



Addendum No. 1

City of Coquitlam
Tender 81293

Oakdale Park Stormwater Treatment Facility

Issue Date: April 9, 2024
(Consists of 34 Pages)

Revisions

1. Refer to: INSTRUCTIONS TO TENDERERS

AMEND: Clause 3.1- Submissions of Tenders

From: Tenders must be received on or before:

Tender Closing Time: 2:00 p.m. local time

Tender Closing Date: April 15, 2024

To: Tenders must be received on or before:

Tender Closing Time: 2:00 p.m. local time

Tender Closing Date: April 19, 2024

2. Refer to: INSTRUCTIONS TO TENDERERS

AMEND: Clause 1.2 - Introduction

From: The deadline for inquiries is 2:00 PM local time, Thursday, April 10, 2024.

To: The deadline for inquiries is 2:00 PM local time, Tuesday, April 16, 2024.

3. Refer to: APPENDIX B – Imbrium Systems Proposal Drawings & Specifications

DELETE: Page ISPD 1 “Imbrium Proposal Drawing”

REPLACE with: Page ADD 1 - 9 “Imbrium Proposal Drawing – Revision No. 1”

4. ADD: Appendix D – Kontur Draft Geotechnical Report & Buoyancy Counter-Measure Notes

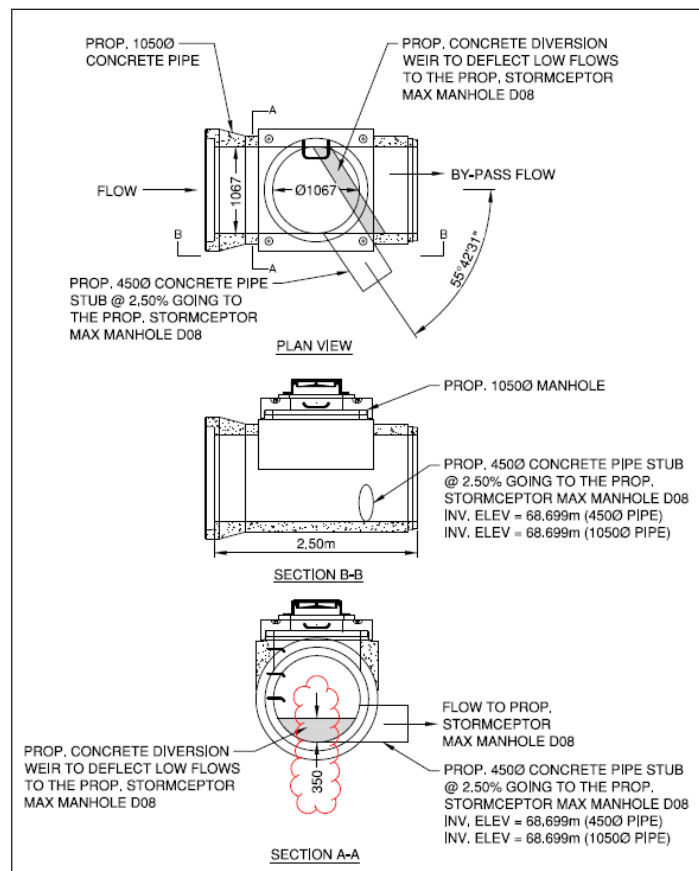
Note: Draft Geotechnical Report by Kontur has been provided for Tenderer information. Signed copy to be provided with the final contract. Engineer of Record confirms no

changes in report content between the attached draft and final signed versions.
Buoyancy counter-measure notes are provided.

5. **Refer to:** Contract Drawings – Issued for Tender Drawings, Sheet 04 of 04.

AMEND: DETAIL #C: PROP. MH D04

Replace with: DETAIL #C: PROP. MH D04



DETAIL #C: PROP. MH D04

(STORM WATER TREATMENT DIVERSION MANHOLE)

NTS

Note: Concrete diversion weir height amended from 300mm to 350mm. As noted in the Contract Drawings, the Contractor is responsible for providing signed and sealed Engineered shop drawings for EoR approval, showing any required rebar or dowel reinforcement as necessary.

6. **Refer to:** FORM OF TENDER

REMOVE: Appendix 1

REPLACE with: **Revised - Appendix 1 - Revision No. 1**

NOTE: Revisions shown in red. Section 03 40 01S – Precast Concrete removed.

7. **Refer to:** SUPPLEMENTARY CONTRACT SPECIFICATIONS – Section 01 45 00S – Quality Control, Clause 1.0 “Quality”

DELETE the second paragraph.

8. **Refer to:** SUPPLEMENTARY CONTRACT SPECIFICATIONS – Section 01 57 01S – Environmental Protection, Clause 1.2.5, third paragraph

DELETE the words: “bridge repair”

9. **Refer to:** SUPPLEMENTARY CONTRACT SPECIFICATIONS – Section 03 30 20S – Concrete Walks, Curbs and Gutters

DELETE: Clause 1.4.3

REPLACE with: Clause 1.4.3

Payment for Machine placed or hand formed C5 wide base concrete curb and gutter, concrete curb on gravel base (COQ-C6), concrete rollover curb and gutter, excluding granular subbase and base, includes supply and placing of the concrete curb, **asphalt slot pave**, and will cover all straight and curbed sections and will be made separately for each specified type.

Payment includes the removal and disposal off-site of all materials necessary to complete the work as described in the Contract Documents.

Payment for granular subbase and granular base under curb and gutter under this section will be incidental to payment for work described in other sections.

10. **Refer to:** SUPPLEMENTARY CONTRACT SPECIFICATIONS – Section 32 01 16.7S – Cold Milling

DELETE: Clause 1.5.4

REPLACE with: Clause 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 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.

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.

11. Refer to: SUPPLEMENTARY CONTRACT SPECIFICATIONS – Section 33 11 01S – Waterworks

DELETE: Clause 1.8.4

REPLACE with: Clause 1.8.4

Payment for temporary works and abandonments includes supply and installation of temporary 200mm diameter cap, **thrust blocks**, 20mm POLY water service to 831 North Rd, permanent caps, **tie rods**, and all labour and materials as required to complete installation of as per the Contract Drawings **and as described under 1.8.2 in this Section**. Payment includes removal of temporary cap, reinstatement of water service connection to 831 North Rd, **and reinstatement of watermain tie-ins with ductile iron**. Contractor is responsible for protecting the temporary water service throughout construction period.

Payment for the works to be made per lump sum basis for each type of work as described in the Schedule of Quantities and Prices.

12. Refer to: SUPPLEMENTARY CONTRACT SPECIFICATIONS – Section 33 40 01S – Storm Sewers

DELETE: Clause 1.8.2

REPLACE with: Clause 1.8.2

Payment for storm sewers includes asphalt & concrete saw cutting, disposal of pavement, trench excavation, disposal of surplus excavated material including existing pipes, supply and installation of all pipe, fittings and related materials, tie-ins other than noted in Clause 1.6.9, bedding and all import backfill material, granular base, granular subbase, excavation, shoring, dewatering, testing (if applicable), all temporary surface restoration as per COQ-G4, **removal and reinstatement of Allan Block retaining walls**, and all other work and materials necessary to complete installation as shown on Contract Drawings and described under individual payment items in the Schedule of Quantities and specified under this Section; and

Restore all trench cuts across roadways/driveways with a temporary hard surface approved by the Contract Administrator following pipe excavation if paving is not scheduled to take place within 24 hours.

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. Payment includes all applicable materials and work described in 1.6.4.1.

Measurement for storm sewer will be made horizontally along the ground from the start to the terminus of the concrete pipe.

NOTE: PAYMENT FOR ANY STORM SEWER WORKS WILL NOT BE MADE UNTIL RESTORATION WORK IS COMPLETE TO CITY'S SATISFACTION.

Questions & Clarifications

Q1) What is the likeliness of the City approving a full road closure?

A1) Refer to Appendix A – Traffic Management Detail Specifications for project requirements and lane closure closure restrictions (Clause 4.2.1).

Q2) Please confirm that no Metro Vancouver Sewer interfacing will be required. We have contacted MV and they have no utilities in the immediate area, we are looking for confirmation from the engineer prior to submitting a tender.

A2) Metro Vancouver does not show any of their infrastructure in the immediate area. The Contractor is responsible for liaising and obtaining any approvals with outside agencies, including MV, if required.

Q3) Are there any anticipated delays from archeological impacts?

A3) The City is not aware of any previous archaeological findings in the immediate area. Refer to Supplementary Contract Specifications Section 01 57 01S – Environmental Protection – Clause 1.9 for Contractor responsibilities in case of any chance finds.

Q4) How will the handling of contaminated soils and water be dealt with on the project as there is no report for either available. Can the City provide a geotechnical report for the project showing the stratigraphy if possible, especially at the treatment facility area.

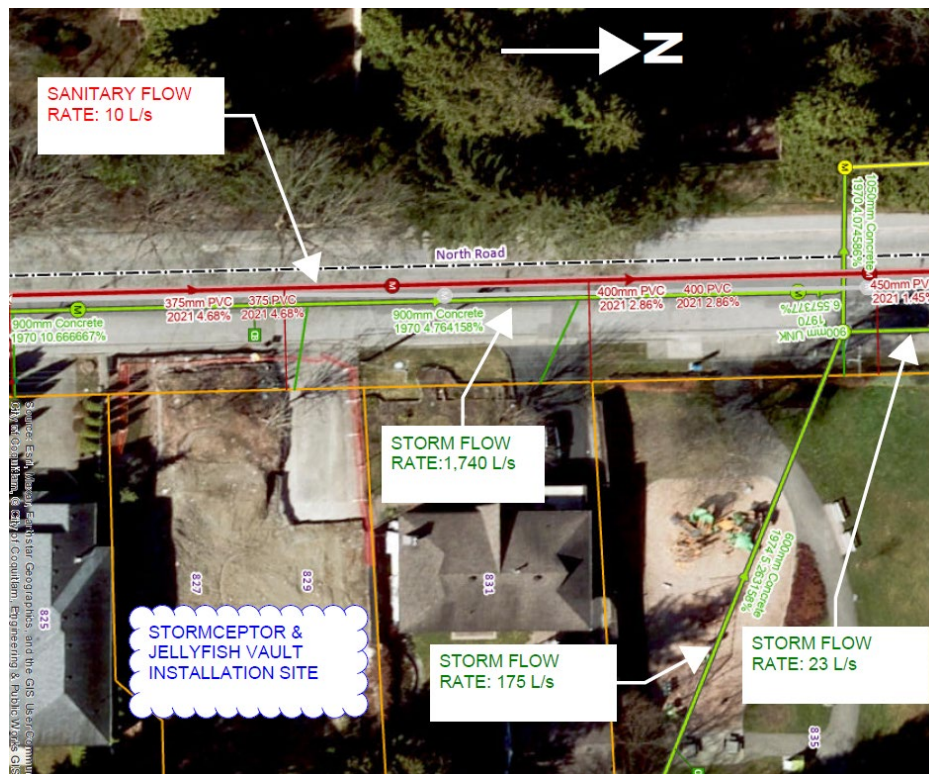
A4) Refer to attached draft Geotechnical Report for stratigraphy and groundwater levels for information.

Refer to Supplementary Contract Specifications, Section 01 57 01S – Environmental Protection, for Contractor responsibilities with regards to protecting the Place of work and downstream watercourses in accordance with the City of Coquitlam [Stream and Drainage System Protection Bylaw No. 4403, 2013](#). Payment for all related work is considered incidental to Works described in other Sections.

A contaminated soils report has not been completed for this site. The City is not aware of contaminated soils in the area. Payment for excavation and disposal offsite of contaminated soils (if any) will be considered incidental to payment for Work in other Sections.

