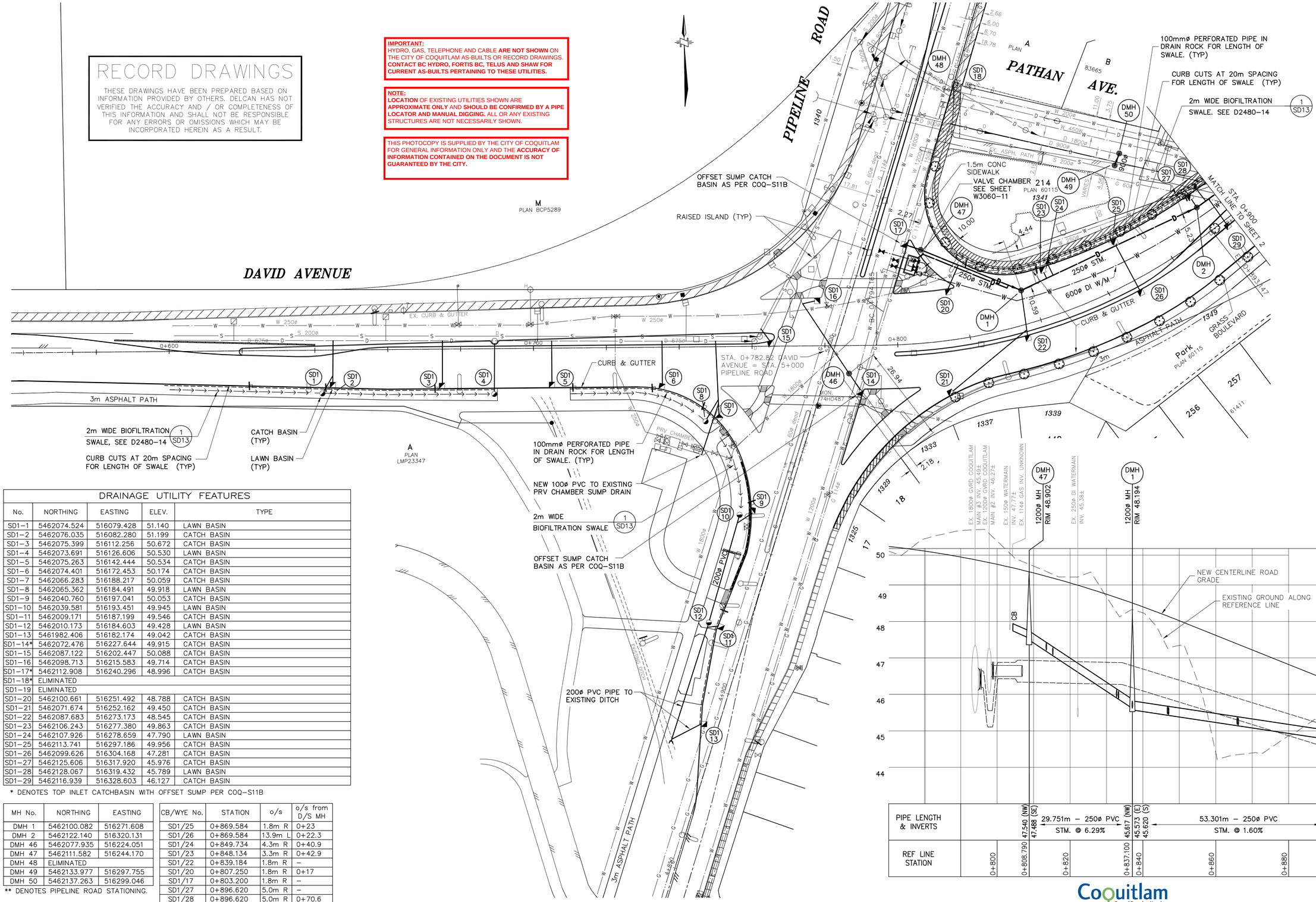
RECORD DRAWINGS

THESE DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. DELCAN HAS NOT VERIFIED THE ACCURACY AND / OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

IMPORTANT:
HYDRO, GAS, TELEPHONE AND CABLE **ARE NOT SHOWN** ON THE CITY OF COQUITLAM AS-BUILTS OR RECORD DRAWINGS. **CONTACT BC HYDRO, FORTIS BC, TELUS AND SHAW FOR CURRENT AS-BUILTS PERTAINING TO THESE UTILITIES.**

NOTE:
LOCATION OF EXISTING UTILITIES SHOWN ARE **APPROXIMATE ONLY** AND **SHOULD BE CONFIRMED BY A PIPE LOCATOR AND MANUAL DIGGING.** ALL OR ANY EXISTING STRUCTURES ARE NOT NECESSARILY SHOWN.

THIS PHOTOCOPY IS SUPPLIED BY THE CITY OF COQUITLAM FOR GENERAL INFORMATION ONLY AND THE **ACCURACY OF INFORMATION CONTAINED ON THE DOCUMENT IS NOT GUARANTEED BY THE CITY.**



DRAINAGE UTILITY FEATURES

No.	NORTHING	EASTING	ELEV.	TYPE
SD1–1	5462074.524	516079.428	51.140	LAWN BASIN
SD1–2	5462076.035	516082.280	51.199	CATCH BASIN
SD1–3	5462075.399	516112.256	50.672	CATCH BASIN
SD1–4	5462073.691	516126.606	50.530	LAWN BASIN
SD1–5	5462075.263	516142.444	50.534	CATCH BASIN
SD1–6	5462074.401	516172.453	50.174	CATCH BASIN
SD1–7	5462066.283	516188.217	50.059	CATCH BASIN
SD1–8	5462065.362	516184.491	49.918	LAWN BASIN
SD1–9	5462040.760	516197.041	50.053	CATCH BASIN
SD1–10	5462039.581	516193.451	49.945	LAWN BASIN
SD1–11	5462009.171	516187.199	49.546	CATCH BASIN
SD1–12	5462010.173	516184.603	49.428	LAWN BASIN
SD1–13	5461982.406	516182.174	49.042	CATCH BASIN
SD1–14*	5462072.476	516227.644	49.915	CATCH BASIN
SD1–15	5462087.122	516202.447	50.088	CATCH BASIN
SD1–16	5462098.713	516215.583	49.714	CATCH BASIN
SD1–17*	5462112.908	516240.296	48.996	CATCH BASIN
SD1–18*	ELIMINATED			
SD1–19	ELIMINATED			
SD1–20	5462100.661	516251.492	48.788	CATCH BASIN
SD1–21	5462071.674	516252.162	49.450	CATCH BASIN
SD1–22	5462087.683	516273.173	48.545	CATCH BASIN
SD1–23	5462106.243	516277.380	49.863	CATCH BASIN
SD1–24	5462107.926	516278.659	47.790	LAWN BASIN
SD1–25	5462113.741	516297.186	49.956	CATCH BASIN
SD1–26	5462099.626	516304.168	47.281	CATCH BASIN
SD1–27	5462125.606	516317.920	45.976	CATCH BASIN
SD1–28	5462128.067	516319.432	45.789	LAWN BASIN
SD1–29	5462116.939	516328.603	46.127	CATCH BASIN

* DENOTES TOP INLET CATCHBASIN WITH OFFSET SUMP PER COQ–S11B

MH No.	NORTHING	EASTING
DMH 1	5462100.082	516271.608
DMH 2	5462122.140	516320.131
DMH 46	5462077.935	516224.051
DMH 47	5462111.582	516244.170
DMH 48	ELIMINATED	
DMH 49	5462133.977	516297.755
DMH 50	5462137.263	516299.046

** DENOTES PIPELINE ROAD STATIONING.

CB/WYE No.	STATION	o/s	o/s from D/S MH
SD1/25	0+869.584	1.8m R	0+23
SD1/26	0+869.584	13.9m L	0+22.3
SD1/24	0+849.734	4.3m R	0+40.9
SD1/23	0+848.134	3.3m R	0+42.9
SD1/22	0+839.184	1.8m R	–
SD1/20	0+807.250	1.8m R	0+17
SD1/17	0+803.200	1.8m R	–
SD1/27	0+896.620	5.0m R	–
SD1/28	0+896.620	5.0m R	0+70.6
SD1/29	0+897.270	9.4m L	0+71.2

1:500 0 10 30m

	EXISTING	PROPOSED		EXISTING	PROPOSED		EXISTING	PROPOSED		EXISTING	PROPOSED
Edge of pavement			Drainage sewer and MH			Sanitary sewer and MH			U/G signal/light duct		
Asphalt curb			Drainage service, Cleanout			Sanitary service, Cleanout			Streetlight, davit		
Concrete sidewalk			Catch basin, top inlet			Sanitary sewer, forcemain			Streetlight, post top		
Concrete curb			Catch basin, side inlet			U/G electrical duct and MH			Traffic signal pole		
Watermain and valve			Catch basin, round			Utility pole			Traffic signal post		
Water service box/curb stop			Swale			Utility pole with light			Traffic street sign		
Hydrant			Ditch			Junction box			Flasher		
Water blowoff			Culvert			U/G telephone and MH			Signal fixture		
Water air valve			Inlet/Outlet Structure			U/G gas main and valve			Combination traffic signal pole		

Coquitlam Record Drawing Number D2480–01

Destroy All Prints Bearing Rev. No. less than one indicated below

REV. No.	DATE	REVISION
7	11 09 09	RECORD DRAWING
6	08 25 05	REVISED CHAMBER DRAIN CONNECTION
5	06 23 05	ISSUED FOR CONSTRUCTION
4	04 14 05	ISSUED FOR TENDER, PHASE 2 CONTRACT
3	03 31 05	90% SUBMISSION
2	11 16 04	80% SUBMISSION
1	04 27 04	PRE–DESIGN

CITY OF COQUITLAM

Engineering & Public Works

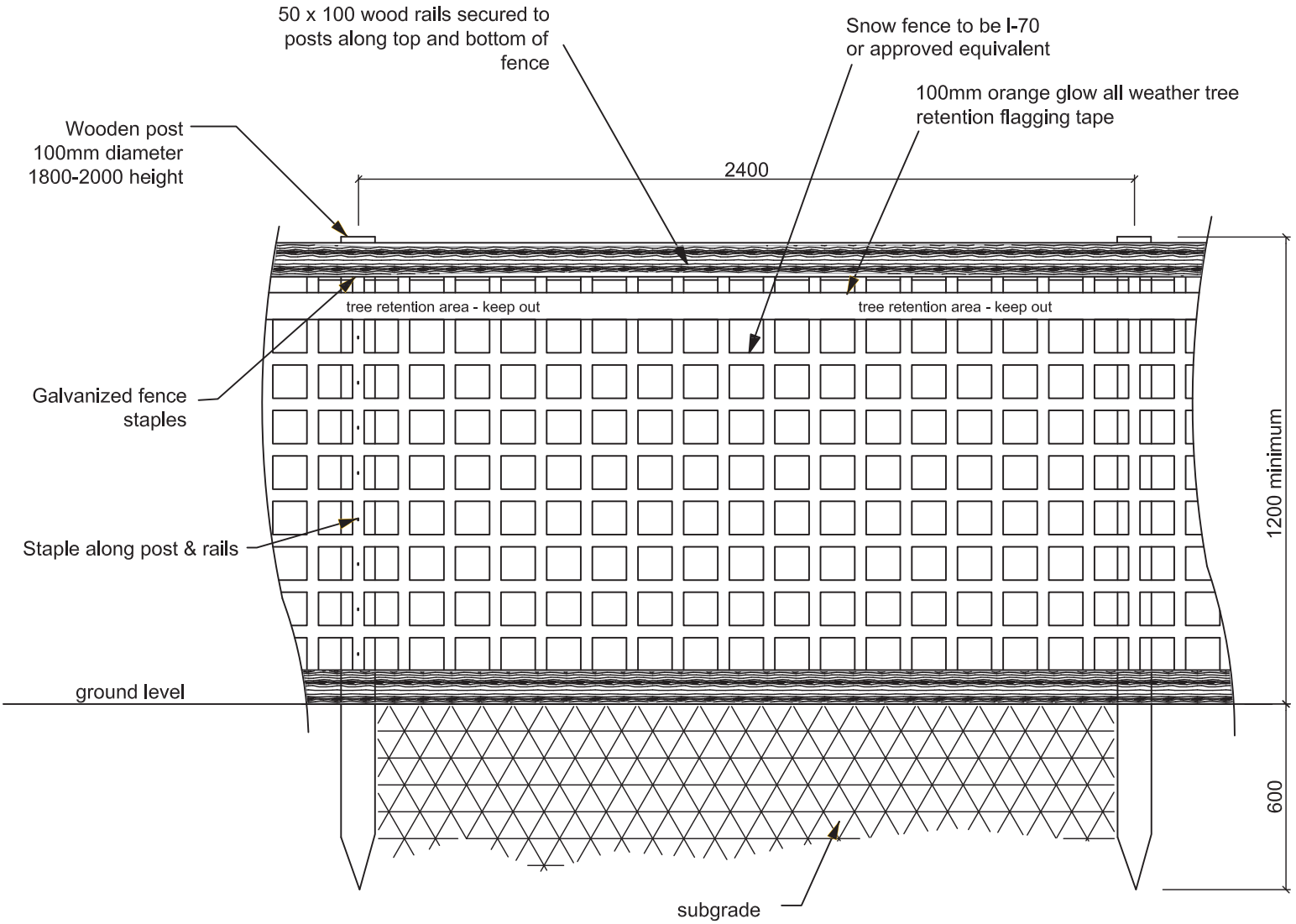
DESIGNED – CAK
DRAWN – DCB
METRIC SCALE – Horiz. 1:500 Vert. 1:50
CHECKED – IC
DATE – APRIL 22 04

DAVID AVENUE
PIPELINE RD. TO COAST MERIDIAN
DRAINAGE PLAN & PROFILE

DWG FILE: PV1041–SD01–RC
SHEET SD01 OF 15
PLOT DATE/TIME: May 05, 2011–9:31am

Delcan
METROTOWER I, SUITE 2300, 4710 KINGSWAY, BURNABY, BRITISH COLUMBIA, CANADA V5H 4M2 TEL: 604–438–5300 FAX: 604–438–5350

Appendix D - Standard Detail Drawings



Protection fence to be located at crown dripline or adjacent to hard surface, which ever is greater.

Manually excavate and cut tree roots within 1.0m of tree protection fence.

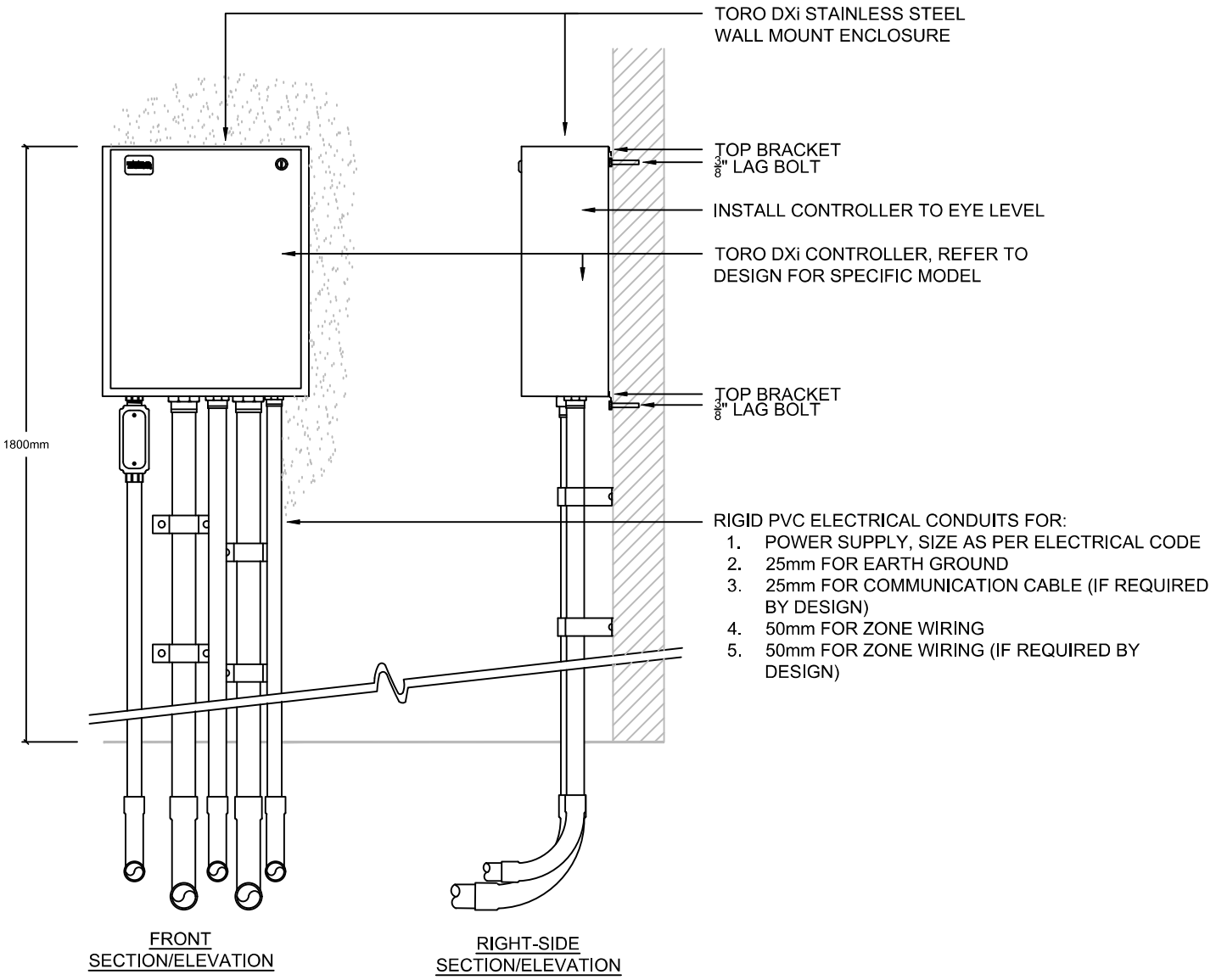
Machinery and storage is not permitted within 1.0m of tree protection area.

