CHARTERS ROAD - STREETSCAPE

File: T02-2023
May 2023

Owner: *THE DISTRICT OF SOOKE*
(NAME OF OWNER)

Contract: *CHARTERS ROAD STREETSCAPE, SOOKE, B.C.*
(TITLE OF CONTRACT)

Reference No.: *T02-2023*
(OWNER'S CONTRACT REFERENCE NO.)

The Owner invites tenders for: The supply of labour, materials, and equipment to upgrade the rural road along Charters to urban cross sections, including a new watermain, sanity force main, storm drainage upgrades, and electrical streetlighting. The construction of retaining walls, a culvert for Throup Stream, and weir for fish crossing will be required.
(BRIEF DESCRIPTION OF THE WORK)

Digital (pdf) copies of the *Contract Documents* are available for no charge: Through BC Bid Website
(ADDRESS WHERE CONTRACT DOCUMENTS CAN BE VIEWED)

Tenders are scheduled to close:

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

Tender Closing Date: **June 23, 2023**

Address: *2205 Otter Point Road*
Sooke, BC V9Z 1J2
Documents to be delivered to the front desk.
(ADDRESS WHERE TENDERS MUST BE SUBMITTED)

Name of Owner's Representative *JEFF CARTER, DIRECTOR OF OPERATIONS*

250-642-1631
(PHONE)

jcarter@sooke.ca
(E-MAIL)

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

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

Owner: *DISTRICT OF SOOKE*
(NAME OF OWNER)

Contract: *CHARTERS ROAD - STREETSCAPE, SOOKE, B.C.*
(TITLE OF CONTRACT)

Reference No.: *T02-2023*
(OWNER'S CONTRACT REFERENCE NO.)

1.0 Introduction

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

The supply of labour, materials, and equipment to upgrade the rural road along Charters to urban cross sections, including a new watermain, sanity force main, storm drainage upgrades, and electrical streetlighting. The construction of retaining walls, a culvert for Throup Stream, and weir for fish crossing will be required.

(BRIEF DESCRIPTION OF THE WORK)

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

ISL Engineering and Land Services
Brad Ormiston, AScT, MMCD CCA, Contract Administrator

(NAME AND POSITION OF INDIVIDUAL WHO WILL ANSWER INQUIRIES)

Address: *1051 Vancouver Street,*
Victoria BC,
V8V 3K3

Phone: *250.883.0600*

E-Mail: Bormiston@islengineering.com

2.0 Tender Documents

2.1 The tender documents which a tenderer should review to prepare a tender consist of all of the *Contract Documents* listed in Schedule 1 entitled "Schedule of Contract Documents". Schedule 1 is attached to the Agreement which is included as part of the tender package. The *Contract Documents* include the drawings listed in Schedule 2 to the Agreement, entitled "List of *Contract Drawings*".

2.2 A portion of the *Contract Documents* are included by reference. Copies of these documents have not been included with the tender package. These documents are the Instructions to Tenderers – Part II, General Conditions, Specifications and Standard Detail Drawings. They are those contained in the publication entitled "Master Municipal Construction Documents – General Conditions, Specifications and Standard Detail Drawings". Refer to Schedule 1 to the Agreement or, if not specified in Schedule 1, then the applicable edition shall be the most recent edition as of the date of the *Tender Closing Date.* All sections of this publication are by reference included in the *Contract Documents*.

2.3 Any additional information made available to tenderers prior to the *Tender Closing Time* by the *Owner* or representative of the *Owner,* such as geotechnical reports or as-built plans, which is not expressly included in Schedule 1 or Schedule 2 to the Agreement, is not included in the *Contract Documents*. Such additional information is made available only for the assistance of tenderers who must make their own judgment about its reliability, accuracy, completeness and relevance to the *Contract*, and neither the *Owner* nor any representative of the *Owner* gives any guarantee or representation that the additional information is reliable, accurate, complete or relevant.

3.0 Submission of Tenders

3.1 Tenders must be submitted in a sealed envelope, marked on the outside with the above Contract Title and Reference No., and must be received by the office of:

Jeff Carter, Director of Operations
(Title of Position)

on or before:

Tender Closing Time: 2:00pm local time
Tender Closing Date: June 23, 2023

at District of Sooke

Address: 2205 Otter Point Road
Sooke, BC V9Z 1J2

Documents to be dropped off at front desk.

3.2 Late tenders will not be accepted or considered. Late tenders will be returned unopened.

4.0 Additional

4.1 **Financial Security:** Failure to provide financial security (as

Instructions to Tenderers

described in 5.2.1 of IT-Part II) with your tender submission, will result in your tender being deemed incomplete and therefore will not be considered. **The bonds submitted should be electronic, secure and verifiable/enforceable.** Please contact your surety company or www.surety-canada.com for further information on E--Bonding.

4.2 **Funding:** Proceeding with an award of this tender may be subject to available funding.

4.3 **Commencement Date:** Tenderers shall specify a Commencement Date for the work as per paragraph 5.1.2 of the form of Tender. The selected Commencement Date is to be between August 1, 2023 and January 5, 2024.

4.4 **Environmental Management Plan:** Tenderers attention is drawn to the Environmental Management Plan for Throup Stream / Charter Road Culvert Replacement.

4.5 **Cancellation:** The District of Sooke reserves the right to cancel this Tender at any time and for any reason, and will not be responsible for any loss, damage, cost or expense incurred of suffered by and Tenderer as a result of that cancellation.

4.6 **Notice of Project:** The Contractor shall submit to WorkSafe BC a completed Notice of Project, providing a copy to the District of Sooke– click here.

4.7 **Submittals:** The Contractor shall submit, in a form acceptable to the District of Sooke, upon acceptance of the tender and prior to receiving Notice to Proceed:

- A copy of the WorkSafe BC Notice of Project.
- A detailed work schedule describing each phase of the project referenced in to project location outlining station ranges of the work and critical path. (i.e. supply, installation etc.).
- A Traffic Management Plan (01 55 011) and how it relates to the detailed work schedule.

4.8 **Addenda:** Any and all addenda to this Tender will be posted on the District of Sooke's web site located here. In addition, tender documents and addenda will be issued on BC Bid and Civic Info. **It is the sole responsibility of the tenderer to make sure that they are in receipt of all addenda prior to the closing date and acknowledge receipt of the addenda on the Tender Form.**

4.9 **Canadian Funds:** All prices tendered are to be in Canadian funds.

4.10 **Ownership:** All tenders after closing time and date become the property of the District of Sooke.

4.11 **Freedom of Information:** The District of Sooke is subject to the provisions of the Freedom of Information and Protection of Privacy Act. As a result, while Section 21 of the Act does offer some

protection for third party business interests, the District of Sooke cannot guarantee that any information provided to the District of Sooke can be held in confidence.

4.12 **Accuracy of Information:** The District of Sooke makes no representation or warranty, either expressed or implied, with respect to the accuracy or completeness of any information contained in or referred to in the Tender.

4.13 **Responsibility of Tenderers:** Each tenderer is responsible for informing themselves as to the contents and requirement of this tender including the District of Sooke's Purchasing Policy, which governs the award of this tender. The Policy is available for review here.

4.14 **Contaminated Soils:** The District of Sooke is undertaking onsite soil sampling and reporting in compliance with Protocol 19 For Contaminated Sites issued by the Ministry of Environment and Climate Change, which will take place during the tender period. Results will be shared with the preferred bidder and depending on the results, may result in pricing negotiations, as required.

4.15 **Culvert Alternate Sizes:** Tenderers attention is drawn to the culvert alternate sizing listed in the schedule of quantities.

4.16 Each tenderer is solely responsible to ensure that they have obtained and considered all information necessary to understand the requirements of the tender and to prepare and submit their tender. The District of Sooke will not be responsible for any loss, damage or expense incurred by a tenderer as a result of any inaccuracy or incompleteness in this tender, or as a result of any misunderstanding or misinterpretation of the terms of the tender on the part of any tenderer.

4.17 **Notification:** The District of Sooke appreciates all tender responses; however, only the Successful Tenderers will be contacted.

4.18 **Evaluation Criteria:** The intent is to award the lowest bid price or bid prices but the lowest or any bid price will not necessarily be accepted. If the District elects to reject all bids, the District will not be liable to any bidder for any claims whether for costs incurred by any bidder in preparing the bid, damages, loss of anticipated profit in connection with the work, or any other matter whatsoever.

4.19 **Enquiries:** All questions should be received at least 5 business days prior to the closing time and date.

4.20 **Additional Requirements:** Tenderers' attention is drawn to the Supplementary Specifications for additional requirements related to the project.

4.21 **Substantial Performance and Milestones:**

- Substantial Performance date is **November 1, 2024**

4.22 **Traffic Control:** Tenderers are to be familiar with the supplementary requirements of 01 55 00 Traffic Control, Vehicle Access and Parking.

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

Owner: *THE DISTRICT OF SOOKE*
(NAME OF OWNER)

Contract: *CHARTERS ROAD - STREETSCAPE, SOOKE, B.C.*
(TITLE OF CONTRACT)

Reference No.: *T02-2023*
(OWNER'S CONTRACT REFERENCE NO.)

***TO OWNER**:*

WE, THE UNDERSIGNED:

1.1 have received and carefully reviewed all of the *Contract Documents*, including the Instructions to Tenderers, the specified edition of the "Master Municipal Construction Documents – General Conditions, Specifications and Standard Detail Drawings" and the following Addenda:

_____

_____

_____
(ADDENDA, IF ANY)

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

1.3 have complied with the Instructions to Tenderers.

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*;

2.2 to achieve Substantial Performance of the Work by **November 1, 2024** and meet all Milestone Dates; 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*.

WE CONFIRM:

3.1 that we understand and agree that the quantities as listed in the *Schedule of Quantities and Prices* are estimated, and that the actual quantities will vary.

WE CONFIRM:

4.1 that the following appendices are attached to and form a part of this tender:

4.1.1 the appendices as required by paragraph 5.3 of the Instructions to Tenderers – Part II; and

the Bid Security as required by paragraph 5.2 of the Instructions to Tenderers – Part II.

WE AGREE:

5.1 that this tender will be irrevocable and open for acceptance by the Owner for a period of **__60___** calendar days from the day following the Tender Closing Date and Time, even if the tender of another tenderer is accepted by the Owner. If within this period the Owner delivers a written notice ("Notice of Award") by which the Owner accepts our tender we will:

5.1.1 within 15 Days of receipt of the written Notice of Award deliver to the Owner:

.1 a Performance Bond and a Labour and Material Payment Bond, each in the amount of 50% of the Contract Price, covering the performance of the Work including the Contractor's obligations during the Maintenance Period, issued by a surety licensed to carry on the business of suretyship in the province of British Columbia, and in a form acceptable to the Owner;

.2 a Baseline Construction Schedule, as provided by GC 4.6.1;

.3 a "clearance letter" indicating that the tenderer is in WorkSafe BC compliance;

.4 a copy of the insurance policies as specified in GC 24 indicating that all such insurance coverage is in place; and

.5 all documents as detailed by paragraph 4.6 of the Instructions to Tenderers – Part 1.

5.1.2 within 2 Days of the Commencement Date, as specified in Appendix 2 of the Form of Tender, or such longer time as may be otherwise specified in the Notice to Proceed, commence work; and

5.1.3 sign the Contract Documents as required by GC 2.1.2.

WE AGREE:

6.1 that, if we receive written Notice of Award of this Contract and, contrary to paragraph 5 of this Form of Tender, we:

6.1.1 fail or refuse to deliver the documents as specified by paragraph 5.1.1 of this Form of Tender; or

6.1.2 fail or refuse to commence the Work as required by the Notice to Proceed,

then such failure or refusal will be deemed to be a refusal by us to enter into the Contract and the Owner may, on written notice to us, award the Contract to another party. We further agree that, as full compensation on account of damages suffered by the Owner because of such failure or refusal, the Bid Security shall be forfeited to the Owner, in an amount equal to the lesser of:

6.1.3 the face value of the Bid Security; and

6.1.4 the amount by which our Tender Price is less than the amount for which the Owner contracts with another party to perform the Work.

OUR ADDRESS is as follows: 1

_____

_____

_____

Phone: _____

Fax: _____

E-mail: _____

Attention: _____

This Tender is executed this

_____ day of _____, 2023.

Contractor:

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

_____
(AUTHORIZED SIGNATORY)

_____
(AUTHORIZED SIGNATORY)

APPENDIX 1
SCHEDULE OF QUANTITIES AND PRICES
(SEE PARAGRAPH 5.3.1 OF THE INSTRUCTIONS TO TENDERERS – PART II)

(All prices and *Quotations* including the *Contract Price* shall include all *Taxes*, but shall not include *GST*. *GST* shall be shown separately.)

Any work called for in these Contract Documents, shown on the plans, or which is necessary for the completion of the Work called for in these Contract Documents and which is not specifically listed as a separate payment item in this Appendix shall be deemed incidental to the performance of the Work and to the general purpose of the Contract; no separate payment will be made on account of any such Work, but the costs of any such incidental Work shall be included in the Unit and Lump Sum Prices.

CHARTERS ROAD - STREETSCAPE

Summary Sheet

Division 01:	General Requirements	$ _____
Division 03:	Concrete	$ _____
Division 26:	Electrical	$ _____
Division 31:	Earthworks	$ _____
Division 32:	Roads and Site Improvements	$ _____
Division 33:	Utilities	$ _____
TOTAL TENDER PRICE		**$ _____**
	GST (5%)	**$ _____**
TENDER PRICE plus GST		$ _____

DIVISION 1 - GENERAL REQUIREMENTS						
Item No.	**Section**	**Specification Title**	**Unit**	**Qty**	**Unit Price**	**Amount**
01 10 00SS		**General Requirements**				
1.1	1.2S	Layout Survey, Quantity Survey, Volume Calculations and Record Survey	Lump Sum	1		
01 51 01		**Temporary Utilities and Lighting**				
1.2	1.6.1	Supporting Utilities Underground/Overhead	Lump Sum	1		
01 52 01		**Temporary Structures**				
1.3	1.6.2S	Mobilization/Demobilization	Lump Sum	1		
01 53 01		**Temporary Facilities**				
1.4	1.9.2S	By-Pass Pumping Sanitary System	Lump Sum	1		
01 55 00		**Traffic Control, Vehicle Access and Parking**				
1.5	1.5.2S	Traffic Control, Vehicle Access and Parking	Lump Sum	1		
01 57 01		**Environmental Protection**				
1.6	1.6.2S	Environmental Protection	Lump Sum	1		
			Sub-Total		$	

DIVISION 3 - CONCRETE						
Item No.	**Section**	**Specification Title**	**Unit**	**Qty**	**Unit Price**	**Amount**
03 30 20		**Concrete Walks, Curb And Gutter**				
2.1	1.4.3	**Hand Formed / Machine Laid Curb and Gutter** Barrier Concrete Barrier - MMCD Type C4 - Including Granular Base, Driveway Drops, & Let Downs.	Lineal Metre	1075		
2.2	1.4.5S	**Concrete Sidewalks, Infill Strips and Walkways** Including Ramps Where Applicable. MIN. 100mm Thickness c/w 100mm Base.	Square Metre	1685		
2.3	1.4.5S	**Pattern Concrete Sidewalks, Infill Strips and Walkways** Including Ramps Where Applicable. MIN. 100mm Thickness c/w 100mm Base.	Square Metre	85		
2.4	1.4.6	**Driveways and Driveway Crossings** 150 mm Thickness c/w Granular Base. Crossings To Be c/w Ramps.	Square Metre	415		
2.5	1.4.8	**Adjustments** Adjustments To Frames, Covers, Lids, Valve, Junction Boxes, Catch basins, Inspection Chambers.	Each	20		
03 30 53		**Cast-In-Place Concrete**				
2.6	1.5.6S	**Mortared Rock Wall**	Square Meters	200		

03 40 01		**Pre-Cast Concrete**				
2.7	1.4.3	**Redi-Rock Wall Blocks** Excavation and Backfill under 31 23 01	Square Metre	1043		
2.8	1.4.5S	**Concrete No-Post Barrier Relocation**	Lump Sum	1		
			Sub-Total		$	

DIVISION 26 - ELECTRICAL						
Item No.	**Section**	**Specification Title**	**Unit**	**Qty**	**Unit Price**	**Amount**
26 56 01		**Roadway Lighting**				
3.1	1.9.1	**Roadway Lighting**	Lump Sum	1		
			Sub-Total		$	

DIVISION 31 - EARTHWORK						
Item No.	**Section**	**Specification Title**	**Unit**	**Qty**	**Unit Price**	**Amount**
31 11 01		**Clearing and Grubbing**				
4.1	1.4.1, 1.4.2	**Clearing and Grubbing**	Lump Sum	1		
4.2	1.4.1, 1.4.2	**Isolated Stump Removal**	Each	36		
4.3	1.4.1, 1.4.2	**Isolated Tree Removal**	Each	12		
31 22 01		**Site Grading**				
4.4	1.4.1	**Topsoil Stripping and Disposal/Reuse**	Cubic Metre	200		
31 22 16		**Reshaping Granular Roadbed**				
4.5	1.4.1	**Reshaping Granular Roadbed**	Square Metre	3076		
31 23 01		**Excavating, Trenching and Backfilling**				
4.6	1.10.3	**Over excavating - Optional I**ncluding Backfilling	Cubic Metre	275		
31 23 17		**Rock Removal**				
4.7	1.6.3	**Mass Rock - Optional**	Cubic Metre	50		
31 24 13		**Roadway Excavation, Embankment and Compaction**				
4.8	1.8.4	**Remove Existing Asphalt** Pavement, Sidewalks, Utility Strips, Driveways (Including Saw cutting)	Square Metre	4800		
4.9	1.8.4	**Remove Existing Concrete** Curbs and Gutters	Lineal Metres	60		
4.10	1.8.5	**Common Excavation** - Gravels On-Site Re-Use	Cubic Metre	225		
4.11	1.8.5	**Common Excavation** Off-Site Disposal	Cubic Metre	3500		
4.12	1.8.14S	**Removal of Existing Driveway Culverts**	Lineal Metres	214		
4.13	1.8.15S	**Removal of Existing Throup Stream Culverts**	Lineal Metres	50		
4.14	1.8.16S	**Asbestos Cement Pipe Removal and Disposal**	Lineal Metres	90		

31 32 19		**Geosynthetics**				
4.15	1.6.1	**Geogrid** Per Square Meter of Wall	Square Metre	760		
4.16	1.6.1	**Non-woven Geotextile** Ditch Infill	Square Metre	763		
31 37 10		**RipRap**				
4.17	1.4.1	**250kg to 500kg Rip Rap -** Wall Armouring	Tonne	16		
4.18	1.4.1	**450-650mm Rip Rap - Including non-woven geotextile -** Channel	Tonne	42		
4.19	1.4.1	**300-500mm Boulder filled with 50-150mm Coho Gravel -** Channel	Tonne	40		
4.2	1.4.1	**Washed Round River 40-140mm Coho Gravel**	Tonne	20		
4.21	1.4.1	**150-300mm Rip Rap -** Channel	Tonne	20		
4.22	1.4.1	**800mm - 1200mm - Rip Rap - Including non-woven geotextile -** Weir	Tonne	26		
4.23	1.4.1	**100mm-200mm Rip Rap - Including non-woven geotextile -** Swale	Tonne	8		
			Sub-Total		$	

DIVISION 32 - ROAD AND SITE IMPROVEMENTS

Item No.	Section	Specification Title	Unit	Qty	Unit Price	Amount
32 11 16.1		**Granular Sub-Base**				
5.1	1.4.2	**Granular Sub-Base - Roadway** Variable Thickness for Roads or Sidewalks	Cubic Metre	3000		
5.2	1.4.2	**25mm Clear Crush Rock** - Including Non-Woven Geotextile Wall - Block Infill	Tonne	400		
5.3	1.4.2	**75mm Select, Well Graded, Crushed Rock** Wall - Leveling Pad	Tonne	8		
5.4	1.4.2	**150 - 300mm Minus Well Graded Crush Rock** Wall	Tonne	8000		
5.5	1.4.2	**75 - 450mm Minus Well Graded Crush/Blast Rock** Wall	Tonne	3500		
5.6	1.4.2	**Pit Run Gravel - Roadway** Variable Thickness for Roads or Sidewalks	Tonne	275		
32 11 23		**Granular Base**				
5.7	1.4.1	**Granular Base Roadway** Variable Thickness for Roads or Sidewalks	Tonne	1732		
32 12 13.1		**Asphalt Tack Coat**				
5.8	1.5.1	**Asphalt Tack Coat**	Square Metres	6000		
32 12 13.2		**Asphalt Prime**				
5.9	1.5.1	**Asphalt Prime**	Square Metres	6000		
32 12 16		**Hot-Mix Asphalt Concrete Paving**				

5.10	1.5.1S, 1.5.2	**Asphalt Pavement - Base Course** LC#1 (40mm Compacted Thickness)	Square Metres	6000		
5.11	1.5.1S, 1.5.2	**Asphalt Pavement - Upper Course** UC #1 (40mm Compacted Thickness)	Square Metres	6000		
5.12	1.5.3	**Asphalt Sidewalk** 50mm Thick Hot Mix Asphalt, Including Ramps	Square Metres	100		
5.13	1.5.3	**Asphalt Driveway** 50mm Thickness Hot Mix Asphalt	Square Metres	100		
5.14	1.5.4	**Extruded Asphalt Curb (Optional)**	Lineal Metres	50		
32 17 23		**Painted Pavement Markings**				
5.15	1.5.3	**Thermoplastic Pavement Markings**	Lump Sum	1		
32 31 13		**Chain Link Fences & Gates**				
5.16	1.5.4S	**MoTi Steel Sidewalk Fencing**	Lineal Metres	130		
5.17	1.5.4S	**Mortar Rock Hand Railing - MMCD C14**	Lineal Metres	200		
32 91 21		**Topsoil and Finish Grading**				
5.18	1.4.1S	**Growing Medium** (Topsoil 150mm)	Square Metres	1210		
32 92 20		**Seeding**				
5.19	1.8.1	**Seeding**	Square Metres	1210		
			Sub-Total		$	