- Q5) Can the City provide a list of any known existing hazards in the area as part of this tender process?
- A5) **The City is not aware of any existing hazards in the area. The Contractor is responsible for identifying any hazards in the area and shall be responsible for ensuring construction safety in the Place of Work.**
- Q6) When installing the end cap on the existing main and providing temporary water, how has the thrusting been considered for impacts to the existing pipe? Will the contractor be required to install temporary tie back pits.
- A6) **Refer to Temporary Water Cap Detail on Sheet 02 of 04 in Contract Drawings.**
- Q7) After a review of the as-builts in that area, we are unable to confirm if the existing C900 sanitary main is restrained, can the City of Coquitlam please confirm. Also, please provide the flow rates at the existing storm pipes.
- A7) **The existing sanitary main main is not restrained. The Contractor is responsible for providing sufficient bypass pumping based on site conditions.**

Refer to below figure for estimated flow rates based on modelled data. Flow rates shown are maximum flow rates based on 5-year 24-hour I&I rainfall event for the sanitary main, and 10-year return 1 hour event for the storm mains. Note that construction for this project is scheduled for July to August (dry weather season).



- Q8) The existing 400mm/C900 Sanitary Main, adjacent to the proposed work, has bolted down lids. Is this sanitary sewer a pressure sewer? Is it subjected to surcharge? Have there been any reports of surcharge on that system that can be shared with us perhaps from SCADA information.
- A8) The existing sanitary sewer is a gravity main. The City is not aware of any surcharge history at this section of pipe adjacent to the proposed work.**
- Q9) The Contract documents state that a bypass of the sanitary line will need to be in place before the work begins. Is a pump bypass mandatory or will the City accept another engineered solution?
- A9) The City can accept other engineered solutions, however no additional payment would be made if the proposed solution is not successful and bypass pumping is ultimately required.**
- Q10) What is the City of Coquitlam's publicly posted budget for the project, if available.
- A10) No, this information is not publicly posted.**
- Q11) Sheet 03 of 04 in the IFTs note to coordinate with Burnaby for replacing the AC watermain belonging to Burnaby. Who is responsible for the replacement?
- A11) The City of Coquitlam has initiated the process with the City of Burnaby for this work. Burnaby forces will perform the watermain replacement work. The Contractor is responsible for coordinating the schedule with them as Burnaby forces will need to complete their work prior to construction starting storm sewer construction.**
- Q12) What kind of temporary asphalt restoration is expected?
- A12) Refer to Supplementary Contract Specifications Section 33 40 01S – Storm Sewers, Clause 1.6.2. Temporary surface restoration as per COQ-G4 c/w 75mm full depth asphalt patch shall be provided. Payment for this work is considered incidental to the pipe price.**
- Q13) Please clarify the exact project location where these big concrete chambers (Stormceptor, sediment settling chambers, jellyfish vault) be constructed, google maps shows residential areas.
- A13) It is up to the Tenderer to attend the site as needed to prepare their bid document. Google Maps is showing a streetview images from 2011. The house at 827 North Rd has been demolished. Black powder-coated chain link fence and sliding gate are currently installed surrounding the property at property line.**
- Q14) We will need geotechnical report for deep shoring.

A14) The draft Geotechnical Report is attached with this Addendum for information. The Contractor is responsible for coordinating and complying to all WorkSafe BC requirements and standards, including for Excavations and Shoring, for installing the proposed work.

End of Addendum No. 1

Tenderers shall take into account the content of this Addendum in the preparation and submission of the Tender which will form part of the contract and should be acknowledged on the Tender form where indicated.

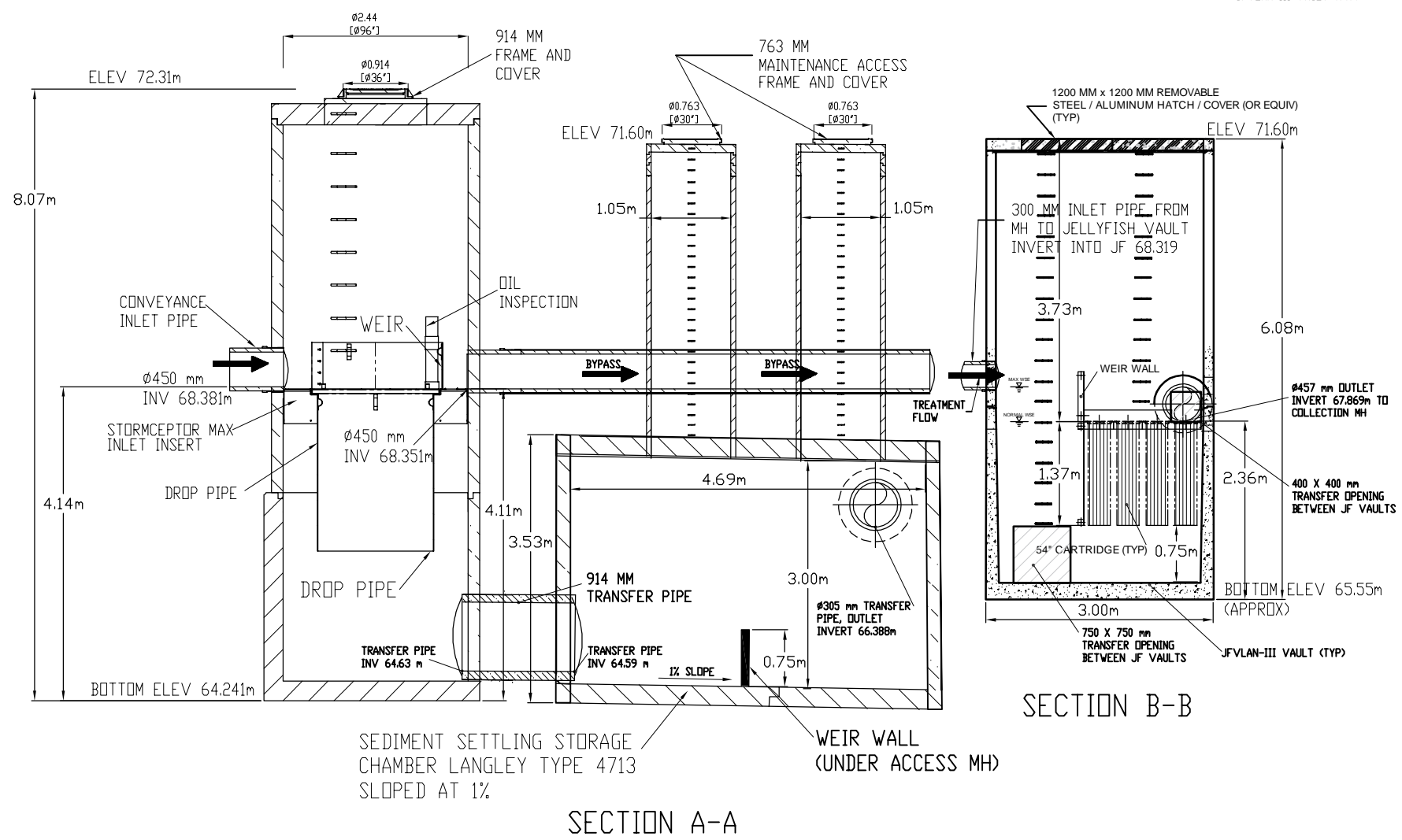
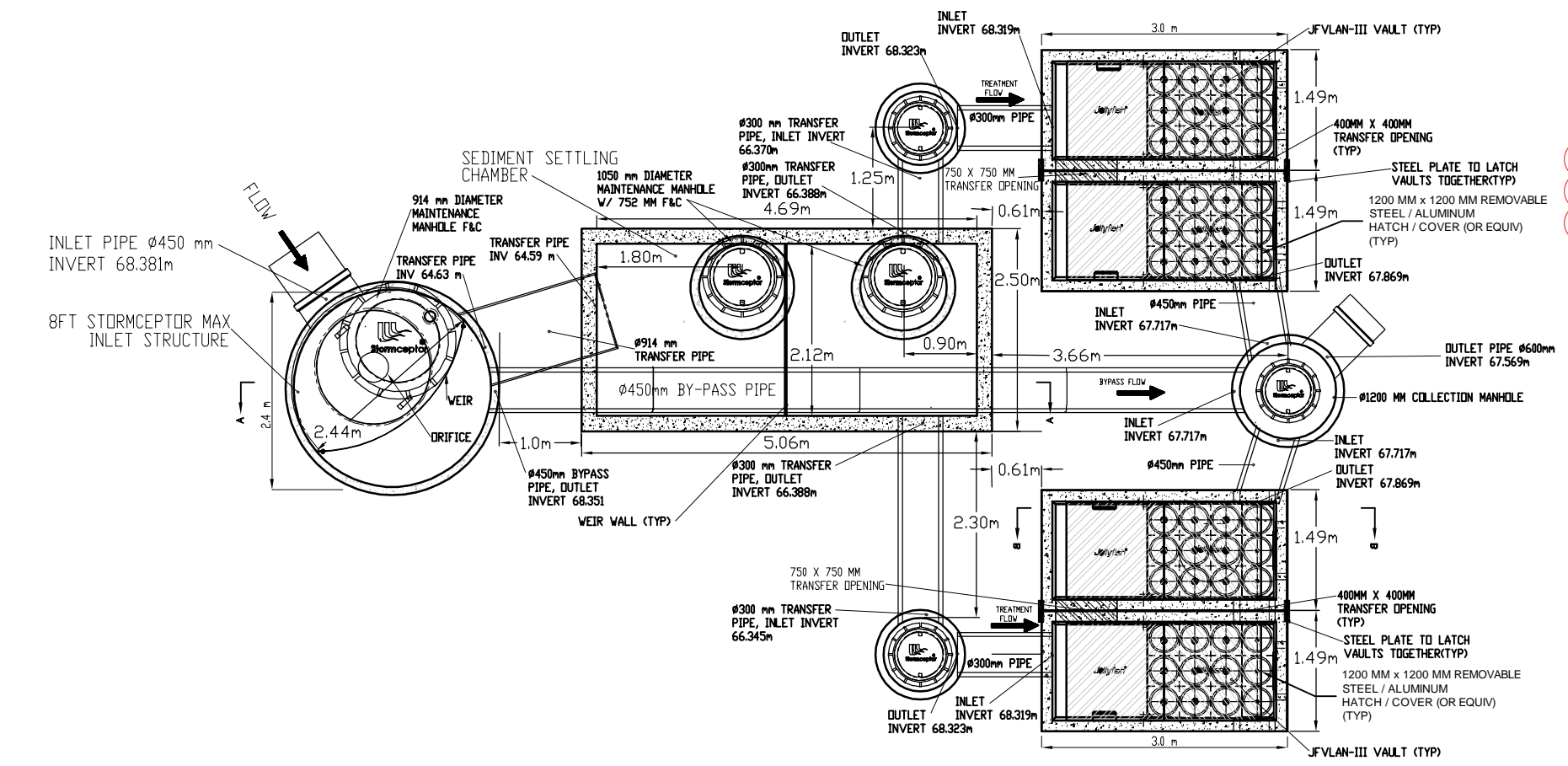
Upon submitting a Tender, Tenderers will be deemed to have received all addenda and considered the information for inclusion in the Tender submitted.

Issued by:

M. Pain
Procurement Manager
Email: bid@coquitlam.ca

Revision No. 1

FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL JELLYFISH FILTER REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE.