PLOTTED: 22–Feb–16

TREE PROTECTION FENCE	DATE: NOV/2014	DRAWING NUMBER:
	DRAWN: AJM	COQ-R26
	SCALE: N.T.S.	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

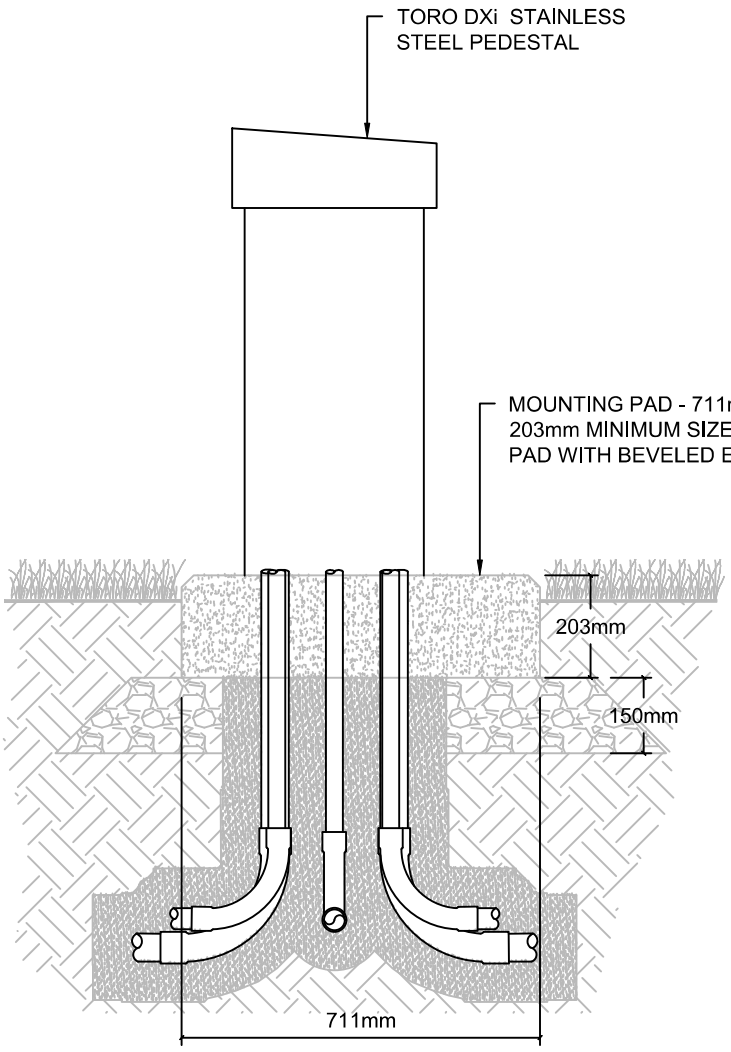


NOTES
1. CONNECT GROUND WIRE TO ENCLOSURE GROUND LUG PER MANUFACTURER'S RECOMMENDATIONS
2. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

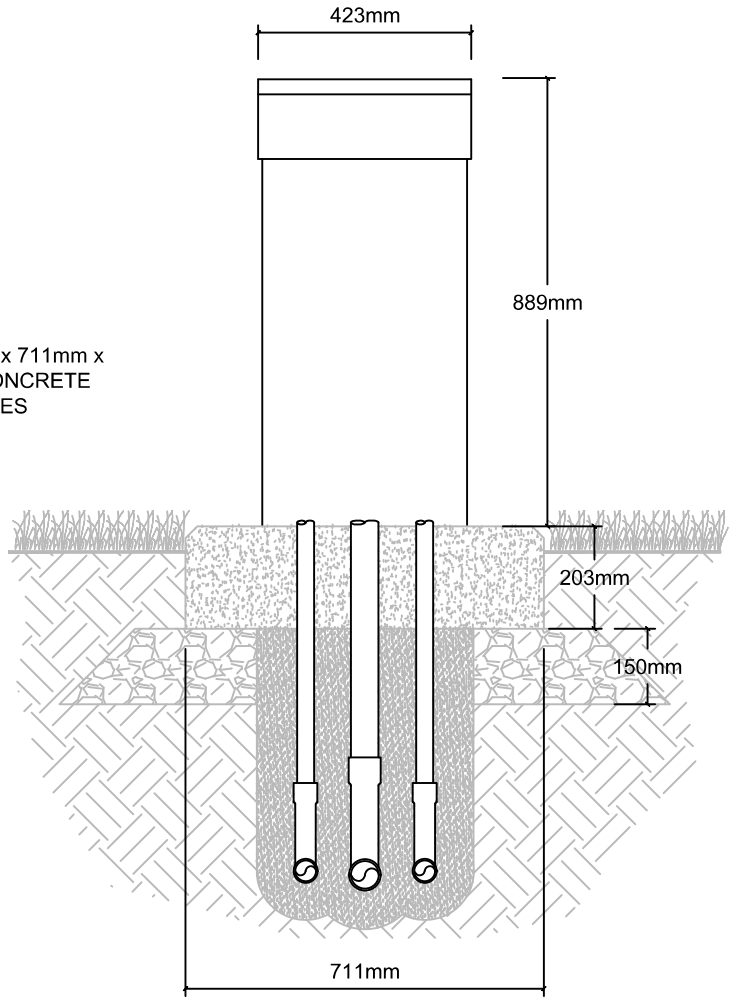
IRRIGATION CONTROLLER WALL MOUNT	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI01**
	SCALE: 1:15	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

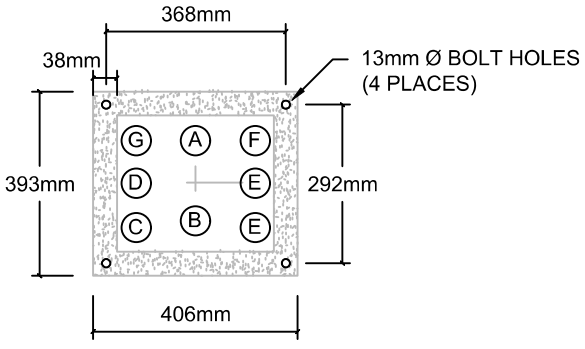


SIDE VIEW



FRONT VIEW

NOTES
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT.
3. CONNECT GROUND WIRE TO ENCLOSURE GROUND LUG PER MANUFACTURER'S RECOMMENDATIONS
4. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

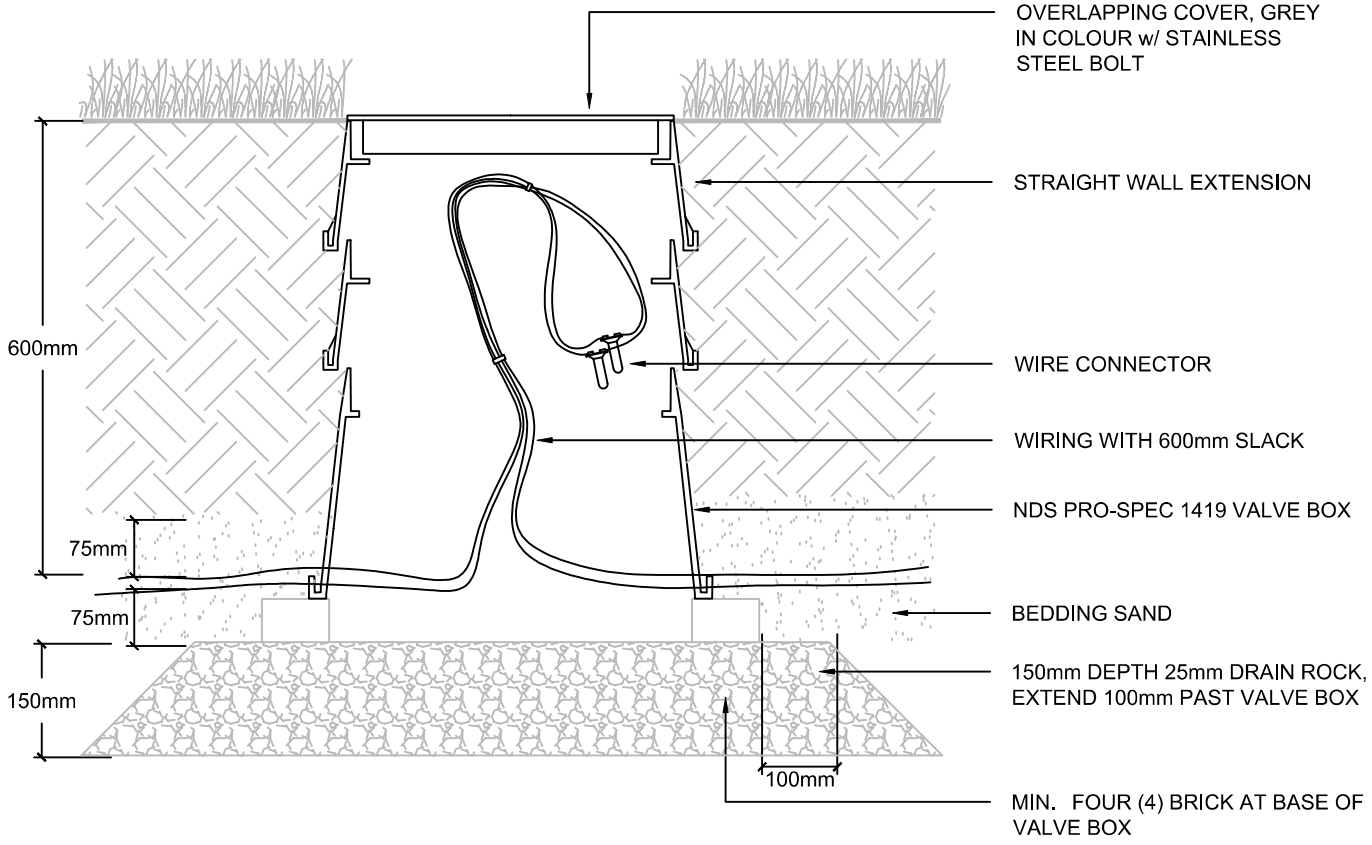


BOLT AND CONDUIT LAYOUT

IRRIGATION CONTROLLER PEDESTAL	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI02**
	SCALE: 1:15	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

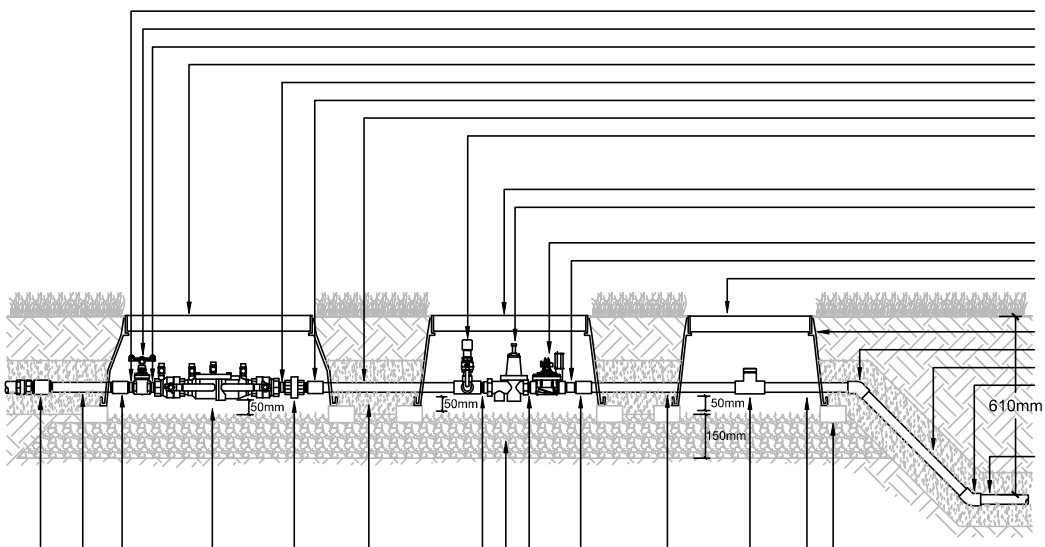


NOTES
1. WIRE COLOURING TO STAY CONSISTENT
2. LABEL ALL WIRING WITH ASSIGNED STATION NUMBER
3. WRAP VALVE BOX WITH LANDSCAPE FABRIC TO PREVENT INGRESS OF MATERIAL
4. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

WIRE SPLICE	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI03**
	SCALE: 1:10	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



- 25mm SCHEDULE 80 PVC NIPPLE
- 25mm GATE VALVE
- 25mm SCHEDULE 80 PVC NIPPLE
- NDS PRO SPEC 1324 VALVE BOX w/ 305mm DEPTH
- 25mm SCHEDULE 80 PVC NIPPLE
- 25mm SCHEDULE 80 FEMALE ADAPTER
- 25mm SCHEDULE 40 PVC MAINLINE
- BLOW-OUT ASSEMBLY: SCHEDULE 80 SxT TEE, 25mm STREET ELBOW, 25mm SCHEDULE 80 PVC NIPPLE, 25mm BRASS BALL VALVE, 25mm PLUG
- NDS PRO-SPEC 1320 JUMBO VALVE BOX
- 25mm WATTS 25AUB-Z3 PRESSURE REDUCING VALVE, IF CALLED FOR ON PLANS
- 25mm MASTER VALVE
- 25mm SCHEDULE 80 PVC NIPPLE
- OVERLAPPING COVER w/ STAINLESS STEEL BOLT
- NDS PRO-SPEC 1419 VALVE BOX
- SCHEDULE 40 PVC 45° ELBOW
- MAINLINE PIPE, SIZED PER PLANS
- SCHEDULE 40 PVC 45° ELBOW, POSITION TO ACHIEVE LATERAL TRENCH DEPTH
- MAINLINE PIPE, SIZED PER PLANS
- MIN. FOUR (4) BRICK AT BASE OF VALVE BOX (TYP.)
- 25mm SCH 40 PVC MAINLINE
- TORO TFS-100 FLOW SENSOR (5 - 50gpm)
- 25mm SCHEDULE 40 PVC MAINLINE
- 25mm SCHEDULE 80 FEMALE ADAPTER
- 25mm SCHEDULE 80 NIPPLE
- 150mm DEPTH 25mm DRAIN ROCK, EXTEND 100mm PAST VALVE BOX
- 25mm SCHEDULE 80 NIPPLE
- BEDDING SAND
- 25mm SCHEDULE 80 UNION
- 25mm DOUBLE CHECK VALVE ASSEMBLY
- 25mm SCHEDULE 80 PVC FEMALE ADAPTER
- 25mm SCHEDULE 80 PVC NIPPLE
- BRASS COUPLER WITH REDUCING BUSHING