DIVISION 33 - UTILITIES						
Item No.	**Section**	**Specification Title**	**Unit**	**Qty**	**Unit Price**	**Amount**
33 34 01		**Sewage Force mains**				
6.16	1.8.2, 1.8.3	**Force main Pipe HDPE** 100mm Diameter	Lineal Metres	150		
6.17	1.8.3	**Bend & CAP** 100mm Degree of Bend. 45 Degree DI	Each	3		
6.18	1.8.5	**Reinstate Low Point Drain Valve**	Each	1		
6.19	1.8.10	**Force main Tie -In** 100mm Diameter Into Existing 100mm Diameter Sanitary Sewer or Existing Manhole	Each	3		
33 40 01		**Storm Sewers**				
6.2	1.6.1, 1.6.2	**Drainage Pipe PVC SDR** 200mm Diameter, Installed at Depth of 1-3m c/w Imported Backfill, 100mm - 19mm Granular Base and 250mm - 75mm Minus Pit Run Gravel.	Lineal Metres	284		
6.21	1.6.1, 1.6.2	**Drainage Pipe PVC SDR Perforated** 200mm Diameter, Installed at Depth of 1-3m c/w Imported Backfill, 100mm - 19mm Granular Base and 250mm - 75mm Minus Pit Run Gravel.	Lineal Metres	170		

6.22	1.6.1, 1.6.2	**Drainage Pipe PVC SDR** 300mm Diameter, Installed at Depth of 0-2m c/w Imported Backfill , 100mm - 19mm Granular Base and 250mm - 75mm Minus Pit Run Gravel.	Lineal Metres	265		
6.23	1.6.1, 1.6.2	**Drainage Pipe PVC SDR** 250mm Diameter, Installed at Depth of 1-3m c/w Imported backfill, 100mm - 19mm Granular Base and 250mm - 75mm Minus Pit Run Gravel.	Lineal Metres	45		
6.24	1.6.3, 1.6.2	**Drainage Service Connections** 100mm & 150mm Diameter Services per Service Connection Detail. Including Excavation, Disposal, Supply of Units, Cast In Place Concrete, Pipes, Fittings, Related Materials, Bedding, Backfill, Cleaning, Tie-In To Existing, Surface Restoration per 31-23-01 Section 3.6 (Excluding Permanent Pavement Restoration). All Other Related Works To Be Included.	Each	8		
6.25	1.6.5	**Catch basin Lead** 150mm Diameter	Lineal Metres	75		
33 42 13		**Pipe Culvert**				
6.26	1.5.1, 1.5.2	**1.8m X1.8m Concrete Box Culvert -** Includes 19mm Minus Crush and Coho Gravel as per Contract Drawings **(Alternate sizes include 2.1m x 1.8m, 2.1m x 2.1m & 2.4mx2.1m)**	Lineal Metres	21		
33 44 01		**Manholes and Catch basins**				
6.27	1.5.1.1	**Manhole** Base, Lid, Slab, Cover, Riser, Frame, and All Other Components of a Complete Manhole 1050mm Diameter. Excavation, Fill, and Surface Restoration per 31 23 01 Section 3.6 To Be Paid as a Part of Main Installation.	Each	11		
6.28	1.5.2	**Top Inlet Catch Basin** Standard Drawing S11	Each	13		
6.30	1.5.3	**Inspection Chamber** Standard Drawing S9,S12	Each	8		
			Sub-Total		$	

APPENDIX 2
PRELIMINARY CONSTRUCTION SCHEDULE

(SEE PARAGRAPH 5.3.2 OF THE INSTRUCTIONS TO TENDERERS – PART II)

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

MILESTONE DATES:

- Indicate Commencement Date per FT 5.1.2 and SGC 1.0 (1.79). The Commencement Date shall be between August 1, 2023 and January 5, 2024.
- Substantial Performance: **November 1, 2024**
- Throup Stream Culvert works are to be completed in with timelines set out in the Environmental Management Plan.

ACTIVITY	CONSTRUCTION SCHEDULE (MONTHS)									
	1	2	3	4	5	6	7	8	9	10

APPENDIX 3
EXPERIENCE OF SUPERINTENDENT

(SEE PARAGRAPH 5.3.3 OF THE INSTRUCTIONS TO TENDERERS – PART II)

Name:

Experience:

Dates:

Project Name:

Responsibility:

References:

Dates:

Project Name:

Responsibility:

References:

Dates:

Project Name:

Responsibility:

References:

Dates:

Project Name:

Responsibility:

References:

APPENDIX 4
WORK EXPERIENCE

(SEE PARAGRAPH 5.3.4 OF THE INSTRUCTIONS TO TENDERERS – PART II)

PROJECT	OWNER/ CONTRACT NAME	PHONE NO.	WORK DESCRIPTION	VALUE ($)

APPENDIX 5
SUBCONTRACTORS

(SEE PARAGRAPH 5.3.5 OF THE INSTRUCTIONS TO TENDERERS – PART II)

TENDER ITEM	TRADE	SUBCONTRACTOR NAME	PHONE NUMBER

APPENDIX 6
SOCIAL PROCUREMENT

	Social Procurement Principles or Practices	Yes	No	N/A	Describe where applicable
Diverse Employment Policies and Practices					
1	Does your enterprise work with employment support services within the communities you operate?				*Answer prompt: identify the employment support services that you engage with to address workplace needs*
Employee Training, Wellness, and Apprenticeship Programs					
2	Does your enterprise provide employee training and development programs?				*Answer prompt: describe- what type of training and development do you offer employees?*
3	Does your enterprise provide apprenticeships?				*Answer prompt: what types of apprenticeships do you host, how many annually, which colleges and institutions do you partner with?*

Living Wages					
4	Does your enterprise pay your employees a living wage? The 2021 living wage for Victoria -is $20.46/hour.				*Answer prompt: what percentage of your employees earn above a living wage? What other considerations inform or influence your wages? What other benefits do you offer employees?*
Supply Chain Considerations					
5	Do you consider social value in your production process and/or supply chain (e.g. local sourcing for labour and/or materials, social and environmental considerations)				*Answer prompt: Describe your process for contracting suppliers- what criteria do you use in selecting and working with your suppliers?*
Other Community Benefits					
6	Does your enterprise support community initiatives and/or non-profits in the communities you operate?				*Answer prompt: Provide an example of a non-profit partnership, community initiative or other community contributions, outside of your regular course of business, that demonstrates your community engagement*

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

BETWEEN *OWNER* AND *CONTRACTOR*

This agreement made in duplicate this

_____ day of _____, 2023.

Contract: *CHARTERS ROAD STREETSCAPE, SOOKE, B.C.*
(TITLE OF CONTRACT)

Reference No.: *T02-2023*
(OWNER'S CONTRACT REFERENCE NO.)

BETWEEN:

THE DISTRICT OF SOOKE
(NAME OF OWNER)

(the "*Owner*")

AND:

_____

_____

_____
(NAME AND OFFICE ADDRESS OF CONTRACTOR)

(the "*Contractor*")

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

Article 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* by **November 1, 2024** and meet all Milestone Dates, subject to the provisions of the *Contract Documents* for adjustments to the *Contract Time*

1.3 Time shall be of the essence of the *Contract.*

Article 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.*

Article 3 Contract Price

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

3.1.1 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

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

3.1.3 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*.

Article 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.

Article 5 Rights and Remedies

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

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

Article 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 hand, or by fax, or by pre-paid registered mail to the addresses as set out below:

The *Owner*:

The District of Sooke	
2205 Otter Point Road	
Sooke, BC V9Z 1J2	
Fax:	*250.642.1634*
E-mail	*jcarter@sooke.ca*
Attention:	*Jeff Carter*

The *Contractor*:

Fax:	
E-Mail:	
Attention:	

The *Contract Administrator*:

ISL Engineering and Land Services Ltd.	
1051 Vancouver Street	
Victoria, BC V8V 3K3	
e-mail:	*Bormiston@islengineering.com*
Attention:	*Brad Ormiston*

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

6.2.1 immediately upon delivery, if delivered by hand; or

6.2.2 immediately upon transmission if sent by fax and received in hard copy; or

6.2.3 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.*

6.4 The sender of a notice by fax assumes all risk that the fax is received in hard copy.

Article 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 ensure to the benefit of and be binding upon the parties and their successors, executors, administrators and assigns.

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

Contractor:

(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

(AUTHORIZED SIGNATORY)

(AUTHORIZED SIGNATORY)

Owner:

THE DISTRICT OF SOOKE

(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

(AUTHORIZED SIGNATORY)

(AUTHORIZED SIGNATORY)

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

SCHEDULE 1 – SCHEDULE OF CONTRACT DOCUMENTS

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

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

1. Agreement, including all Schedules
2. Supplementary General Conditions
3. General Conditions*
4. Supplementary Specifications
5. District of Sooke Bylaw 404, Subdivision and Development Standards Bylaw
6. Specifications*
7. Supplementary Standard Detail Drawings
8. Supplementary Standard Detail Drawings as per Bylaw 404
9. Standard Detail Drawings*
10. Executed Form of Tender, including all Appendices
11. *Contract Drawings* listed in Schedule 2 to the Agreement – "*List of Contract Drawings*";
12. Instructions to Tenderers – Part I
13. Instructions to Tenderers – Part II*
14. Environmental Management Plan for Throup Stream/Charters Road Culvert Replacement
15. Charters Road and Church Road Constructions Traffic Management Strategy, District of Sooke" prepared by ISL Engineering Ltd, May 2023
16. Appendix A – Approved Products List (Capital Regional District Integrated Water Systems)
17. Capital Regional District Engineering Specifications and Standard Drawings
18. Geotechnical Design Memorandum – February 3, 2022
19. Chance Find Protocol for Archaeological Sites
20. The following Addenda (if any):

_____

_____

_____

_____

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

SCHEDULE 2 – LIST OF CONTRACT DRAWINGS

SHEET	DRAWING TITLE	DRAWING DESCRIPTION
CONTRACT DRAWINGS PACKAGE		
0		COVER SHEET
1		GENERAL NOTES
2		REMOVALS - STA 1+080 TO STA 1+290
3		REMOVALS - STA 1+290 TO STA 1+590
4		REMOVALS - THROUP ROAD
5		ROADWORKS PLAN - STA 1+080 TO STA 1+180
6		ROADWORKS PLAN - STA 1+180 TO STA 1+290
7		ROADWORKS PLAN - STA 1+290 TO STA 1+440
8		ROADWORKS PLAN - STA 1+440 TO STA 1+590
9		ROADWORKS PLAN - STA 2+000 TO STA 2+100
10		WALL PLAN AND PROFILE
11		EAST WALL DETAILS AND TYPICAL CROSS SECTION
12		WEST WALL DETAILS AND TYPICAL CROSS SECTION
13		EAST & WEST WALL - NOTES
14*		WATERMAIN STA 2+000 TO STA 2+120
15*		WATERMAIN STA 2+120 TO STA 2+210
16*		WATERMAIN STA 2+210 TO STA 2+360
17*		WATERMAIN STA 2+360 TO STA 2+480
18		CULVERT PLAN AND PROFILE
19		CULVERT DETAILS
20		STORM STA 0+000 TO STA 0+070
21		STORM STA 0+070 TO STA 0+180
22		STORM STA 0+180 TO STA 0+330
23		STORM STA 0+330 TO STA 0+465
24		STORM THROUP ROAD
25		SECTIONS - STA 1+120 TO ST 1+270
26		SECTIONS - STA 1+280 TO STA 1+390
27		SECTIONS - STA 1+400 TO STA 1+550
28		DETAILS
29		ELECTRICAL - COVER SHEET - NOTES - KEY PLAN
30		SITE PLAN
31		SITE PLAN
32		SITE PLAN

SHEET	DRAWING TITLE	DRAWING DESCRIPTION
33		ELEVATIONS - DETAILS
34		SERVICE KIOSK - DETAILS

*To be issued via addendum

The above drawings are supplemented by the below listed standard detail drawings included with the specifications as follows:

SUPPLEMENTAL DETAIL DRAWINGS	
DRAWING NUMBER	**TITLE**
1.2	CRD AIR VALVES TYPICAL INSTALLATION 100mm -300mm PIPE
1.3	CRD STANDARD FIRE HYDRANT ASSEMBLY
1.5	CRD 50mm FLUSH & LOW POINT VALVE INSTALLATION
1.7	CRD STANDARD LINE VALVE INSTALLATION
1.8	CRD CONCRETE THRUST BLOCK DETAILS
1.9	CRD MECHANICAL THRUST RESTRAINT APPLICATIONS
1.10	CRD THRUST RESTRAINT LENGTH
1.11	CRD THRUST RESTRAINT FOR FLEXIBLE COUPLINGS
1.12	CRD STANDARD TRENCH DETAIL
1.13	CRD STANDARD VALVE BOX
2.3	CRD 19 mm CAST IRON COVER FOR 19mm METER
2.4	CRD EXISTING SERVICE REPLACEMENT
2.5	CRD WATER SERVICE – TYPICAL LAYOUT WITH RESPECT TO PROPERTY LINE
2.6	CRD STANDARD WATER SERVICE CONNECTION 19mm & 25mm
2891-2	MOTI STANDARD STEEL BICYCLE FENCE

MMCD Supplementary Specifications and requirements are supplemental to the “Master Municipal Construction Documents – General Conditions, Specifications and Standard Detail Drawings". The full Supplemental Specifications list for the District’s Subdivision Bylaw 404 can be found online here.

In cases of conflict, the order of precedence for specifications and standards is as per the Supplementary General Conditions, Section 2.2.4, Document Hierarchy.

SUPPLEMENTARY GENERAL CONDITIONS – Revise the following MMCD Master Municipal General Conditions			
GC 1.0 Definitions	**1.76**	Variance Threshold Percentage	**Revise:** "replace 15% with 25%".
	New 1.79	Archaeological Artifacts	**Add:** *"Archaeological Artifacts* means any fossils, artifacts, coins, articles of value or antiquity, remains, and other things of geological, archaeological or historical interest or value discovered at the P/ace of the Work
	New 1.80	Engineer	**Add:** "Engineer means the *Contract Administrator".*
	New 1.81	Utilities	**Add:** "Utilities is used broadly and includes but is not limited to any and all lines, poles, structures, facilities, utilities for power, cable, TV, telephone, telecommunications, all sanitary and storm sewers, and all water, oil, gas and electric services, all steam pipes and services, all survey monuments, all street lights, traffic lights, traffic detector loops embedded in pavement, culverts, rail tracks, whether located above or below ground, whether visible or invisible, whether man-made or natural."
	New 1.82	Commencement Date	**Add:** Commencement Date is the date specified by the Form of Tenderer in Appendix 2 to the Form of Tender in which the Contractor will commence the Work.
GC 2.0 Documents	**2.2.4**	Document Hierarchy	**Replace Section (1) with the following:** "The Contract Documents shall govern and take precedence in the following order with the Agreement taking precedence over all other Contract Documents: 1. Agreement 2. Addenda 3. Supplementary General Conditions 4. General Conditions 5. Supplementary Specifications 6. **District of Sooke Bylaw 404, Subdivision and Development Standards Bylaw** 7. Specifications 8. Drawings listed in Schedule 2 to the Agreement 9. Supplementary Detail Drawings 10. **Supplementary Standard Detail Drawings as per Bylaw 404** 11. Standard Detail Drawings 12. Executed Form of Tender 13. Instructions to Tenderers 14. All other Contract Documents."

	New 2.4.3	Copies of Contract Documents	**Add:** "The *Contract Drawings* shall not be used for the construction of the Work unless marked "Issued for Construction" and sealed by a registered professional engineer"
GC 3.0 Contract Administrator	**3.2**	Authority	**Amend Clause 3.2.2 by adding**: **"**or other relationship recognized at law" after "contractual relationship".
GC 3.0 Contract Administrator	**New 3.3.5.(1)**	Contract Administration	**Amend Clause 3.3.5 by adding:** "The *Contract Administrator* will conduct survey checks of the completed work at his/her discretion. The *Contractor* will provide a survey assistant, at the *Contract Administrator's* request, for such checks."
GC 3.0 Contract Administrator	**New 3.7**	Payment Certifier	**Add:** "The roles for a Payment Certifier are defined in the British Columbia Builders Lien Act. For the *Contractor*, the Payment Certifier shall be the *Contract Administrator*. The Payment Certifier for the Subcontractors shall be the *Contractor*."
GC 4.0 Contractor	**New 4.3.3.(1)**	Protection of Work, Property and the Public	**Add:** "The *Contractor* shall coordinate all communications of the construction works with the Owner's Representative. The District shall oversee all communications during the project with regular update letters to directly affected businesses being provided by the *Contractor*."
	New 4.3.5.(1)	Protection of Work, Property and the Public	**Add:** "The *Contractor* shall notify the *Contract Administrator* immediately if damage to any structure occurs."
	4.5	Errors, Inconsistencies or Omissions in the Contract Documents	"**Amend 4.5.1 and 4.5.2 by deleting:** "or omission" whenever it appears and substituting ", omission or any incorrect, inaccurate or misrepresented fact".
	New 4.5.4	Errors, Inconsistencies or Omissions in the Contract Documents	**Add:** "If *Additional Instructions* are required to address any error, inconsistency, omission or incorrect, inaccurate or misrepresented facts, the *Contractor's* inefficiencies or mismanagement, if any, shall not be taken into account when determining any impact of this *Additional Instructions* on the *Contract Price* or *Contract Time*."
GC 4.0 Contractor	**New 4.6.1.(2)**	Construction Schedule	**Add:** "The contractor shall provide bi-weekly schedule updates that include the following: A summary of current and completed activities of the previous 2 week period, and upcoming work or activities in each block or intersection for the following 2 week period. These schedules will be used to improve coordination and provide updates to

			stakeholders and the general public."
	4.6	Construction Schedule	**Amend 4.6.2 by deleting:** "monthly" and substituting "monthly" or as required by the *Contract Administrator."*
GC 4.0 Contractor	**New 4.9.3**	Materials	**Add:** "Handle and store products in a manner such as to prevent damage, deterioration and soiling. Store packaged or bundled products in original undamaged condition with manufacturer's seals and labels intact, and for materials subject to damage from weather or the environment, store in protective enclosures."
	New 4.9.4	Materials	**Add:** "Install or erect materials in accordance with manufacturer's instructions and requirements. Notify *Contract Administrator* in writing of conflicts between project drawings and specifications, and instructions or requirements of the manufacturer. The *Contractor* will remove and replace or reinstall any materials installed incorrectly, inappropriately or inadvertently due to non-compliance with this section."
	New 4.9.5	Materials	**Add:** "Materials supplied for the construction of the watermain are to be in accordance with the Capital regional District's Appendix A – Approved Products.
GC 9.0 Valuation of Changes And Extra Work	**9.2**	Valuation Method	**Amend Clause 9.2.4 by deleting: "**unless at the time of the agreement the *Contractor* expressly reserved in writing the right to claim for additional payment or *Contract Time* adjustments."
GC 15.0 Owner's Right On Contractor's Default	**15.3**	Termination	**Delete GC 15.3.1.1 and replace with:** "be entitled to: (a) Take possession of the *Place of Work* and materials to be incorporated into the *Work* but not yet delivered, (b) Utilize the construction machinery and equipment, subject to the right of third parties, and (c) Complete the *Work* by whatever method the *Owner* may consider expedient, and"

GC 16.0 Contractor's Right On Owner's Default	**16.2**	Work Stoppage	**Amend Clause 16.2.2 by deleting: "**30 calendar days" and substituting "60 calendar days".
GC 17.0 Disputes	**17.5**	Referee	**Delete GC 17.5.3 and replace with:** "If a *Referee* is selected for appointment as provided by this GC then the parties shall enter into agreement with the *Referee* by signing a letter in the form set out in Schedule 17.5.3 to these GC's. If one party and the Referee sign the agreement and, after presentation, the other party fails or refuses the sign the agreement, the defaulting party shall be deemed to be a party to the agreement."
			Amend GC 17.5.8 by adding: after "the *Referee*" the following: "Shall make decisions in a fair and impartial manner and".
			Amend GC 17.5.11 by renumbering it GC 17.5.11.1 and adding the following at the end: "unless the parties agree otherwise."
			Add 17.5.11.2 as follows: "despite 17.5.11.1, on written application of a party, the Master Municipal Documents Association may revoke the appointment of the Referee if the Association is satisfied the *Referee* is biased, unqualified to discharge the *Referee's* duties, or has failed to diligently and conscientiously perform the *Referee's* duties, A replacement *Referee* shall be selected for appointment as provided by this GC."
			Amend 17.5.13 by deleting "by either party, or both parties," and replacing with: "by both parties but not by one party,"
GC 17.0 Disputes GC 17.0 Disputes	**17.7**	Arbitration or Litigation	**Delete GC 15.7.1 and replace with:** "If 1) within 7 calendar days of the commencement of the Settlement Meeting, or such further period agreed by the parties, the matter is not settled by agreement, or 2) either party fails or refuses to participate in the *Settlement Meeting* with the time limit set out in the GC 17.6.2, the *Dispute* shall, on delivery of a notice of arbitration by either party, be finally resolved by arbitration conducted under the arbitration rules of procedure of the B.C.