STORMCEPTOR MAX 4713 to
JELLYFISH FILTER JFVLN-IV

THE STENOCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING PATENTS

Canadian Patent No. 2,657,287; 2,574,942; 2,175,277; 2,188,265; 2,188,263; 2,188,261; 2,327,768
U.S. Patent No. 5,753,115; 5,846,141; 6,048,415; 6,371,491; 7,592,745; 7,666,303
Austro-Pat. Patent No. 693,864; 707,123; 729,096; 779,400; 2003/273,738; 2008/268,800
Indonesian Patent No. 06/037088 - Japan Patent No. 358,623; 3-141,475 Korean Patent No. 053912
Malaysia Patent No. 10597 - New Zealand Patent No. 553,008; 347,646; 583,383
ZA NO. 2001/075; South African Patent No. 2007/0682; 2007/0796

OTHER PATENTS PENDING

407 FAIRVIEW DRIVE, WHITBY, ON L1N 3A9

TF 800-558-4801 CA 416-960-9600 INTL +1-416-960-9600

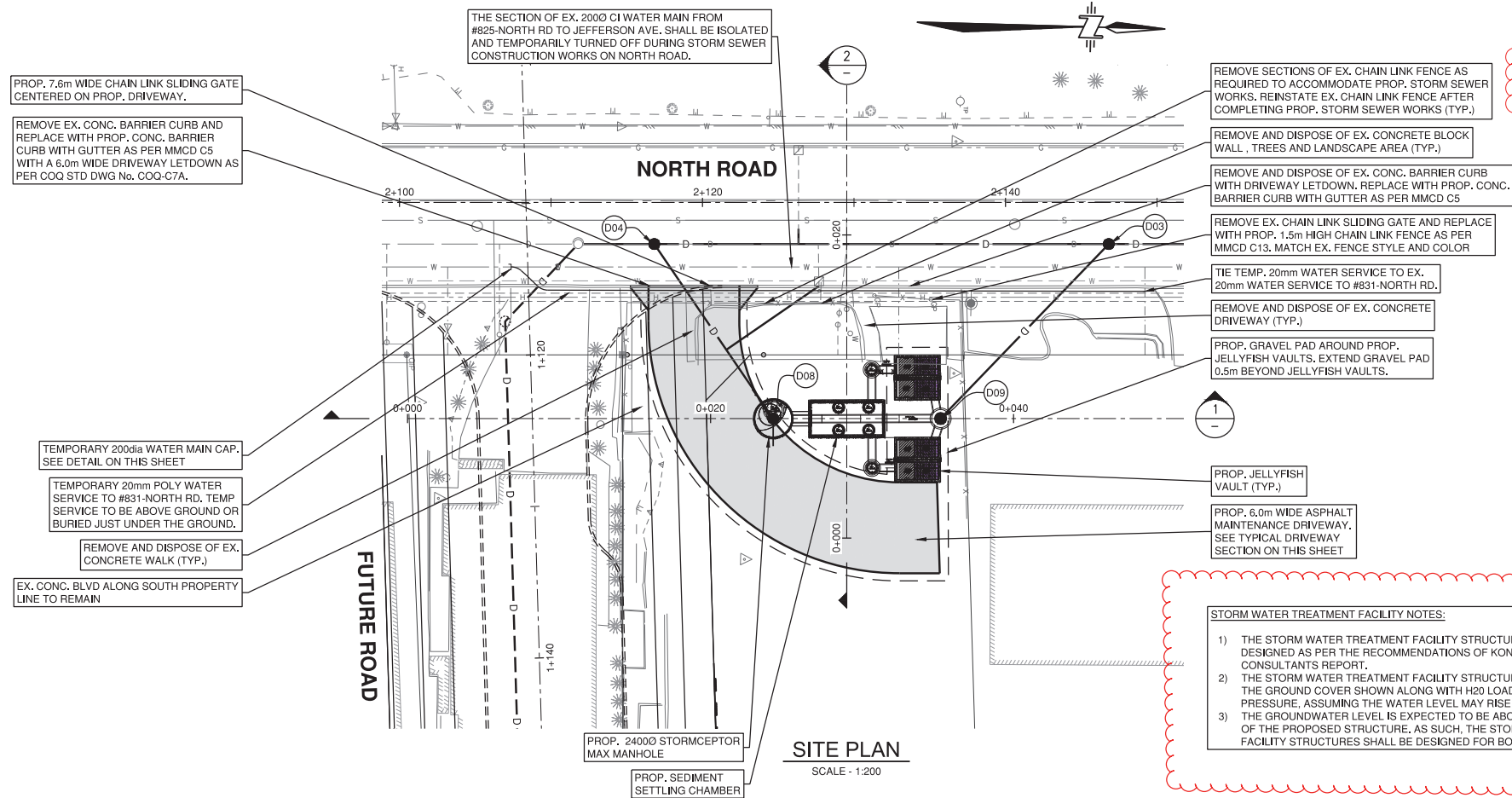
Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING PATENTS: U.S. PAT. NOS. 6,200,442; 6,200,443; 6,200,444; 6,200,445; 6,200,446; 6,200,447; 6,200,448; 6,200,449; 6,200,450; 6,200,451; 6,200,452; 6,200,453; 6,200,454; 6,200,455; 6,200,456; 6,200,457; 6,200,458; 6,200,459; 6,200,460; 6,200,461; 6,200,462; 6,200,463; 6,200,464; 6,200,465; 6,200,466; 6,200,467; 6,200,468; 6,200,469; 6,200,470; 6,200,471; 6,200,472; 6,200,473; 6,200,474; 6,200,475; 6,200,476; 6,200,477; 6,200,478; 6,200,479; 6,200,480; 6,200,481; 6,200,482; 6,200,483; 6,200,484; 6,200,485; 6,200,486; 6,200,487; 6,200,488; 6,200,489; 6,200,490; 6,200,491; 6,200,492; 6,200,493; 6,200,494; 6,200,495; 6,200,496; 6,200,497; 6,200,498; 6,200,499; 6,200,500; 6,200,501; 6,200,502; 6,200,503; 6,200,504; 6,200,505; 6,200,506; 6,200,507; 6,200,508; 6,200,509; 6,200,510; 6,200,511; 6,200,512; 6,200,513; 6,200,514; 6,200,515; 6,200,516; 6,200,517; 6,200,518; 6,200,519; 6,200,520; 6,200,521; 6,200,522; 6,200,523; 6,200,524; 6,200,525; 6,200,526; 6,200,527; 6,200,528; 6,200,529; 6,200,530; 6,200,531; 6,200,532; 6,200,533; 6,200,534; 6,200,535; 6,200,536; 6,200,537; 6,200,538; 6,200,539; 6,200,540; 6,200,541; 6,200,542; 6,200,543; 6,200,544; 6,200,545; 6,200,546; 6,200,547; 6,200,548; 6,200,549; 6,200,550; 6,200,551; 6,200,552; 6,200,553; 6,200,554; 6,200,555; 6,200,556; 6,200,557; 6,200,558; 6,200,559; 6,200,560; 6,200,561; 6,200,562; 6,200,563; 6,200,564; 6,200,565; 6,200,566; 6,200,567; 6,200,568; 6,200,569; 6,200,570; 6,200,571; 6,200,572; 6,200,573; 6,200,574; 6,200,575; 6,200,576; 6,200,577; 6,200,578; 6,200,579; 6,200,580; 6,200,581; 6,200,582; 6,200,583; 6,200,584; 6,200,585; 6,200,586; 6,200,587; 6,200,588; 6,200,589; 6,200,590; 6,200,591; 6,200,592; 6,200,593; 6,200,594; 6,200,595; 6,200,596; 6,200,597; 6,200,598; 6,200,599; 6,200,600; 6,200,601; 6,200,602; 6,200,603; 6,200,604; 6,200,605; 6,200,606; 6,200,607; 6,200,608; 6,200,609; 6,200,610; 6,200,611; 6,200,612; 6,200,613; 6,200,614; 6,200,615; 6,200,616; 6,200,617; 6,200,618; 6,200,619; 6,200,620; 6,200,621; 6,200,622; 6,200,623; 6,200,624; 6,200,625; 6,200,626; 6,200,627; 6,200,628; 6,200,629; 6,200,630; 6,200,631; 6,200,632; 6,200,633; 6,200,634; 6,200,635; 6,200,636; 6,200,637; 6,200,638; 6,200,639; 6,200,640; 6,200,641; 6,200,642; 6,200,643; 6,200,644; 6,200,645; 6,200,646; 6,200,647; 6,200,648; 6,200,649; 6,200,650; 6,200,651; 6,200,652; 6,200,653; 6,200,654; 6,200,655; 6,200,656; 6,200,657; 6,200,658; 6,200,659; 6,200,660; 6,200,661; 6,200,662; 6,200,663; 6,200,664; 6,200,665; 6,200,666; 6,200,667; 6,200,668; 6,200,669; 6,200,670; 6,200,671; 6,200,672; 6,200,673; 6,200,674; 6,200,675; 6,200,676; 6,200,677; 6,200,678; 6,200,679; 6,200,680; 6,200,681; 6,200,682; 6,200,683; 6,200,684; 6,200,685; 6,200,686; 6,200,687; 6,200,688; 6,200,689; 6,200,690; 6,200,691; 6,200,692; 6,200,693; 6,200,694; 6,200,695; 6,200,696; 6,200,697; 6,200,698; 6,200,699; 6,200,700; 6,200,701; 6,200,702; 6,200,703; 6,200,704; 6,200,705; 6,200,706; 6,200,707; 6,200,708; 6,200,709; 6,200,710; 6,200,711; 6,200,712; 6,200,713; 6,200,714; 6,200,715; 6,200,716; 6,200,717; 6,200,718; 6,200,719; 6,200,720; 6,200,721; 6,200,722; 6,200,723; 6,200,724; 6,200,725; 6,200,726; 6,200,727; 6,200,728; 6,200,729; 6,200,730; 6,200,731; 6,200,732; 6,200,733; 6,200,734; 6,200,735; 6,200,736; 6,200,737; 6,200,738; 6,200,739; 6,200,740; 6,200,741; 6,200,742; 6,200,743; 6,200,744; 6,200,745; 6,200,746; 6,200,747; 6,200,748; 6,200,749; 6,200,750; 6,200,751; 6,200,752; 6,200,753; 6,200,754; 6,200,755; 6,200,756; 6,200,757; 6,200,758; 6,200,759; 6,200,760; 6,200,761; 6,200,762; 6,200,763; 6,200,764; 6,200,765; 6,200,766; 6,200,767; 6,200,768; 6,200,769; 6,200,770; 6,200,771; 6,200,772; 6,200,773; 6,200,774; 6,200,775; 6,200,776; 6,200,777; 6,200,778; 6,200,779; 6,200,780; 6,200,781; 6,200,782; 6,200,783; 6,200,784; 6,200,785; 6,200,786; 6,200,787; 6,200,788; 6,200,789; 6,200,790; 6,200,791; 6,200,792; 6,200,793; 6,200,794; 6,200,795; 6,200,796; 6,200,797; 6,200,798; 6,200,799; 6,200,800; 6,200,801; 6,200,802; 6,200,80

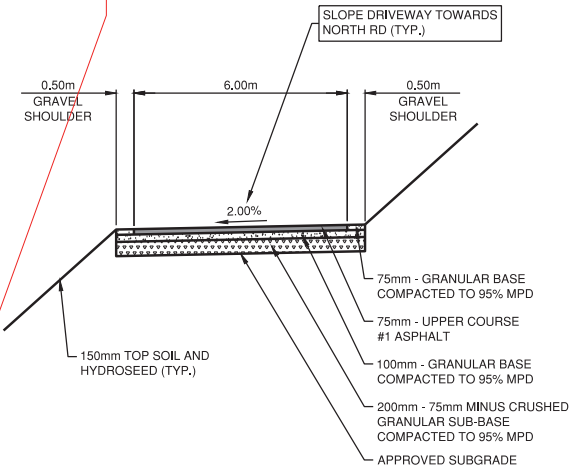
DATE 4-2-24	
DESIGNED bsf	DRAWN bsf
CHECKED	APPROVED bsf
PROJECT NO. 2022-IS101123	PART NO.
SHEET 1 OF 1	

***Appendix D -
Kontur Draft Geotechnical Report
& Buoyancy Counter
Measure Notes***

BENCHMARK:
MONUMENT 73H0196 SIT ON C/L OF CLAREMONT ST.
230 METRES NORTH OF COMO LAKE AVE.
ELEV. = 89.566M (CVD28GVRD2018)