NOTES

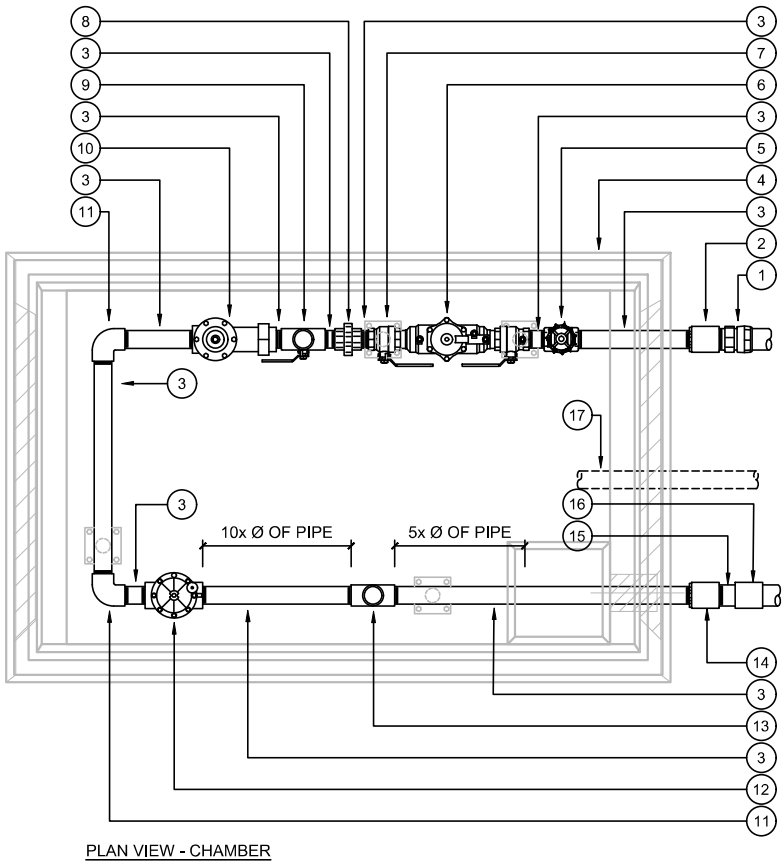
- CENTER COMPONENT IN VALVE BOX.
- MAINTAIN 600mm OF SLACK CONDUCTOR IN VALVE BOX.
- MAINTAIN 50mm GAP BETWEEN BOTTOM OF VALVE & TOP OF DRAIN ROCK.
- WRAP VALVE BOX WITH LANDSCAPE FABRIC TO PREVENT INGRESS OF MATERIAL.
- INSTALL VALVE BOX ON TOP OF 150mm DEPTH OF DRAIN ROCK WITH BRICKS PLACED BENEATH EACH CORNER
- IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS

POINT OF CONNECTION
25mm

DATE: 2024/11/04	DRAWING NUMBER:
DRAWN: RH	**COQ-LI04**
SCALE: 1:20	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



PLAN VIEW - CHAMBER

LEGEND - 38mm POC

1. CONNECT TO STUB-OUT
2. BRASS COUPLER SIZED TO INCOMING PIPE w/ 38mm BRASS REDUCING BUSHING, IF REQUIRED
3. 38mm BRASS NIPPLE
4. AE CONCRETE 2121 WATERMETER VAULT w/ LID ASSEMBLY
5. 38mm GATE VALVE
6. 38mm DOUBLE CHECK VALVE ASSEMBLY
7. PIPE STAND BOLT ANCHORED TO VAULT BASE, FOUR MINIMUM
8. 38mm BRASS UNION
9. BLOW-OUT ASSEMBLY: 38mm x 25mm TEE, 25mm BRASS STREET ELBOW, 25mm BRASS NIPPLE, 25mm BRASS BALL VALVE, PLUG
10. 38mm WATTS 25AUB-Z3 PRESSURE REDUCING VALVE, IF CALLED FOR ON PLANS
11. 38mm BRASS 90° ELBOW
12. 38mm MASTER VALVE
13. TORO TFS-150 FLOW SENSOR (5 - 100gpm)
14. BRASS COUPLER SIZED TO MAINLINE w/ 38mm BRASS REDUCING BUSHING, IF REQUIRED
15. SCHEDULE 80 PVC NIPPLE CUT IN HALF AND SOLVENT WELDED TO COUPLER
16. SCHEDULE 80 PVC COUPLER
17. 50mm DB2 ELECTRICAL CONDUIT TO CONTROLLER

LEGEND - 50mm POC

1. CONNECT TO STUB-OUT
2. BRASS COUPLER SIZED TO INCOMING PIPE w/ 50mm BRASS REDUCING BUSHING, IF REQUIRED
3. 50mm BRASS NIPPLE
4. AE CONCRETE 2121 WATERMETER VAULT w/ LID ASSEMBLY
5. 50mm GATE VALVE
6. 50mm DOUBLE CHECK VALVE ASSEMBLY
7. PIPE STAND BOLT ANCHORED TO VAULT BASE, FOUR MINIMUM
8. 50mm BRASS UNION
9. BLOW-OUT ASSEMBLY: 50mm x 25mm TEE, 25mm BRASS STREET ELBOW, 25mm BRASS NIPPLE, 25mm BRASS BALL VALVE, PLUG
10. 50mm WATTS 25AUB-Z3 PRESSURE REDUCING VALVE, IF CALLED FOR ON PLANS
11. 50mm BRASS 90° ELBOW
12. 50mm MASTER VALVE
13. TORO TFS-200 FLOW SENSOR (10 - 200gpm)
14. BRASS COUPLER SIZED TO MAINLINE w/ 50mm BRASS REDUCING BUSHING, IF REQUIRED
15. SCHEDULE 80 PVC NIPPLE CUT IN HALF AND SOLVENT WELDED TO COUPLER
15. SCHEDULE 80 PVC COUPLER
16. 50mm DB2 ELECTRICAL CONDUIT TO CONTROLLER

POINT OF CONNECTION
38mm - 50mm

DATE: 2024/11/04

DRAWN: RH

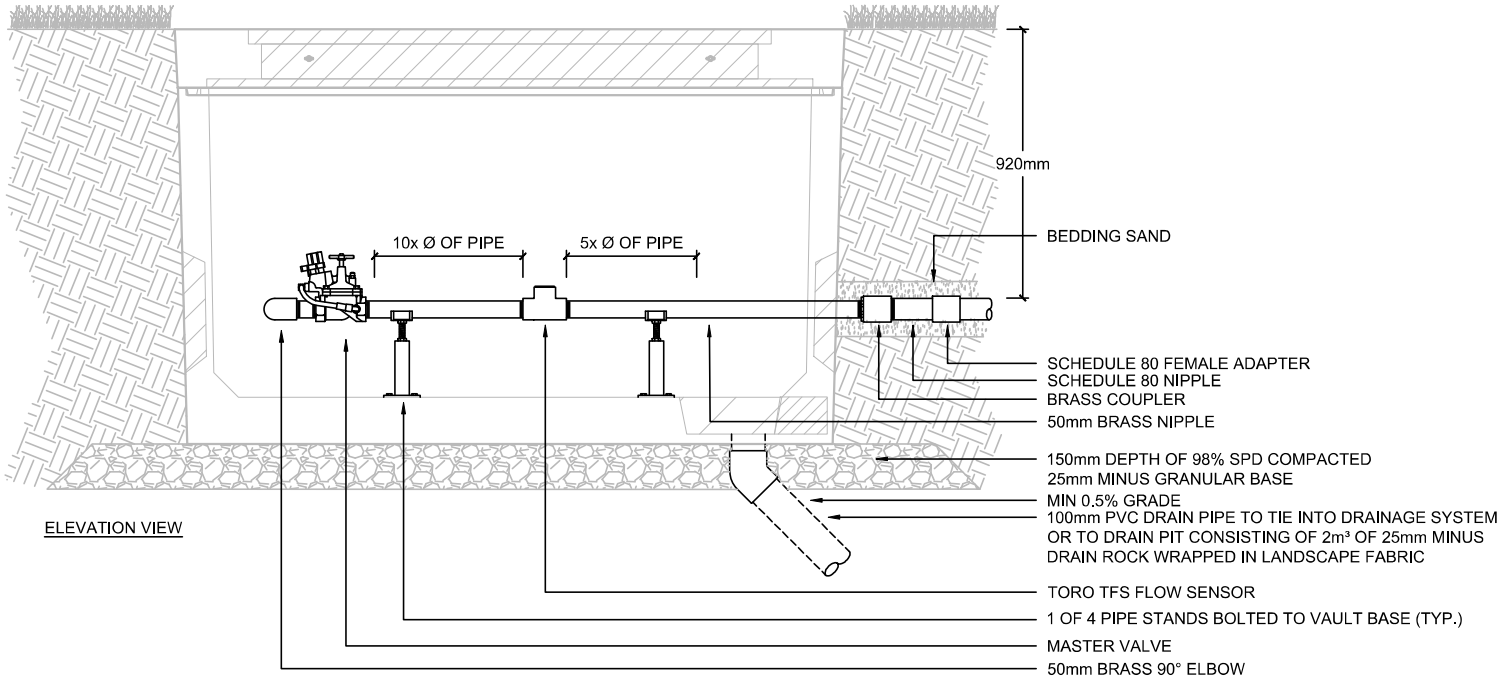
SCALE: 1:20

DRAWING NUMBER:

COQ-LI05

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



ELEVATION VIEW

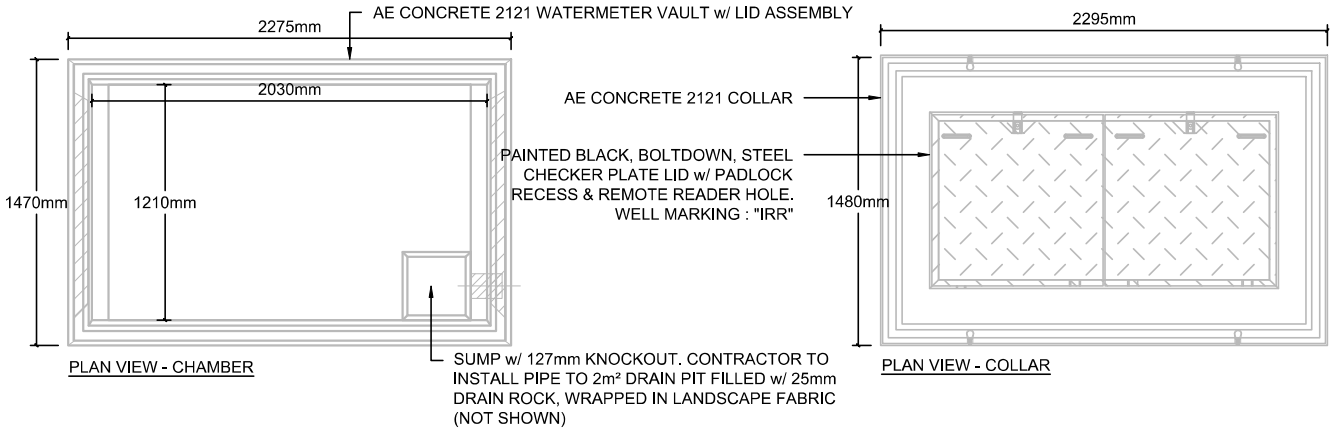
INSTALLATION NOTES:

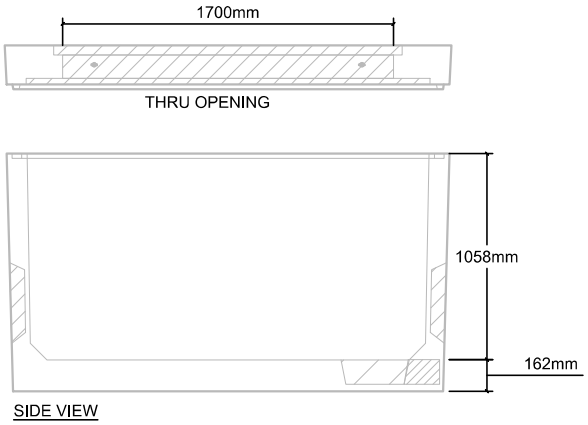
- SEAL ALL HOLES MADE IN VAULT.
- REFER TO MANUFACTURER'S MANUAL FOR WIRING INSTRUCTIONS
- IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS

POINT OF CONNECTION 38mm - 50mm	DATE: 2024/11/04 DRAWN: RH SCALE: 1:20	DRAWING NUMBER: **COQ-LI06**

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL





GENERAL NOTES:

- PRODUCT MANUFACTURED IN ACCORDANCE WITH CSA A23.4
- LIFT POINTS PROVIDED (SEE SHOP DRAWING FOR QUANTITY & LOCATIONS)
- DESIGNED FOR BOULEVARD (OFF-ROAD) USE - H-20 STATIC LOADING
- DESIGN AND PROVISION OF THRUST BLOCKS IS THE RESPONSIBILITY OF OTHERS
- STEEL PRODUCTS MANUFACTURED UNDER CSA W47.1 IN ACCORDANCE TO CSA W59
- SITE INSTALLATION, BACKFILLING & SUITABILITY FOR USE IS THE RESPONSIBILITY OF OTHERS

POINT OF CONNECTION VAULT INSTALLATION

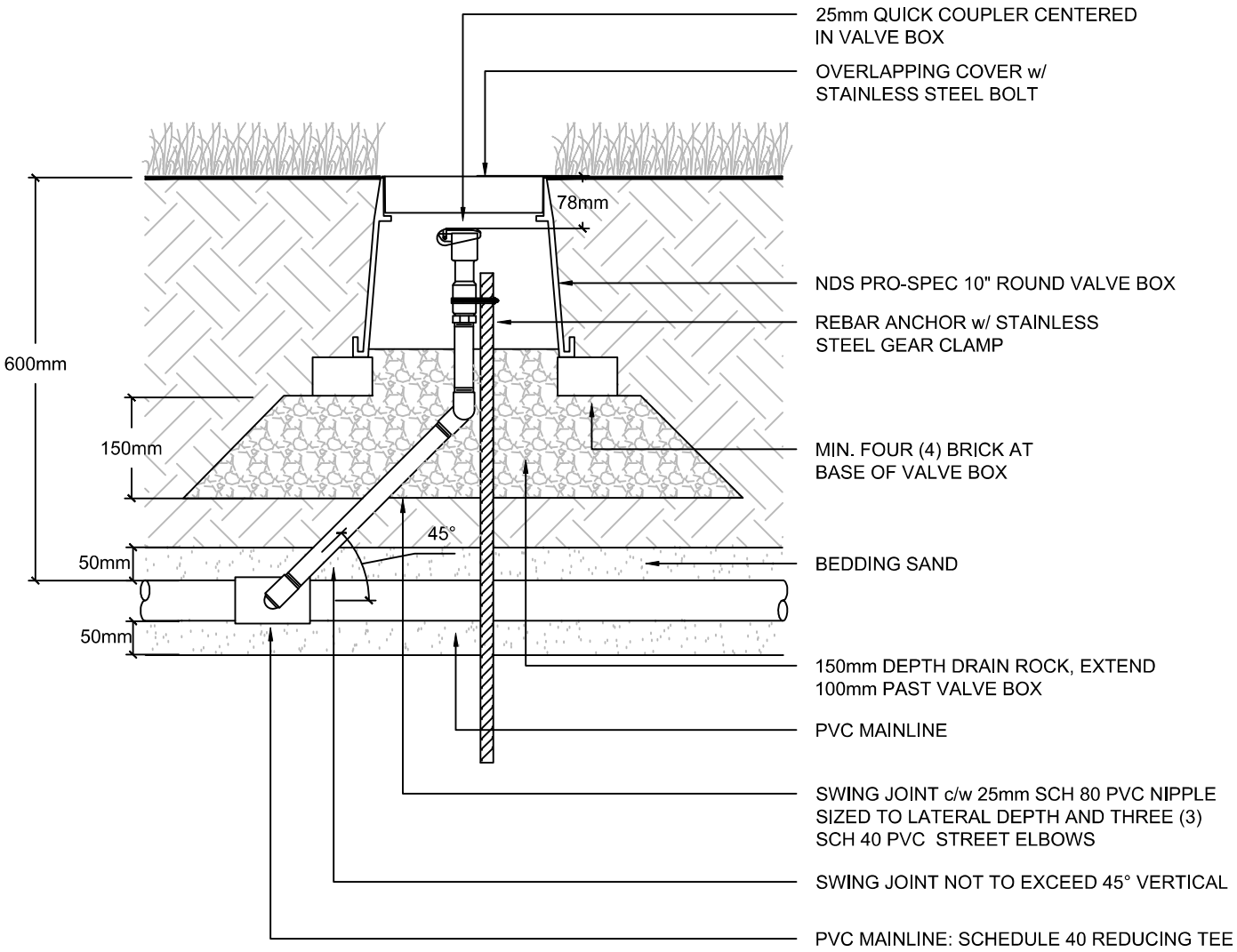
DATE:	2024/11/04
DRAWN:	RH
SCALE:	1:30

DRAWING NUMBER:

COQ-LI07

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

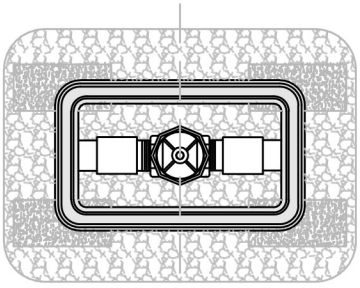


NOTES
1. CENTER VALVE IN VALVE BOX
2. WRAP VALVE BOX WITH LANDSCAPE FABRIC TO PREVENT INGRESS OF MATERIAL
3. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

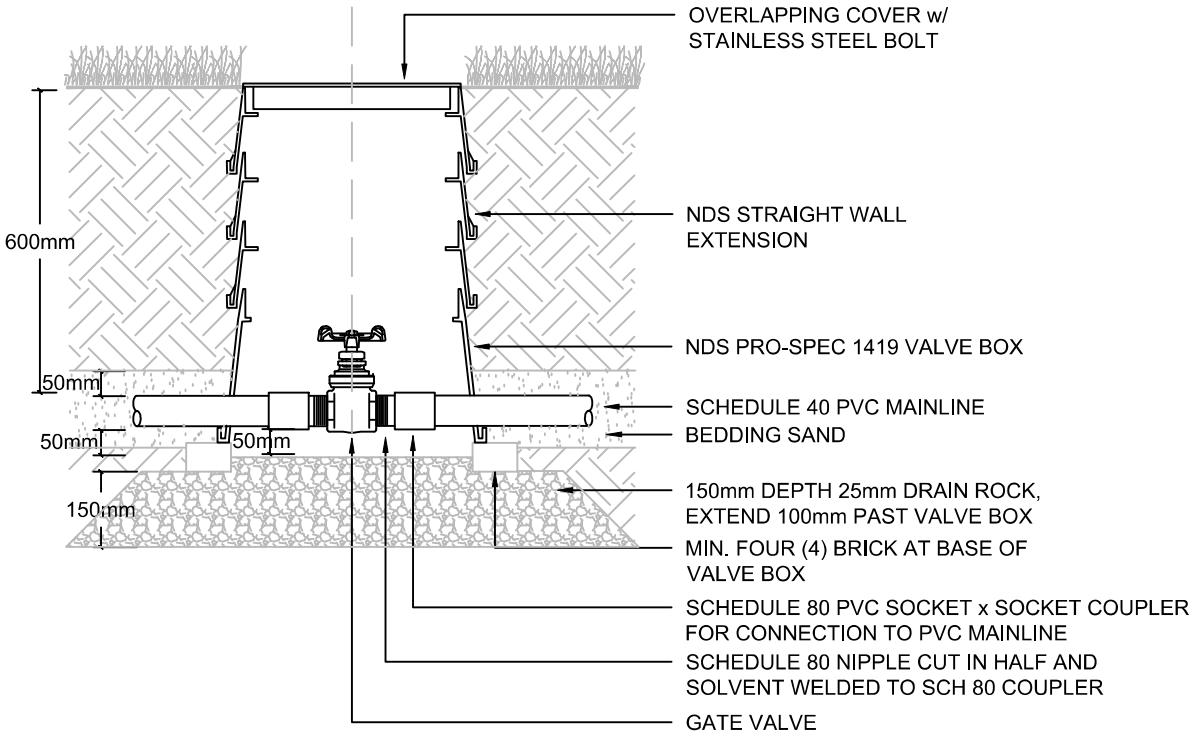
QUICK COUPLER	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI08**
	SCALE: 1:10	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



PLAN

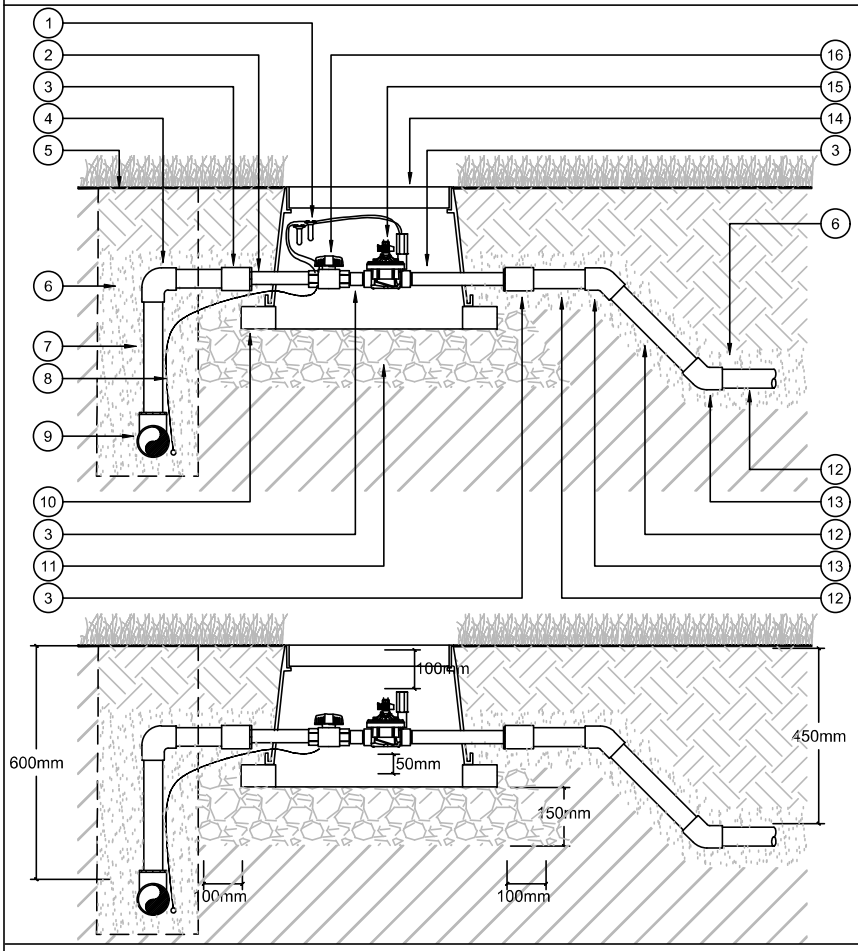


NOTES
1. CENTER VALVE IN VALVE BOX
2. MAINTAIN 50mm GAP BETWEEN BOTTOM OF VALVE & TOP OF DRAIN ROCK
3. WRAP VALVE BOX WITH LANDSCAPE FABRIC TO PREVENT INGRESS OF MATERIAL
4. DETAIL REPRESENTS TYPICAL CONNECTIONS TO HDPE OR PVC MAINLINE TO PROVIDE THE INSTALLER WITH METHOD REQUIRED TO CONNECT THE GATE VALVE TO THE MAINLINE.
5. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

GATE VALVE 25mm TO 50mm	DATE: 2024/11/04 DRAWN: RH SCALE: 1:10	DRAWING NUMBER: **COQ-LI09**

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



LEGEND

1. 600mm SLACK WIRE w/ 3MDR/Y-6 WIRE CONNECTOR
2. 25mm SCHEDULE 80 NIPPLE
3. SCHEDULE 40 COUPLER, SIZED TO LATERAL PIPING w/ 25mm REDUCING BUSHING
4. SCHEDULE 40 PVC 90° ELBOW
5. FINISHED GRADE
6. BEDDING SAND
7. SCHEDULE 40 PVC PIPE, SIZED TO LATERAL
8. IRRIGATION WIRING
9. SCHEDULE 40 PVC TEE w/ REDUCING BUSHING
10. MIN. FOUR (4) BRICK AT BASE OF VALVE BOX
11. 150mm DEPTH 25mm DRAIN ROCK, EXTEND 100mm PAST VALVE BOX
12. CLASS 200 PVC LATERAL PIPE SIZED PER PLANS
13. SCHEDULE 40 PVC 45° ELBOW, POSITION TO ACHIEVE LATERAL TRENCH DEPTH
14. NDS PRO-SPEC 1419 VALVE BOX w/ OVERLAPPING COVER & STAINLESS STEEL BOLT
15. 25mm ELECTRIC CONTROL VALVE
16. 25mm SCHEDULE 40 PVC BALL VALVE

NOTE:

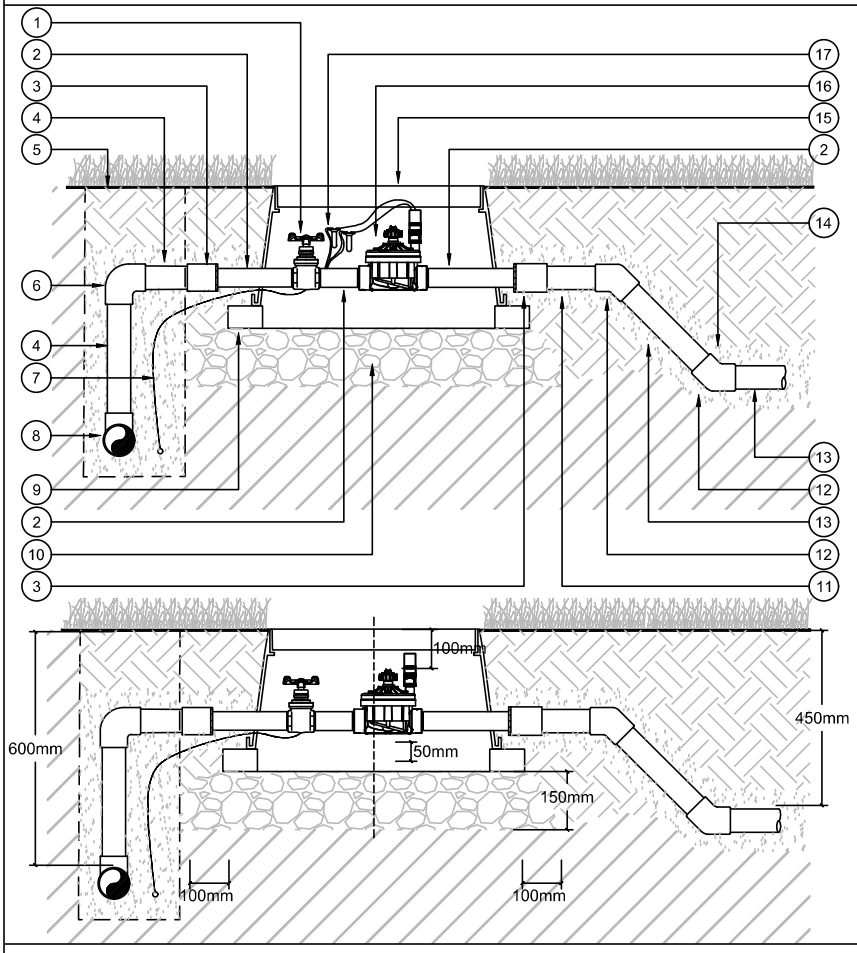
- CENTER VALVE IN VALVE BOX
- INSTALL PLASTIC TAG ENGRAVED w/ ZONE NUMBER
- MAINTAIN 50mm GAP BETWEEN BOTTOM OF VALVE & TOP OF DRAIN ROCK
- WRAP VALVE BOX WITH LANDSCAPE FABRIC TO PREVENT INGRESS OF MATERIAL
- DO NOT INSTALL VALVE OVER MAINLINE, INSTALL VALVE PERPENDICULAR TO MAINLINE
- MAINTAIN 600mm OF SLACK CONDUCTOR IN VALVE BOX. TAPE WIRING TOGETHER
- INSTALL VALVE BOX ON TOP OF 150mm DEPTH OF DRAIN ROCK WITH BRICKS PLACED BENEATH EACH CORNER

ELECTRIC CONTROL VALVE
25mm

DATE: 2024/11/04	DRAWING NUMBER:
DRAWN: RH	**COQ-LI10**
SCALE: 1:15	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



LEGEND

1. 38mm TOYO 206A GATE VALVE
2. 38mm SCHEDULE 80 NIPPLE
3. SCHEDULE 40 PVC COUPLER w/ 38mm REDUCING BUSHING
4. SCHEDULE 40 PVC MAINLINE, SIZED TO LATERAL PIPING
5. FINISHED GRADE
6. SCHEDULE 40 PVC 90° ELBOW
7. IRRIGATION WIRING
8. SCHEDULE 40 PVC TEE w/ REDUCING BUSHING
9. MIN. FOUR (4) BRICKS AT BASE OF VALVE BOX
10. 150mm DEPTH 25mm DRAIN ROCK, EXTEND 100mm PAST VALVE BOX
11. CLASS 200 PVC LATERAL PIPING, SIZED PER PLANS
12. SCHEDULE 40 PVC 45° ELBOW, POSITION TO ACHIEVE LATERAL TRENCH DEPTH
13. CLASS 200 PVC LATERAL PIPE SIZED PER PLANS
14. BEDDING SAND
15. NDS PRO-SPEC 1320 VALVE BOX w/ OVERLAPPING COVER & STAINLESS STEEL BOLT
16. 38mm ELECTRIC CONTROL VALVE
17. 600mm SLACK WIRE w/ 3MDR/Y-6 WIRE CONNECTOR

NOTE:

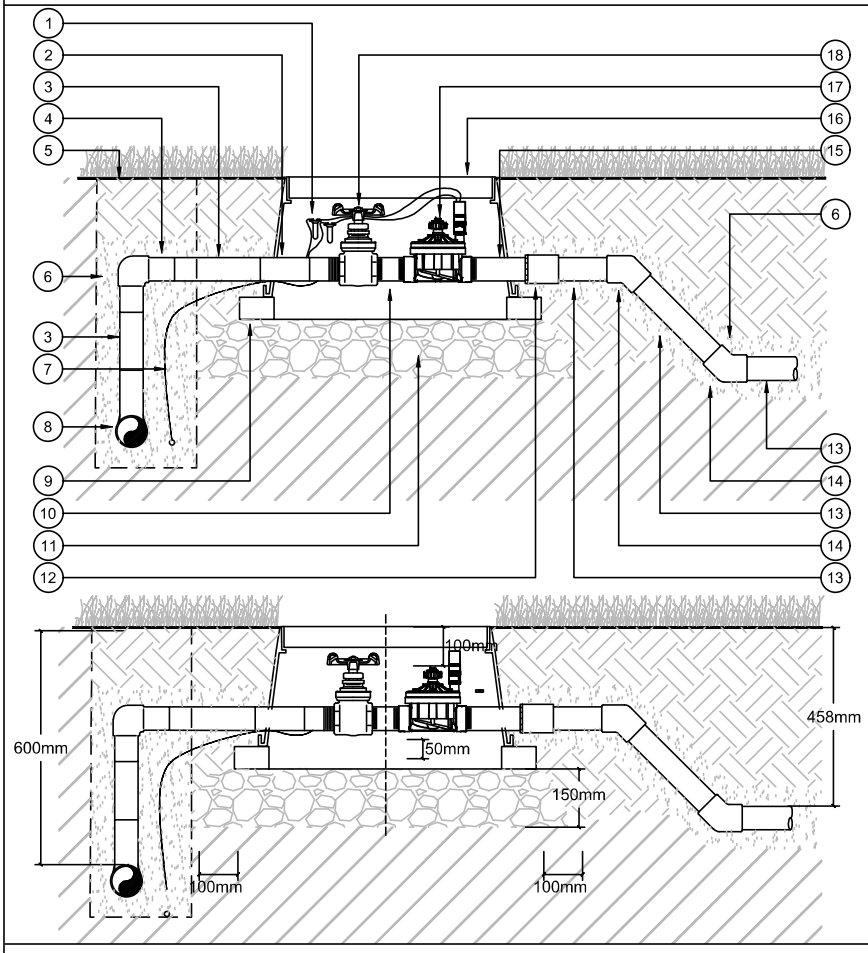
- CENTER VALVE IN VALVE BOX
- INSTALL PLASTIC TAG ENGRAVED w/ ZONE NUMBER
- MAINTAIN 50mm GAP BETWEEN BOTTOM OF VALVE & TOP OF DRAIN ROCK
- WRAP VALVE BOX WITH LANDSCAPE FABRIC TO PREVENT INGRESS OF MATERIAL
- DO NOT INSTALL VALVE OVER MAINLINE, INSTALL VALVE PERPENDICULAR TO MAINLINE
- MAINTAIN 600mm OF SLACK CONDUCTOR IN VALVE BOX. TAPE WIRING TOGETHER
- INSTALL VALVE BOX ON TOP OF 150mm DEPTH OF DRAIN ROCK WITH BRICKS PLACED BENEATH EACH CORNER