			International Commercial Arbitration Centre."
			Add GC 17.7.2 as follows: "If neither party requires, by notice of writing, that the *Dispute* submitted to arbitration under GC 17.7.1 be arbitrated within the time limits required in the arbitration rules of procedure, all *Disputes* referred to arbitration under the *Contract* shall be: 1) held in abeyance until a. *Substantial Performance*, b. The *Contractor* has been terminated, or c. The *Contractor* has abandoned the *Work*, or whichever is earlier, and 2) Consolidated into a single arbitration under the arbitration rules of procedure."
	17.7	Arbitration or Litigation	**Add GC 17.7.3 as follows: "**Nothing in this GC shall be construed in any way to limit a party from asserting any statutory right to a lien under the *Builders Lien Act* and the assertion of such right by initiating judicial proceedings not to be construed as a waiver of any right that party may have under GC 17.7.1 to proceed by way of arbitration to adjudicate the merits of claim upon which such a lien is based."
GC 18.0 Payment	**18.5**	Payment	**Delete GC 18.5.1 and replace with:** "the *Owner* shall make payment within thirty calendar (30) days of receipt of payment certificate from the *Contract Administrator.* The actual amount paid is subject to the *Owner's* rights under law or this *Contract* to make deductions."
GC 18.0 Payment	**18.5**	Payment	**Amend 18.5.1 by replacing:** "15th day" to read "30th day."
GC 18.0 Payment	**18.9**	Waivers of Claims	**Amend 18.9.1 as follows:** delete the last sentence and replace with "This waiver of claims shall include without limitation those claims that might arise from (a) The negligence or breach of contract by the *Owner*, or (b) The negligence or wrongful acts of the *Owner*'s consultants or the *Contract Administrator*, or But shall not include claims made by the *Contractor* in writing prior to such application in accordance with this provisions of the *Contract Documents* and delivered to the *Contract Administrator* prior to the date of

			Substantial Performance and still unsettled."
	18.9	Waivers of Claims	**Amend 18.9.2 as follows:** delete the last sentence and replace with "This waiver of claims shall include without limitation those claims that might arise from (a) The negligence or breach of contract by the *Owner*, or (b) The negligence or wrongful acts of the *Owner's* consultants or the *Contract Administrator*, or But does not include claims made by the *Contractor* in writing prior to such application in accordance with this provisions of the *Contract Documents* and delivered to the *Contract Administrator* prior to the date of *Substantial Performance* and still unsettled."
GC 20.0 Laws, Notices, Permits and Fees	**New 20.4.2**	Environmental Laws	**Add:** "The *Contractor* shall indemnify the Owner, the *Contract Administrator*, and their respective employees, agents, officers and consultants for any costs, fines, expenses and penalties that the Owner is required to pay on account of the *Contractor* performing *Work* in breach of any applicable Federal, or Provincial or municipal laws, regulations, or orders."
GC 24.0 Insurance	**24.1**	Required Insurance	**Delete 24.1.2 and replace with:** "The above insurance policies listed in the GC shall have the right of subrogation waived as against the *Owner* and the *Contract Administrator* and their respective employees, servants and agents. "
GC 24.0 Insurance	**24.1**	Required Insurance	**Delete 24.1.3 and replace with:** "Prior to commencement of the *Work,* the *Contractor* shall provide the *Owner* with satisfactory evidence that the insurance required to be provided by the *Contractor* under this GC is in force and effect."

GC 25.0 Maintenance Period	**25.1**	Correction of Defects	**Delete 25.1.3 and replace with:** "The *Owner* shall provide the *Contractor* with access, at all reasonable times, to the location of any defect or deficiency described in this GC to enable the *Contractor* to correct the defect or deficiency, but the *Contractor* shall be responsible for (a) Exposure of the defect or deficiency in order to correct or repair the defect or deficiency, (b) The restoration of the Work or other property that is disturbed or damaged in the course of i) Exposing the defect or deficiency, or ii) Correcting or repairing the defect or deficiency, and (c) All risks associated with any activity described in paragraphs (a) and (b)."
GC 26.0 Early Use of Work	**26.1**	Partial Use	**Amend 26.1.1 by deleting:** "on written approval of the *Contract Administrator*" and substituting "with prior written notice to the *Contract Administrator*."
GC 27.0 Archaeological Artifacts	**New 27.1.1**	Archaeological Artifacts	"Any Archaeological Artifacts discovered by the *Contractor* shall, as between the *Owner* and the *Contractor*, be deemed to be the absolute property of the *Owner*".
	New 27.1.2		"The *Contractor* shall immediately advise the *Contract Administrator* of the discovery by the *Contractor* of any Archaeological Artifacts and take all reasonable precautions to protect and preserve same".
SGC 28.0	**New 28.1**	Approved Supplemental	"All MMCD board approved Supplementary's as listed at www mmcd.net are to be included and in effect for this contract as of tender closing date."
GC 29.0 Advertising	**New 29.1**	Advertising	"No advertising signs or notices will be permitted on-site without the prior written approval of the Owner."
GC 30.0 Approved Supplemental	**New 30.1**	Approved Supplemental	"All MMCD board approved Supplementary's as listed at www.mmcd.net/ are to be included and in effect for this contract as of tender closing date."

Revise the following Master Municipal Specifications 2019 Edition:

SECTION	SUB SECTION	TITLE	SUPPLEMENTARY SPECIFICATION
01 10 00SS		**General Requirements**	
	1.0	General	**Add Clause 1.1:** "Section 01 10 00SS addresses additional measurement and payment clauses which do not apply to other specification sections"
	1.2	Payment	**Add Clause 1.2:** " .1 Payment shall be based on the Lump Sum bid in the Schedule of Quantities and Unit Prices as measured and accepted by the Contract Administrator. Payment shall be accepted as full compensation for everything furnished and done. .2 Payment of the lump sum bid will be paid in equal amounts each month. .3 The Contractor is responsible for all staking and survey layout and quantity calculations required for the completion of all Work, as shown on the Contract Drawings, and to affect incidental field adjustments. .4 The unit price bid shall include, but not be limited to; all survey layout, staking, cross sections, calculations of volumes required for tender items, coordination required for the completion of the work, record survey, and all other work and materials incidental and necessary to complete the Work to provide a functional system. Grade sheets, digital RAW and CAD file data is to be provided to the Contract Administrator 10 Days prior to executing the work. .5 Any calculations necessary shall be performed by the Contractor and shall be provided to the Contract Administrator at any time upon request. Information shall include both text files and any CAD drawings."
01 52 01		**Temporary Structures**	
	1.1	Section Includes	**Add Clause 1.1.4:** “Mobilization/Demobilization.”

	1.6	Payment	**Add Clause 1.6.2:** "Payment for mobilization and demobilization shall include all the Contractor costs of mobilization at the beginning of the project and the cost of demobilization at the end of the project. 1. Included in the mobilization are such items as bonding, insurance, permits, moving personnel, equipment and materials to the site, setting up temporary facilities and all preparation for performing the Work. 2. Included in demobilization are preparation and submission of record drawings, operation and maintenance manuals, removal of all personnel, equipment and materials and cleanup of the Site and the Work. 3. The lump sum price bid for this work shall be relative to the costs involved but shall not exceed ten percent of the Tender Price. 4. Payment shall be made as follows, as approved by the Contract Administrator: 1. 60% of the lump sum bid will be included in the first progress payment certificate. 2. 40% of the lump sum bid will be included in the final progress payment certificate. 5. The Contract Administrator may at their discretion authorize partial payment if mobilization or demobilization is not complete. 6. The cost of other items specified under General Requirements shall be considered incidental to the work and separate payment will not be made for any other items in the General Requirements unless specifically noted in the Schedule of Quantities and Prices."
01 53 01		**Temporary Facilities**	
	1.1	Section Includes	**Add Clause 1.1.5:** "Temporary Utility Pole Support During Construction."
	1.9	Payment	**Add Clause 1.9.2:**"Payment for all work related to the management of sanitary flows (noise attenuating by-pass pumping isolation, blocking, diverting, etc.) including preparation of a approved bypass plan, and the supply installation, maintenance and removal of the temporary system. The Contractor will be entitled to 50% of the payment item on the first progress payment after the bypass system is in place and 50% on the first progress payment following dismantling and removal of the bypass system."

	1.11	Temporary Utility Pole Support During Construction	**Add Clause 1.11:** "Temporary Utility Pole Support During Construction." **Add Clause 1.11.1:** "Provide temporary support for Utility Poles (both power and communications) during construction as required to allow for work adjacent to poles." **Add Clause 1.11.2:** "Contractors working on utility poles must be able to perform switching on the BC Hydro system."
01 55 00		**Traffic Control, Vehicle Access and Parking**	
	1.4	Traffic Management	**Add Clause 1.4.14.1:**"The Contractor to prepare a Traffic Management Plan in accordance with the provided "Charters Road and Church Road Constructions Traffic Management Strategy" prepared by ISL."
	1.5	Payment	**Add Clause 1.5.2:** "Payment for traffic control will be progressed monthly using a percentage based on the overall completion of the project as determined by the Contract Administrator and Baseline Construction Schedule"
01 57 01		**Environmental Protection**	
	1.4	Environmental Protection	**Add Clause 1.4.4:** "Archaeological Assessment Compliance: 1. Portions of the Work are located in areas considered to have high archaeological potential and require considerations prior to and during construction. 2. Construction monitoring by the Archaeological Consultant and representatives from Indigenous communities (that have interests in the area) will be conducted during the Work in the areas considered to have high archaeological potential. This work will be conducted under an Heritage Conservation Act (HCA) permit obtained by the Archaeological Consultant on behalf of the Owner. a. Any work requiring First Nation representatives will require at least five business days of notification prior to fieldwork. b. The Archaeological Consultant and First Nation representative's services and related costs will be provided and paid for by the Owner."
	1.4	Environmental Protection	**Add Clause 1.4.5:** "Archaeological Excavation Methods: The following applies for portions of the project alignment, identified during monitoring, to have the potential to contain buried archaeological materials (e.g. buried soil horizons):

			1. Toothed buckets may be used to remove obstructions (pavement, boulders, etc.) prior to reaching potentially culture-bearing sediments. Potentially culture-bearing sediments will be removed with a finishing bucket, in maximum 10 cm vertical lifts, to allow the archaeologist to observe any exposed features or intact deposits and collect artifact provenience in the most precise manner possible. The horizontal extent of lifts will not exceed 3 m. Deposits containing, or with the potential to contain, archaeological materials (i.e., archaeological deposits, or suspected archaeological deposits), will be cast to the side of the trench separately (as practical) from non-archaeological deposits, so that they can be inspected by the archaeological crew. 2. In the event that intact archaeological deposits or features are identified, mechanical excavation will cease in the vicinity of the discovery and excavation will proceed by hand or other methods in consultation with the Branch. The Field Director may use discretion to determine the amount of material to hand excavate. Typically, 10% of intact archaeological deposits will be hand excavated. Other sample sizes may be determined in consultation with the Branch. If more than 20 cubic metres of archaeological deposits are identified, the Branch and Indigenous groups will be contacted. Work may not proceed without Branch approval. 3. 100% of displaced intact archaeological deposits will be screened through 6 mm (0.25 in.) mesh and/or hand sorted using a trowel or rake. Minimally, 25% of displaced disturbed archaeological deposits will be raked and/or sample screened. In disturbed contexts, the Field Director may use discretion to determine the amount of material to be processed. In the event that displaced disturbed archaeological deposits cannot be reinterred within the location of discovery and must be transported elsewhere, they may need to be raked and/or screened entirely. 3. The Contractor shall schedule the order of work to provide options to continue with production at an alternate activity or project location, should Archaeological findings (e.g. human remains, wet sites materials, etc.) be encountered and a work stoppage. The contractor should account for a work-free buffer zone (distance will be provided by the project archaeologist but is generally 10 metres) related to any onsite archaeological find. 4. No excavation work shall proceed in absence of a Stantec archaeologist unless arrangements have been made in advance.”

	1.4	Environmental Protection	**Add Clause 1.4.6:** "Archaeological Materials: 1. In the event intact material, culture-bearing deposits, or features are identified by the Contractor and confirmed by the Archaeological Consultant, mechanical excavation will cease, and excavation may proceed by hand or other methods as provided under the guidance of the Archaeological Consultant. a. In the event cultural material is identified, no excavation work shall proceed in absence of the Archaeological Consultant unless arrangements have been made in advance. b. In the event cultural material is identified, the Contractor will provide an area within the HCA permit area to stockpile excavated materials for the archaeological team to process. c. In the event cultural material is identified this will be considered Change."
	1.4	Environmental Protection	**Add Clause 1.4.7:** "Ancestral Remains: 1. If Ancestral remains are identified during any part of the Work, the Contractor must immediately cease work in the location of the remains and secure the area to prevent additional disturbance as instructed by the Archaeological Consultant. 2. The Archaeological Consultant will notify the Owner, First Nations, and the Archaeological Branch and RCMP (if necessary) to determine the appropriate next steps."
	1.4	Environmental Protection	**Add Clause 1.4.8:** "Environmental Protection Plan to be prepared in accordance with “Environmental Management Plan for Throup Stream / Charter Road Culvert Replacement.” prepared by Swell Environmental Consulting"
	1.4	Environmental Protection	**Add Clause 1.4.9:** "Removal and disposal of Asbestos Cement pipe shall follow current WCB requirements."
	1.6	Payment	**Add Clause 1.6.2:** "Environmental Protection Plan to be prepared in accordance with “Environmental Management Plan for Throup Stream / Charter Road Culvert Replacement.” prepared by Swell Environmental Consulting. Payment for Environmental Protection Plan shall be lump sum and includes all work to prepare, deliver and enact an Environmental Management Plan prepared by a registered qualified environmental professional (QEP) that contains the following components: tree protection plan; sensitive ecosystem management plan; sediment and erosion control plan; invasive species management plan; waste disposal; storage areas and laydown area management plan; equipment idling control plan; hazardous material control and spill response plan."
DIVISION 3 - CONCRETE			

03 30 20		**Concrete Walks, Curbs and Gutters**	
	1.4	Measurement and Payment	**Revise Clause 1.4.5 to read:** "Payment for infill concrete sidewalks, ramps, and medians includes the supply and placing of concrete, granular base and will cover all straight and curved sections and will be made separately for each specified type, thickness and finish as shown on the contract drawings."
03 40 01		**Pre-Cast Concrete**	
	1.4	Measurement and Payment	**Revise clause 1.4.5 to read:** "Payment for the relocation of the concrete no-post barriers along Charters Road will be made by lump sum and will include all materials, equipment and labour for the relocation to the identified District of Sooke Storage Yard within 20 kilometers of the project site."
	3.0	Execution	**Add Clause 3.2.3:** " Contractor to confirm limits of retaining wall subgrade under the direction of the geotechnical engineer to confirm ultimate area of wall prior to submitting final order of redi-rock wall blocks for delivery to site."
03 30 53		**Cast-In-Place Concrete**	
	1.5	Measurement and Payment	**Add Clause 1.5.6:** "Payment for Mortared Rock Wall shall include, but not be limited to; supply and installation of the mortared rock retaining wall including the subgrade preparation, drain and grouted cap, drain rock, railing sleeves, concrete leveling cap, and all other work and materials incidental and necessary to complete the Work to provide a functional system all as shown on the Contract Drawings. Payment shall be based on the Unit Price per square meter bid for each wall height. Wall height is measured from finished grade to top of wall. Payment shall be accepted as full compensation for everything furnished and done."
DIVISION 31 - EARTHWORK			
31 24 13		**Roadway Excavation, Embankment and Compaction**	
	1.8	Measurement and Payment	**Add Clause 1.8.14:** " Payment for the removal of existing driveway and roadway culverts will be made by lineal meter of culvert removed as indicated on the contract drawings. Payment to include all labour, equipment and materials required for the offsite disposal of each culvert type."
	1.8	Measurement and Payment	**Add Clause 1.8.15:** " Payment for the removal of existing Throup Stream culverts will be made by lineal meter of culvert removed as indicated on the contract drawings. Payment to include all labour, equipment and

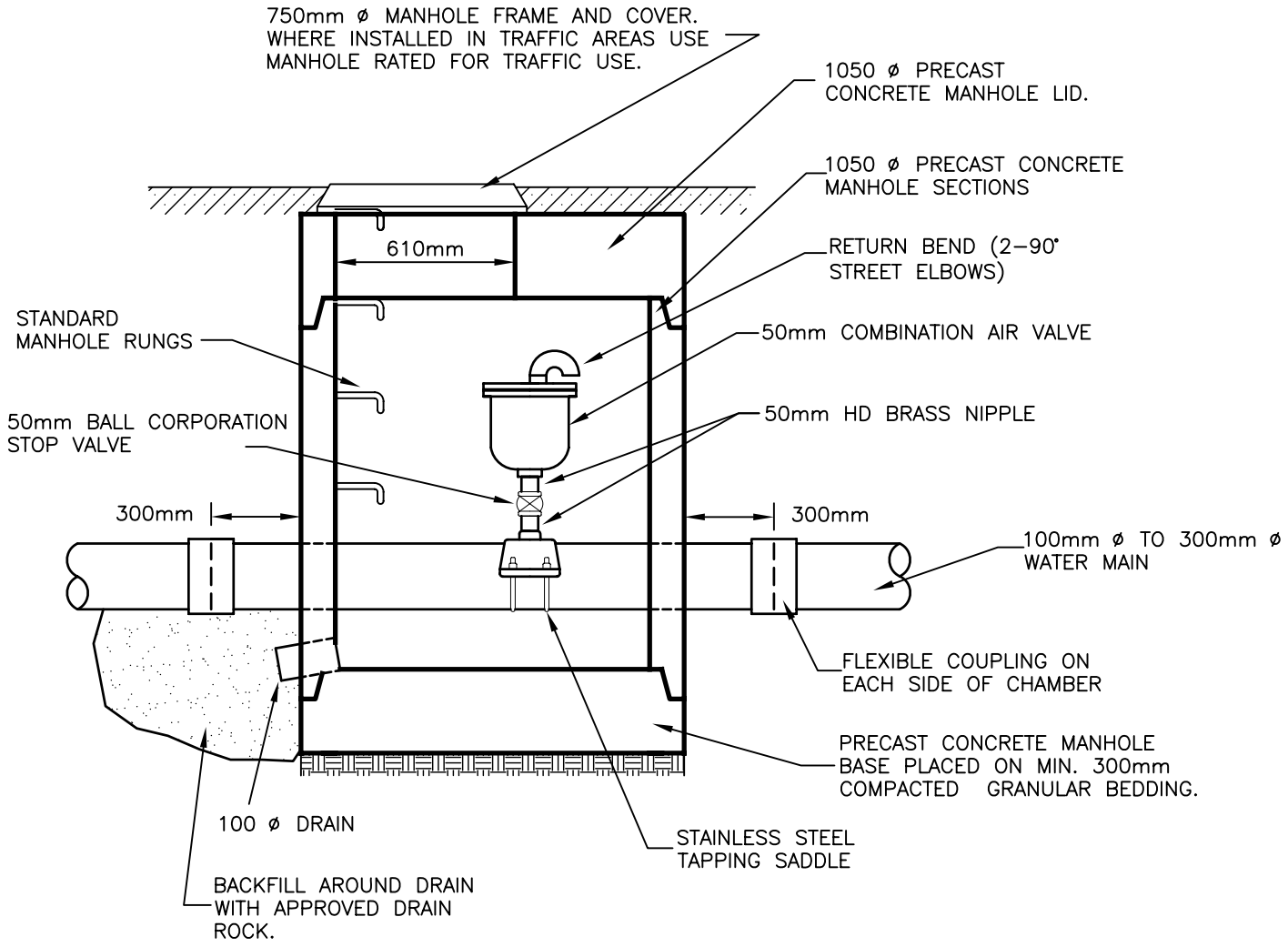
			materials required for the offsite disposal of each culvert type."
	1.8	Measurement and Payment	**Add Clause 1.8.16:** " Payment for the removal of asbestos cement pipe will be made by lineal meter of pipe removed as indicated on the contract drawings. Payment to include all labour, equipment and materials required for the offsite disposal following all work safe regulations, bylaws, laws, and best practices."
31 32 19		**Geosynthetics**	
	3.0	Execution	Add Clause 3.1.5: "Installation of geosynthetic material associated with MSE Redi-rock lock block wall is to conform to the contract drawings and redi-rock manufacturers recommendations as approved by then Contract Administrator."
DIVISION 32 - ROAD AND SITE IMPROVEMENTS			
32 11 16.1		**Granular Subbase**	
	2.1	Specified Materials	**Add the following to end of clause 2.1.1:** "(9) 25mm Clear Crush Rock (10) 75mm Select, Well Graded, Crushed Rock (11) 150 - 300mm Minus Well Graded Crush Rock (12) 75 - 450mm Minus Well Graded Crush/Blast Rock"
32 12 16		**Hot-Mix Asphalt Concrete Paving**	
	1.5	Measurement and Payment	**Revised Clause 1.5.1 to read:** "Payment for asphaltic concrete paving includes all construction joint preparation, supply and placing of the asphaltic concrete, compaction, adjusting and cleaning of frames, covers and lids of all castings affected and taped temporary pavement markings. Measurement for asphaltic concrete paving will be by square meter of actual placed material as approved by the contract administrator."
32 31 13		**Chain Link Fences & Gates**	
	1.5	Measurement and Payment	**Revise Clause 1.5.4 to include:** “MOTI Drawing 2891-2 Standard Steel Bicycle Fence.”
32 91 21		**Topsoil and Finish Grading**	
	1.4	Measurement and Payment	**Revised Clause 1.4.1 to read:** "Payment for growing medium and imported topsoil will be made separately for each type of growing medium and imported topsoil specified, and includes supply of materials, on-site handling, placement to thickness specified, application of fertilizers and finished grading. Payment for growing medium and topsoil will be made by actual area placed and compacted by landscape roller to the specified thickness as approved by the Contract Administrator."