BUOYANCY COUNTER MEASURES



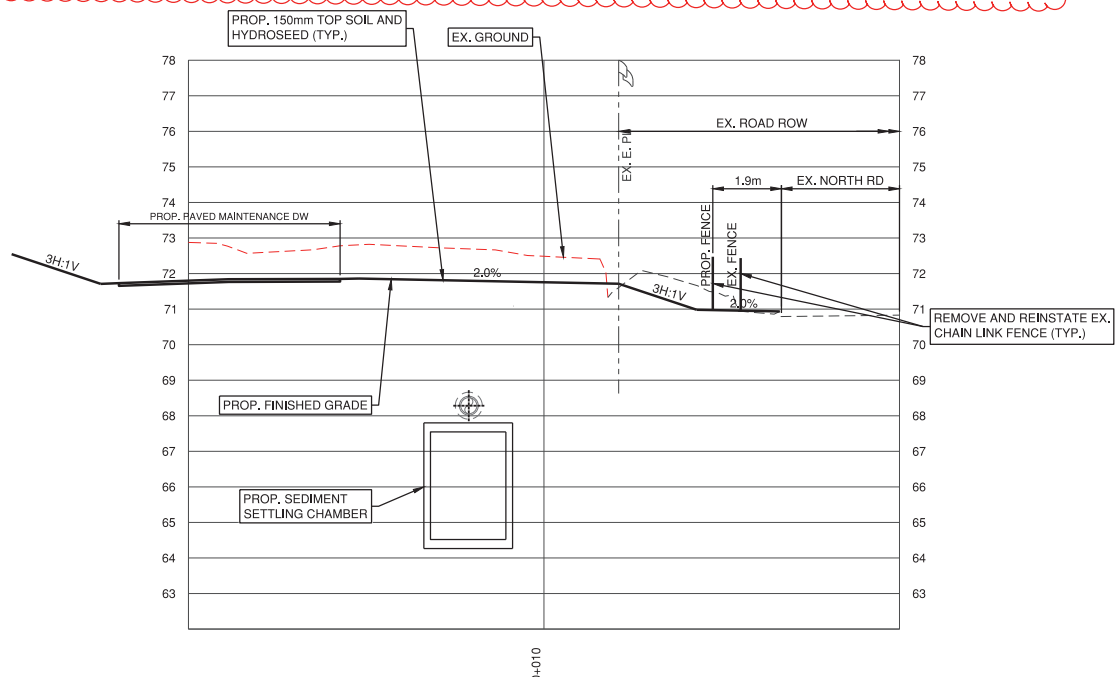
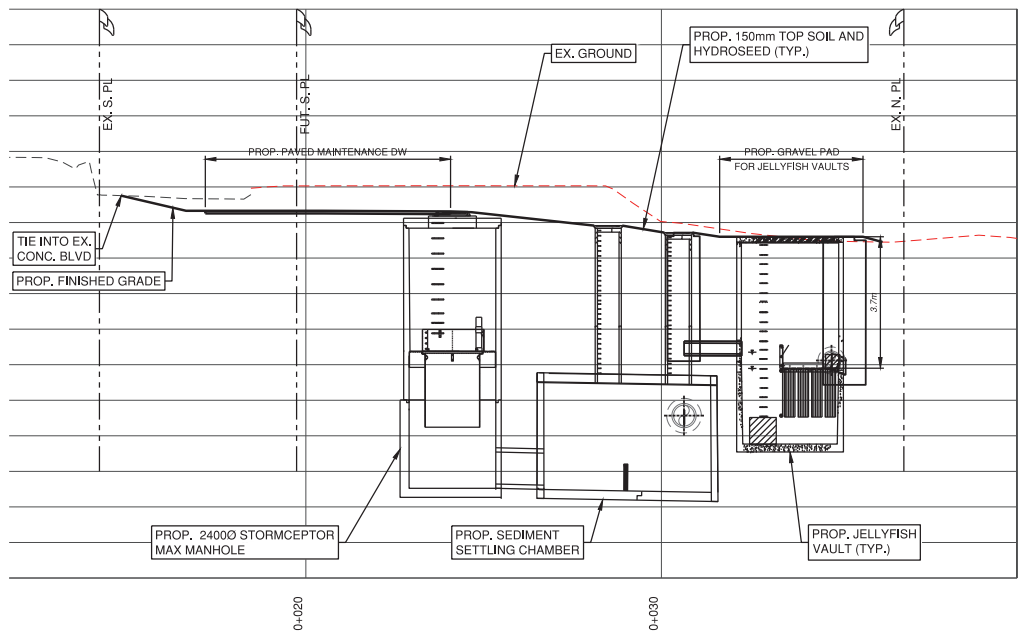
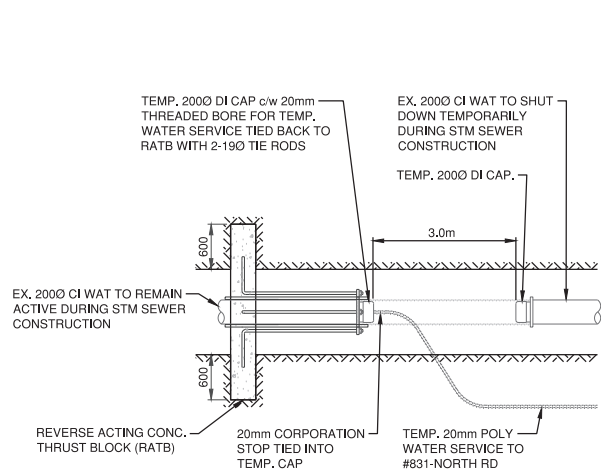
MAINTENANCE DRIVEWAY TYPICAL SECTION

STORM WATER TREATMENT FACILITY NOTES:

- 1) THE STORM WATER TREATMENT FACILITY STRUCTURES SHALL BE INSTALLED AND DESIGNED AS PER THE RECOMMENDATIONS OF KONTUR GEOTECHNICAL CONSULTANTS REPORT.
- 2) THE STORM WATER TREATMENT FACILITY STRUCTURES SHALL BE DESIGNED FOR THE GROUND COVER SHOWN ALONG WITH H2O LOADING AND FULL HYDROSTATIC PRESSURE, ASSUMING THE WATER LEVEL MAY RISE TO GROUND SURFACE.
- 3) THE GROUNDWATER LEVEL IS EXPECTED TO BE ABOVE THE FOUNDATION LEVEL OF THE PROPOSED STRUCTURE. AS SUCH, THE STORM WATER TREATMENT FACILITY STRUCTURES SHALL BE DESIGNED FOR BOUYANCY.

Minimum Base Dimensions required to counter act Bouyancy

Storm Water Treatment Structure	Additional base thickness (m)	Extended base dimension past Manholes outside wall (m)
2400mm dia. Stormceptor MH D08	N/A	0.152
Sediment Settling Storage Chamber	N/A	N/A
900mm diameter Manhole	0.30	N/A
JellyFish Vault	0.70	N/A
1200mm diameter Manhole D09	0.30	N/A





**GEOTECHNICAL EXPLORATION AND REPORT
CITY OF COQUITLAM – PROPOSED OIL GRIT SEPARATOR,
FILTER VAULT, AND STORM SEWER
NORTH ROAD, SOUTH OF OAKDALE PARK, COQUITLAM, B.C.**

Document Type: Version 0

Date: April 5, 2024

Project No.: **K-231238-00**

Issued for Review

Submitted to:

R.F. Binnie & Associates Ltd.

#300 – 4940 Canada Way
Burnaby, B.C.
V5G 4K6

Attention: Geneve Lau P.Eng., LEED AP BD+C
glau@binnie.com

Submitted by:

Kontur Geotechnical Consultants Inc.

EGBC Permit to Practice #1000925

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Per: J.Y. (Yoshi) Tanaka PEng
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Reviewed by: Brian L.J. Mylleville PhD PEng
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APPENDICES

APPENDIX A

Interpretation and Use of Study and Report Document

APPENDIX B

Figures

Figure 1 – Vicinity Map and General Site Layout

Figure 2 – General Soil Profile

APPENDIX C

Testhole Logs



1.0 INTRODUCTION

In accordance with your recent authorization in reference to Kontur's proposal KP-231439-00, Kontur Geotechnical Consultants Inc. ("Kontur") has completed this *Geotechnical Exploration and Report* for the above-referenced project. The purposes of this study were to characterize the site from a geotechnical point-of-view and to provide geotechnical engineering comments and recommendations with respect to site development.

This letter which summarizes the findings of the *Geotechnical Exploration and Report*, has been prepared in accordance with standard and widely accepted geotechnical engineering principles and practices for similar projects in this region. This report does not address any archaeological, environmental, or other engineering considerations related to the project.

Review and use of this letter should be completed in accordance with the attached *Interpretation and Use of Study and Report* document. It is included as an integral part of this report and should be read in conjunction with all parts of this report.

2.0 PROJECT UNDERSTANDING

This project involves constructing about 70 lineal metres of new storm sewer and a new treatment facility in the Burquitlam Area. The project will involve construction of about 70 lineal metres of 1000mm diameter sanitary storm sewer by means of open cut methods. Based on a review of available information, the invert depths for the proposed sewer main will be between about 2m and 4m below the existing ground (road) surface. The proposed sewer main will be located along North Road between about Sta. 2+110 (Fronting residential property 827 North Road) and Sta. 2+180 (Jefferson Avenue).

In addition, the proposed treatment facility will generally be comprised of concrete construction consisting of one (1) oil grit separator chamber and two (2) jelly fish filter vaults. The treatment facility will cover a plan dimension of about 12 by 14m and the base of the structure(s) will be about 6m to 8m below the existing ground surface.

3.0 METHODOLOGY

3.1 Sources of Information

The following sources of information were reviewed as part of this study:

- Information obtained from Kontur's in-house geotechnical database of nearby projects;
- Kontur's nearby experience in the area;
- Published Surficial geology maps of the area;
- Relevant information obtained from the City of Coquitlam's online web-mapping application;
- Preliminary Design drawings prepared by Binnie, dated August 24, 2023;
- *Site Reconnaissance* completed by Kontur technical staff; and,
- *Geotechnical Exploration* program completed by Kontur on December 11, 2023.



3.2 Geotechnical Exploration Program

Kontur completed a geotechnical exploration on December 11, 2023. The exploration program was planned, coordinated, and supervised by Kontur field staff and involved advancing three (3) machine-augered testholes (designated as AH23-01 to AH23-03). The testholes were advanced using a track-mounted drill rig owned and operated by Southland Drilling Ltd. of *Delta*, BC. The testholes were advanced to depths ranging between about 4.6m and 7.6m below the existing ground surface. Dynamic Cone Penetration Test (DCPT) probes or Standard Penetration Tests (SPT) were completed at select testhole location. A monitoring well was also installed at testhole location AH23-01 and AH23-03.

Completion of testholes along the northbound lane of North Road was not possible due to conflicting buried services. As such, soil conditions along the proposed storm sewer alignment were inferred based on the testholes completed within the proposed treatment facility.

Prior to advancing the testholes, a BC-1 Call was completed, and a subcontracted underground utility locate was completed by *Quadra Utility Locating Ltd.* of Port Coquitlam, BC. Ground Penetrating Radar (GPR) and Electromagnetic Detection (EM) scans were completed at each testhole location. The purpose of the scans was to assist with locating the testholes away from known and locatable existing buried services.

Monitoring wells AH23-01 and AH23-03, consisted of two (2) 50mm diameter PVC pipes with the slotted section of each embedded in filter sand. The slotted section of the PVC pipes were installed at select depths as shown on the attached soil logs, with a bentonite seal above the slotted section. Water level measurements were taken during the exploration and subsequent site visits thereafter by Kontur and are summarized in the **Section 4.2**. A summary of Monitoring Well installations is provided in Table 1 below.

Table 1. Summary of Testhole/Monitoring Well Installations

Testhole ID	Monitoring Well	Installation Date	¹ Approximate Northing	¹ Approximate Easting	² Well Depth (m)	² Ground Elevation (m)	² Top of Slotted Casing, Geodetic (m)
AH23-01	Y	2023-12-06	5456894	507791	5.8	74.0	69.7
AH23-02	N	2023-12-06	5456904	507788	N/A	74.0	N/A
AH23-03	Y	2023-12-06	5456906	507784	6.1	73.0	68.4

Notes: ¹ Coordinates are in UTM Zone 10U.

² Depth and Elevation are approximate.