ELECTRIC CONTROL VALVE
38mm

DATE: 2024/11/04	DRAWING NUMBER:
DRAWN: RH	**COQ-LI11**
SCALE: 1:15	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



LEGEND

1. 600mm SLACK WIRE w/ 3MDR/Y-6 WIRE CONNECTOR
2. 50mm STANDARD MIPT-NPT TRANSITION FITTING - MALE
3. 50mm SDR 11 HDPE MAINLINE
4. 50mm BUTT FUSION 90° ELBOW
5. FINISHED GRADE
6. 50mm SAND BEDDING AROUND PIPE, REFER TO TRENCH SECTION DETAIL
7. IRRIGATION WIRING
8. 75/100mm x 50mm BUTT FUSION TEE
9. FOUR (4) BRICKS MIN., INSTALLED AT EACH CORNER
10. 50mm SCHEDULE 80 PVC NIPPLE
11. 150mm DEPTH 25mm DRAIN ROCK, EXTEND 100mm PAST VALVE BOX
12. SCHEDULE 40 PVC COUPLER SIZED TO LATERAL PIPE, w/ 50mm SCHEDULE 40 PVC REDUCING BUSHING IF REQUIRED
13. CLASS 200 PVC LATERAL PIPE SIZED PER PLANS
14. SCHEDULE 40 PVC 45° ELBOW, POSITION TO ACHIEVE LATERAL TRENCH DEPTH
15. 50mm SCHEDULE 80 PVC NIPPLE CUT IN HALF AND SOLVENT WELDED TO REDUCING BUSHING
16. NDS PRO-SPEC 1320 VALVE BOX w/ OVERLAPPING COVER & STAINLESS STEEL BOLT
17. 50mm ELECTRIC CONTROL VALVE
18. 50mm TOYO 206A GATE VALVE

NOTE:

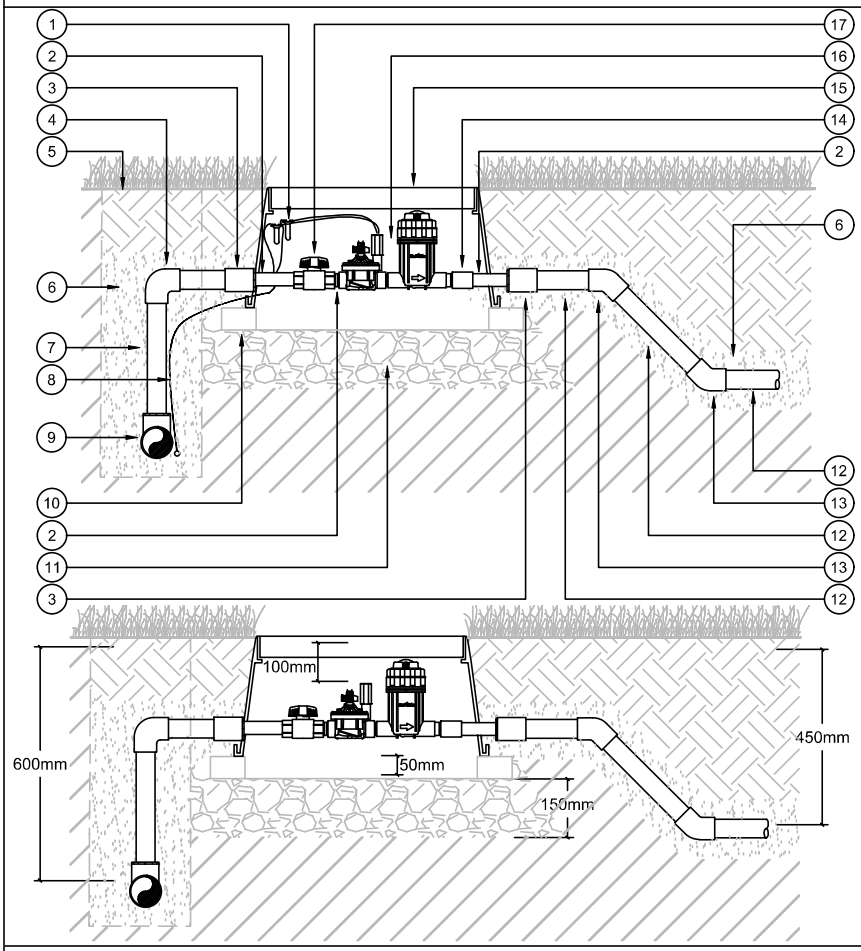
- CENTER VALVE IN VALVE BOX
- INSTALL PLASTIC TAG ENGRAVED w/ ZONE NUMBER
- MAINTAIN 50mm GAP BETWEEN BOTTOM OF VALVE & TOP OF DRAIN ROCK
- WRAP VALVE BOX WITH LANDSCAPE FABRIC TO PREVENT INGRESS OF MATERIAL
- DO NOT INSTALL VALVE OVER MAINLINE, INSTALL VALVE PERPENDICULAR TO MAINLINE
- MAINTAIN 600mm OF SLACK CONDUCTOR IN VALVE BOX. TAPE WIRING TOGETHER
- INSTALL VALVE BOX ON TOP OF 150mm DEPTH OF DRAIN ROCK WITH BRICKS PLACED BENEATH EACH CORNER

ELECTRIC CONTROL VALVE
50mm

DATE: 2024/11/04	DRAWING NUMBER:
DRAWN: RH	**COQ-LI12**
SCALE: 1:15	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



LEGEND

1. 600mm SLACK WIRE w/ 3MDR/Y-6 WIRE CONNECTOR
2. 25mm SCHEDULE 80 NIPPLE
3. SCHEDULE 40 COUPLER, SIZED TO LATERAL PIPING w/ 25mm REDUCING BUSHING
4. SCHEDULE 40 PVC 90° ELBOW
5. FINISHED GRADE
6. BEDDING SAND
7. SCHEDULE 40 PVC PIPE, SIZED TO LATERAL
8. IRRIGATION WIRING
9. SCHEDULE 40 PVC TEE w/ REDUCING BUSHING
10. MIN. FOUR (4) BRICK AT BASE OF VALVE BOX
11. 150mm DEPTH 25mm DRAIN ROCK, EXTEND 100mm PAST VALVE BOX
12. CLASS 200 PVC LATERAL PIPE SIZED PER PLANS
13. SCHEDULE 40 PVC 45° ELBOW, POSITION TO ACHIEVE LATERAL TRENCH DEPTH
14. 25mm SCHEDULE 80 PVC COUPLER
15. NDS PRO-SPEC 1320 VALVE BOX w/ OVERLAPPING COVER & STAINLESS STEEL BOLT
16. 25mm DRIP ZONE KIT
17. 25mm SCHEDULE 40 PVC BALL VALVE

NOTE:

- CENTER VALVE IN VALVE BOX
- INSTALL PLASTIC TAG ENGRAVED w/ ZONE NUMBER
- MAINTAIN 50mm GAP BETWEEN BOTTOM OF VALVE & TOP OF DRAIN ROCK
- WRAP VALVE BOX WITH LANDSCAPE FABRIC TO PREVENT INGRESS OF MATERIAL
- DO NOT INSTALL VALVE OVER MAINLINE, INSTALL VALVE PERPENDICULAR TO MAINLINE
- MAINTAIN 600mm OF SLACK CONDUCTOR IN VALVE BOX. TAPE WIRING TOGETHER
- INSTALL VALVE BOX ON TOP OF 150mm DEPTH OF DRAIN ROCK WITH BRICKS PLACED BENEATH EACH CORNER

DRIP ZONE KIT
25mm

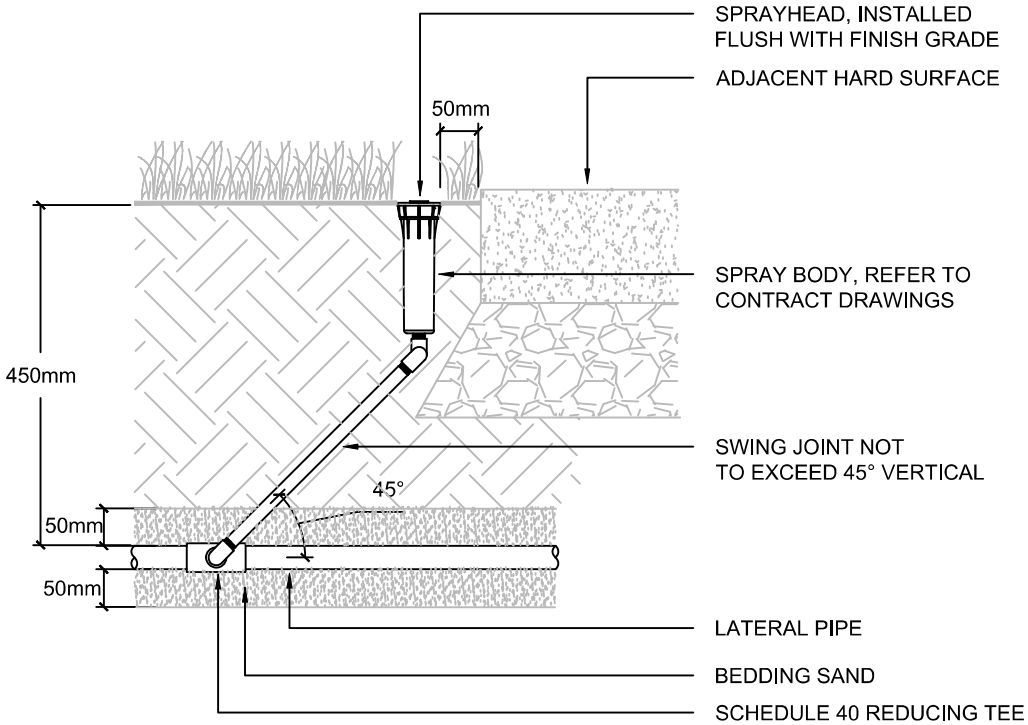
DATE:	2024/11/04
DRAWN:	RH
SCALE:	1:15

DRAWING NUMBER:

COQ-LI13

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

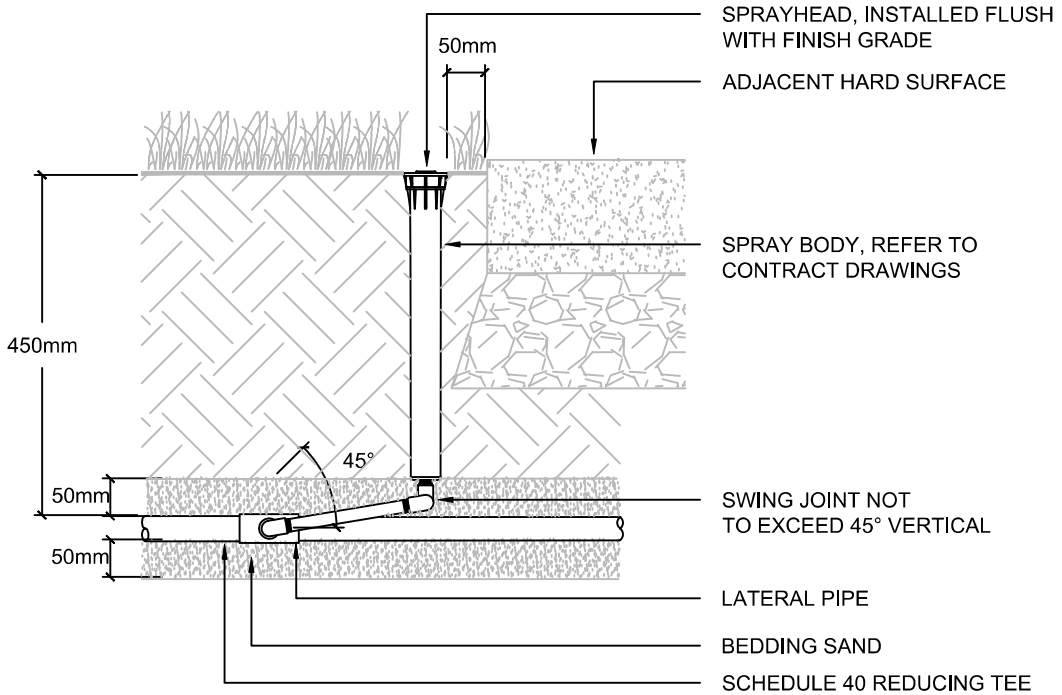


NOTES
1. INSTALL RAIN BIRD SA SERIES SWING JOINT FOR HEADS THAT FLOW UP TO 8gpm.
2. INSTALL SWING JOINT USING SCHEDULE 80 NIPPLE, THREE (3) SCHEDULE 40 PVC STREET ELBOWS ALL SIZED TO SPRINKLER INLET FOR FLOWS OVER 8gpm.
3. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

100mm SPRAYHEAD SPRINKLER	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI14**
	SCALE: 1:10	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

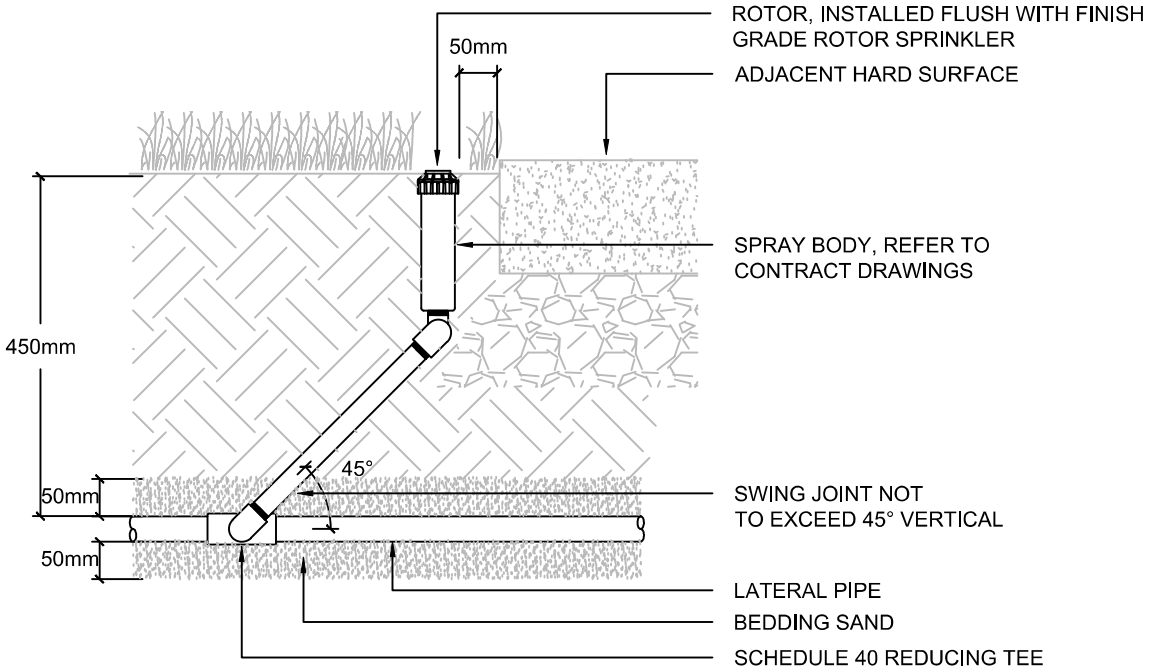


NOTES
1. INSTALL RAIN BIRD SA SERIES SWING JOINT FOR HEADS THAT FLOW UP TO 8gpm.
2. INSTALL SWING JOINT USING SCHEDULE 80 NIPPLE, THREE (3) SCHEDULE 40 PVC STREET ELBOWS ALL SIZED TO SPRINKLER INLET FOR FLOWS OVER 8gpm.
3. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

300mm SPRAYHEAD SPRINKLER	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI15**
	SCALE: 1:10	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