DIVISION 34 - TRANSPORTATION			
34 41 13		**Traffic Signals**	
	1.9	Measurement and Payment	**Add Clause 1.9.4:** “Payment for supply, relocation, and installation of traffic signs, sign posts, bases, and sleeves will be made per each as shown on the Contract Drawings. ”

CHARTERS ROAD – STREETSCAPE

SUPPLEMENTAL DETAIL DRAWINGS

File: T02-2023
May 2023



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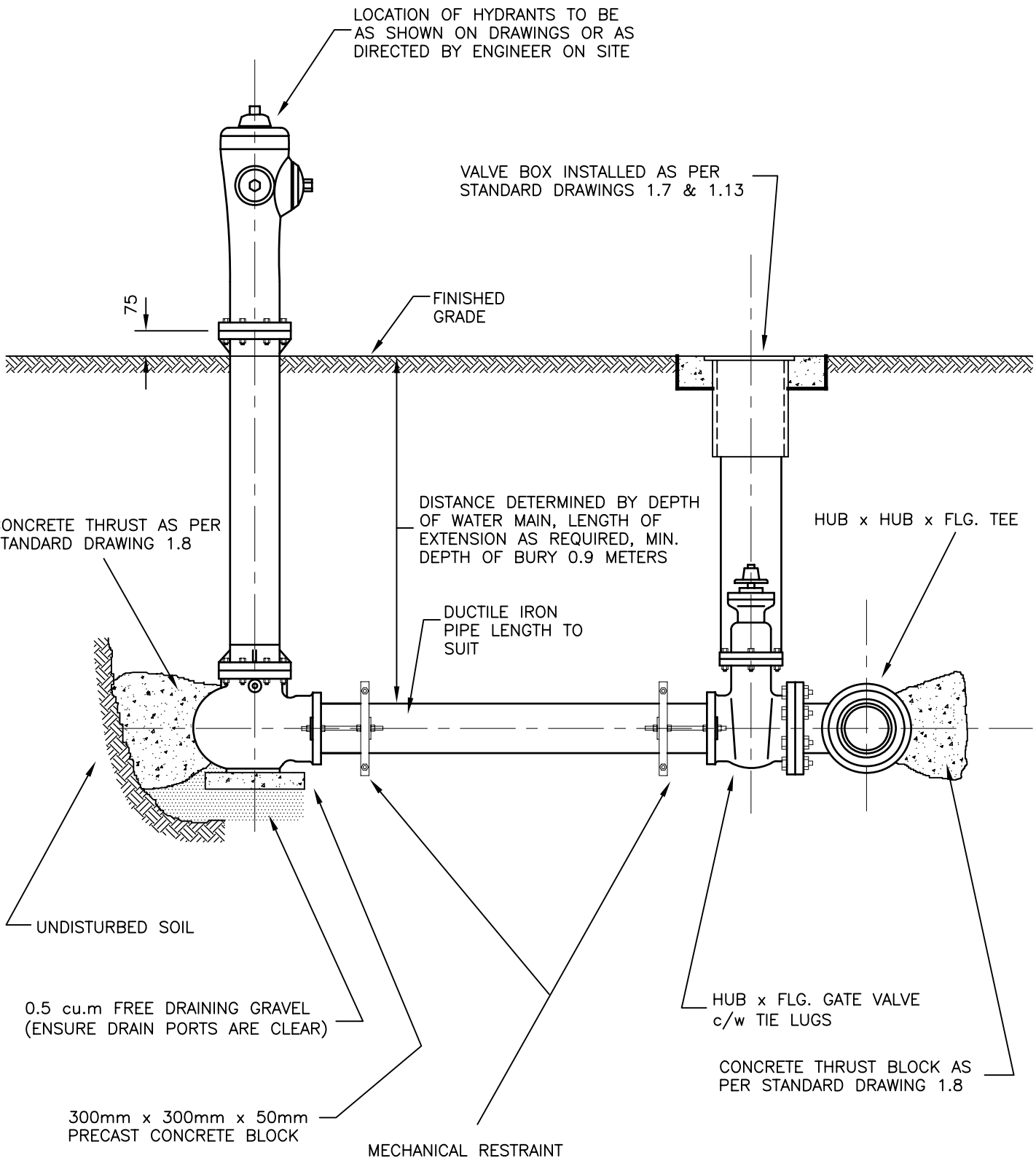
AIR VALVES
TYPICAL INSTALLATION
100mm - 300mm PIPE

revision date:	scale:
APRIL 2007	N.T.S.
drawn: GP/DR	checked: C. GOTTFRED

standard drawing no.:

1.2



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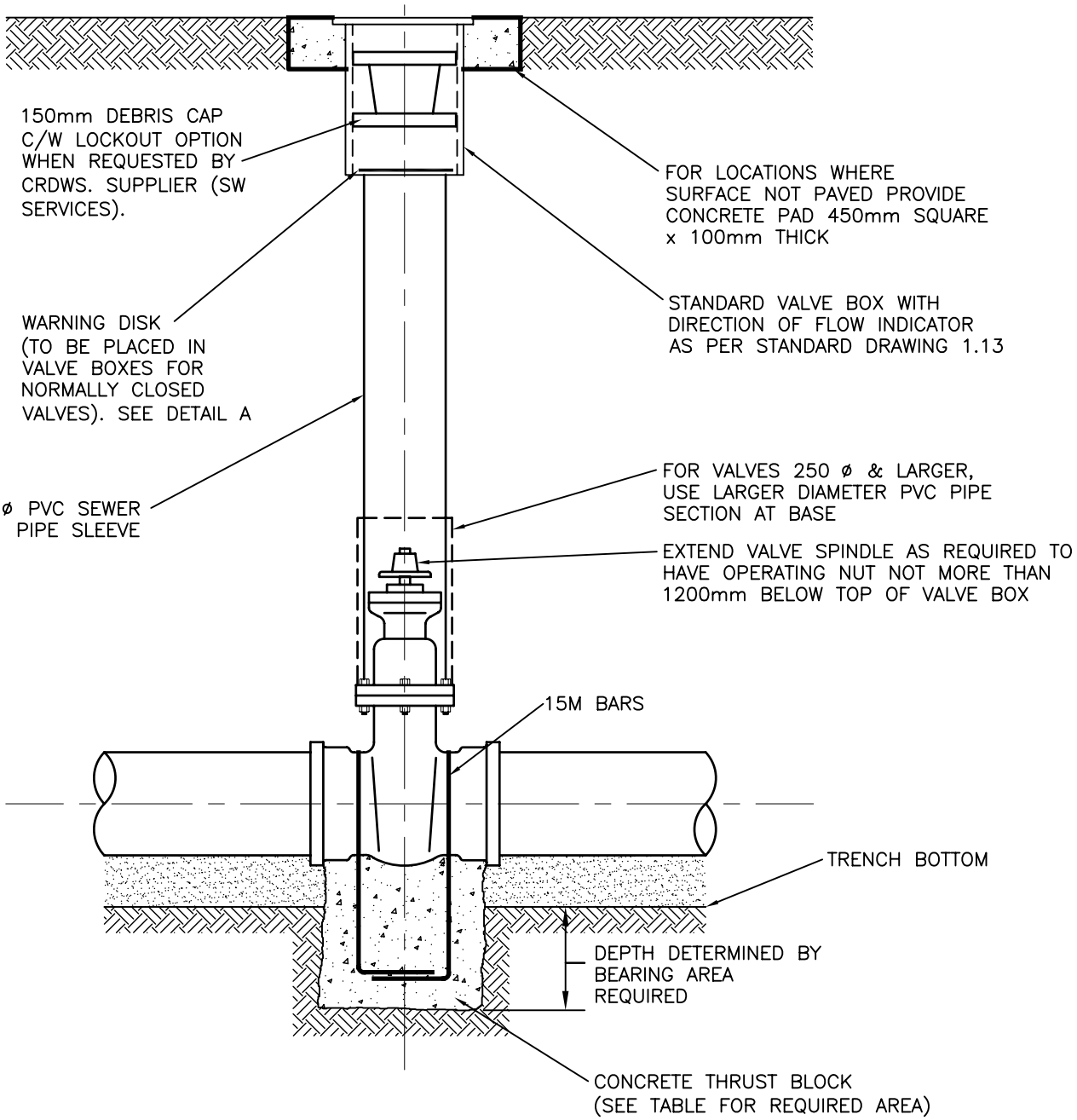
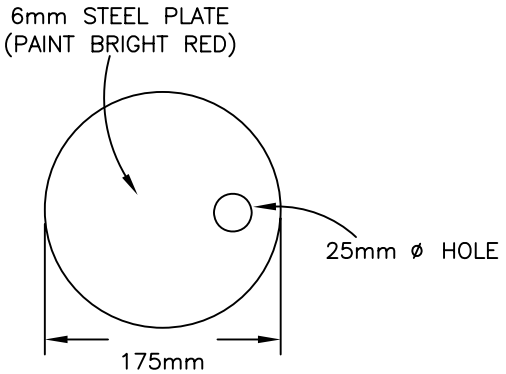
STANDARD FIRE HYDRANT ASSEMBLY

revision date:	scale:
APRIL 2007	N.T.S.
drawn: GP/PJ/DR	checked: C. GOTTFRED

standard drawing no.:

1.3





DETAIL A

VALVE SIZE	BEARING AREA REQUIRED at TEST PRESSURE		
	700 KPa (100 psi)	1000 KPa (150 psi)	1400 KPa (200 psi)
100	0.2m²	0.3m²	0.4m²
150	0.3m²	0.45m²	0.6m²
200	0.6m²	0.9m²	1.2m²
250	0.9m²	1.35m²	1.8m²
300	1.2m²	1.8m²	2.4m²

NOTE:
BEARING AREAS CALCULATED USING SOIL BEARING CAPACITY OF 50KPa (1000 PSF)(UNDISTURED SAND) FOR SOFTER SOILS CONSULT ENGINEER

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STANDARD LINE VALVE INSTALLATION

revision date:	scale:
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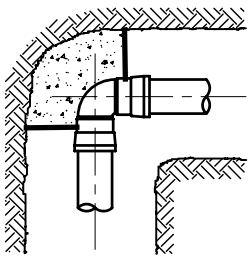
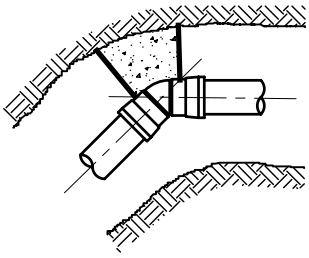
drawn: GP/PJ/DR/GA	checked: C. GOTTFRED

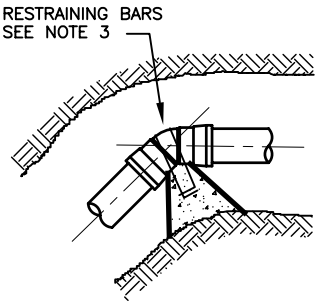
standard drawing no.:
1.7



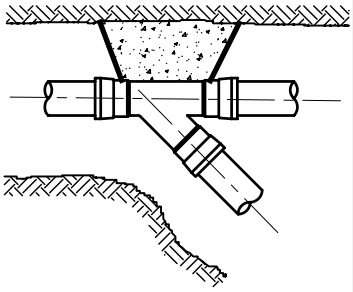
90 BEND



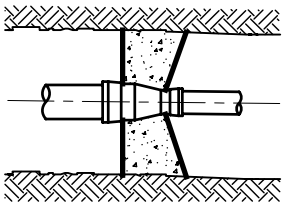
45 or 22.5
BEND



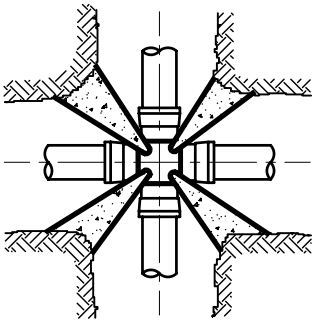
VERTICAL BEND



TEE or WYE

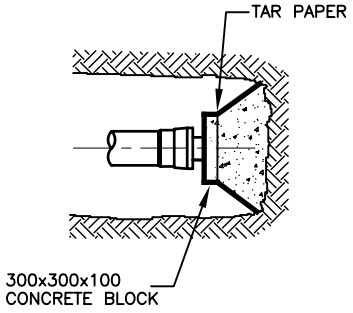


REDUCER

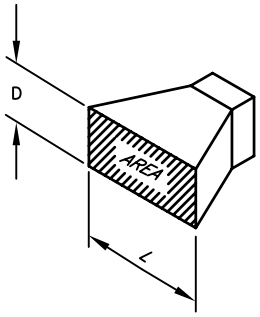


SEE NOTE 4

CROSS



PLUGGED END



MINIMUM THRUST AREA BASED ON WATER PRESSURE OF – 1000KPa (150psi)
& SOIL BEARING CAPACITY OF – 100KPa (2000psf)

FITTING	PIPE SIZE	AREA SQ. METERS	L x D AT FACE
90° BEND	100	0.2	0.7 x 0.3m
	150	0.4	1.0 x 0.4m
	200	0.7	1.2 x 0.6m
	250	1.1	2.0 x 0.6m
	300	1.6	2.0 x 0.8m
45° BEND or WYE	100	0.2	0.7 x 0.3m
	150	0.3	1.0 x 0.3m
	200	0.4	1.0 x 0.4m
	250	0.6	1.0 x 0.6m
	300	0.9	1.5 x 0.6m

FITTING	PIPE SIZE	AREA SQ. METERS	L x D AT FACE
22.5° BEND	100	0.1	0.5 x 0.2m
	150	0.2	0.7 x 0.3m
	200	0.2	0.7 x 0.3m
	250	0.3	0.8 x 0.4m
	300	0.5	1.0 x 0.5m
CAPPED END OR TEE	100	0.2	0.7 x 0.3m
	150	0.3	0.8 x 0.4m
	200	0.5	1.0 x 0.5m
	250	0.8	1.2 x 0.7m
	300	1.1	1.4 x 0.8m

NOTES:
1. SOIL BEARING CAPACITY USED IS THAT FOR SOFT CLAY, FOR SOFTER SOILS THRUST BLOCKS SHALL BE DESIGNED BY THE ENGINEER.
2. THRUST BLOCKING FOR FITTINGS LARGER THAN 300 ø SHALL BE DESIGNED BY THE ENGINEER.
3. VOLUME OF CONCRETE IN VERTICAL BEND ANCHORS TO BE DETERMINED BY THE ENGINEER. USE 2–20M RETAINING BARS PER CUBIC METRE.
4. FOR CROSSES USE VALUE FOR 45° BEND IN EACH QUADRANT.
5. WHERE PIPE SIZE DIFFERS IN ANY ONE FITTING USE VALUE FOR LARGEST SIZE.
6. CONCRETE NOT TO ENCROACH ON PIPE BARREL, BUT TO BEAR ON FITTING ONLY.
7. CONCRETE TO BE 20MPa (3000psi) COMPRESSIVE STRENGTH.

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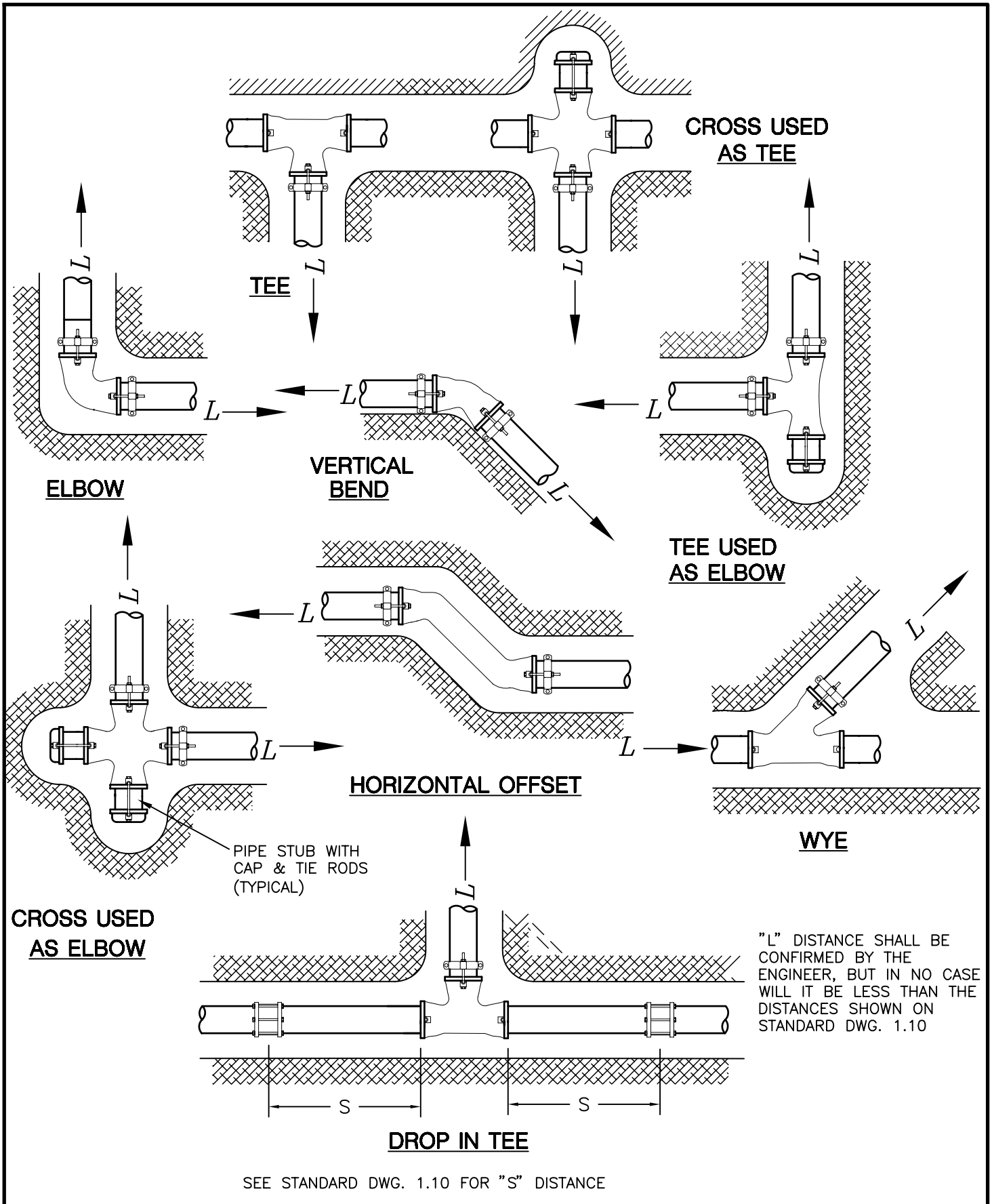
CONCRETE THRUST BLOCK DETAILS

revision date: APRIL 2007	scale: N.T.S.
drawn: P.J.	checked: C. GOTTFRED

standard drawing no.:
1.8



"L" DISTANCE SHALL BE CONFIRMED BY THE ENGINEER, BUT IN NO CASE WILL IT BE LESS THAN THE DISTANCES SHOWN ON STANDARD DWG. 1.10

SEE STANDARD DWG. 1.10 FOR "S" DISTANCE

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MECHANICAL THRUST RESTRAINT APPLICATIONS

revision date:	scale:
APRIL 2007	N.T.S.
drawn: G.P.	checked: C. GOTTFRED

standard drawing no.:

1.9

RECOMMENDED RESTRAINED LENGTHS OF PIPE

PIPE: PVC, AWWA C900, DR 18
DEPTH OF BURY: ONE METRE
MAXIMUM PRESSURE: 1035kPa (150 psi, includes surge allowance)
SAFETY FACTOR: 2:1

L = LENGTH OF RESTRAINED PIPE (in metres)

NOMINAL PIPE SIZE (mm)	SILT/SAND					WET CLAY					HARD PAN				
	ELBOWS				VALVE TEE END	ELBOWS				VALVE TEE END	ELBOWS				VALVE TEE END
	11°	22°	45°	90°		11°	22°	45°	90°		11°	22°	45°	90°	
100	0.3	0.3	1.8	4.3	12.8	0.3	0.9	1.8	4.6	12.5	0.3	0.6	1.5	3.4	10.4
150	0.6	1.2	2.4	5.8	17.7	0.6	1.2	2.7	6.4	18.9	0.6	0.9	1.8	4.6	14.6
200	0.6	1.5	3.0	7.6	23.5	0.9	1.8	3.7	8.5	24.7	0.6	1.2	2.4	6.1	19.2
250	0.9	1.8	3.7	9.1	28.0	0.9	2.1	4.3	10.4	29.6	0.9	1.5	3.1	7.0	22.9
300	0.9	2.1	4.3	10.7	32.9	1.2	2.4	4.9	12.2	34.7	0.9	1.5	3.7	8.2	26.8

L = RESTRAINED LENGTH FOR BRANCH OUTLET OF DROP IN TEES (in metres)

SOIL (SILT/SAND)	S = LENGTH OF PIPE ON EACH SIDE OF TEE (in metres)			
NOMINAL TEE SIZE	S = 6.1	S = 3.0	S=1.5	S=0.3
100x100	FIRST JOINT	FIRST JOINT	0.3	6.4
150x150	FIRST JOINT	FIRST JOINT	3.4	9.8
200x200	FIRST JOINT	FIRST JOINT	7.0	13.4
250x250	FIRST JOINT	1.5	9.8	16.2
300x300	FIRST JOINT	4.6	12.8	19.5

1. THIS STANDARD TO BE USED IN CONJUNCTION WITH STANDARD DRAWING 1.9
2. WHEN DEPTH OF SOIL COVER IS LESS THAN 0.6M VALUES FOR "L" MUST BE INCREASED BY 30%.
3. WHEN DEPTH OF SOIL COVER IS LESS THAN HALF PIPE O.D. VALUES FOR "L" MUST BE INCREASED BY 100%.
4. WHEN PIPE IS PARTIALLY OR FULLY EXPOSED, ALL JOINTS MUST BE RESTRAINED.
5. WHEN IN DOUBT AS TO SOIL TYPE, DEPTH OR CONFIGURATION USE NEXT LONGEST VALUE OF L.