Soil samples collected from the auger flights and/or SPT split spoon sampler were visually logged, classified and sampled in the field by Kontur staff. The soil samples obtained were taken back to Kontur's laboratory for further detailed examination and laboratory testing. Laboratory testing included completion of moisture contents on select samples. The results of the laboratory testing program are presented on the testhole logs included in Appendix C.

Upon completion, each testhole was backfilled and sealed in accordance with current groundwater protection regulations. The approximate testhole locations are shown on the attached *Figure 1 – Vicinity Map and General Site Layout*. Detailed Testhole Logs are attached in Appendix C of this report.



4.0 SITE DESCRIPTION

4.1 General

Proposed Sewer Main. The proposed sewer main is planned along the northbound lane of North Road from Sta. 2+110 to Sta. 2+180. In general, the existing road surface slopes down to the north direction. According to available design drawings, the ground surface is noted to be at about El. 72.0m, geodetic near Sta. 2+110 and decreases to about El. 68.5m near Sta. 2+180.

Proposed Treatment Facility. The proposed treatment facility is located about 100m south of the intersection of Jefferson Avenue and North Road, Coquitlam, B.C. The treatment facility is planned within an existing residential property (owned by the City) and is bounded by residential properties to the north, south, and east, and North Road to the west. The subject site was previously occupied by a single family residential building and has been demolished. The ground surface within the property is generally flat with a gentle down slope to the northwest. The southwest corner of the property is noted to be at about El. 76.0m and decreases to about El. 72.0m near the northwest corner. The site is generally grass covered with the exception of the northwest corner where there is an existing concrete paved driveway.

Other notable features included a concrete retaining wall (about 1 to 2m high) located along the east, property line and along the eastern portion of the north and south perimeter property lines. An Allan Block retaining wall (about 1.2m high or less) was also noted along the south perimeter property line over a horizontal distance of about 10m. Details with respect to these landscape features were not available to Kontur at the time this report was prepared.

4.2 Soil and Groundwater Conditions

Interpretation of subsurface soil and groundwater conditions at the site are based on published surficial geology maps of the area, Kontur's nearby and relevant experience, and the geotechnical exploration program completed as part of this study.

According to the map Surficial Geology Map 1484A New Westminster prepared by the Geological Survey of Canada, the site is located within a transition zone and may be underlain by either *Vashon Drift and Capilano Sediments (VC)* or *Post-Glacial and Pleistocene Deposits (SA-C)*. VC generally consist of lodgement and minor flow till, lenses and interbeds of glaciofluvial sand to gravel, and lenses and interbeds of glacio-lacustrine laminated stony silt. SA-C generally consists of marine shore and fluvial sand up to 8m thick.

In general, the findings of the geotechnical exploration program completed by Kontur as described in this report are consistent with surficial geology information for this area and local experience.

Based on the above information and the findings of the geotechnical exploration program, the following idealized or generalized soil profile is provided, with soil units in order of increasing depth of occurrence:

- **Unit A1 – TOPSOIL.** Testhole AH23-01 (completed within the existing landscape area) encountered a 0.5m thick topsoil layer underlain by natural soils.
- **Unit A2 – CONCRETE SLAB/FILL.** Testholes AH23-02 and AH23-03 (completed within existing driveway) encountered a 75mm thick concrete slab underlain by about 200mm of Random Fill. The fill material consisted of Sand, some silt to Sandy Silt, some gravel at testholes AH23-02 and



AH23-03, respectively. Based on drill resistance and DCPT probes, the fill material was inferred to be compact/soft.

- **Unit B – CLAYEY SILT/SANDY SILT.** This unit was encountered below Unit A2 at AH23-02. This unit was about 1.2m thick. Water content testing indicates that the natural water content range between about 18% and 25%. Based on observed drill resistance, this soil unit is inferred to have a stiff to very stiff consistency.
- **Unit C - SILTY SAND, some gravel.** This unit was encountered below Unit A1 and A2 at testholes AH23-01 and AH23-03, respectively. This unit was about 0.9 to 1.3m thick. Based on measured DCPT blow counts, this soil unit is inferred to be compact.
- **Unit D - SANDY SILT to SILTY SAND, trace gravel, occasional cobbles/boulders (TILL-LIKE)** This unit was encountered below Unit B/C and extended to the terminus of each testhole (i.e. 4.5m to 7.6m depth). Based on observed drill resistance to drilling, this soil unit is inferred to be dense to very dense. Water content testing indicates that the natural water content range between about 14 and 25%

Kontur measured the groundwater level in the monitoring wells on December 13, 2023 and February 06, 2024 and the results are summarized in Table 2 below.

Table 2. Summary of Groundwater Level Measurements

Testhole I.D.	² 2023-12-13	2024-02-06
	¹ Depth (m)	¹ Depth (m)
AH23-01	0.8	0.8
AH23-03	1.7	1.0

Note: ¹ Depth is approximate, ² Develop monitoring wells

Groundwater levels were measured in the installed monitoring wells at depths ranging between 0.8m and 1.7m below the existing ground surface. The shallow groundwater level encountered at Monitoring wells AH23-01 and AH23-03 is inferred to represent perched conditions. In all cases, groundwater levels are expected to vary (fluctuate) seasonally and be influenced by surrounding land usage. Perched or localized groundwater levels should be anticipated to occur at the interface between granular materials, fine-grained materials or topsoil layers.

4.3 Subsurface Variability

It is important to note that the subsurface conditions described above and encountered in each testhole are representative of the specific conditions in the immediate vicinity of each testhole. Extrapolation and interpretation of the subsurface profile is formulated based on an assumed horizontal continuity of subsurface conditions across the site. Therefore, the conditions or units described above are generalized and based on the available testhole information only. Variation in subsurface conditions should always be expected.



5.0 GEOTECHNICAL ENGINEERING COMMENTS AND RECOMMENDATIONS

5.1 General

Based on the findings of the completed testholes, the proposed treatment facility is anticipated to be underlain by topsoil/fills (Unit A) underlain by natural soils units B, C, and D. Similar soil conditions are anticipated to be the expected along the existing sewer main alignment; however, the thickness of the near surface fills would be expected to be greater than those encountered in the testholes due to the presence of buried services along North Road. The quality of the fill is also anticipated to vary. For both infrastructure projects, cobbles and possibly boulders should be anticipated within the proposed excavation depths.

From a geotechnical point-of-view, construction of the proposed sewer main and treatment facility is considered feasible using standard construction practices (i.e., open cut trench methods/sloped excavations), provided that the geotechnical guidelines/recommendations as presented in this report are followed. For the proposed sewer main, with excavation depths anticipated in the order of about 2.5m to 4.5m below existing grade, the soil and groundwater conditions encountered should generally be conducive to allowing excavations with standard trench box shoring, unwatering/dewatering and backfill practices for installation of the proposed infrastructure. Similar construction practices should also be employed for the proposed treatment facility; however, with excavations depths anticipated to be in the order of about 6.5 to 8.5m below existing grade, where sloped temporary excavations are not possible, then suitably designed shoring will likely be required.

For both infrastructures, Kontur considers that the significant geotechnical considerations for this project may include, but are not limited to:

- Temporary excavation support and/or groundwater control;
- Potential offsite influences;
- Trench backfilling and compaction;
- Pavement rehabilitation and/or reinstatement; and,
- Foundation Design for support of the Treatment Facility

The following sections outline Kontur's geotechnical engineering comments and recommendations to address these considerations.

5.2 Temporary Excavation and Support

The excavation depths for the proposed sewer main and treatment facility will be in the order of about 2.5 to 4.5m and 6.5 to 8.5m below the existing ground surface, respectively. On this basis, Kontur considers that the composition and consistency of the soils at the site are such that a suitably equipped hydraulic excavator should be able to dig these materials. Large boulders that require splitting and/or blasting should be expected in the excavation, and it is suggested that a budgeting unit cost for such provisions be obtained from the excavation Contractor.

Temporary excavation may be feasible by conventional open excavation methods for unsupported temporary slopes. For planning purposes at this site, near-vertical temporary excavated slopes may be achieved for short duration and limited heights (i.e. less than 1.2m). Where this cannot occur, slopes may



be cut at 1H:1V (horizontal to vertical) up to a maximum height of 4m for trench stability and worker safety purposes. Flatter slopes may be necessary if significant zones of groundwater seepage or zones of looser soils that could slough are encountered. A Geotechnical Engineer should periodically review the soils encountered during excavation and make recommendations as warranted.

Sloped excavations are not considered appropriate if the excavation is located within a 2H:1V influence zone from existing buildings/services, alternate temporary shoring measures will likely be required. All excavations should be conducted in accordance with WorkSafeBC Guidelines and Regulations for safe and stable excavations to ensure a stable and safe working area. The Geotechnical Engineer should be notified in advance of any excavations greater than 1.2m to review the stability of the excavated slope prior to any worker entry.

Proposed Sewer Main. If sloped excavations are not considered practical, then the excavations for the proposed structures will require suitably designed shoring support to provide safe work conditions in the trenches and minimize impact to the existing roadway, buried services, and the adjoining residential properties. Temporary shoring may be in the form of conventional trench boxes and/or shoring cages.

Temporary shoring cages should be installed 'tight' against the excavated surface to minimize potential sloughing and/or raveling ('relaxation') of the excavated slope. Infilling of the open space between the outside of the shoring box and excavation is recommended to prevent sloughing of the near-vertical/vertical excavation face. For preliminary planning purposes, the shoring cage system should be selected to withstand the lateral earth pressures. A static lateral earth pressure of 9.5 kPa/m with a triangular distribution should be used. A lateral surcharge pressure of 0.5 times the vertical surcharge pressure must be added where applicable. If vehicle traffic is permitted within a horizontal distance equal to or less than the excavation depth, traffic loading may be taken as a uniform pressure distribution of about 12 kPa, in addition to the above-noted lateral earth pressure. Large stockpiles/heavy equipment should be set back from the edge of the excavation a distance that is equal to the depth of the excavation.

Existing buried utility services that cross, intersect, or are located near/within the proposed excavation, must be properly supported during excavation, or they may need to be temporarily relocated.

In all cases, only appropriate trench shoring/bracing methods and/or trench boxes (cages) that satisfy WorkSafeBC requirements should be used for support of vertical excavations. An Excavation Plan and/or Shoring System should be reviewed in advance of excavation by a Geotechnical Engineer. The shoring system should be installed to the top of the trench immediately after excavation.

Proposed Treatment Facility. Based on a cursory review, temporary excavation support along the west and north sides of the treatment facility will likely be required due to the existing north neighbouring building or below-ground infrastructure and utility services. Sloped excavations along the south and east perimeters of the treatment facility may be possible; however, flatter slope cuts of about **1.5H:1V** are recommended due to the depth of the excavation. Alternatively, in order to limit the overall excavation footprint, it may be advantageous to support all sides of the excavation as opposed to using temporary cut slopes.

Temporary shoring designs should take into consideration potential 'loose' or granular state of the upper fill, Soil Units C and/or D, and potential groundwater seepage. It is anticipated that conventional temporary excavation support in the form of concrete panels and conventional soil anchors tie-backs is



suitable for this purpose. However, the granular nature of Units C and D may not support open-hole anchor installation and may require a specialized self-injection soil anchor (IBO) installation. The design should account for loads associated with the nearby north neighbouring building to provide adequate lateral support as they are located at a higher level than the proposed treatment facility. At this time, it appears that the neighbouring building to the north consists of a partially buried basement – this should be confirmed at the time of shoring design. All temporary shoring systems should be designed and reviewed by a Qualified Geotechnical Engineer. The shoring requirement would be assessed in greater detail as part of the excavation and shoring design with potential modifications during construction.

Conventional shotcrete and anchoring shoring along the adjacent City of Coquitlam/City of Burnaby and neighbouring properties will require encroachment authorization/agreements from the City of Coquitlam/City of Burnaby and the respective neighbouring Owners prior to commencement of the work.