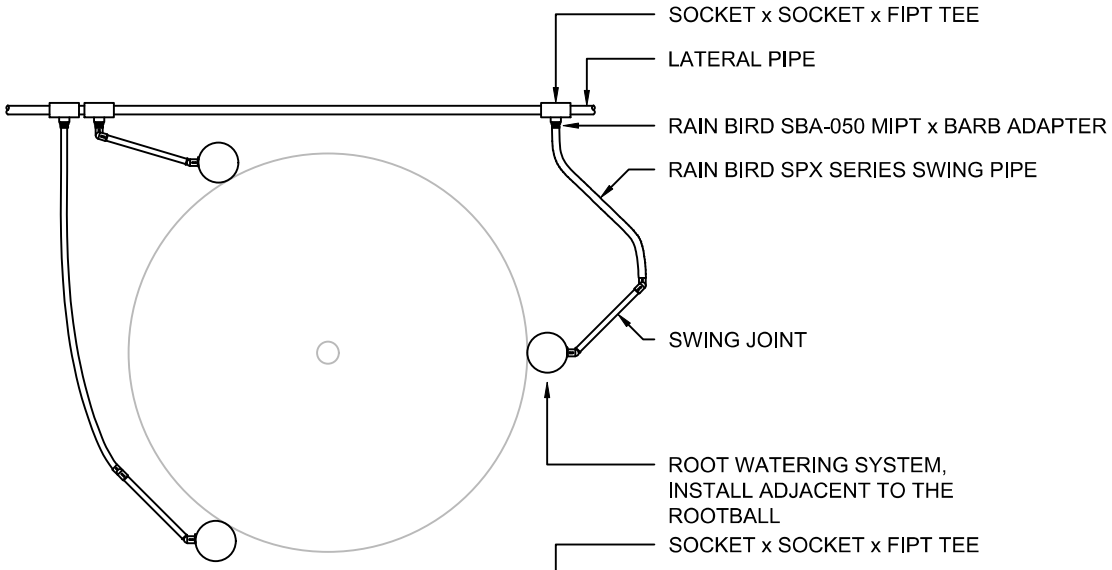


NOTES
1. INSTALL RAIN BIRD SA SERIES SWING JOINT FOR HEADS THAT FLOW UP TO 8gpm.
2. INSTALL SWING JOINT USING SCHEDULE 80 NIPPLE, THREE (3) SCHEDULE 40 PVC STREET ELBOWS ALL SIZED TO SPRINKLER INLET FOR FLOWS OVER 8gpm.
3. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

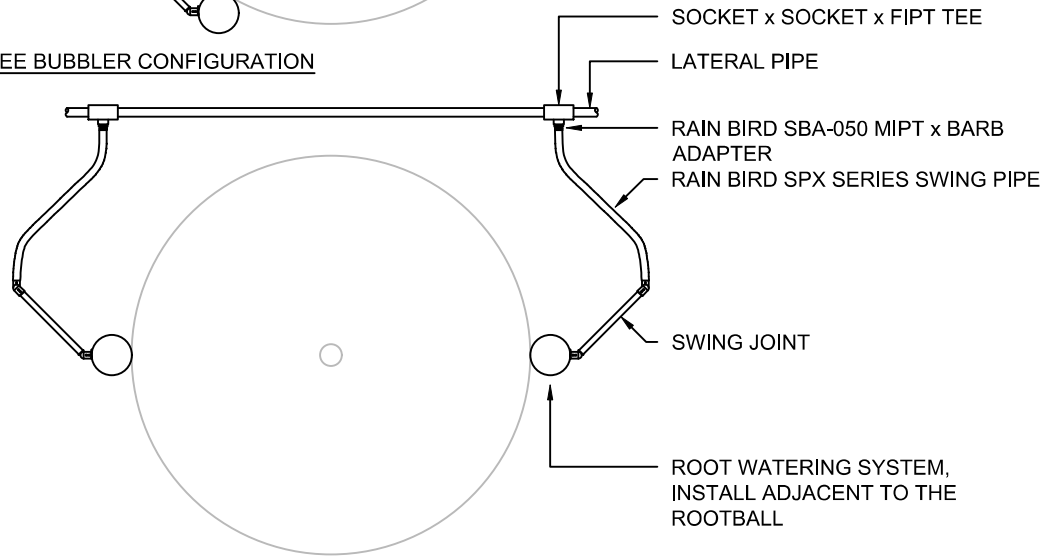
ROTOR	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI16**
	SCALE: 1:10	

Coquitlam

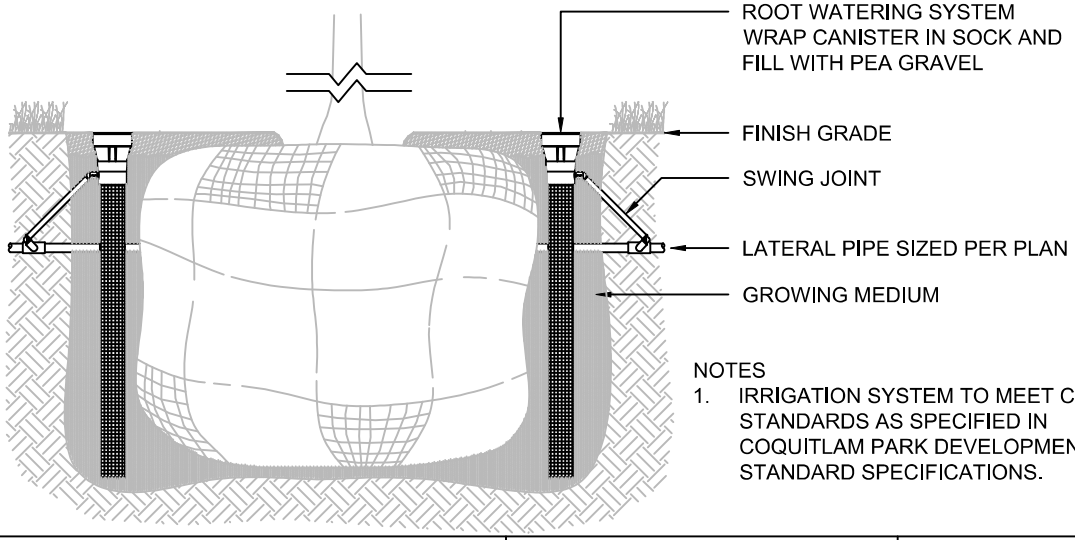
PARK DEVELOPMENT STANDARD DETAIL



PLAN: THREE BUBBLER CONFIGURATION



PLAN: TWO BUBBLER CONFIGURATION



SECTION

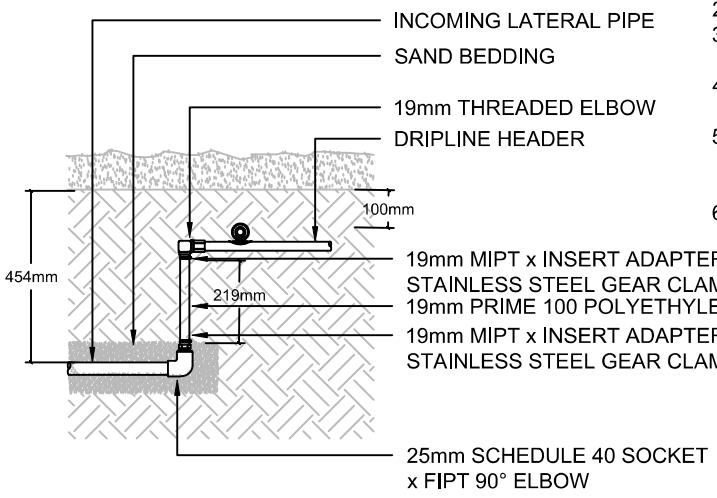
NOTES
1. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

ROOT WATERING SYSTEM

DATE: 2024/11/04	DRAWING NUMBER:
DRAWN: RH	**COQ-LI17**
SCALE: 1:20	

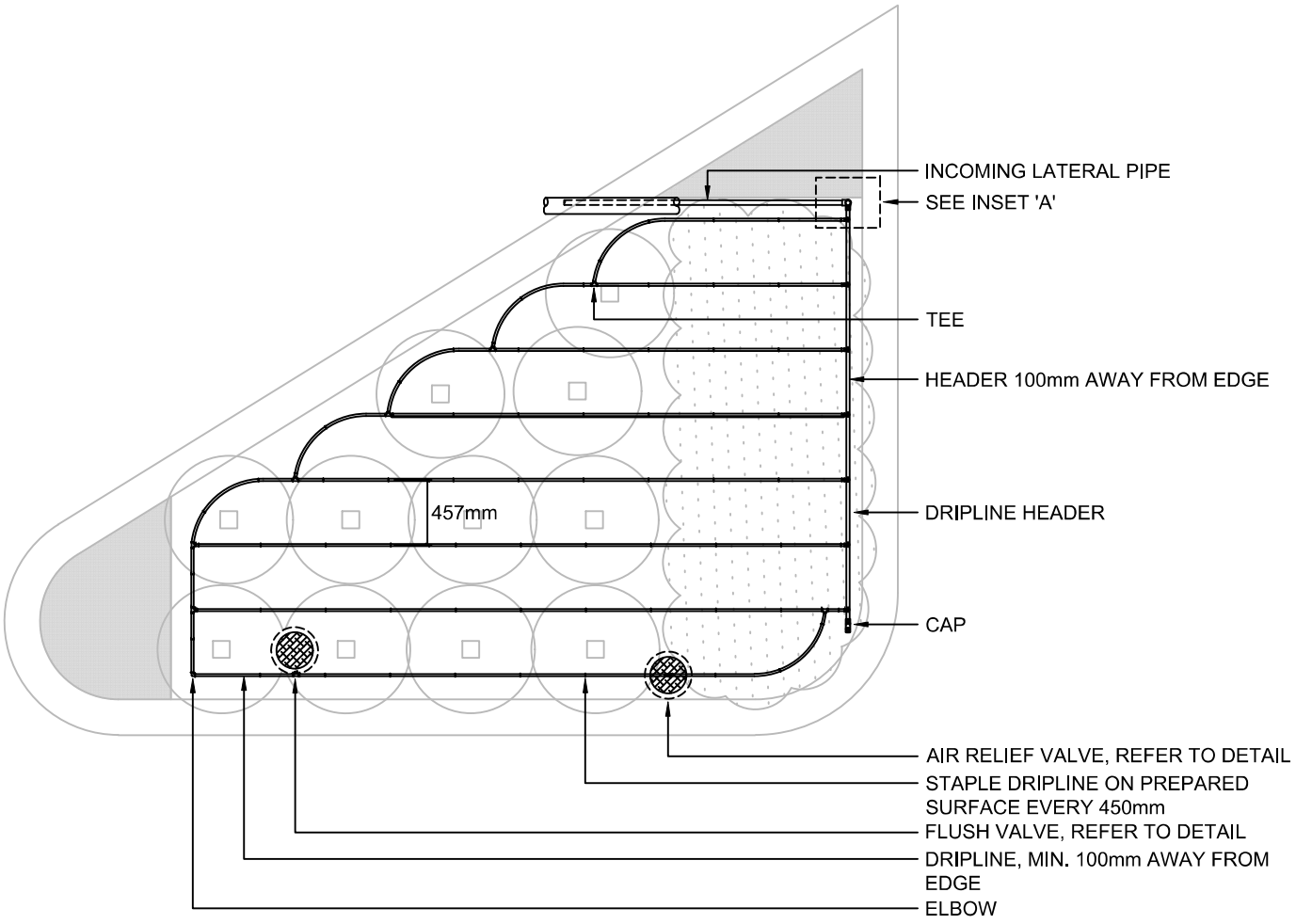
Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



INSET 'A'
1:20

NOTES:
1. STAPLE DRIPLINE EVERY 450mm
2. ALL DRIPLINE TO BE INSTALLED ON HIGH SIDE OF PLANT
3. CONTRACTOR SHALL ENSURE THAT DRIPLINE IS INSTALLED 100mm BELOW GRADE AND SPACED EVENLY AT 450mm
4. CONTRACTOR SHALL INSTALL DRIPLINE IN STRAIGHT ROWS WHEREVER POSSIBLE TO MINIMIZE SHARP BENDS IN PIPE
5. DETAIL REPRESENTS TYPICAL LAYOUT FOR DRIP ZONES. DETAIL IS INTENDED TO PROVIDE INSTALLER WITH THE CONCEPT IN WHICH THE DRIP ZONE IS TO BE CONSTRUCTED.
6. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

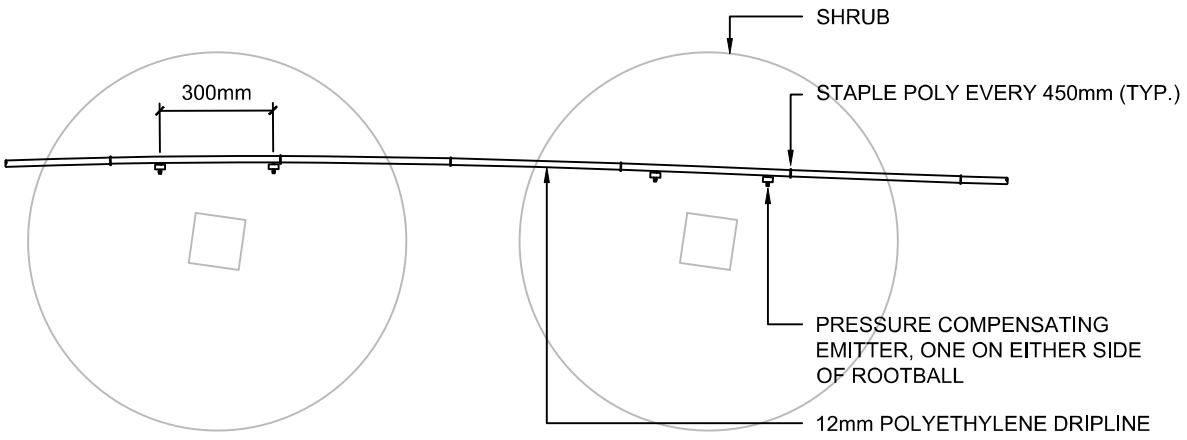


DRIPLINE LAYOUT SUBSURFACE DRIP

DATE: 2024/11/04	DRAWING NUMBER:
DRAWN: RH	**COQ-LI18**
SCALE: 1:50	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL



NOTES:

1. STAPLE DRIPLINE EVERY 450mm
2. ALL DRIPLINE AND EMITTERS TO BE INSTALLED ON HIGH SIDE OF PLANT
3. TWO (2) EMITTERS PER SHRUB ON EITHER SIDE OF ROOTBALL,TO PROMOTE FUTURE GROWTH
4. CONTRACTOR SHALL ENSURE THAT DRIPLINE IS INSTALLED 50mm BELOW GRADE, AND NOT VISIBLE
5. CONTRACTOR SHALL INSTALL DRIPLINE IN STRAIGHT ROWS WHEREVER POSSIBLE TO MINIMIZE SHARP BENDS IN PIPE
6. DETAIL REPRESENTS TYPICAL LAYOUT FOR DRIP ZONES. DETAIL IS INTENDED TO PROVIDE INSTALLER WITH THE CONCEPT IN WHICH THE DRIP ZONE IS TO BE CONSTRUCTED.
7. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

DRIPLINE LAYOUT
POINT SOURCE DRIP

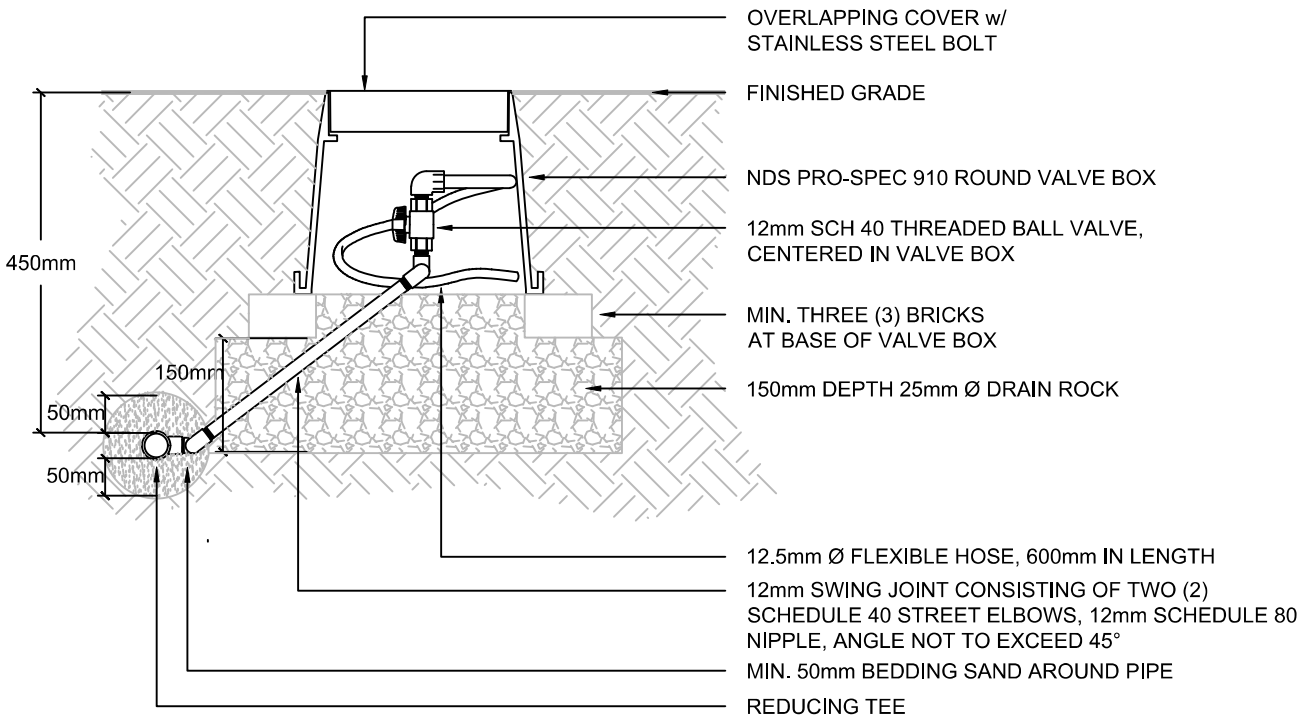
DATE:	2024/11/04
DRAWN:	RH
SCALE:	1:20

DRAWING NUMBER:

COQ-LI19

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

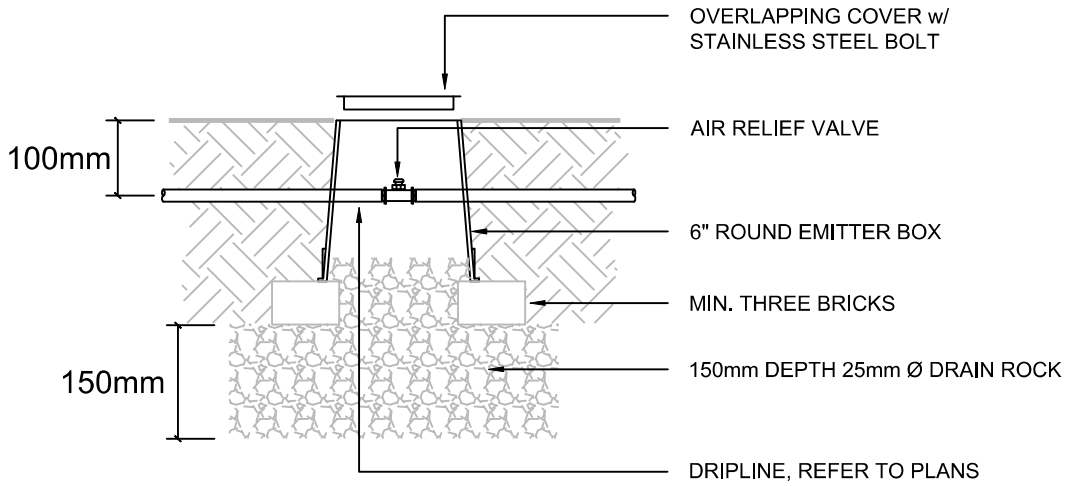


NOTES
1. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

FLUSH VALVE ASSEMBLY	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI20**
	SCALE: 1:10	

Coquitlam

PARK DEVELOPMENT STANDARD DETAIL

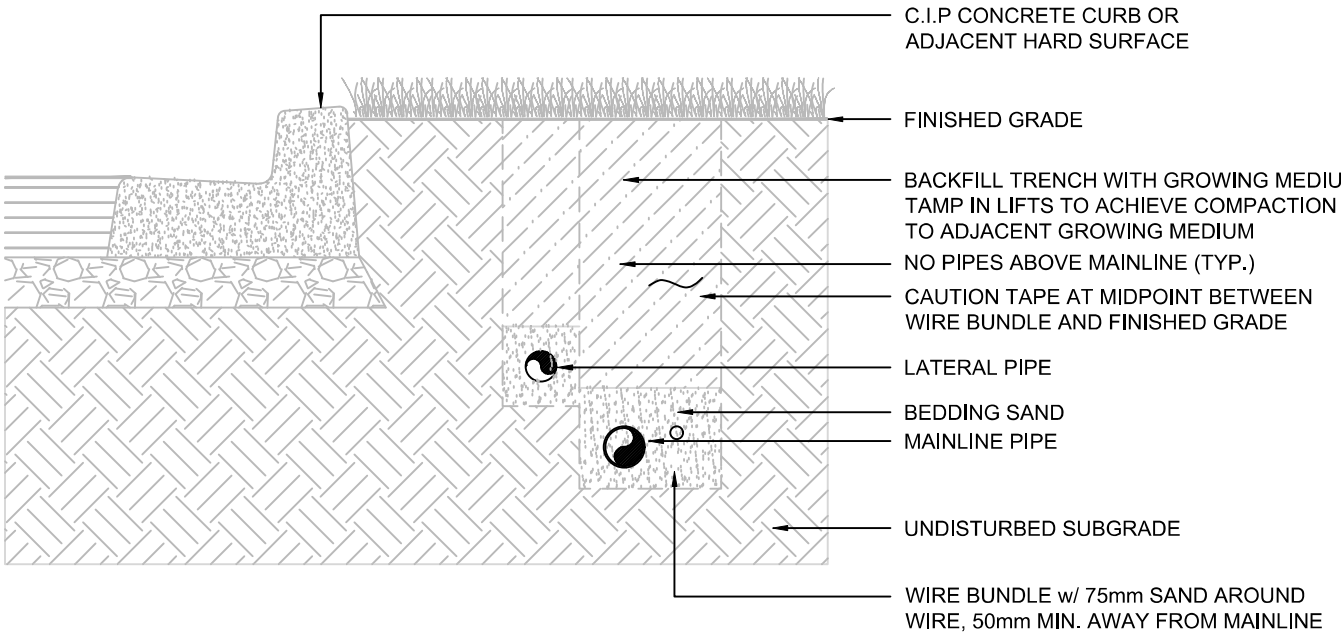


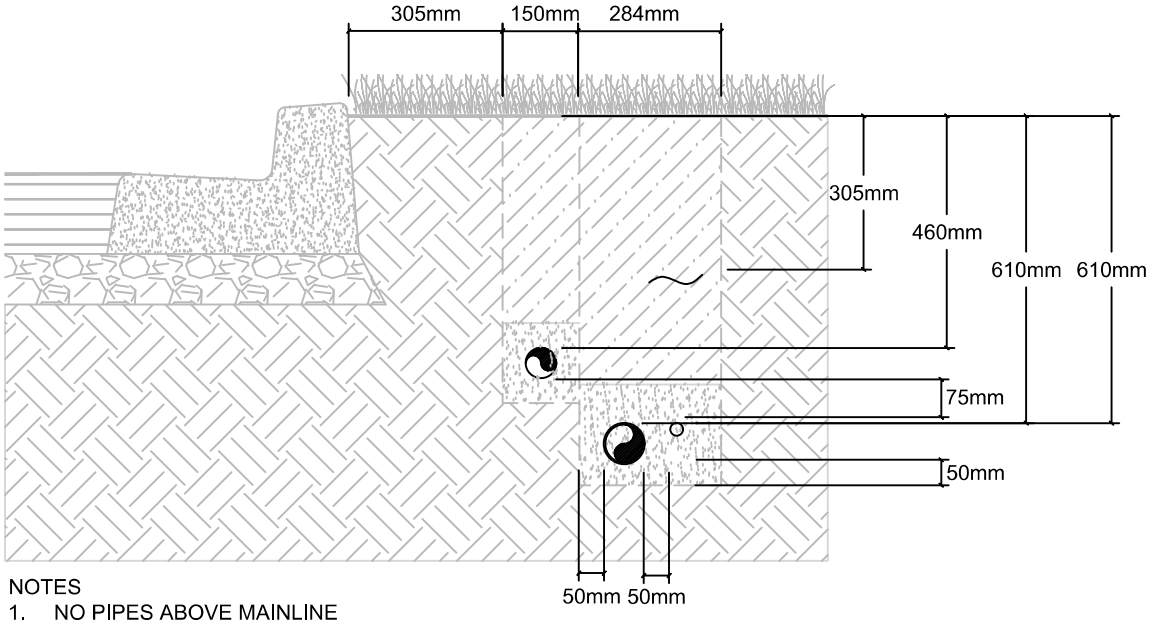
NOTES
1. INSTALL AIR RELIEF VALVE AT THE HIGHEST POINT OF ZONE.
2. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

AIR RELIEF VALVE	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI21**
	SCALE: 1:10	

Coquitlam

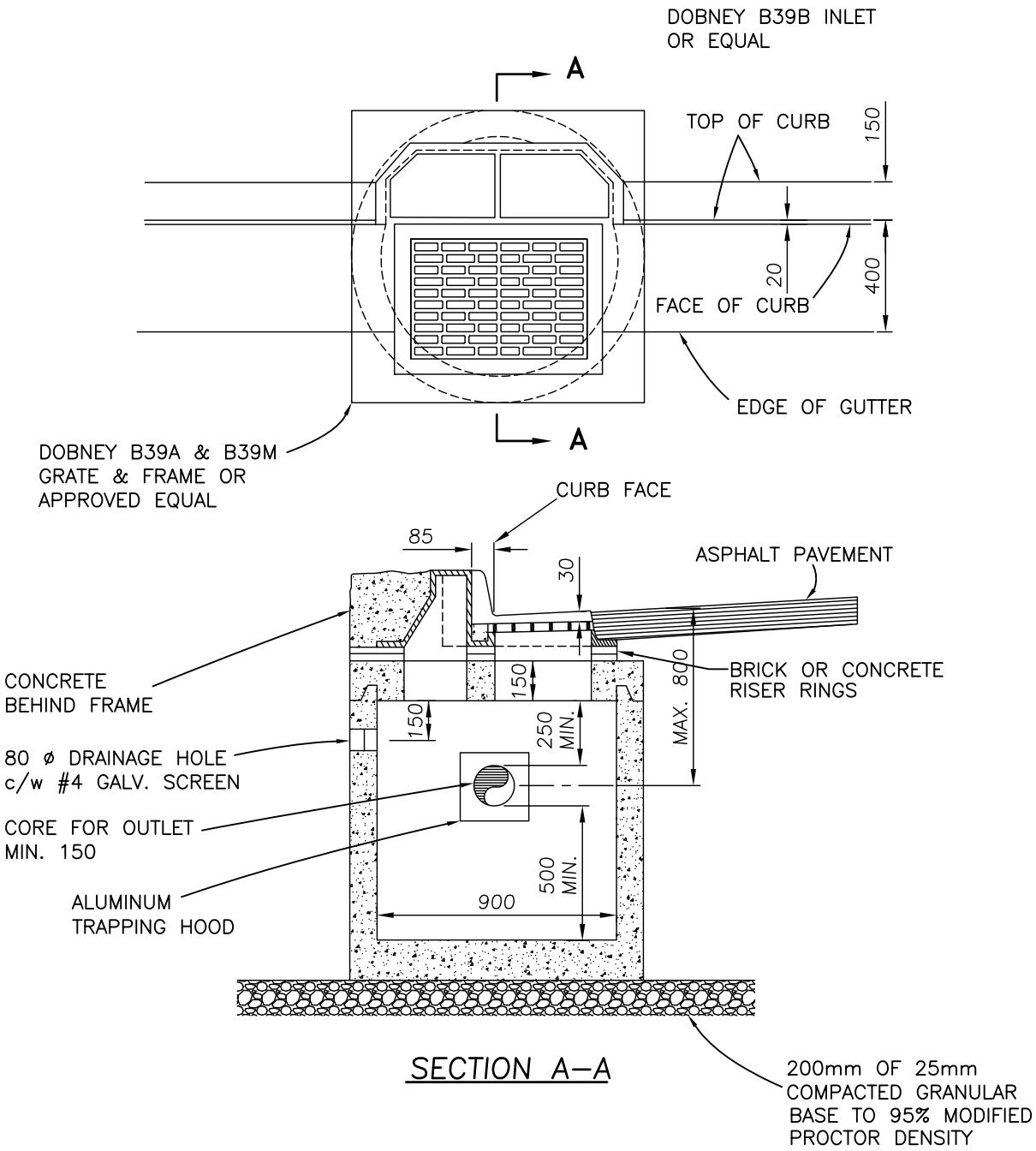
PARK DEVELOPMENT STANDARD DETAIL





NOTES
1. NO PIPES ABOVE MAINLINE
2. PROVIDE MIN. 50mm SAND BEDDING AROUND LATERAL & MAINLINE PIPE
3. DO NOT LOCATE TRENCH ANY CLOSER THAN 300mm FROM ADJACENT HARD SURFACE OR FEATURE
4. LATERAL PIPE DEPTHS FROM 305mm TO 610mm, REFER TO DESIGN FOR SPECIFIC DEPTHS
5. IRRIGATION SYSTEM TO MEET CITY STANDARDS AS SPECIFIED IN COQUITLAM PARK DEVELOPMENT STANDARD SPECIFICATIONS.

TRENCH SECTION	DATE: 2024/11/04	DRAWING NUMBER:
	DRAWN: RH	**COQ-LI22**
	SCALE: 1:15	

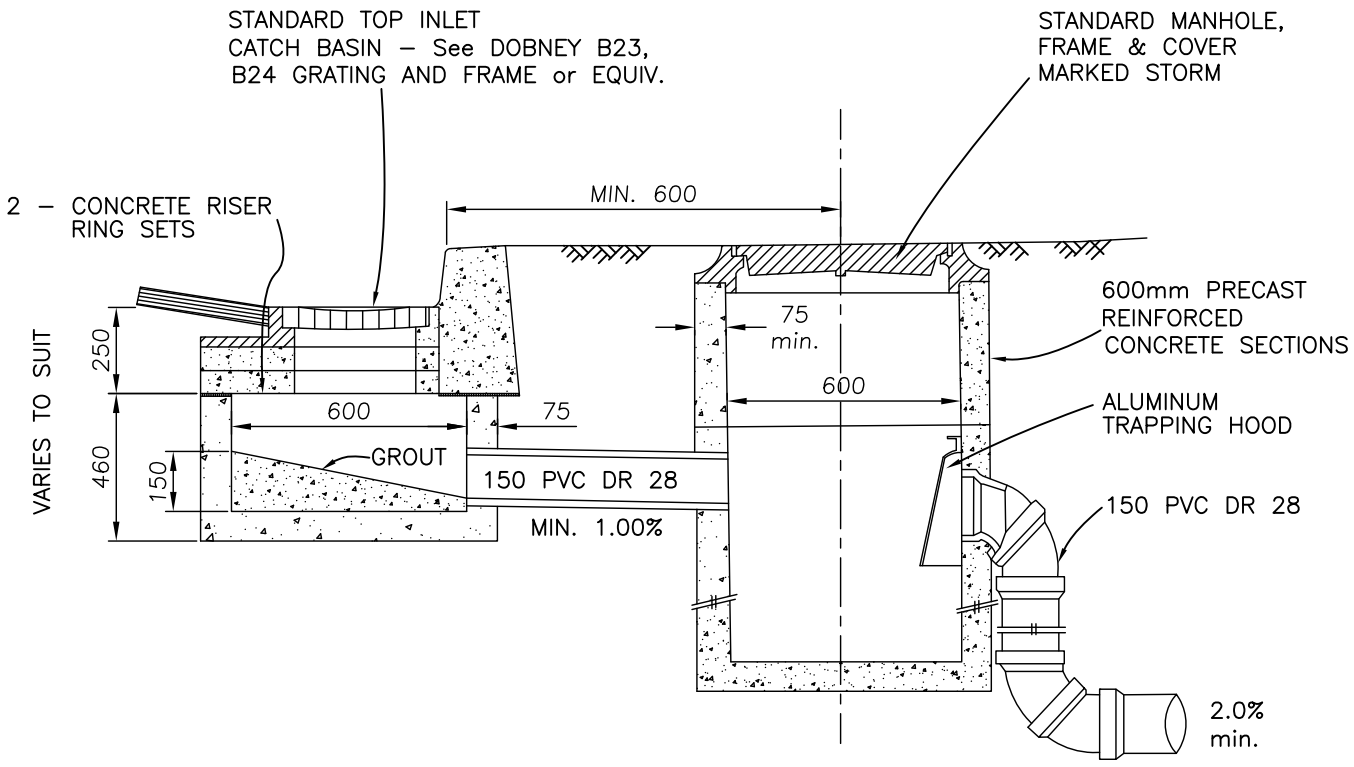


NOTES:

1. *REFER TO CONTRACT DRAWINGS, SECTION 33 44 01 FOR DETAILED SPECIFICATIONS.*
2. *PLACE 0.05 cu m DRAIN ROCK ADJACENT TO DRAINAGE HOLE WHEN BACKFILLING.*