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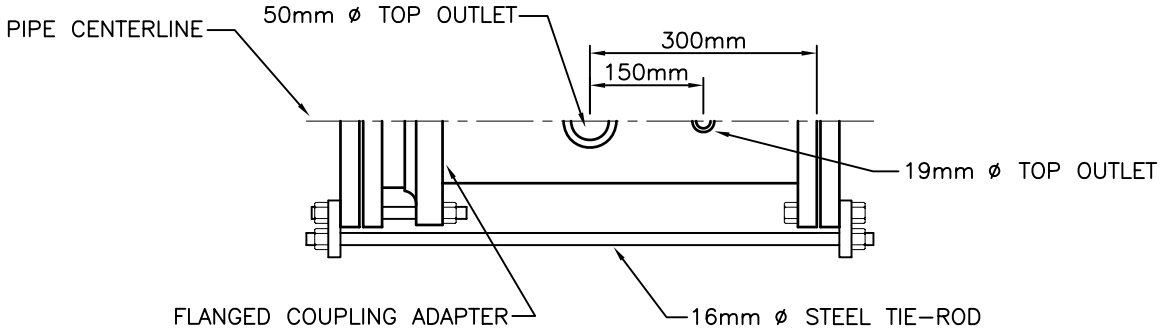
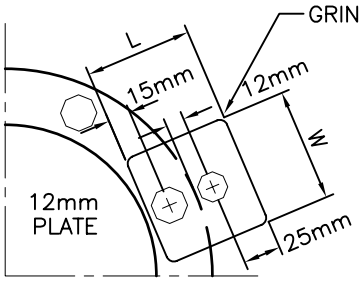
THRUST RESTRAINT LENGTH

revision date: APRIL 2007	scale: N.T.S.
drawn: G.P.	checked: C. GOTTFRED

standard drawing no.: 1.10



PLAN



PIPE SIZE	W	L
100	75	71
150	75	71
250	120	74

END VIEW

NOTES:
1. ALL STEEL TO BE ASTM A36 OR BETTER.
2. TIE-RODS TO HAVE A MINIMUM 276 MPa (40000 psi) YIELD.
3. TWO TIE-RODS REQUIRED PER COUPLING @ 180° SPACING.
4. TIE-ROD THRUST RESTRAINTS HAVE BEEN DESIGNED TO ACT TOGETHER WITH CONCRETE THRUST BLOCKS OUTSIDE THE CONCRETE CHAMBER. TIE-ROD RESTRAINTS ARE NOT MEANT TO ACT ALONE WITHOUT CONCRETE THRUST BLOCKS.
5. DIMENSIONS MAY REQUIRE SLIGHT ADJUSTMENT TO FIT SOME VALVE BODIES. CRDWS APPROVAL IS REQUIRED FOR ANY DIMENSION CHANGES.

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THRUST RESTRAINT FOR FLEXIBLE COUPLINGS

revision date:	scale:
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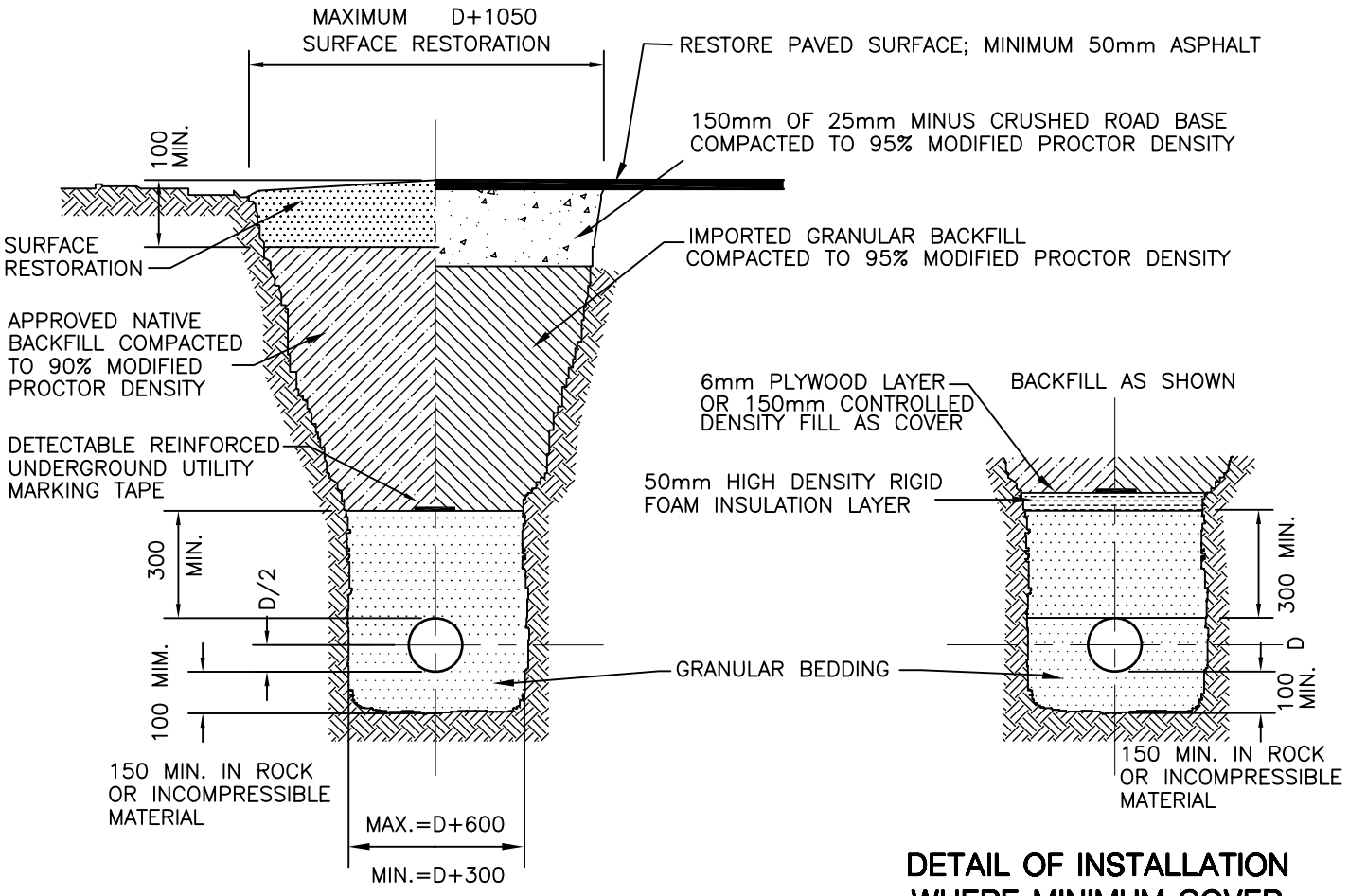
drawn: GP/GM	checked: C. GOTTFRED

standard drawing no.:
1.11



ORDINARY BEDDING DETAIL

DETAIL OF INSTALLATION WHERE MINIMUM COVER CANNOT BE ATTAINED

BEDDING — 25mm MINUS CRUSHED ROAD BASE AS PER STANDARD DRAWING 4.4

IMPORTED OR SELECTED BACKFILL — 75mm MINUS CRUSHED ROAD BASE COMPACTED TO 95% MODIFIED PROCTOR DENSITY.

APPROVED NATIVE BACKFILL — NO ROOTS, STUMPS OR OTHER ORGANIC MATERIAL. ANY MATERIAL FREE OF STONES LARGER THAN 150mm.

ROAD BASE — SAME AS BEDDING

NOTES:

1. UNDER THE TRAVELLED PORTION OF ROADS AND DRIVEWAYS OR WITHIN 1.5M FROM THE EDGE OF TRAVELLED ROADWAY, THE TRENCH SHALL BE BACKFILLED WITH COMPACTED IMPORTED BACKFILL UP TO 300mm BELOW ROAD SURFACE, THE REMAINING TRENCH TO BE BACKFILLED WITH 25mm MINUS CRUSHED ROAD GRAVEL.
2. CONTROLLED DENSITY BACKFILL MAY BE USED IN LIEU OF IMPORTED OR SELECT BACKFILL AND GRANULAR BASE.
3. D = OUTSIDE PIPE DIAMETER

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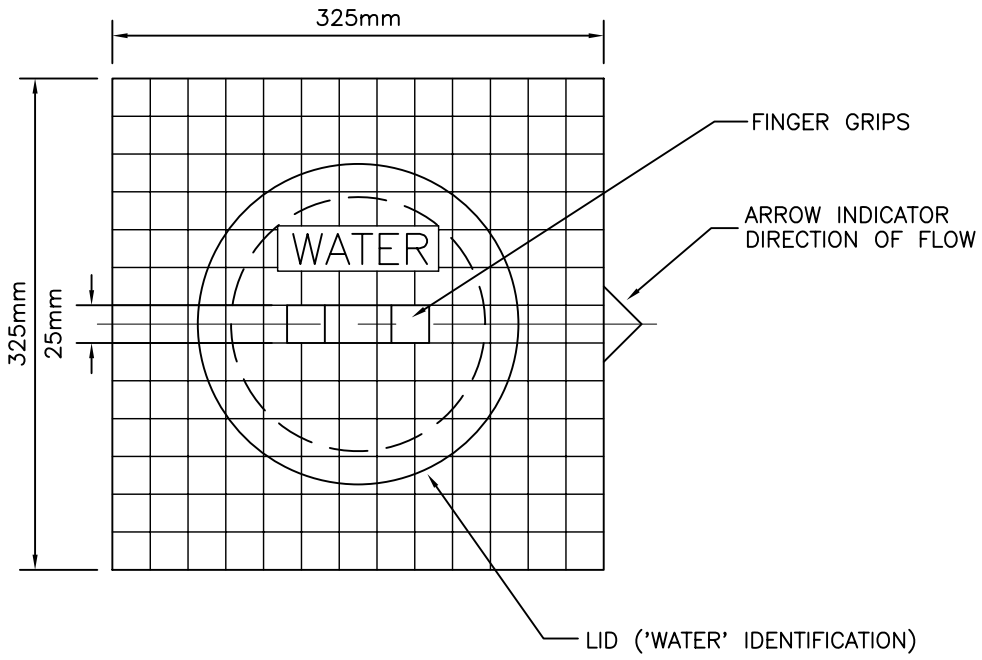
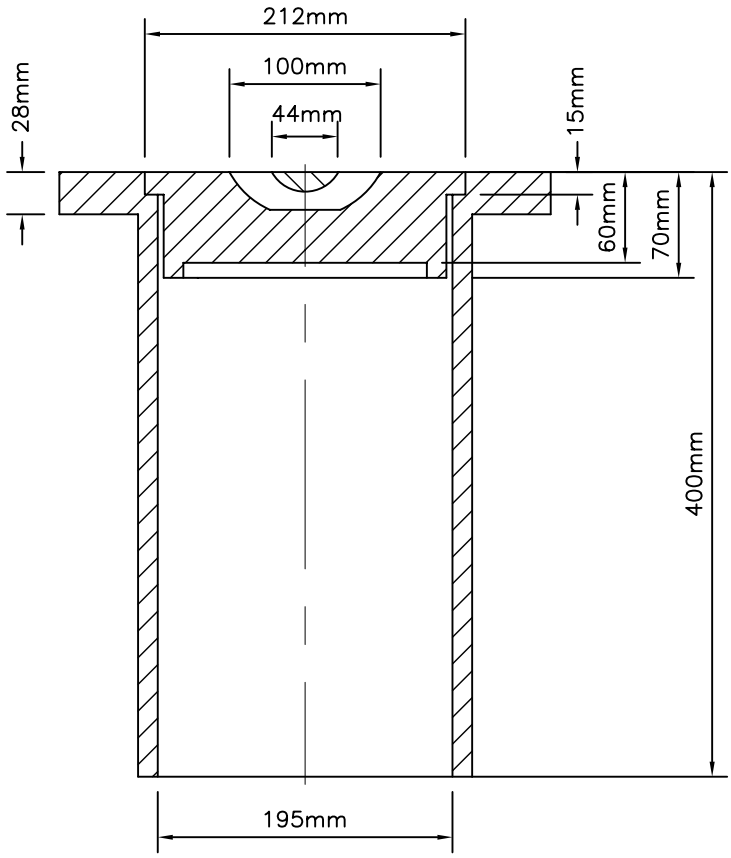
STANDARD TRENCH DETAIL

revision date:	scale:
APRIL 2007	N.T.S.
drawn: PJ/GP	checked: C. GOTTFRED

standard drawing no.:

1.12





APPROXIMATE WEIGHT 29 Kg

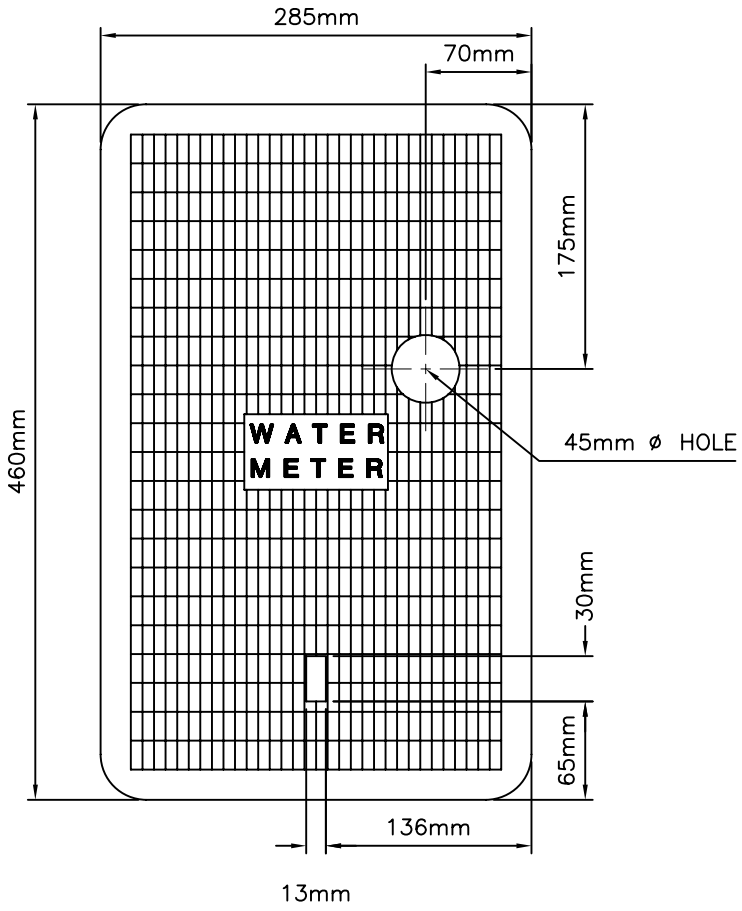
Making a difference...together

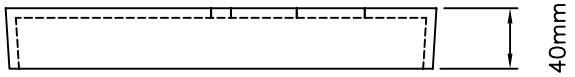
STANDARD WATER VALVE BOX

revision date: APRIL 2007	scale: N.T.S.
drawn: G.M.	checked: C. GOTTFRED

standard drawing no.:

1.13





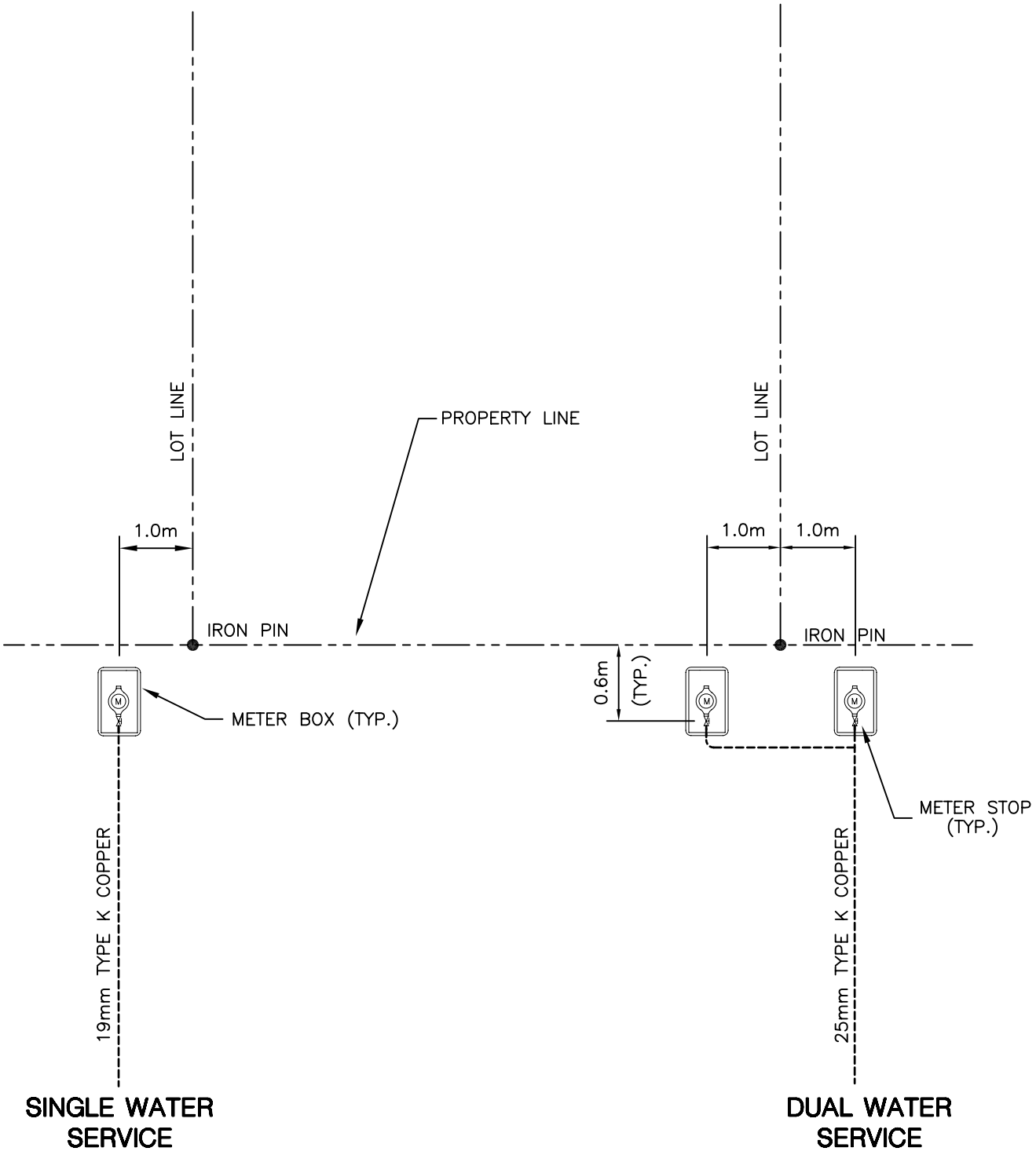
Making a difference...together

19mm CAST IRON COVER FOR 19mm METER

revision date:	scale:
APRIL 2007	N.T.S.
drawn: S.R.	checked: C. GOTTFRED

standard drawing no.:

2.3



Making a difference...together

WATER SERVICE -TYPICAL LAYOUT WITH RESPECT TO PROPERTY LINE

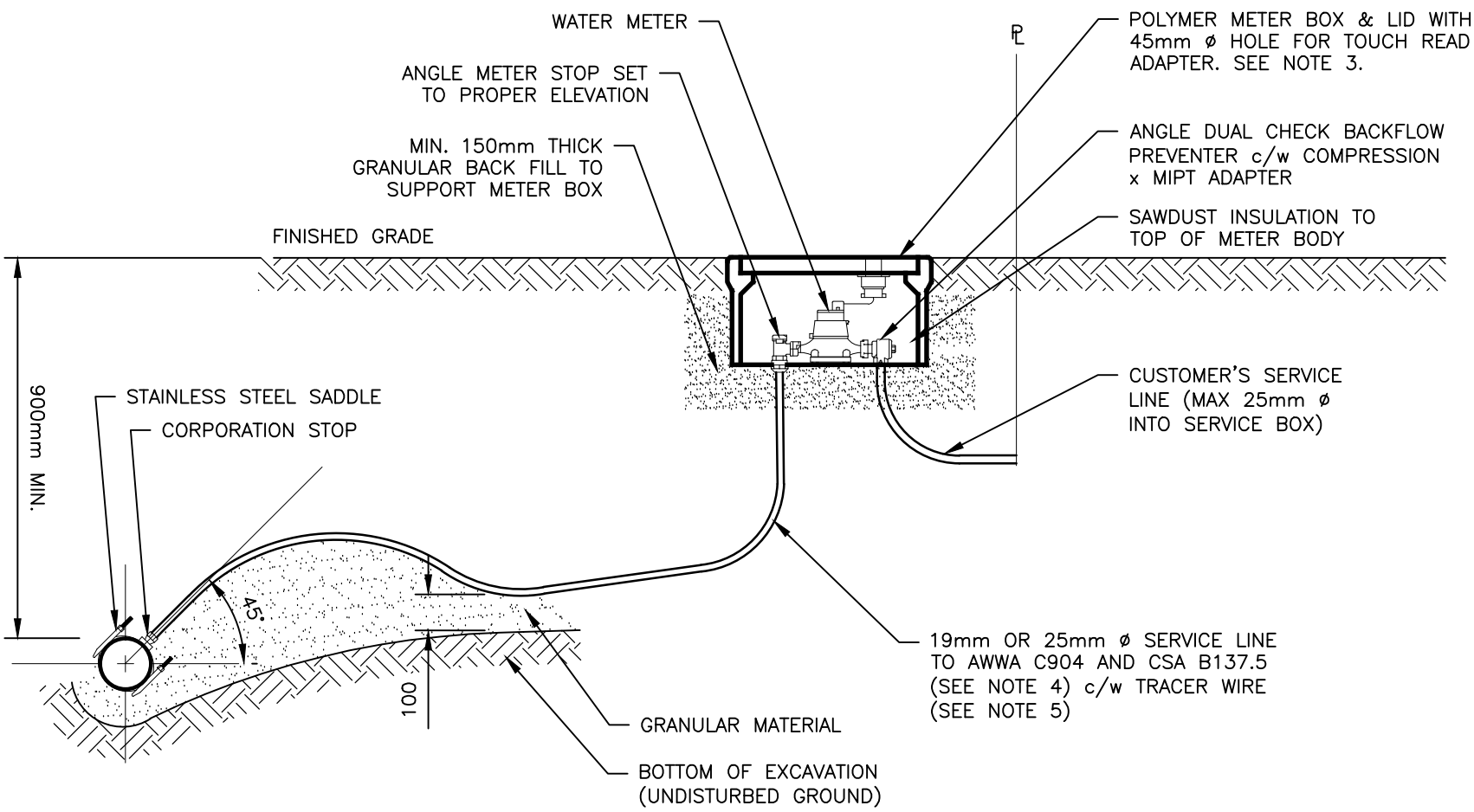
revision date:	scale:
APRIL 2007	N.T.S.
drawn: P.J.	checked: C. GOTTFRED

standard drawing no.:

2.5

Making a difference...together

STANDARD WATER SERVICE CONNECTION 19mm & 25mm



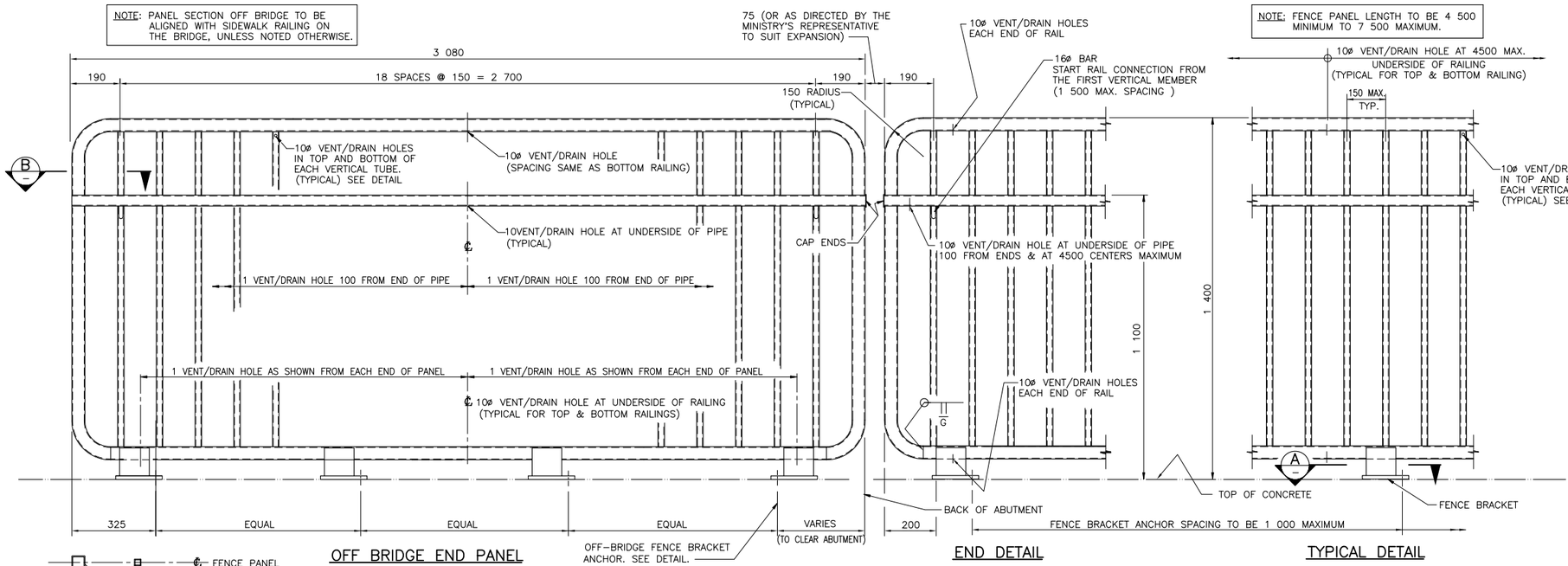
NOTE:

1. ALL MATERIALS MUST CONFORM TO APPROVED CRDWS ENGINEERING SPECIFICATIONS.
2. IF CUSTOMER SERVICE LINE IS ALREADY IN PLACE, CRD WILL CONNECT LINE DIRECTLY TO CHECK VALVE PROVIDED PIPE IS INSTALLED CORRECTLY.
3. METER BOX AND LID TO BE H20 LOAD RATED DFW PLASTICS INC. DFW486WBC4–12–AF4FM DEEP OR APPROVED EQUAL.
4. SERVICE LINE TO BE CROSS–LINKED POLYETHYLENE–MUNICIPEX OR APPROVED EQUAL c/w STAINLESS STEEL PIPE INSERT AT EACH END OF SERVICE PIPE. INSERT TO BE MUELLER WATER PRODUCTS PART NUMBER 504385 FOR 25mm ø SERVICES AND 504281 FOR 19mm ø SERVICES OR APPROVED EQUAL.
5. TRACER WIRE TO BE DECA CABLES 20–705 OR APPROVED EQUAL. FASTEN TRACER WIRE TO SERVICE LINE WITH ZIP TIES AT REGULAR INTERVALS. EACH BARE END TO BE TERMINATED WITH UNDERGROUND LOW VOLTAGE WATERPROOF CONNECTORS.

revision date:	scale:
DEC 2016	N.T.S.
drawn: BB	checked: J. MAR

standard drawing no.: 2.6

NOTE: PANEL SECTION OFF BRIDGE TO BE ALIGNED WITH SIDEWALK RAILING ON THE BRIDGE, UNLESS NOTED OTHERWISE.

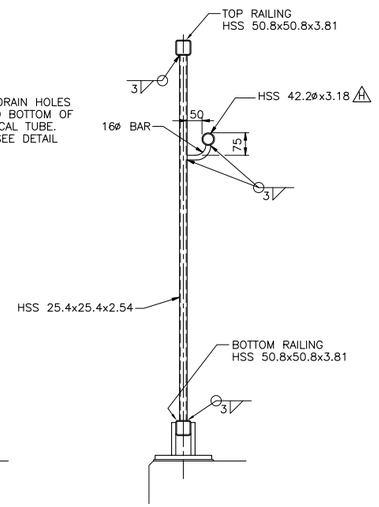


OFF BRIDGE END PANEL

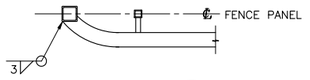
END DETAIL

NOTE: FENCE PANEL LENGTH TO BE 4 500 MINIMUM TO 7 500 MAXIMUM.

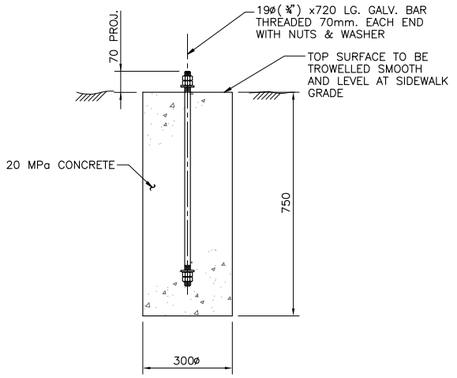
TYPICAL DETAIL



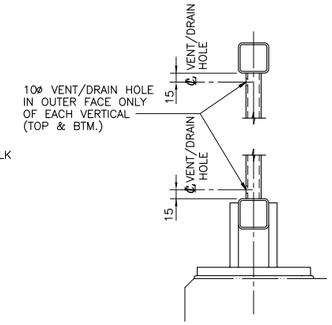
TYPICAL SECTION



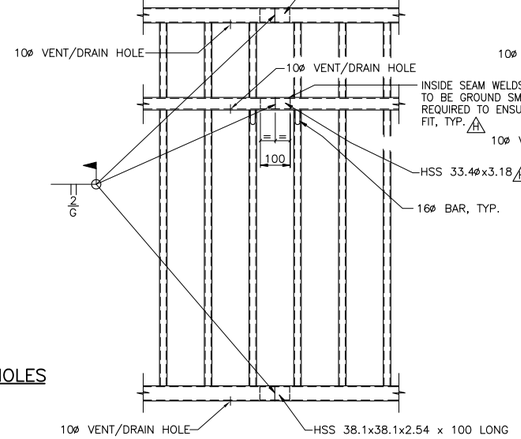
SECTION B
SCALE 1:10



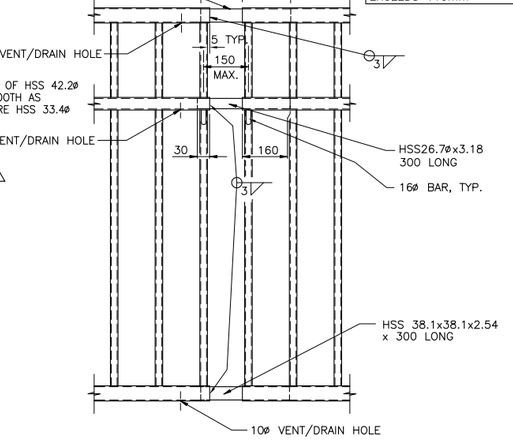
OFF-BRIDGE FENCE BRACKET ANCHOR DETAIL



DETAIL AT VENT/DRAIN HOLES IN VERTICALS
SCALE 1:5



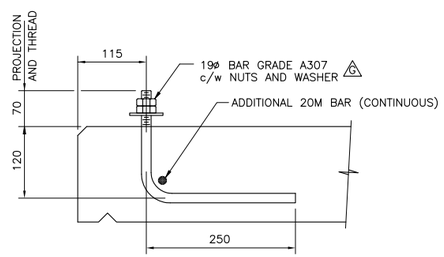
TYPICAL RAIL SPLICE



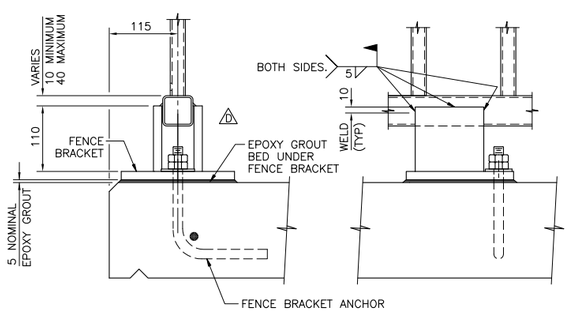
RAIL EXPANSION JOINT

NOTE:
AN ALTERNATE DETAIL MUST BE DESIGNED FOR LOCATIONS WHERE THE DECK EPXPANSION JOINT GAP EXCEEDS 110mm

NOTE:
RAILING EXPANSION JOINT TO BE LOCATED AT DECK JOINTS AND AT 30m MAXIMUM SPACING. WHERE THE SPAN BETWEEN DECK JOINTS IS:
<30m, NO ADDITIONAL EXPANSION JOINTS
<60m, ADDITIONAL EXPANSION JOINT AT MID SPAN G

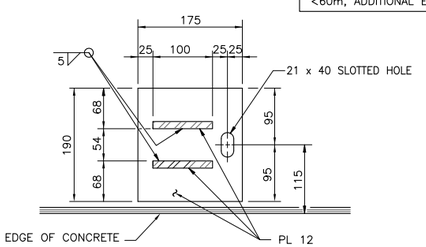


FENCE BRACKET ANCHOR
SCALE 1:5



END VIEW SIDE VIEW

TYPICAL DETAIL AT FENCE BRACKET
SCALE 1:5



SECTION A
SCALE 1:5

NOTES:

1. FABRICATION TO BE IN ACCORDANCE WITH M.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 422, 'MISCELLANEOUS STEELWORK'.
2. STEEL SHALL CONFORM TO:
   G – ALL HSS TUBING TO BE CAN/CSA G40.21, GRADE 350W OR ASTM A500 GRADE C.
   – ALL OTHER STEEL TO BE CAN/CSA G40.21, GRADE 300W
3. FENCE SECTIONS, BRACKETS AND ANCHORS TO BE GALVANIZED AFTER FABRICATION.
4. GALVANIZING SHALL CONFORM TO CAN/CSA G164M.
5. FIELD CONNECTIONS TO BE WELDED.
6. RAIL ELEMENTS TO BE USED IN CURVES HAVING A RADIUS OF 300m OR LESS SHALL BE SHOP-FORMED TO THE REQUIRED CURVATURE.
7. FENCE BRACKETS ARE TO BE INSTALLED ON A 5 mm NOMINAL THICK THIXITROPIC EPOXY LEVELLING COURSE TO ENSURE A COMPLETE BEARING SURFACE.
8. FOR FENCES ON PEDESTRIAN OVERPASS RAMPS, THE ENDS OF PANELS AND VERTICAL TUBES SHALL BE PLUMB.

Rev	Date	Description	Init
D	00/11/21	END VIEW – TYPICAL DETAIL AT FENCE BRACKET	GDW
E	JUNE 2005	REVISED MINISTRY BORDER	WHK
F	DEC 2005	GENERAL REVISIONS	DRM
G	JUNE 2010	ANCHOR SIZE, EXP. JOINT SPACING	WHK
H	DEC 2014	HAND RAIL & SPLICE, SIZE & MATERIAL CHANGED	WHK

REVISIONS

BRITISH COLUMBIA | Ministry of Transportation & Infrastructure
Bridge Engineering

STANDARD STEEL BICYCLE FENCE

AUTHORIZED BY	
ORIGINAL SIGNED BY P BRETT	ORIGINAL SIGNED BY M. CLARK
DIRECTOR OF BRIDGE ENGINEERING	CHEIF HIGHWAY ENGINEER
DATE 1997-04-21	DATE 1997-04-21

PREPARED UNDER THE DIRECTION OF
ORIGINAL SIGNED BY K W HO
ENGINEER OF RECORD
SENIOR BRIDGE DESIGN ENGINEER
DATE 1997-04-21

DESIGNED C.W./K.B. DATE APR. 92
CHECKED J.E.S. DATE 95-03-20
DRAWN K.L. DATE 92-11-24
SCALE AS NOTED
NEGATIVE No.

FILE No. | PROJECT No. | REG. | DRAWING No. 2891-2 H

H-308(03-07)

CANCEL PRINTS BEARING PREVIOUS LETTER

CHARTERS ROAD – STREETSCAPE

CONTRACT DRAWINGS

File: T02-2023
May 2023

DISTRICT OF SOOKE

CHARTERS ROAD STREETSCAPE DESIGN

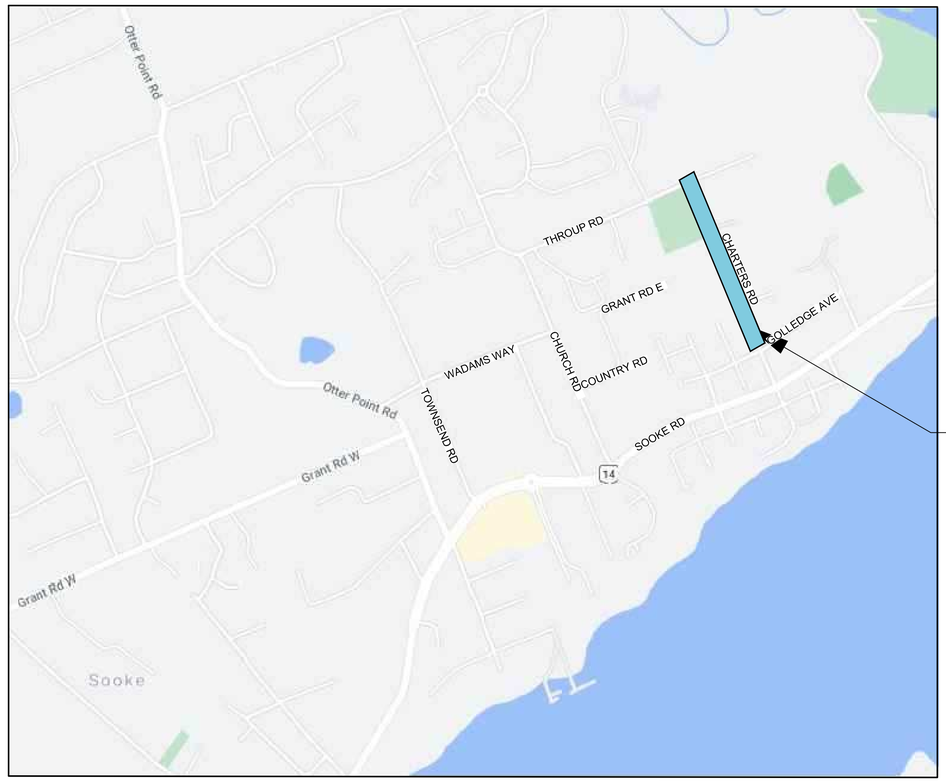
ISSUE FOR TENDER

MAY 2023

DRAWING INDEX

SHEET	TITLE
00	COVER SHEET
01	GENERAL NOTES
02	REMOVALS - STA 1+080 TO STA 1+290
03	REMOVALS - STA 1+290 TO STA 1+590
04	REMOVALS - THROUP ROAD
05	ROADWORKS PLAN AND PROFILE STA 1+080 TO STA 1+180
06	ROADWORKS PLAN AND PROFILE STA 1+180 TO STA 1+290
07	ROADWORKS PLAN AND PROFILE STA 1+290 TO STA 1+440
08	ROADWORKS PLAN AND PROFILE STA 1+440 TO STA 1+590
09	ROADWORKS THROUP PLAN AND PROFILE STA 2+000 TO STA 2+100
10	WALL PLAN AND PROFILE
11	EAST WALL DETAILS AND TYPICAL CROSS SECTION
12	WEST WALL DETAILS AND TYPICAL CROSS SECTION
13	EAST & WEST WALL - NOTES
14	WATERMAIN STA 2+000 TO STA 2+120
15	WATERMAIN STA 2+120 TO STA 2+210
16	WATERMAIN STA 2+210 TO STA 2+360
17	WATERMAIN STA 2+360 TO STA 2+480
18	CULVERT PLAN AND PROFILE
19	CULVERT DETAILS
20	STORM STA 0+000 TO STA 0+070
21	STORM STA 0+070 TO STA 0+180
22	STORM STA 0+180 TO STA 0+330
23	STORM STA 0+330 TO STA 0+465
24	STORM THROUP ROAD
25	SECTIONS - STA 1+120 TO STA 1+270
26	SECTIONS - STA 1+280 TO STA 1+390
27	SECTIONS - STA 1+400 TO STA 1+550
28	DETAILS
29	ELECTRICAL - COVER SHEET - NOTES - KEY PLAN
30	SITE PLAN
31	SITE PLAN
32	SITE PLAN
33	ELEVATIONS - DETAILS
34	SERVICE KIOSK - DETAILS

WATERMAIN DRAWINGS TO BE ISSUED VIA ADDENDUM



LOCATION PLAN

ISL

1051 Vancouver Street, Victoria, BC V8V 3K3
T: (250)361-3230 F: (604)629-5756

District of Sooke

Permit to Practice
ISL Engineering and Land Services Ltd.