Kontur notes that the temporary excavation and shoring work must allow for unavoidable small ground movements (lateral and vertical) near the crest of the excavation. In addition to monitoring ground movement by installing a number of survey points along adjacent buildings/foundations and/or important structures, a pre-construction survey is recommended in order to document pre-existing deficiencies and permit proper assessment of any potential damage that may occur during the excavation and shoring work. Survey points should be established, and baseline data collected, prior to commencing with construction.

5.3 Temporary Groundwater Control

Proposed Sewer Main. Excavated surfaces must be protected and kept dry (free of standing water) during construction. Depending on the time of year the construction takes place, it should be expected that some groundwater (perched and/static) may be encountered within the anticipated excavation depths. Granular fill zones (or trenches) that intersect the proposed excavation may also act as conduits for significant groundwater seepage or inflows. Furthermore, static groundwater levels may occur at a depth of about 0.8 to 1.7m below the existing surface. The Contractor should be prepared to address and manage potential perched/groundwater seepage from granular zones quickly to avoid significant soil loss and/or excavation instability.

For both, the sewer main and treatment facility, it is anticipated that these excavations will be well below the estimated groundwater level. As a result, groundwater seepage into the excavation may be encountered and depending on the volume of seepage groundwater encountered, conventional sump and pump method may not be feasible to control the seepage volumes. As a result, unwatering/dewatering measures may be required to allow structure installation and backfill placement to occur in dry conditions. The actual dewatering/unwatering method will need to be selected in response to the actual groundwater conditions encountered during the earthworks. A dewatering system will likely result in the drawdown of the groundwater table and may trigger settlements to the existing ground surface and buried services present. An unwatering system would have less of an impact in terms of drawdown effect of the groundwater table as opposed to a dewatering system. It may be prudent for settlement sensitive structures/buildings be monitored/surveyed during construction in order to assess the degree of settlement experienced at these locations. In all cases, it is the responsibility of the contractor to protect and provide a dry environment for the placement and compaction of all fill materials.



Contractors should make their own assessments and are responsible for selecting the appropriate methods to control groundwater during construction at this site.

As the project advances, Kontur could provide additional field testing within the completed monitoring wells to estimate the hydraulic conductivity and provide potential seepage flow rates (volumes).

5.4 Site Preparation (Sewer Main)

Site preparation should include the stripping and removal of any loose, saturated, organic, and otherwise unsuitable material as needed to expose the undisturbed natural soil (Units D), as approved by the Geotechnical Engineer. The stripping works should be undertaken using a smooth-mouthed bucket during periods of dry weather and equipment traffic should not be allowed on the stripped surface. Areas that require over excavation due to disturbed/poor quality soils encountered at subgrade level should be backfilled with compacted granular sub-base course, compacted to at least of the 95% of *Modified Proctor maximum dry density* (MPMDD) value as per ASTM D1557. Kontur should be given the opportunity to review the exposed subgrade soils prior to placement of *Engineered Fills*.

5.5 Pipe Bedding and Trench Backfill (Sewer Main)

Based on the testhole information, the subgrade at the base of the proposed storm sewer may encounter the soil units as described **Section 4.2**. In all cases, the natural soils (or engineered fill placed thereon) are considered suitable for the support of the proposed new infrastructure. The trench excavation should extend a minimum of at least 150mm below the design storm sewer invert. The exposed subgrade should be reviewed by Kontur. If Fill (Units A) or unsuitable soils are encountered at the design subgrade depth, over-excavation and replacement of the unsuitable materials with *Engineered Fill* may be recommended. The extent of over-excavation may vary. Over-excavations should be backfilled up to 150mm below the design sewer inverts.

Pipe bedding and surrounding materials should meet MMCD Specifications for *Type 1 Pipe Bedding and Surround* materials and/or may consist of 19mm clear crushed gravel. The pipe should also be placed on bedding at least 150mm thick, or equal to 0.25 times the diameter of the pipe, whichever is greater. A minimum of 300mm of pipe surround is recommended above the pipe. The base of the excavation should have a minimum width equal to the diameter of the pipe plus 600mm.

Where *Engineered Fill* is required above the zone of pipe bedding and surround materials, subgrade fills should consist of an approved granular soil such as a 19mm minus well-graded pit run sand and gravel with no more than 5% fines passing the #200 sieve or approved equivalent. *Engineered Fill* should extend up to the underside of road structure fill materials.

5.6 Backfilling and Compaction

Backfilling and compaction should be completed in such a manner as to minimize loose zones of fill that may occur as shoring systems (i.e trench boxes) are raised from the excavation. For example, each lift of backfilled material should be placed in the excavation before raising the shoring system. The shoring system may then be raised in short stages to allow backfills to be placed and compacted up against the excavated slope. At no time should the excavation be unsupported.



All *Engineered Fill* materials must be placed and compacted in lifts no thicker than 300mm. However, thicker lifts may be permitted provided the required compaction can be achieved, subject to review and approval by the Geotechnical Engineer. The material should be near its optimum moisture content and be compacted to at least 95% of the material's MPMDD value. Field Density Test reports should be forwarded to the Geotechnical Engineer for review and approval of compacted fill zones. Upon request, Kontur can provide in-situ Field Density Testing per ASTM D-6938 and ASTM D-1557.

5.7 Road and Pavement Structure

The road surface should be restored in accordance with the City of Coquitlam's *Subdivision and Development Servicing Bylaw 3558, 2003*. It is understood that North Road is classified as a Collector Road, and access road within the proposed treatment facility is assumed to be classified as Local roads. Therefore, the minimum pavement structure should consist of the following:

- 75mm of Hot-mix Asphaltic Concrete, placed in two lifts (or match existing where thicker); over,
- 100mm of 19mm Granular Base; over,
- 200mm of 75mm Crushed Granular Subbase; over,
- Units B/C/D or Engineered Fill as approved by the Geotechnical Engineer.

Where the thickness of the existing asphalt surface permits, a minimum 200mm wide strip should be grinded and tack coated to allow a minimum 35mm thick overlay to tie-in existing pavement to the restored pavement surface. Hot-mix Asphaltic Concrete should be compacted in-place to at least 97% of the material's seventy-five (75) blow Marshall density value in accordance with ASTM D-6927. All hot-mix asphaltic concrete (pavement) should meet the minimum requirements detailed in the latest edition of the Master Municipal Construction Documents Association Platinum Edition Volume II (MMCD) Section 32 12 16. Aggregates and granular materials should meet the minimum requirements of Section 31 05 17. All work should be completed in accordance with the latest edition of the City of Coquitlam Design Criteria.

5.8 Proposed Treatment Facility

5.8.1 Foundation Design and Post-Construction Settlement

Kontur considers that the proposed Structures may be supported on shallow foundations founded on Soil Units D or on adequately compacted *Engineered fill* placed thereon. On this basis, the foundations may be designed based on the bearing resistance values provided in Table 3 below.

Table 3 – Foundation Design Bearing Resistance and Pressure

Foundation Material	Serviceability Limit State (SLS) Bearing Resistance	¹ Factored Ultimate Limit State (ULS) Bearing Resistance	Estimated Post-Construction Settlement	
			Total	Differential
Unit D	150 kPa	225 kPa	25mm	12mm over 6m horizontal dist.

Note: ¹ Factored ultimate bearing resistance values include a geotechnical reduction factor $\Phi = 0.5$

Foundation settlement is expected to be primarily due to elastic compression of the in-situ undisturbed soil or compacted *Engineered Fill* placed under the foundation loads. The bearing resistance values provided in Table 3 above are subject to the following conditions:



- Footings should be adequately set back from adjacent footings with different elevations or other subgrade structures (i.e. sumps, utilities...) as defined by a gradient line projected at a 2H:1V (Horizontal: Vertical) slope from the underside of the lower footing or structure.
- Upon review and approval of the exposed subgrade by the Geotechnical Engineer, a blinding layer of lean mix concrete, approximately 50mm thick may be required depending on construction considerations;
- Where *Engineered Fill* is placed beneath footings, the *Engineered Fill* should extend horizontally beyond the edge of the footings by a distance equal to the thickness of the *Engineered Fill*;
- Site preparations have been completed as described in **Section 5.8.5 "Subgrade Preparation"** and load bearing surfaces have been reviewed and approved by the geotechnical engineer.

It is important to note that differential settlement may occur between foundations that are placed on thick/deep zones of compacted *Engineered Fills* and foundations placed on undisturbed Soil unit D. Therefore, to minimize the potential for differential settlements, footings should not transition from *Engineered Fills* to the higher bearing Native Soils (i.e. Units D).

For uplift resistance, if required, permanent tie-down soil anchors are considered feasible at this site. Permanent tie-down anchors should be double-corrosion protected and properly designed. For this area, typical factored tensile anchor bond capacities may be in the order of about 60 kN/m based on a 150mm diameter anchor hole. Kontur can provide further design input at a later date if requested.

5.8.2 Lateral Earth Pressures and Foundation Walls

For preliminary design buried foundation walls should be designed to resist the lateral earth pressure acting upon them. In all cases, a uniform lateral earth pressure of 20 kPa should be used for design for compaction efforts adjacent to below-ground walls up to 2.5m in height. Thereafter, for *yielding walls*, a static lateral pressure of 6 kPa/m with a triangular distribution should be used for below-grade walls. The above-noted earth pressure values assume the top of the wall is free to rotate 0.2% of wall height. For *non-yielding walls* a static lateral pressure of 10 kPa/m with a triangular distribution should be used.

In addition, the proposed treatment facility must be designed for full hydrostatic pressure, assuming the water level may rise to ground surface. It is assumed that the proposed treatment facility does not need to accommodate seismic lateral pressures.

5.8.3 Buoyancy of Underground Structure

The groundwater level is expected to be above the foundation level of the proposed structure. As such, the proposed structure should be designed for buoyancy assuming the groundwater table is at the ground surface.

5.8.4 Seismic Considerations

Considering the soil conditions encountered at the base of the proposed structure, the local geology and the seismicity of the area, it is judged that the potential for ground deformation due to liquefaction of the underlying soils beneath the subject site is low. As such, Liquefaction induced ground deformation is anticipated to be minimal. Therefore, Kontur considers that the design of the proposed structure should



assume no significant permanent ground deformation as a result of liquefaction. However, strong ground shaking should be expected during the design earthquake event.

5.8.5 Subgrade Preparation

Based on the testhole information, the subgrade at the base of the treatment facility would likely consist of dense to very dense Silty Sand (Till-Like) Soil Unit D. The natural soils are considered suitable for the support of the proposed structure.

A bedding material should be placed under the proposed structure, consisting of a minimum bedding thickness of 200mm layer of 19mm clear crushed gravel, extending beyond the edge of the base of the structure by a distance equal to its thickness. The bedding material should be compacted to the equivalent of 95% of its' MPMDD.

Any localized soft areas, or areas loosened during excavation at the bottom of the excavation should be over-excavated and replaced with the specified bedding material. Further, the excavation should be fully drained to allow fill placement in the dry.

6.0 DETAILED DESIGN AND GEOTECHNICAL FIELD REVIEW AND QA/QC TESTING

To sign-off on the work, Kontur must be provided the opportunity to review final project designs or drawings from a geotechnical point-of-view. This may include reviewing applicable information developed by other Consultants (i.e. Architect, Landscape, Civil Engineer, Structural Engineer, Mechanical Engineer, etc...) and/or Drawings/Submissions by the Contractor.

In addition, Kontur must be provided the opportunity to complete the necessary field reviews during the construction stage of the project. Field reviews may be required, but are not limited to, the following stages:

- Review of finalized design details, temporary excavation, and shoring designs (as necessary);
- Bulk excavation, stripping, and final excavation;
- Review of temporary excavations per WorkSafeBC guidelines and regulations;
- Subgrade and bearing surface review and approvals;
- Placement and compaction of trench backfill and/or *Engineered Fill*; and,
- Reinstatement of the road pavement.
- Quality Assurance and Control Testing of Asphalt, Concrete, and Soil materials.

During construction, Quality Assurance/Control (QA/QC) testing of asphalt, soil, and concrete, should be completed. The type and frequency of tests should be completed in accordance with the project specifications and as reviewed and approved by the Geotechnical Engineer. Selection of appropriate construction materials should be completed prior to construction based on suitable Asphalt Mix Design, Concrete Mix Design, and Aggregate Qualification information and test reports provided by the Contractor and its material supplier.