PLOTTED: 19–Nov–18

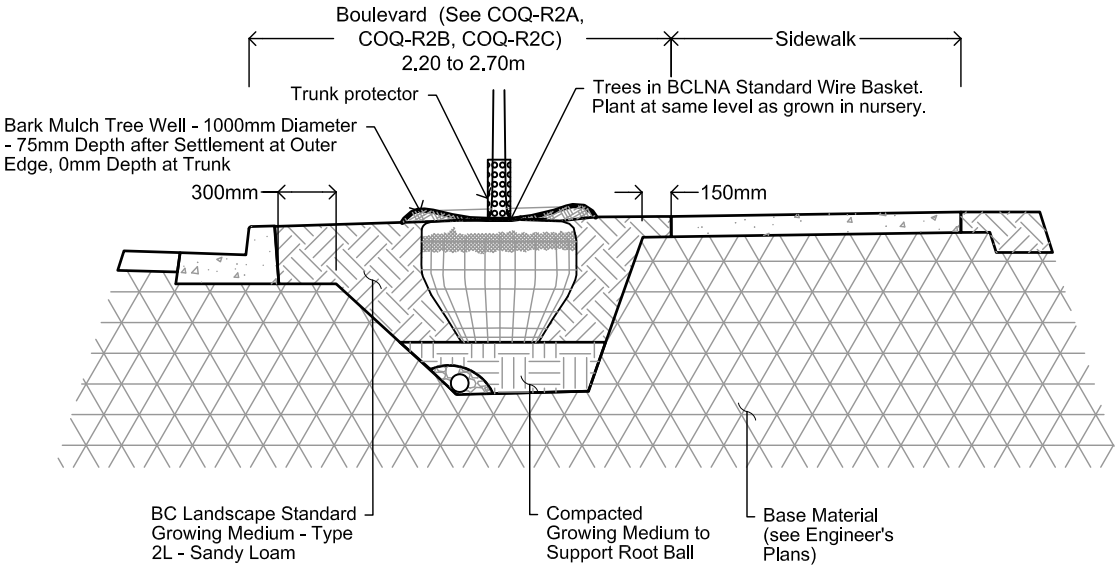
SIDE INLET CATCH BASIN ASSEMBLY	DATE: AUGUST/2014 DRAWN: REY SCALE: N.T.S.	DRAWING NUMBER: COQ-S11A



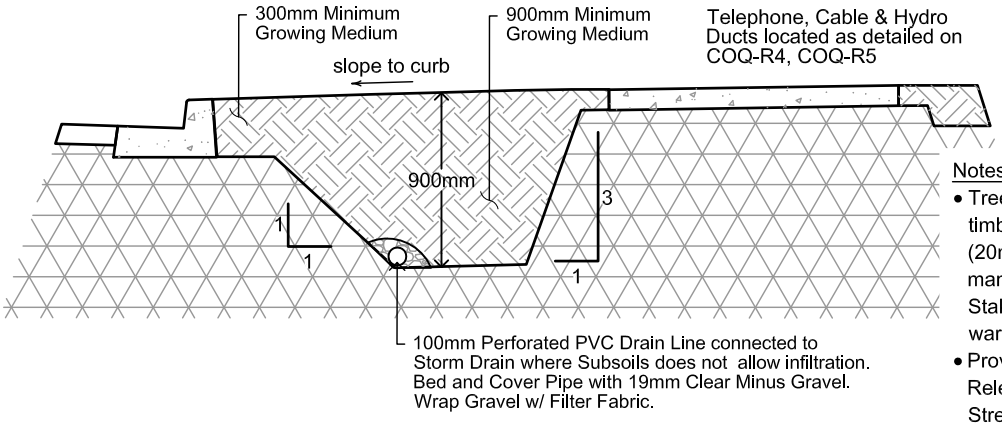
NOTE: 1. REFER TO CONTRACT DRAWINGS, SECTION 33 44 01 FOR DETAILED SPECIFICATIONS.

PLOTTED: 4–Sep–14

TYPICAL TOP INLET CATCH BASIN WITH OFFSET SUMP	DATE: AUGUST/2014	DRAWING NUMBER: COQ-S11B
	DRAWN: REY	
	SCALE: N.T.S.	



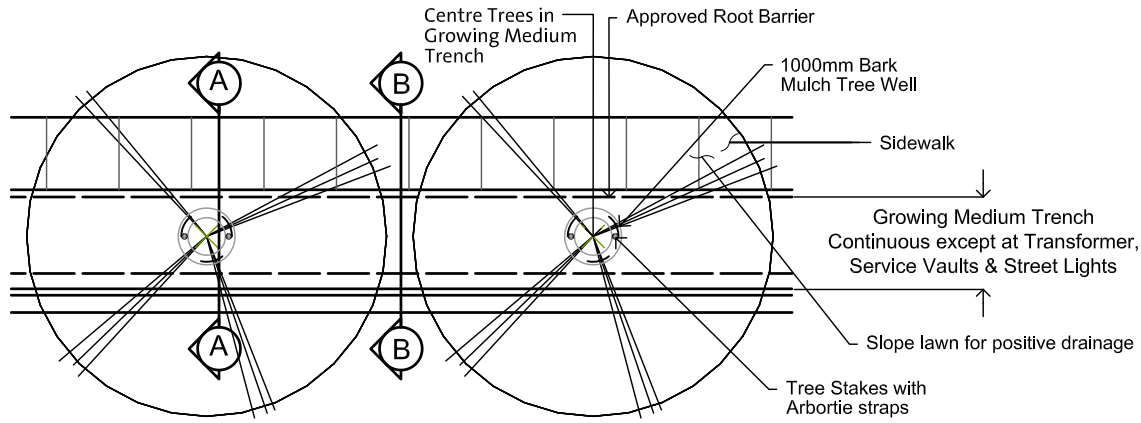
A Section Through Tree Location



Notes:

- Tree Stakes to be 2500 x 75Ø PT timber with two 20mm Arbortie (20mm) loops installed as per manufacturer's recommendations Stakes to be removed at end of warranty period;
- Provide One Treegator® Slow Release Watering Bag for each Street Tree.

B Section Through Growing Medium Trench



C Street Tree Plan

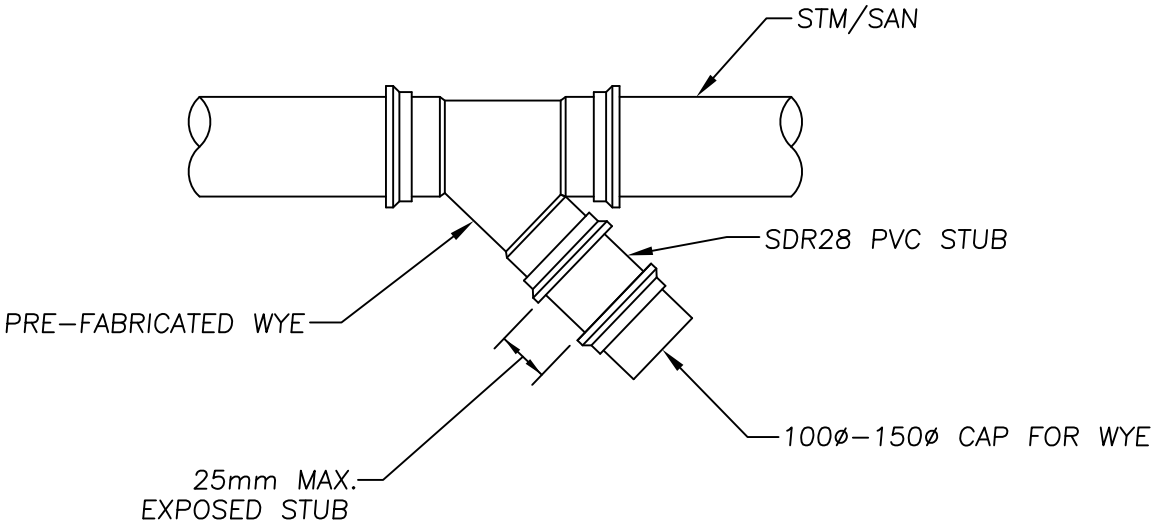
PLOTTED: 1–Mar–16

BOULEVARD TREE PLANTING WITHOUT SWALE

DATE:	DEC/2015
DRAWN:	AJM
SCALE:	N.T.S.

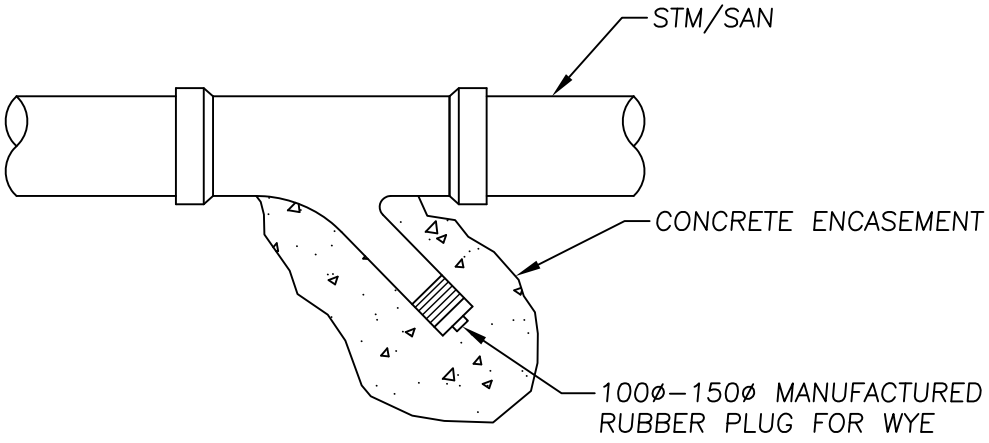
DRAWING NUMBER: COQ-L2A

PLASTIC PIPE CONNECTIONS



(1) 100ø OR 150ø GASKETED PLASTIC CAP PLACED AT WYE. SAME PROCESS FOR ALL WYE SIZES.

ALL OTHER PIPE MATERIAL



(2) 100ø OR 150ø RUBBER EXPANDIBLE PLUG–PLASTIC INSERT FOR EXPANSION WITH OPERATING NUT AND CONCRETE ENCASEMENT.

PLOTTED: 20–Jan–16

PERMANENT CAP FOR SANITARY AND STORM SERVICES	DATE: DEC/2015	DRAWING NUMBER: COQ-S18
	DRAWN: REY	
	SCALE: N.T.S.	

Appendix E - MOTT Project Category Determination

Summary of Results

Intial Project Assesment	**Category 3**
Project Risk Analysis	**Medium Risk**
Do I need a Signed/Sealed TMP? (Category 3)	**YES**

	Project Risk Analysis	Initial Project Category Assesment		
		1	2	3
Project Risk Analysis	Low Risk	Category 1	Category 2	Category 3
	Medium Risk	Category 1	Category 2	Category 3
	High Risk	Category 2	Category 3	Category 3

Table 3.1 - Initial Project Assessment			
Traffic Consideration	**Value**	**Point Value**	**Score**
Posted or Statutory Speed - Regular posted speed limit of	<= 50 km/hr	1	1
	60-70 km/hr	3	
	>=80 km/hr	4	
Traffic Volume - Traffic volume (both directions) in peak	<1000 vehicles/hr	1	
	1000 to 3000 vehicles/hr	3	3
	> 3000 vehicles/hr	4	
Lanes - Number of lanes in both directions (including	2 lanes	0	
	3 lanes	2	
	4 lanes or more	3	3
Encroachment - Location of Work	Off roadway	0	
	Shoulder work/partial lane closure	3	
	Full lane closure, ramp closure or intersection closure	4	4
Detours	No detour during construction	0	0
	Detour traffic on temporary roadway during construction next to work zone	3	
	Detour route during construction takes traffic off regular route away from work zone; required detour signing	4	
Duration of Work	Short-duration work (no more than one day-time shift).	1	
	Long-duration work (less than 2 weeks)	2	
	Long-duration work (2 or more weeks)	4	4
Allowable Delays - Time plus time to travel through work	< 20 minutes	1	1
	>= 20 minutes	3	
	No allowable delay	4	
Time of Day - **Time of day that work will occu**r	Day-time only work	1	1
	Active day time work, with traffic control devices in place at night	3	
	Active night-time work	4	
Vertical Alignment	Flat terrain	0	
	Rolling terrain	1	1
	Mountainous terrain	2	
Horizontal Alignment	Tangent	0	
	Horizontal curves, no curve advisory	1	1
	Horizontal curves, with curve advisory speeds	2	
Intersections	No intersections or stop controlled intersection(s)	0	
	Signalized intersection(s) with no left or right turn phases, or single lane	2	
	Signalized intersection(s) with left or right turn phase(s), or multilane roundabout	4	4
Runaway Lanes	No runaway lanes	1	1
	Runaway lanes in or near the work zone; they will not be blocked at any time during course of work	4	
Pedestrians and Cyclists	No pedestrians or cyclists	0	
	Possible pedestrians and cyclists	2	
	Designated cycle route, sidewalk or multi-use pathway	3	3
HOV or Bus Lane	No HOV or bus lane	0	0
	HOV or bus lane	4	
Counter Flow Lane	No counter-flow lane	0	0
	Counter-flow lane	4	
		Total Score	**27**
		Project Risk	**Category 3**

Table 3.2 - Project Risk Analysis				
Item	**Risk**	**Definition**	**Point Value**	**Score**
Falling object	Low	Potential of falling object through course of work (i.e. overhead works, slung loads or equipment boom/bucket work)	1	1
	Medium	Working within a known avalanche or rock fall area; no recent evidence of activity	2	
	High	Recent evidence of rock or material entering work site or overhead work that may impact travelling public or worker safety (i.e., overhead structures). Vehicle queues may back into a rock fall or avalanche area	3	
Nature of work activity	Low	Work activity is not expected to create a significant hazard	1	
	Medium	Work activity will create excessive dirt, dust or gravel on the road surface, and will thereby create a potential hazard	2	2
	High	Work activity such as blasting, scaling or excavation < 2 metres from active travelling lanes will create a potential hazard	3	
Removal of safety devices	Low	No removal of safety devices	1	
	Medium	Removal of safety devices such as pavement markings, signage, traffic signal or reflectors	2	2
	High	Removal of containment devices, such as barrier, guard rail, crash attenuators, fencing etc.	3	
Equipment movement through work zone	Low	Minimal conflict with traffic (e.g., work commencing off travelled roadway)	1	
	Medium	Conflict with normal traffic flow; no queuing or traffic stoppages	2	
	High	Conflicts with normal traffic; may create queuing and require traffic stoppages. Difficult for equipment to enter and exit site	3	3
Roadway surface condition during construction	Low	Roadway surface is maintained	1	
	Medium	Roadway surface, such as milling and grinding (consistent surface), creates a hazard for road users	2	
	High	Roadway surface is inconsistent with multiple changes or work tasks (manholes, culvert installation, etc.)	3	3
Storage of equipment and material	Low	Stored outside the shoulder	1	
	Medium	Stored on the shoulder but outside travelled roadway	2	2
	High	Stored on shoulder but encroaching on travelled roadway	3	
Load restrictions as a result of construction	Low	No load restrictions	1	1
	Medium	Narrow lanes restrict wide loads	2	
	High	Overweight/overheight vehicles restricted (may result in structural damage)	3	
Lane widths	Low	Maintain existing lane widths		
	Medium	n/a	n/a	

Lane Widths	High	Lane width not maintained throughout work zone, or single lane alternating traffic	3	3
Work zone or queues block access (active or inactive site)	Low	None	1	
	Medium	Side street or business access	2	2
	High	Major public facility and/or major secondary roadway	3	
Transit Access	Low	No transit or school bus stops	1	
	Medium	Community shuttle or school bus stops	2	
	High	Express transit or major bus route	3	3
Impacts of special events	Low	No known events	1	1
	Medium	Moderate public event with attendance under 5,000	2	
	High	Major public event with attendance over 5,000 or moderate public event (under 5,000) with no alternative access or route	3	
Overlapping work	Low	No overlapping work	1	
	Medium	Another work site within 3 km; traffic control for the projects could impact one another	2	
	High	Work sites adjacent or overlapping	3	3
Emergency facility (i.e. hospital, police, ambulance, and fire stations)	Low	No emergency facility near work site	1	1
	Medium	24 hour manned emergency facility	2	
	High	Voluntary staffed emergency facility; consider responder access through work zone to the facility and emergency response from facility through the work zone	3	
			Total Score	**27**
			Project Risk	**Medium Risk**