RR Signature:
RR EGBC ID: 45121
Date: 2023-05-26

Permit Number 1000419
Engineers & Geoscientists British Columbia

32859

REV. 0

GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH:
   - THE MASTER MUNICIPAL CONSTRUCTION DOCUMENT AND STANDARD DETAIL DRAWINGS (MMCD 2019), PLATINUM EDITION AND DISTRICT OF SOOKE SUPPLEMENTARY SPECIFICATIONS AND DETAILED DRAWINGS UNLESS OTHERWISE NOTED;
   - APPLICABLE CONTRACT DOCUMENTS AND ALL SPECIFICATIONS REFERENCED THEREIN;
   - THE DISTRICT OF SOOKE APPROVED PRODUCT LIST, LATEST EDITION;
   - MINISTRY OF TRANSPORTATION (MoTI) "BC TRAFFIC CONTROL MANUAL FOR WORK ON ROADWAYS", LATEST EDITION; AND
   - WORKSAFEBC, LATEST EDITION.
   - CAPITAL REGION DISTRICT APPENDIX A - APPROVED PRODUCTS.
   - THE DISTRICT OF SOOKE BYLAWS.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE WRITTEN SPECIFICATIONS, DRAWINGS, AND OTHER DETAILS AS ISSUED FOR THIS PROJECT.
3. THE CONTRACTOR SHALL VISIT THE SITE TO CONFIRM SITE CONDITIONS PRIOR TO WORK. ANY DISCREPANCIES BETWEEN THE EXISTING SITE AND THE DRAWINGS ARE TO BE REPORTED TO THE CONSULTANT FOR CLARIFICATION PRIOR TO WORK.
4. THE LIMITS OF THE WORK ARE TO BE CLEARLY UNDERSTOOD BY THE CONTRACTOR PRIOR TO ANY WORK TAKING PLACE ON SITE. THE CONTRACTOR IS TO CONTACT THE CONTRACT ADMINISTRATOR FOR CLARIFICATION IF REQUIRED.
5. ALL ANCILLARY WORK NORMALLY ASSOCIATED WITH THE TYPE OF CONSTRUCTION INDICATED ON THE CONTRACT DRAWINGS AND DOCUMENTS SHALL BE DEEMED TO BE PART OF THE CONTRACT.
6. ANY AMBIGUITY IN THIS DRAWING OR ACCOMPANYING DETAILS IS TO BE REPORTED TO THE CONTRACTOR ADMINISTRATOR. THE CONTRACTOR SHALL NOT PROCEED WITHOUT A CLEAR UNDERSTANDING OF THE WORK.
7. LOCATIONS OF EXISTING UTILITIES AND SERVICES SHOWN ON THESE DRAWINGS ARE DERIVED FROM DISTRICT OF SOOKE BASE DRAWING, AGENCY AS-BUILTS, AND SURVEY INFORMATION. NO GUARANTEE IS MADE AS TO THEIR ACCURACY. THE CONTRACTOR IS TO COORDINATE WITH LOCAL UTILITY OPERATORS TO LOCATE OR ARRANGE THE LOCATE OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF WORK PRIOR TO THE START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL CONTACT BC ONE CALL (1-800-474-6886) BC HYDRO, TELUS, SHAW CABLE, FORTIS GAS AND DISTRICT OF SOOKE FOR UNDERGROUND UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE HOARDING AND PROTECTION OF ALL RETAINED ELEMENTS WITHIN THE LIMITS OF WORK; INCLUDING BUT NOT LIMITED TO: EXISTING CURBS, CONCRETE, ASPHALT, GRANULAR OR OTHER SURFACES, LANDSCAPE AMENITIES AND LIVE LANDSCAPE MATERIAL, INCLUDING TREES, SHRUBS, GRASSES AND GROUNDCOVERS WITHIN, OR ADJACENT TO, THE LIMITS OF CONSTRUCTION.
10. CAREFULLY RELOCATE EXISTING STREET FURNITURE, TRAFFIC SIGNS AND SITE FEATURES TO ACCOMMODATE CONSTRUCTION WORK, ALL EXISTING WORKS TO BE RETURNED TO AS FOUND OR BETTER CONDITION.
11. THE CONTRACTOR IS RESPONSIBLE FOR THE HAULING OF ALL EXCESS MATERIALS OFF THE SITE.
12. THE CONTRACTOR IS RESPONSIBLE FOR GENERAL SITE CLEAN UP.
13. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO LANDSCAPED AREAS AND MUST MAKE ALL NECESSARY RESTORATIONS AND REPAIRS.
14. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATION OF THE VARIOUS PARTS OF THE WORK.
15. THE CONTRACTOR TO COORDINATE AND BEAR ALL COSTS FOR MATERIAL TESTING, SUCH AS CONCRETE COMPRESSION STRENGTH, GRANULAR COMPACTION AND ASPHALT DENSITY TESTS. RESULTS TO BE PROVIDED TO CONTRACT ADMINISTRATOR FOR REVIEW.
16. ALL EXISTING ASPHALT TO BE SAWCUT SQUARE. SAWCUTTING AROUND MANHOLE LIDS AND VALVE BOXES TO BE DIAMOND SHAPE.
17. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS TO ALL BUILDINGS AND BUSINESSES AT ALL TIMES. SCHEDULE WORK TO MINIMIZE DISRUPTION TO VEHICULAR TRAFFIC. CONTRACTOR TO COORDINATE WITH BUSINESSES AFFECTED BY WORK FOR ALTERNATE DELIVERY OR ACCESS IF REQUIRED.
18. ALL PAVEMENT MARKINGS AND SIGNS SHALL BE COMPLETED IN ACCORDANCE WITH THE CURRENT TAC MUTCD FOR CANADA.
19. ALL SURFACE RESTORATION WORK TO MATCH EXISTING SURFACE TREATMENTS UNLESS OTHERWISE NOTED.
20. ALL CATCH BASIN GRATES, MANHOLE RIMS, UTILITY BOXES, AND OTHER APPURTENANCES TO BE ADJUSTED TO SUIT NEW SURFACE ELEVATIONS.
21. ALL POLE HOLDING/SUPPORTING TO BE COMPLETED BY THE CONTRACTOR AS REQUIRED AND WHEN EXCAVATING WITHIN 1m OF AN EXISTING POLE LOCATION.
22. ALL DAMAGED OR DISTURBED SURVEY MONUMENTS AND/OR IRON PINS ARE TO BE RECALIBRATED OR REPLACED AND TIED-IN BY A B.C.L.S. AT THE CONTRACTOR'S EXPENSE.
23. ALL EXISTING TREES WITHIN THE R.O.W. TO REMAIN, AND BE PROTECTED AS REQUIRED, UNLESS OTHERWISE NOTED.
24. ALL SIGN/POST HARDWARE TO BE STAINLESS STEEL C/W 2 WASHERS PER BOLT AND A VINYL LOCKING NUT. NUTS SHALL BE REPLACED IF REMOVED.
25. ALL NEW SIGN INSTALLATIONS IN BOULEVARD LOCATIONS SHALL INCLUDE A PROPER BASE AND SITE PREPARATION TO PREVENT MOVEMENT.
26. ALL SIGN POSTS SHALL HAVE A SLEEVE (DISTRICT SUPPLIED) INSTALLED C/W SUITABLE BOLT (TO PREVENT SIGN ROTATION) WITH SUFFICIENT THREADS TO ALLOW VINYL LOCKING NUT TO BE FULLY THREADED.
27. THERMOPLASTIC APPLICATION SHALL INCLUDE THE USE OF STENCILS AND/OR BOARDS TO ESTABLISH CLEAN AND CONSISTENT START/STOPS OF A UNIFORM THICKNESS.
28. REFER TO ELECTRICAL DRAWING SET FOR ELECTRICAL NOTES.
29. CONTRACTOR TO PROVIDE LAYOUT AND CUT SHEETS FOR CONCRETE CURB AND GUTTER 5 DAYS IN ADVANCE OF CONSTRUCTION.

ENVIRONMENTAL NOTES:

1. THE CONTRACTOR IS TO COMPLETE THE WORKS IN ACCORDANCE WITH THE ENVIRONMENTAL MANAGEMENT PLAN.
2. ALL CATCHBASINS IN PROXIMITY TO TRENCH WORK OR EXPOSED ROAD BASE WILL BE FITTED WITH MANUFACTURED INLET CONTROL DEVICES AND OR 'FILTER SACK' TYPE CATCHBASIN CONTROL (OR APPROVED ALTERNATIVE). CONTROL DEVICES TO BE MAINTAINED IN A FULLY FUNCTIONAL STATE AT ALL TIMES.
3. INLET CONTROL DEVICES (I.E. FILTER SACKS') MUST HAVE A MINIMUM 8" ' DROP FROM SURFACE OF THE CATCHBASIN.
4. UNDER NO CIRCUMSTANCES ARE CATCHBASINS TO BE FITTED WITH GEOTEXTILE SHEATHS CUT FROM STOCKPILE ROLLS.
5. AVOID EARTH DISTURBING ACTIVITIES DURING SUBSTANTIAL RAIN EVENTS.
6. THE CONTRACTOR SHOULD AVOID STOCKPILING SOILS, SANDS AND OTHER ERODIBLE MATERIALS ONSITE WHERE POSSIBLE. IT IS PREFERABLE TO " HOT-LOAD" SPOIL DIRECTLY INTO TRUCKS FOR OFFSITE DISPOSAL. IF TEMPORARY WASTE OR SOIL STOCKPILES ARE NECESSARY, MAKE SURE THEY ARE FULLY COVERED WITH POLYETHYLENE DRAWINGING OR TARPS AND WEIGHTED WITH SANDBAGS.
7. TRACKING OF SEDIMENT, SOIL AND/OR ROADBASE FROM WORKSITE TO VEHICLE TRAVEL LANES MUST BE PREVENTED.
8. ROADS MUST BE SWEPT CLEAN OF SOIL, LOOSE ROAD BASE, EARTH AND SEDIMENT. MECHANICAL SWEEPING IS PREFERRED TO MANUAL SWEEPING. HOWEVER, FREQUENT HAND SWEEPING IS PREFERABLY TO ONCE DAILY MECHANICAL SWEEPING.
9. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SEDIMENT OR SEDIMENT LADEN WATER IS DISCHARGED FROM THE WORKS TO THE OWNER'S DRAINAGE SYSTEM .
10. AN EMERGENCY SPILL KIT WILL BE KEPT ONSITE AT ALL TIMES THE CONTRACTOR IS OPERATING. SPILL KITS MUST INCLUDE BOOMS, SPILL PADS, GLOVES, AND CATCHBASIN BARRIERS. A SPILL KIT WITH AT LEAST 125 LITRES ABSORBENCY IS RECOMMENDED. SANDBAGS AND A SUPPLY OF SAND MUST BE KEPT ONSITE.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DEVELOP A SPILL RESPONSE PLAN THAT PROVIDES WRITTEN SAFE WORK PROCEDURES IN THE EVENT OF A SPILL.
12. THE CONTRACTOR IS TO HAVE ONSITE SODIUM THIOSULPHATE TO TREAT CHLORINATED WATER IN THE EVENT OF A WATER MAIN BREAK.
13. THE CONTRACTOR IS TO DISPOSE OF CHLORINATED WATER AT AN APPROVED LOCATION ONLY AFTER APPROPRIATE TREATMENT WITH SODIUM THIOSULPHATE. AT NO TIME WILL THE CONTRACTOR DISCHARGE WATER CHLORINATED WATER DIRECTLY TO A CATCHBASIN, CREEK, DITCH OR SWALE.
14. THE CONTRACTOR IS TO OBTAIN OWNER'S APPROVAL PRIOR TO DISCHARGING FLUSHING WATER OR DISINFECTION WATER TO OWNER SANITARY SEWER MANHOLES.

ROADWORKS NOTES:

1. SUBGRADE TO BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO SUBBASE OR BASE COURSE CONSTRUCTION
2. GRADE SHEETS FOR CONCRETE CURB AND GUTTER RETAINING WALLS ARE TO BE PROVIDED TO THE CONTRACT ADMINISTRATOR 10 DAYS PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO MAINTAIN DRAINAGE DURING CONSTRUCTION
4. FOR DETAILS OF GEOTECHNICAL CONDITIONS AND REQUIREMENTS REFER TO GEOTECHNICAL REPORT INCLUDED IN THE CONTRACT DOCUMENTS

GEOTECHNICAL NOTES:

1. CONTRACTOR TO INSPECT THE ON-SITE GRADES AND EXCAVATIONS PRIOR TO CONSTRUCTION AND NOTIFY RYZUK GEOTECHNICAL IF ON-SITE CONDITIONS DIFFER FROM THE ELEVATIONS AND GRADING SHOWN ON THE ENCLOSED RETAINING WALL DRAWINGS
2. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING WALL GEOMETRY IS COMPATIBLE WITH EXISTING CONDITIONS AND PROPOSED WORKS
3. CONTRACTOR TO REVIEW SECTION 6 OF Redi-Rock's Retaining Wall Design Manual 3.0 (Redi-Rock Specifications) PRIOR TO WALL CONSTRUCTION
4. CONTRACTOR SUBMIT PRECAST MODULAR BLOCK CONCRETE TEST RESULTS (28 DAY COMPRESSIVE STRENGTH, AIR CONTENT, AND SLUMP) A MINIMUM OF 24 HOURS PRIOR TO PLACE OF THE PRODUCT TO RYZUK GEOTECHNICAL.
5. CONTRACTOR TO SUBMIT MILL/PRODUCT CERTIFICATES OF ALL GEOGRID REINFORCEMENT DELIVERED TO SITE FOR USE IN THE MECHANICALLY STABILIZED EARTH (MSE) WALL A MINIMUM OF 24 HOURS PRIOR TO PLACEMENT OF THE PRODUCT TO RYZUK GEOTECHNICAL.

TRAFFIC CONTROL NOTES:

1. ALL TRAFFIC CONTROL TO CONFORM TO MOST CURRENT MOTI WORK ON ROADWAYS MANUAL, MMCD, THE DISTRICT OF SOOKE TRAFFIC MANAGEMENT STRATEGY AND THESE DRAWINGS.
2. STREET LIGHT AND TRAFFIC SIGNAL WITHIN PROJECT EXTENTS TO BE MAINTAINED BY PRIME CONTRACTOR FOR THE DURATION OF THE PROJECT.
3. PROVIDE TRAFFIC CONTROL, SIGNAGE, BARRICADES AND ILLUMINATION, AND DETOUR ROUTING AS REQUIRED TO MAINTAIN TRAFFIC FLOW AND EMERGENCY VEHICLE ACCESS.
4. ALL FLAG PERSONS TO HAVE PROOF OF CERTIFICATION.
5. AT THE END OF EACH DAY, EXCAVATION SHALL BE WELL SIGNED AND PROTECTED.
6. MAINTAIN SAFE PEDESTRIAN WALKWAYS AROUND WORK ZONE AND DELINEATE WITH TEMPORARY FENCING IF REQUIRED.
7. TRENCH PLATES SHALL INCLUDE NON SLIP COATING AND APPROPRIATE APPROACH TREATMENT TO REDUCE TRIPPING HAZARDS IN PEDESTRIAN AREAS.

STORM & SANITARY SEWER NOTES:

1. CATCHBASIN LEADS TO HAVE MINIMUM 2.0% GRADE.
2. ALL MANHOLES ARE TO BE BENCHED UNLESS NOTED OTHERWISE ON THE DRAWINGS
3. ALL PIPE SIZES INDICATED REFER TO MINIMUM INSIDE DIAMETER DIMENSIONS
4. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL PIPE MATERIALS, FITTINGS, CONNECTION, MANHOLE, BASES, BENCHING, RISERS, AND CASTINGS.

WATERMAIN NOTES:

1. MINIMUM COVER OVER WATERMAIN TO BE 0.9 METERS UNLESS OTHERWISE NOTED.
2. ALL ABANDONED HYDRANTS, VALVES AND NELSON BOXES TO BE REMOVED AND DISPOSED OFFSITE
3. ALL TIE IN LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
4. CONSTRUCTION SHALL NOT PROCEED WITHOUT FIRST OBTAINING CRD INTEGRATED WATER SERVICES (IWS) ACCEPTANCE OF THE DESIGN DRAWINGS AND A CONSTRUCTION PERMIT FROM ISLAND HEALTH,
5. CONTRACTOR SHALL BE REGISTERED WITH WORK SAFE BC.
6. ALL WATERWORKS CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH CRD IWS ENGINEERING SPECIFICATIONS AND STANDARD DRAWINGS.
7. WATER MAINS SHALL BE DUCTILE IRON PRESSURE CLASS 350 TO AWWA C151; OR PVC DR18 TO AWWA C900 OR AWWA C905; HDPE DR11 TO AWWA 906; OR OTHER MATERIAL, APPROVED IN ADVANCE, ON A CASE BY CASE BASIS BY THE CRD IWS.
8. MARK WATER MAINS BELOW GRADE USING A METALLIC DETECTABLE REINFORCED UNDERGROUND UTILITY MARKING TAPE. THE TAPE SHALL BE MINIMUM 150 mm WIDE, METALLIC BLUE IN COLOUR AND SHALL BE MARKED "CAUTION: WATER LINE BURIED BELOW"/ INSTALL TAPE ON TOP OF THE PIPE CUSHION 300 mm ABOVE THE TOP OF THE PIPE. PROVIDE "THORTEC" MARKING TAPE OR APPROVED EQUAL.
9. MAINTAIN A MINIMUM OF 3 m HORIZONTAL CLEAR SEPARATION AND 450 mm CLEAR VERTICAL SEPARATION BETWEEN WATER MAINS AND ALL SANITARY SEWERS/SERVICES AND DRAIN SEWERS/SERVICES EXCEPT WHERE NOTED AND APPROVED BY CRD IWS. SANITARY SEWER MAINS SHALL NOT CROSS OVER WATER MAINS. FOR A SANITARY FORCEMAIN, WHERE THE ABOVE-NOTED SEPARATIONS CANNOT BE ACHIEVED, THE FORCEMAIN SHALL BE GASKET PRESSURE RATED PIPE WITH A MINIMUM DR (DIMENSION RATIO) OF 28; OR HDPE MINIMUM DR17
10. MAINTAIN A MINIMUM OF 3 m HORIZONTAL CLEAR SEPARATION AND 450 mm CLEAR VERTICAL SEPARATION BETWEEN WATER SERVICES AND SEWER SERVICES, SANITARY OR STORM/DRAIN. IN SPECIAL CIRCUMSTANCES, WHERE A SANITARY SEWER OR STORM DRAIN SERVICE IS LOWER THAN A WATER SERVICE BY MORE THAN 450 mm IN ELEVATION THE HORIZONTAL OFFSET MAY BE REDUCED TO NO LESS THAN 1.0 METERS EXCEPT WHERE NOTED AND APPROVED BY THE CRD IWS. VIHA APPROVAL IS REQUIRED FOR ANY REDUCTION IN THE SEPARATION.
11. FOR CROSSING OF EXISTING SEWERS, WHERE THE WATER MAIN DOES NOT HAVE THE REQUIRED 450 mm VERTICAL SEPARATION, WRAP WATER MAIN JOINTS WITH PETROLATUM TAPE 3 m EITHER SIDE OF THE WATER MAIN. WHERE THE VERTICAL SEPARATION OF 150 mm CANNOT BE ACHIEVED, SPECIAL MITIGATIVE MEASURES SHALL BE APPROVED BY CRD IWS.
12. WHERE NEW CATCHBASIN (CB) LEADS DO NOT HAVE A 450 mm VERTICAL SEPARATION, WRAP CB LEAD JOINTS WITH PETROLATUM TAPE.
13. MAINTAIN A MINIMUM 1.5 m HORIZONTAL CENTRE TO CENTRE AND 150 mm CLEAR VERTICAL SEPARATION BETWEEN WATER MAINS AND ELECTRICAL CONDUITS, GAS MAINS AND TELEPHONE CONDUITS EXCEPT WHERE NOTED AND APPROVED BY CRD IWS.
14. MAINTAIN A MINIMUM OF 1.0 m HORIZONTAL CENTRE TO CENTRE AND 150 mm CLEAR VERTICAL SEPARATION BETWEEN WATER SERVICES AND ELECTRICAL, GAS AND TELEPHONE SERVICES EXCEPT WHERE NOTED AND APPROVED BY CRD IWS.
15. CONTRACTOR SHALL CONDUCT A PRESSURE TEST IN ACCORDANCE WITH CRD IWS ENGINEERING SPECIFICATIONS AND IN THE PRESENCE OF CRD PERSONNEL.
16. CONTRACTOR SHALL FLUSH AND DISINFECT WATER MAINS IN ACCORDANCE WITH AWWA STANDARDS AND AS APPROVED BY CRD IWS. WATER SAMPLES FOR HEALTH TESTS TO BE COLLECTED AND PROCESSED BY CRD. PROVIDE 24 HOURS NOTICE TO CRD.
17. NEUTRALIZE CHLORINE SOLUTIONS IN ACCORDANCE WITH MINISTRY OF ENVIRONMENT AND FISHERIES AND OCEANS CANADA REGULATIONS PRIOR TO DISCHARGE TO ANY DRAINAGE COURSE.
18. CONTRACTOR SHALL PROVIDE 24 HOUR NOTICE TO CRD IWS PRIOR TO PROCEEDING WITH ANY WATERWORKS.
19. CRD IWS SHALL MAKE ALL CONNECTIONS TO EXISTING WATER MAINS AT APPLICANT'S EXPENSE. CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE TO CRD IWS FOR WORK REQUIRED BY CRD IWS FORCES.
20. WHERE PRACTICAL, SERVICE LINES AND METER BOXES SHALL BE INSTALLED TO FINISHED GRADE, OUTSIDE OF DRIVEWAYS OR PAVED AREAS.
21. ANY TEMPORARY OR PERMANENT CONNECTION TO THE JUAN DE FUCA WATER DISTRIBUTION SYSTEM OR THE CRD SUPPLY SYSTEM SHALL BE PERFORMED BY CRD IWS PERSONNEL ONLY.
22. REPLACE ALL WATER METERS AND WATER METER BOXES.
23. ADVISE CRD BILLING CLERK OF ANY REMOVED WATER SERVICES.
24. ANY ROAD REINSTATEMENT IS TO CONFORM TO THE CITY OF LANGFORD STANDARDS.
25. REINSTATEMENT OF DRIVEWAYS, BOULEVARDS & OTHER FEATURES TO BE AS GOOD AS OR BETTER THAN BEFORE EXCAVATION.
26. CONFIRM LOCATION OF UTILITY/SERVICE BY HAND DIGGING PRIOR TO WATER MAIN INSTALLATION.
27. THRUST BLOCKS HAVE TO HAVE A REACTION AREA BASED ON THE FOLLOWING: MAX. PRESSURE * 1.5=200 psi; SOIL TYPE=SW; SAFETY FACTOR=1.0
28. ONCE THE NEW WATER MAIN IS CONNECTED AND OPERATIONAL, VALVES ON THE ABANDONED WATER MAIN TO BE LEFT IN THE CLOSED POSITION WITH THE VALVE BOX AND RISER REMOVED AND DISPOSED OFFSITE. HOLE TO BE BACKFILLED WITH PEA GRAVEL AND SURROUNDING AREA REINSTATED.