Kontur requires at least forty-eight (48) to seventy-two (72) hours of advanced notice to visit the site when the work is ready for review, or a minimum of twenty-four (24) hours for Quality Assurance/Control testing.



7.0 CLOSURE

The comments and recommendations presented in this letter are based on the referenced information and Kontur's understanding of the project as described herein. If site conditions or project parameters differ from those described in this report, Kontur should be notified promptly to review geotechnical aspects of the project and provide additional or modified comments and recommendations, as deemed appropriate. Contractors should make their own assessments of subsurface conditions at this site and select the construction means and methods that are most appropriate for encountered site conditions.

This letter has been prepared for the exclusive use of R.F. Binnie & Associates Ltd. and/or their designated agents or consultants for the intended purpose described herein. The City of Coquitlam may use the information for development and/or building permit purposes. Any use of the information contained in this report for other than its intended purpose or by any other party must first be verified in writing by Kontur. Kontur does not accept any responsibility or damages because of any other party relying on or using the information, interpretations, opinions, comments, and/or recommendations that are contained in this report.

Kontur trusts that the information described above meets your current requirements. If you should have any concerns or questions, please do not hesitate to contact the undersigned.

Sincerely,

Kontur Geotechnical Consultants Inc.

Per:

Reviewed by:

J.Y. (Yoshi) Tanaka PEng
Principal | Geotechnical Engineer

Brian L.J. Mylleville PhD PEng
Senior Geotechnical Engineer



April 5, 2024 (Version 0)
Project No.: K-231238-00

Geotechnical Exploration and Report
City of Coquitlam – Proposed Oil Grit Separator, Filter Vault and Storm Sewer
North Road, South of Oakdale, Coquitlam, B.C.

Issued for Review

APPENDIX A
Interpretation and Use of Study and Report Document





INTERPRETATION AND USE OF STUDY AND REPORT DOCUMENT

1.0 STANDARD OF CARE

This study and Report have been prepared in accordance with generally accepted engineering consulting practices in this area. No other warranty, expressed or implied, is made. Engineering studies and reports do not include environmental engineering or consulting.

2.0 COMPLETE REPORT

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

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

3.0 BASIS OF THE REPORT

The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose that were described to us by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document are only valid to the extent that there has been no material alteration to or variation from any of the said descriptions provided to us unless we are specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4.0 USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT OUR WRITTEN CONSENT. WE WILL CONSENT TO ANY REASONABLE REQUEST BY THE CLIENT TO APPROVE THE USE OF THIS REPORT BY OTHER PARTIES AS "APPROVED USERS". The contents of the Report remain our copyright property and we authorise only the Client and Approved Users to make copies of the Report only in such quantities as are reasonably necessary for the use of the Report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make the Report, or any portion thereof, available to any party without our written permission. Any use which a third party makes of the Report, or any portion of the Report, are the sole responsibility of such third parties. We accept no responsibility for damages suffered by any third party resulting from unauthorised use of the Report.

5.0 INTERPRETATION OF THE REPORT

Nature and Exactness of Descriptions: Classification and identification of soils, rocks, geological units, contaminant materials, building envelopment assessments, and engineering estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations, or building envelope descriptions, utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarising such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.

Reliance on Provided information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.

To avoid misunderstandings, KONTUR should be retained to work with the other design professionals to explain relevant engineering findings and to review their plans, drawings, and specifications relative to engineering issues pertaining to consulting services provided by KONTUR. Further, KONTUR should be retained to provide field reviews during the construction, consistent with building codes guidelines and generally accepted practices. Where applicable, the field services recommended for the project are the minimum necessary to ascertain that the Contractor's work is being carried out in general conformity with KONTUR's recommendations. Any reduction from the level of services normally recommended will result in KONTUR providing qualified opinions regarding adequacy of the work.

6.0 ALTERNATE REPORT FORMAT

When KONTUR submits both electronic file and hard copies of reports, drawings and other documents and deliverables (KONTUR's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by KONTUR shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by KONTUR shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of KONTUR's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except KONTUR. The Client warrants that KONTUR's instruments of professional service will be used only and exactly as submitted by KONTUR.

The Client recognizes and agrees that electronic files submitted by KONTUR have been prepared and submitted using specific software and hardware systems. KONTUR makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.



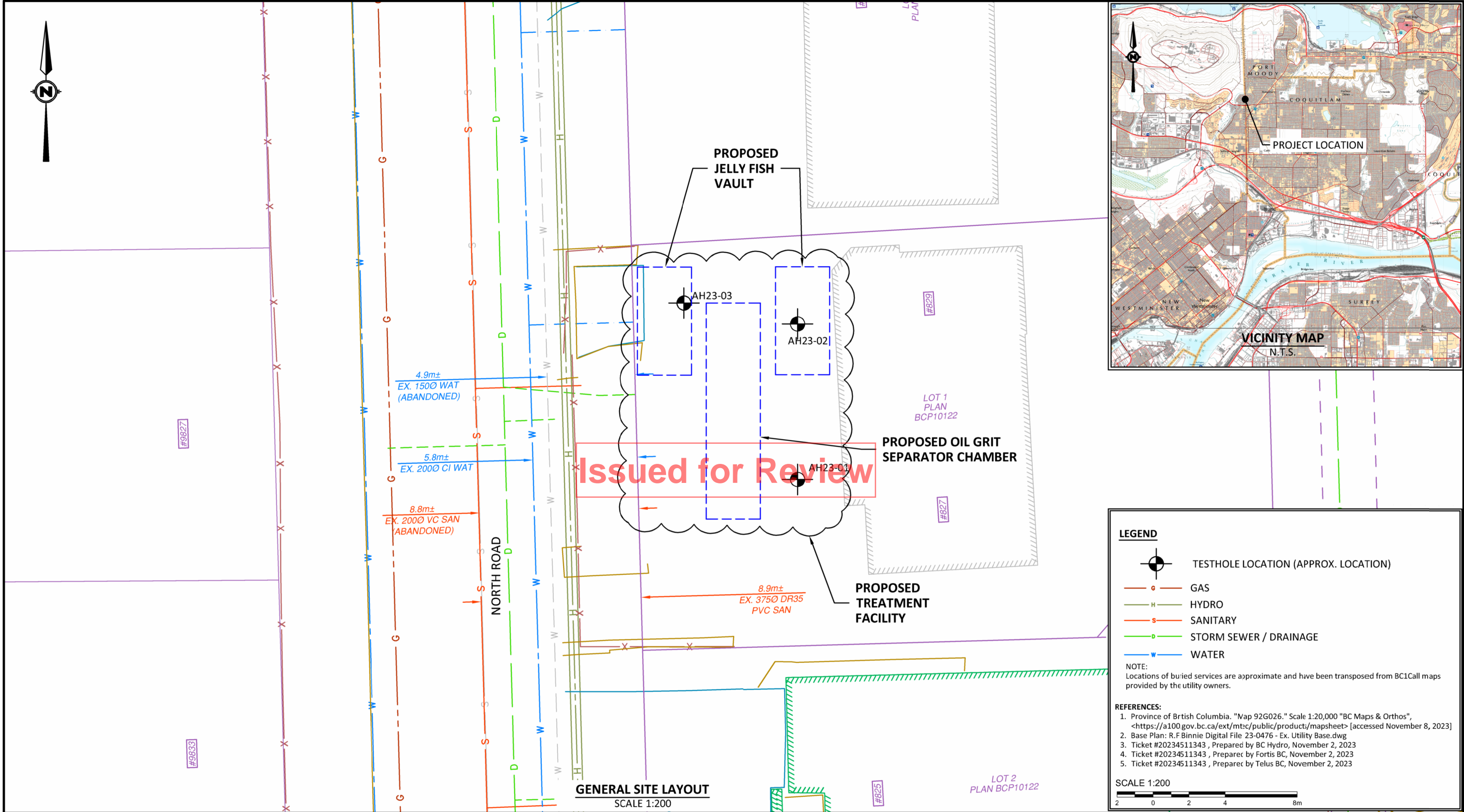
April 5, 2024 (Version 0)
Project No.: K-231238-00


Geotechnical Exploration and Report
City of Coquitlam – Proposed Oil Grit Separator, Filter Vault and Storm Sewer
North Road, South of Oakdale, Coquitlam, B.C.

Issued for Review

APPENDIX B
Figures





<div><div>Unit 107, 2071 Kingsway Avenue, Port Coquitlam, B.C. V3C 6N2 t. 1 (778) 730 1747 toll-free. +1 (833) 301 7575 e. info@kontur.ca www.kontur.ca</div><div>EGBC Permit to Practice #1000925</div></div>	SEAL	VERSIONS			TITLE			PROJECT NO.:		
		FIGURE 1: VICINITY MAP AND GENERAL SITE LAYOUT						K-231328-00		
		NO	DESCRIPTION	DATE				DATE:	SCALE:	DWG NO.:
		0	ISSUED FOR REPORT	2023-13-13	CLIENT			2023-13-13	1:200	FIGURE 1
					R.F.BINNIE & ASSOCIATES LTD.					
					PROJECT LOCATION			DRAFT:	DESIGN:	CHECK:
			CITY OF COQUITLAM PROPOSED OIL GRIT SEPARATOR, FILTER VAULT AND STORM SEWER, 827 NORTH ROAD, COQUITLAM, BC			SG	NW	JYT		



April 5, 2024 (Version 0)
Project No.: K-231238-00

Geotechnical Exploration and Report
City of Coquitlam – Proposed Oil Grit Separator, Filter Vault and Storm Sewer
North Road, South of Oakdale, Coquitlam, B.C.

Issued for Review

APPENDIX C 
Testhole Logs



Kontur Geotechnical Consultants Inc.
#107 2071 Kingsway Avenue
Port Coquitlam, B.C. V3C 6N2
Telephone: (778) 730 1747

RECORD OF TESTHOLE : AH23-01

PAGE 1 OF 1

CLIENT R.F. Binnie & Associates Ltd.

PROJECT NUMBER K-231328-00

PROJECT NAME Proposed Oil Grit Separator, Filter Vault, and Storm Sewer

PROJECT LOCATION 827 North Road, Coquitlam, BC

DRILLING DATE 2023-12-06 to 2023-12-06

AUGERHOLE LOCATION ZONE: 10U N: 5456894 E: 507791

DRILLING METHOD Solid Stem Auger

ELEVATION 74.0m (approximate)

DRILLING CONTRACTOR Southland Drilling Co. Ltd.

▽ GROUNDWATER DEPTH AT TIME OF DRILLING 0.8m

EQUIPMENT TYPE	MST 1100 Track Mounted Drill
-----------------------	------------------------------

LOGGED BY AC CHECKED BY JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT 'N' VALUE BLOWS/0.3m ▲ 20 40 60 80 DYNAMIC CONE BLOWS/0.3m ■ 20 40 60 80	POCKET PEN. (kPa) ● 100 200 300 400 TORVANE (kPa) ⊗ 100 200 300 400	FINES CONTENT (%) □ 20 40 60 80 PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL 20 40 60 80	WELL DIAGRAM	GROUNDWATER
				NUMBER	TYPE	RECOVERY %					
		TOPSOIL	73.7								
		SILTY SAND, some gravel, trace clay, brown, (compact to dense)	0.3	1	AU						
1				2	AU						
			72.5	3	AU						
2		SANDY SILT, trace gravel, grey, (dense to very dense) (TILL-LIKE)	1.5	4	AU						
				5	AU						
3				6	AU						
4				7	AU						
			69.4	8	AU						
5		SILTY SAND, trace gravel, grey, (dense to very dense) (TILL-LIKE)	4.6	9	AU						
				10	AU						
6			67.9								

Bottom of hole at 6.1m.

RECORD OF TESTHOLE : AH23-02

PAGE 1 OF 1



Kontur Geotechnical Consultants Inc.
 #107 2071 Kingsway Avenue
 Port Coquitlam, B.C. V3C 6N2
 Telephone: (778) 730 1747

CLIENT R.F. Binnie & Associates Ltd.PROJECT NUMBER K-231328-00PROJECT NAME Proposed Oil Grit Separator, Filter Vault, and Storm SewerPROJECT LOCATION 827 North Road, Coquitlam, BCDRILLING DATE 2023-12-06 to 2023-12-06AUGERHOLE LOCATION ZONE: 10U N: 5456904 E: 507788DRILLING METHOD Solid Stem AugerELEVATION 74.0m (approximate)DRILLING CONTRACTOR Southland Drilling Co. Ltd.▽ GROUNDWATER DEPTH AT TIME OF DRILLING 2.9mEQUIPMENT TYPE MST 1100 Track Mounted DrillLOGGED BY ACCHECKED BY JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT 'N' VALUE BLOWS/0.3m ▲	POCKET PEN. (kPa) ●	FINES CONTENT (%) □	GROUNDWATER
				NUMBER	TYPE	RECOVERY %				
							20 40 60 80	100 200 300 400	20 40 60 80	
							DYNAMIC CONE BLOWS/0.3m ■	TORVANE (kPa) ⊗	PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL	
							20 40 60 80	100 200 300 400	20 40 60 80	
1		CONCRETE (75 mm)	73.9	20	AU					
		(FILL) Sand, gravel, trace silt, brown (compact to dense)	0.1							
		CLAYEY SILT, light brown mottled brown (stiff to very stiff)	73.7 0.3							
			72.8							
			1.2							
2		SANDY SILT, some gravel, grey (very stiff to hard)	72.5	22	AU					
			1.5							
		SILTY SAND, some gravel, grey, (dense to very dense) (TILL-LIKE)								
3				23	AU					
4				24	AU					
5				25	AU					
6				26	AU					
7				27	AU					
8				28	AU					
9				29	AU					
10				30	AU					
11				31	AU					
12				32	AU					
13				33	AU					
14				34	AU					
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72				92	AU					
73				93	AU					
74				94	AU					
75				95	AU					
76				96	AU					
77				97	AU					
78				98	AU					
79				99	AU					

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Bottom of hole at 4.6m.



Kontur Geotechnical Consultants Inc.
#107 2071 Kingsway Avenue
Port Coquitlam, B.C. V3C 6N2
Telephone: (778) 730 1747

RECORD OF TESTHOLE : AH23-03

PAGE 1 OF 1

CLIENT R.F. Binnie & Associates Ltd.

PROJECT NUMBER K-231328-00

PROJECT NAME Proposed Oil Grit Separator, Filter Vault, and Storm Sewer

PROJECT LOCATION 827 North Road, Coquitlam, BC

DRILLING DATE 2023-12-06 to 2023-12-06

AUGERHOLE LOCATION ZONE: 10U N: 5456906 E: 507784

DRILLING METHOD Solid Stem Auger

ELEVATION 73.0m (approximate)

DRILLING CONTRACTOR Southland Drilling Co. Ltd.

GROUNDWATER DEPTH AT TIME OF DRILLING 2.4m

EQUIPMENT TYPE MST 1100 Track Mounted Drill

LOGGED BY AC

CHECKED BY JYT

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT 'N' VALUE BLOWS/0.3m ▲	POCKET PEN. (kPa) ●	FINES CONTENT (%) □	WELL DIAGRAM	GROUNDWATER
				NUMBER	TYPE	RECOVERY %					
							20 40 60 80	100 200 300 400	20 40 60 80	Casing Type: 50 MM WHITE PVC	
							DYNAMIC CONE BLOWS/0.3m ■	TORVANE (kPa) ⊗	PLASTIC & LIQUID LIMIT WATER CONTENT PL MC LL		
							20 40 60 80	100 200 300 400	20 40 60 80		
1		CONCRETE (75mm)	72.9	11			3		24		
		(FILL) Sandy Silt, some gravel, light brown, (soft)	0.1				18		19		
		SILTY SAND, some gravel, light brown mottled brown, (compact)	72.7	12			22		18		
			0.3				30		15		
			71.8				100		22		
2		SANDY SILT, some gravel, trace cobbles, light brown mottled brown, (very stiff to hard)	1.2	13			25 cm		22		
		SANDY SILT, trace gravel, grey, (dense to very dense) (TILL-LIKE)	71.5	14					22		
			1.5	15					22		
3				16					22		
4				17					23		
5		SILTY SAND, trace gravel, grey, (dense to very dense) (TILL-LIKE)	68.4	18					25		
6			4.6	19							
7											
			65.4								

Bottom of hole at 7.6m.

Issued for Review

Revised - APPENDIX 1 - Revision No. 1**FORM OF TENDER****Contract 81293****Oakdale Park Stormwater Treatment Facility****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. / (Supp. Specs)	DESCRIPTION	UNIT	QTY	UNIT PRICE	EXTENDED AMOUNT
1.00	01 55 005	TRAFFIC CONTROL, VEHICLE ACCESS AND PARKING				
1.01	(1.5.1)	Traffic Control and Management				Incidental to Contract
2.00	01 57 015	ENVIRONMENTAL PROTECTION				
2.01	(1.6.1)	ESC supply & installation, maintenance and removal				Incidental to Contract
3.00	01 58 015	PROJECT IDENTIFICATION				
3.01	(1.3.1)	Construction Zone Information Signs	ea.	2		
4.00	03 30 205	CONCRETE WALKS, CURBS AND GUTTERS				
4.01	(1.4.3)	Remove and Replace Concrete Curb and Gutter (MMCD C5) (Provisional)	Lm	25		
5.00	31 23 17	ROCK REMOVAL				
5.01	1.6	Rock Removals (Provisional)	cu.m	10		
6.00	31 24 135	ROADWAY EXCAVATION, EMBANKMENT, AND COMPACTION				
6.01	(1.8.5)	Common Excavation (Removal and Off-site Disposal for on-site regrading works at 827 North Rd) (Provisional)	cu.m	10		
6.02	(1.8.5)	Remove Existing Concrete Driveways and Sidewalks (All Depths) (Sawcut, Removal and Off-site Disposal for on-site works at 827 North Rd)	sq.m	110		
6.03	(1.8.10)	Over-excavation (Provisional)	cu.m	10		
7.00	32 01 16.75	COLD MILLING				
7.01	(1.5.4)	Surface mill - 35mm depth for Permanent Pavement Trench Restoration (as per COQ-G4)	sq.m	225		
8.00	32 11 16.15	GRANULAR SUBBASE				
8.01	(1.4.3)	75mm Minus Granular Base (for on-site driveway works at 827 North Rd)	tonne	95		
9.00	32 11 235	GRANULAR BASE				
9.01	(1.4.3)	19mm Minus Granular Base (for on-site driveway works at 827 North Rd)	tonne	55		
10.00	32 12 13.15	ASPHALT TACK COAT				
10.01	(1.5.1)	Asphalt Tack Coat - Emulsified Asphalt	sq.m	225		
11.00	32 12 165	HOT-MIX ASPHALT CONCRETE PAVING				
11.01	(1.5.1)	MMCD Upper Course #2 Asphalt - 35mm Thick Permanent Pavement Trench Restoration	sq.m	225		
11.02	(1.5.3)	MMCD Upper Course #2 Asphalt - 75mm Thick Driveway (for on-site driveway works at 827 North Rd)	tonne	30		
12.00	32 31 135	CHAIN LINK FENCES AND GATES				
12.01	(1.5.1)	1.5m high Chain Link Fence	Lm	40		
12.02	(1.5.2)	1.5m high Chain Link Sliding Gate with Pin Assembly-Style Latch	Lm	7.6		
13.00	32 91 215	TOP SOIL AND FINISH GRADING				
13.01	(1.4.1)	Imported Topsoil - 150mm Thick (Provisional)	cu.m	40		
14.00	32 92 195	HYDRAULIC SEEDING				
14.01	1.8.1	Hydraulic Seeding (Provisional)	sq.m	240		
15.00	33 11 015	WATERWORKS				
15.01	(1.8.4)	Isolate existing 200mm CI Water main and provide temporary water service to 831 North Rd	L.S.	1		
15.02	(1.8.4)	Cap and abandon existing 20mm water service at 827 North Rd at main as per COQ-W2g	L.S.	1		
16.00	33 30 015	SANITARY SEWERS				
16.01	(1.6.3)	Cap and abandon existing 100mm sanitary service at 827 North Rd at main as per COQ-S18	L.S.	1		
17.00	33 40 015	STORM SEWERS				
17.01	(1.6.2)	Prop. 450mm C-14 CL3 Conc. Pipe	Lm.	14		
17.02	(1.6.2)	Prop. 600mm C-14 CL3 Conc. Pipe	Lm.	26.0		
17.03	(1.6.2)	Remove existing 600mm Conc. STM pipe and replace with Prop. 600mm C-14 CL3 Conc. Pipe	Lm.	2.5		
17.04	(1.6.2)	Remove existing 900mm Conc. STM pipe and replace with Prop. 1050mm C-76 CLIII Conc. Pipe	Lm.	61		
17.05	(1.6.2)	Remove existing 1050mm Conc. STM pipe and replace with Prop. 1200mm C-76 CLIII Conc. Pipe	Lm.	17.5		
17.06	(1.6.3)	Reconnect existing 150mm storm service from 831 North Rd to Prop. 1050mm Conc. STM pipe.	L.S.	1		
17.07	(1.6.3)	Cap and abandon existing 100mm storm service at 827 North Rd	L.S.	1		
17.08	(1.6.5)	Prop. 150mm PVC DR28 Catchbasin Lead	Lm.	9		
17.09	(1.6.9)	Tie-in into existing STM MH with Prop 900mm x 1050mm Conc. Reducer	each	1		
17.10	(1.6.9)	Tie-in into existing STM MH with Prop 600mm Conc. Pipe	each	1		
17.11	(1.6.9)	Tie-in into existing 1200mm STM Pipe with Prop 1800mm Manhole	each	1		
17.12	(1.6.12)	Prop. Storm Water Treatment Facility : Includes Stormceptor MAX MH D08, Collection STM MH D09, Sediment Settling Chamber, JFVLAN-III Jellyfish Vaults, c/w stainless steel flush mount sleeve for a 3" diameter davit arm pole and receiver	L.S.	1		
18.00	33 44 015	MANHOLES AND CATCHBASINS				
18.01	(1.5.1.1)	1050mm Manhole Lid, slab and Frame and Cover c/w manhole base and benching	ea.	3		
18.02	(1.5.1.1)	1800mm Manhole Lid, slab and Frame and Cover c/w manhole base and benching	ea.	1		
18.03	(1.5.1.2)	1050mm Manhole Riser Sections	vert.m.	4.3		
18.04	(1.5.1.2)	1800mm Manhole Riser Sections	vert.m.	1.6		
18.05	(1.5.1.3)	1050mm Manhole Tee on 1200mm Conc. Pipe (MH D02)	ea.	1		
18.06	(1.5.1.3)	1050mm Manhole Tee on 1050 Conc. Pipe c/w 600mm Conc. Pipe Stub (MH D03)	ea.	1		
18.07	(1.5.1.3)	1050mm Manhole Tee on 1050 Conc. Pipe c/w 450mm Conc. Pipe Stub and Conc. Diversion Weir (MH D04)	ea.	1		
18.08	(1.5.1.3)	600mm x 1200mm C76 Concrete Reducer	ea.	1		
18.09	(1.5.1.3)	900mm x 1050mm C76 Concrete Reducer	ea.	1		
18.10	(1.5.1.3)	1050mm x 1200mm C76 Concrete Reducer	ea.	1		
18.11	(1.5.1.3)	1200mm x 1200mm x 1200mm C76 Concrete Wye	ea.	1		
18.12	(1.5.1.3)	1200mm diameter C76 Concrete 45 degree Mitre Bend	ea.	1		
18.13	(1.5.2)	Remove existing catchbasin and replace with Prop. Side Inlet Catchbasin as per COQ-S11A	ea.	1		

Total Tendered Price (exclude GST):

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