CRD STANDARD DRAWING REFERENCES:

1.3 STANDARD FIRE HYDRANT ASSEMBLY
1.6 100 mm FLUSH ASSEMBLY FOR DISTRIBUTION MAINS (OUTSIDE PAVED AREA)
1.7 STANDARD LINE VALVE INSTALLATION
1.8 CONCRETE THRUST BLOCK DETAILS c/w 6mil POLY ON INTERFACE BETWEEN CONCRETE AND FITTING
1.9 MECHANICAL THRUST RESTRAINT APPLICATIONS c/w PRIMER AND PETROLATUM TAPE TO AWWA C217
1.10 THRUST RESTRAINT LENGTH
1.12 STANDARD TRENCH DETAIL
1.13 STANDARD WATER VALVE BOX
1.14 HYDRANT INSTALLATION IN DITCHED AREAS
2.3 19mm CAST IRON COVER FOR 19mm METER
2.4 EXISTING SERVICE REPLACEMENT
2.5 WATER SERVICE - TYPICAL LAYOUT WITH RESPECT TO PROPERTY LINE
2.6 STANDARD WATER SERVICE CONNECTION

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: AS SHOWN VERT: -

SEAL
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J. A. MCKINNON #39121
2023-05-26

ISL

DRAWING TITLE:
GENERAL NOTES

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	01 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

LAST SAVED BY: APYM
LAST SAVED DATE & TIME: Friday, May 26, 2023 10:47 AM
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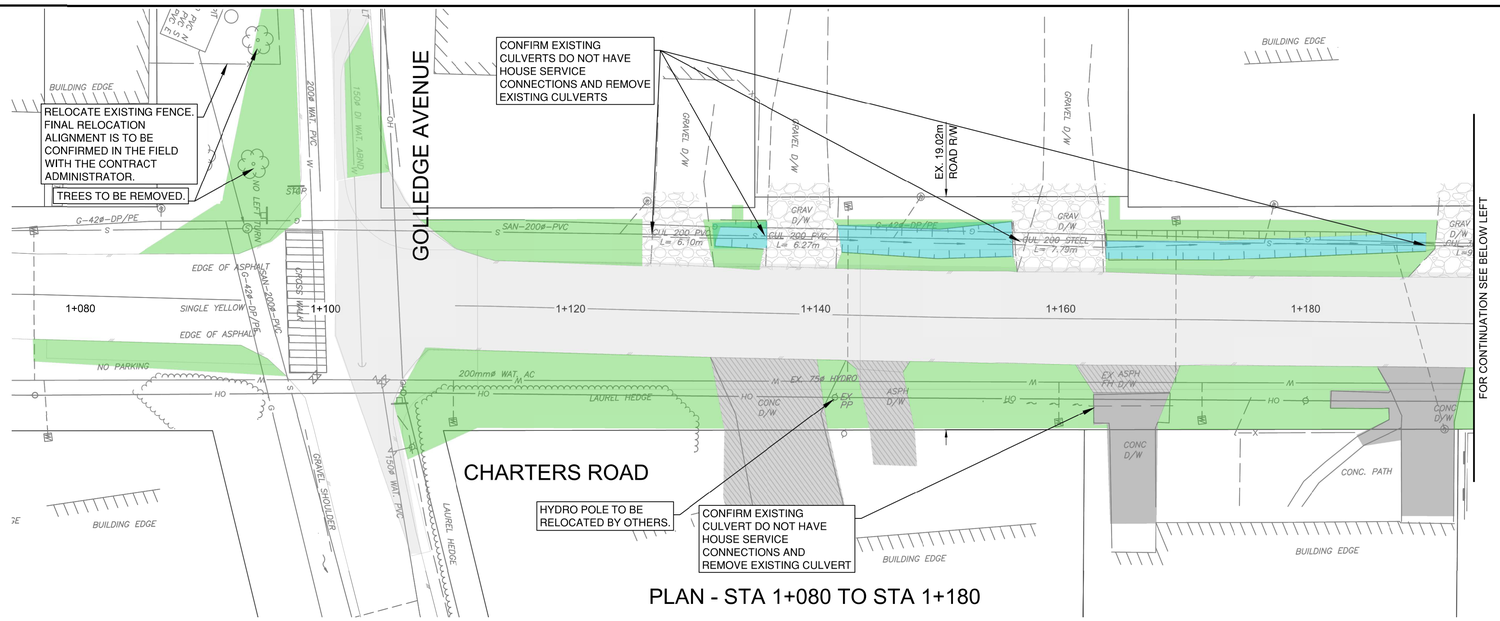
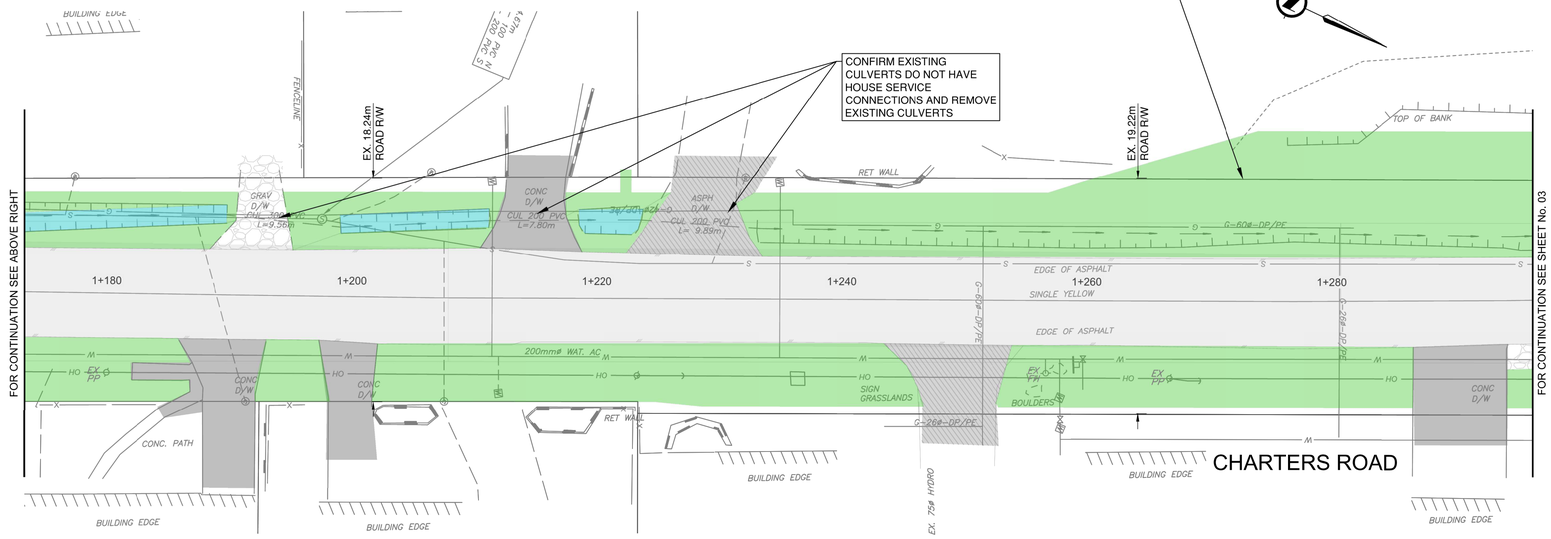


PLAN - STA 1+080 TO STA 1+180

LIMITS OF REMOVALS FRONTING 2104 ARE TO BE CONFIRMED IN THE FIELD WITH THE CONTRACT ADMINISTRATOR. HOMEOWNER CURRENTLY EXCAVATING FRONTAGE AT THE TIME OF TENDER.



PLAN - STA 1+180 TO STA 1+290

LEGEND

- APPROXIMATE CULVERT REMOVAL LIMITS.
- REMOVE EXISTING CONCRETE BARRIERS.
- REMOVE EXISTING ROADWAY ASPHALT.
- COMMON EXCAVATION AND TREE REMOVAL (OBTAIN APPROVAL FROM THE CONTRACT ADMINISTRATOR PRIOR TO REMOVING TREES).
- EXISTING DRAIN DITCHES LINES. STRIP AND FILL WITH 19mm CLEAR CRUSHED GRAVEL TOPPED WITH NON-WOVEN GEOTEXTILE. SURFACE TO BE FINISHED AS PER THE CIVIL ROADWORKS DRAWINGS.
- REMOVE EXISTING GRAVEL. REINSTATE 150mm THICKNESS AT DRIVEWAYS LOCATIONS. STOCKPILE FOR RE-USE ONSITE.
- REMOVE EXISTING CONCRETE DRIVEWAY. REINSTATE 150mm THICKNESS.
- REMOVE EXISTING DRIVEWAY ASPHALT, REINSTATE 50mm THICKNESS AS PER THE ROADWORKS DRAWINGS.
- APPROXIMATE EXTENTS OF MIDDEN STOCKPILE.

NOTE: ALL MATERIALS ARE EXCEPT FOR CONCRETE BARRIERS TO BE DISPOSED OFFSITE UNLESS OTHERWISE NOTED. REUSE OF GRANULAR MATERIAL IS TO BE APPROVED BY THE CONTRACT ADMINISTRATOR PRIOR TO USE. CONCRETE BARRIERS TO BE RETURNED TO DISTRICT OF SOOKE.

1:250 0 5 15m

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — I. A. MCKINNON — 45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
REMOVALS - STA 1+080 TO STA 1+290

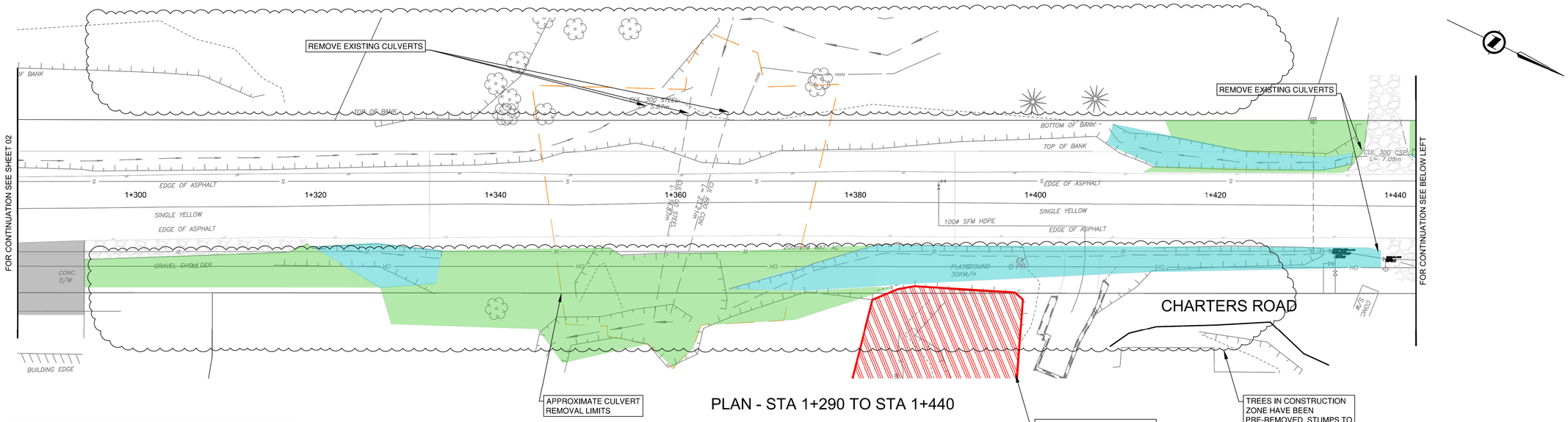
PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	02 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

LAST SAVED BY: APYM
LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM
FILENAME: 32859_SH_REMOVALS.dwg



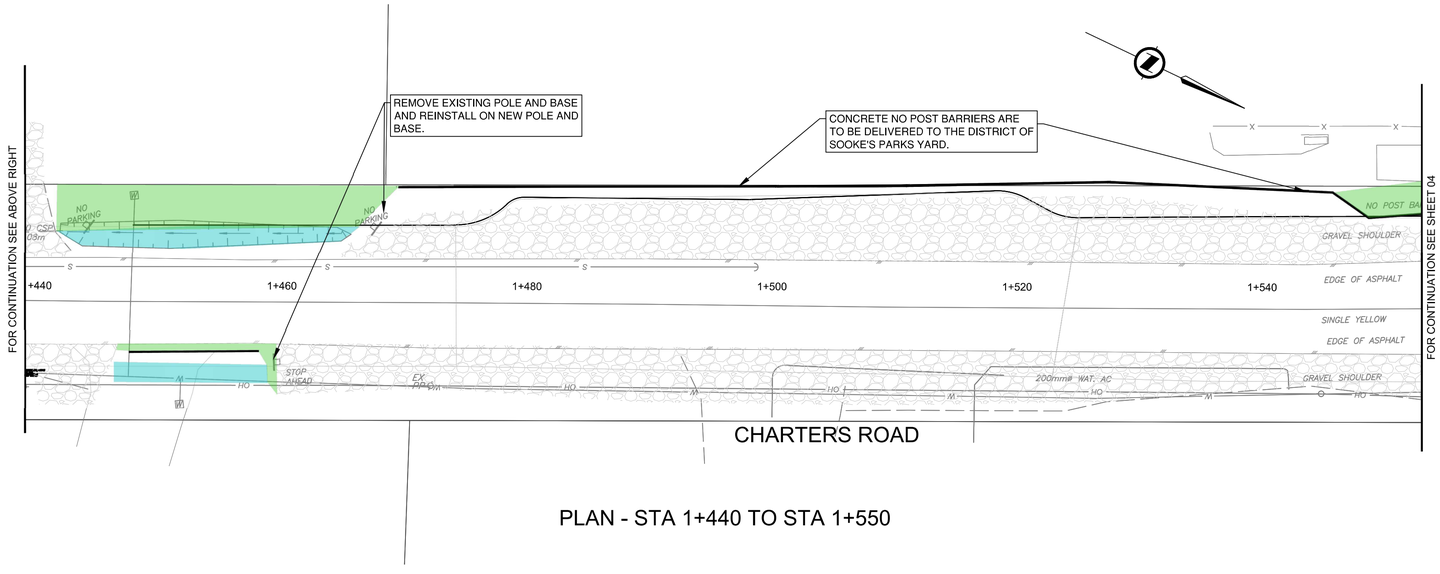
PLAN - STA 1+290 TO STA 1+440

LEGEND

- APPROXIMATE CULVERT REMOVAL LIMITS.
- REMOVE EXISTING CONCRETE BARRIERS.
- REMOVE EXISTING ROADWAY ASPHALT.
- COMMON EXCAVATION AND TREE REMOVAL (OBTAIN APPROVAL FROM THE CONTRACT ADMINISTRATOR PRIOR TO REMOVING TREES).
- EXISTING DRAIN DITCHES LINES. STRIP AND FILL WITH 19mm CLEAR CRUSHED GRAVEL TOPPED WITH NON-WOVEN GEOTEXTILE. SURFACE TO BE FINISHED AS PER THE CIVIL ROADWORKS DRAWINGS.
- REMOVE EXISTING GRAVEL. REINSTATE 150mm THICKNESS AT DRIVEWAYS LOCATIONS. STOCKPILE FOR RE-USE ONSITE.
- REMOVE EXISTING CONCRETE DRIVEWAY. REINSTATE 150mm THICKNESS.
- REMOVE EXISTING DRIVEWAY ASPHALT. REINSTATE 50mm THICKNESS AS PER THE ROADWORKS DRAWINGS.
- APPROXIMATE EXTENTS OF MIDDEN STOCKPILE.

NOTE: ALL MATERIALS ARE EXCEPT FOR CONCRETE BARRIERS TO BE DISPOSED OFFSITE UNLESS OTHERWISE NOTED. REUSE OF GRANULAR MATERIAL IS TO BE APPROVED BY THE CONTRACT ADMINISTRATOR PRIOR TO USE. CONCRETE BARRIERS TO BE RETURNED TO DISTRICT OF SOOKE.

1:250 0 5 15m



PLAN - STA 1+440 TO STA 1+550

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230526

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — I. A. MCKINNON — 18121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
REMOVALS - STA 1+290 TO STA 1+590

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	03 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

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LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM
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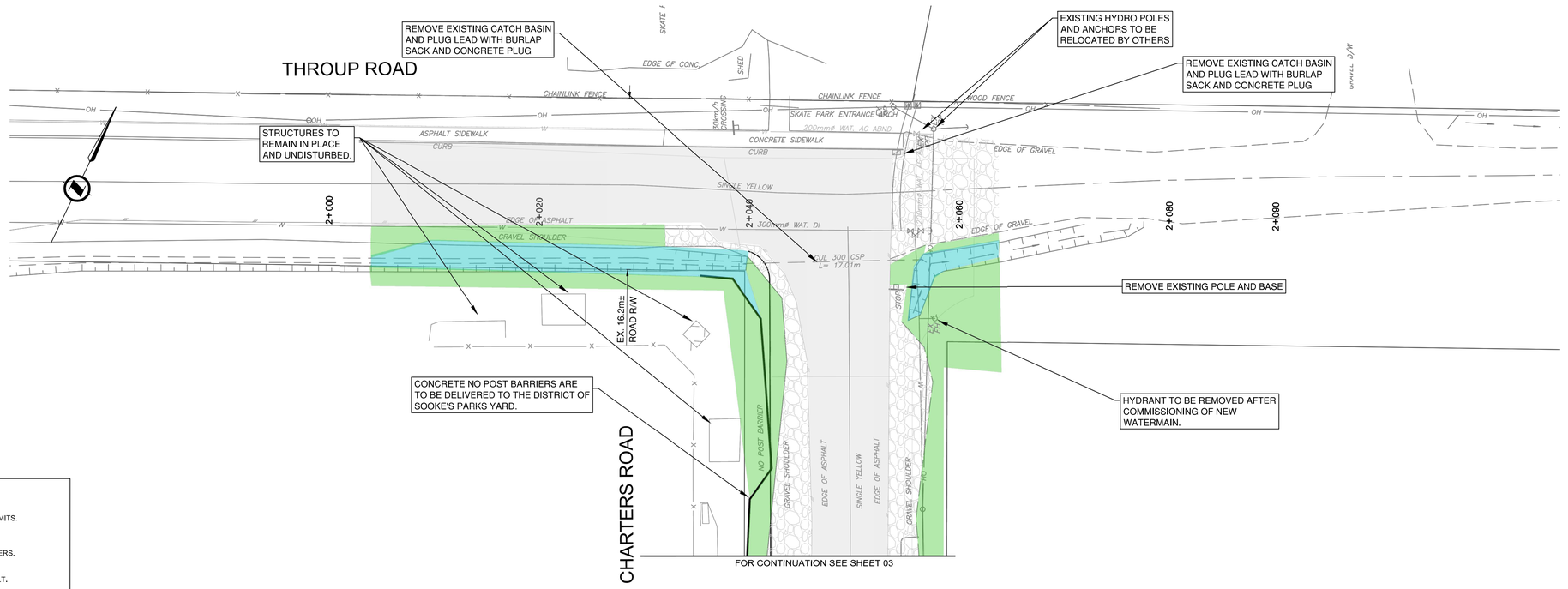

LEGEND

- APPROXIMATE CULVERT REMOVAL LIMITS.
- REMOVE EXISTING CONCRETE BARRIERS.
- REMOVE EXISTING ROADWAY ASPHALT.
- COMMON EXCAVATION AND TREE REMOVAL (OBTAIN APPROVAL FROM THE CONTRACT ADMINISTRATOR PRIOR TO REMOVING TREES).
- EXISTING DRAIN DITCHES LINES, STRIP AND FILL WITH 19mm CLEAR CRUSHED GRAVEL TOPPED WITH NON-WOVEN GEOTEXTILE. SURFACE TO BE FINISHED AS PER THE CIVIL ROADWORKS DRAWINGS.
- REMOVE EXISTING GRAVEL. REINSTATE 150mm THICKNESS AT DRIVEWAYS LOCATIONS. STOCKPILE FOR RE-USE ONSITE.
- REMOVE EXISTING CONCRETE DRIVEWAY. REINSTATE 150mm THICKNESS.
- REMOVE EXISTING DRIVEWAY ASPHALT. REINSTATE 50mm THICKNESS AS PER THE ROADWORKS DRAWINGS.
- APPROXIMATE EXTENTS OF MIDDEN STOCKPILE.

NOTE: ALL MATERIALS ARE EXCEPT FOR CONCRETE BARRIERS TO BE DISPOSED OFFSITE UNLESS OTHERWISE NOTED. REUSE OF GRANULAR MATERIAL IS TO BE APPROVED BY THE CONTRACT ADMINISTRATOR PRIOR TO USE. CONCRETE BARRIERS TO BE RETURNED TO DISTRICT OF SOOKE.

1:250 0 5 15m

PLAN - STA 1+550 TO STA 1+590 AND STA 2+000 TO STA 2+070

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230526

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA I. A. MCKINNON 41121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
REMOVALS - THROUP ROAD

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	04 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

LAST SAVED BY: APYM
LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM
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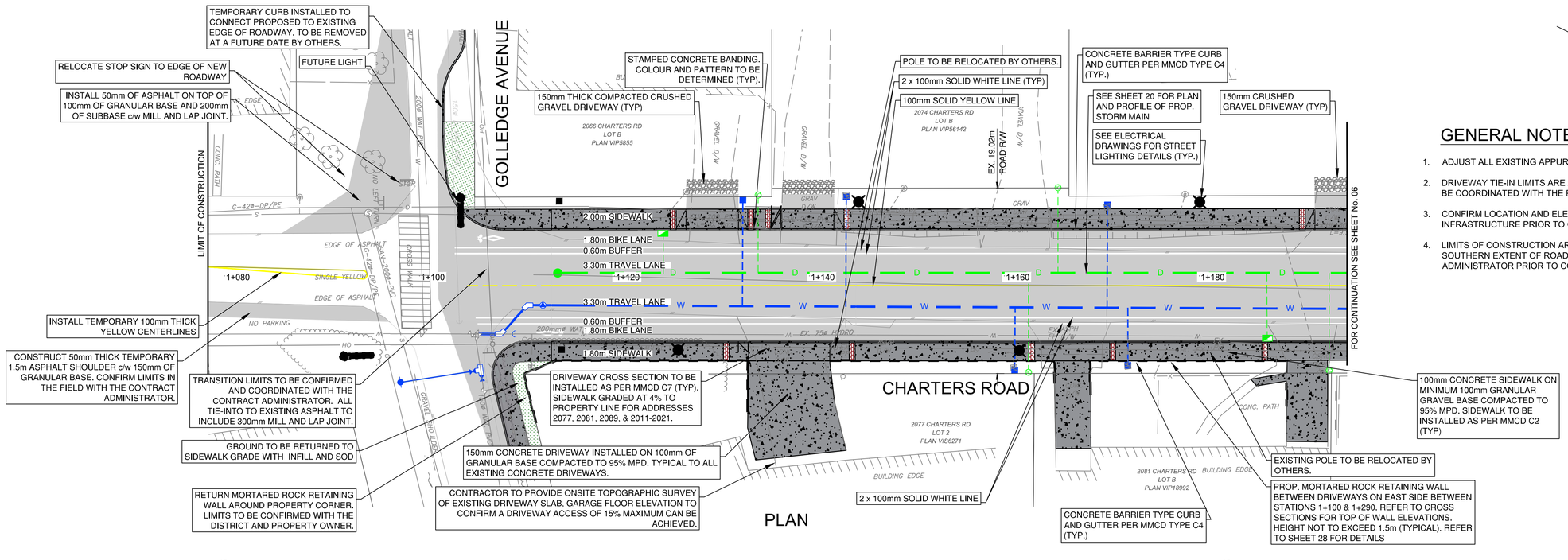

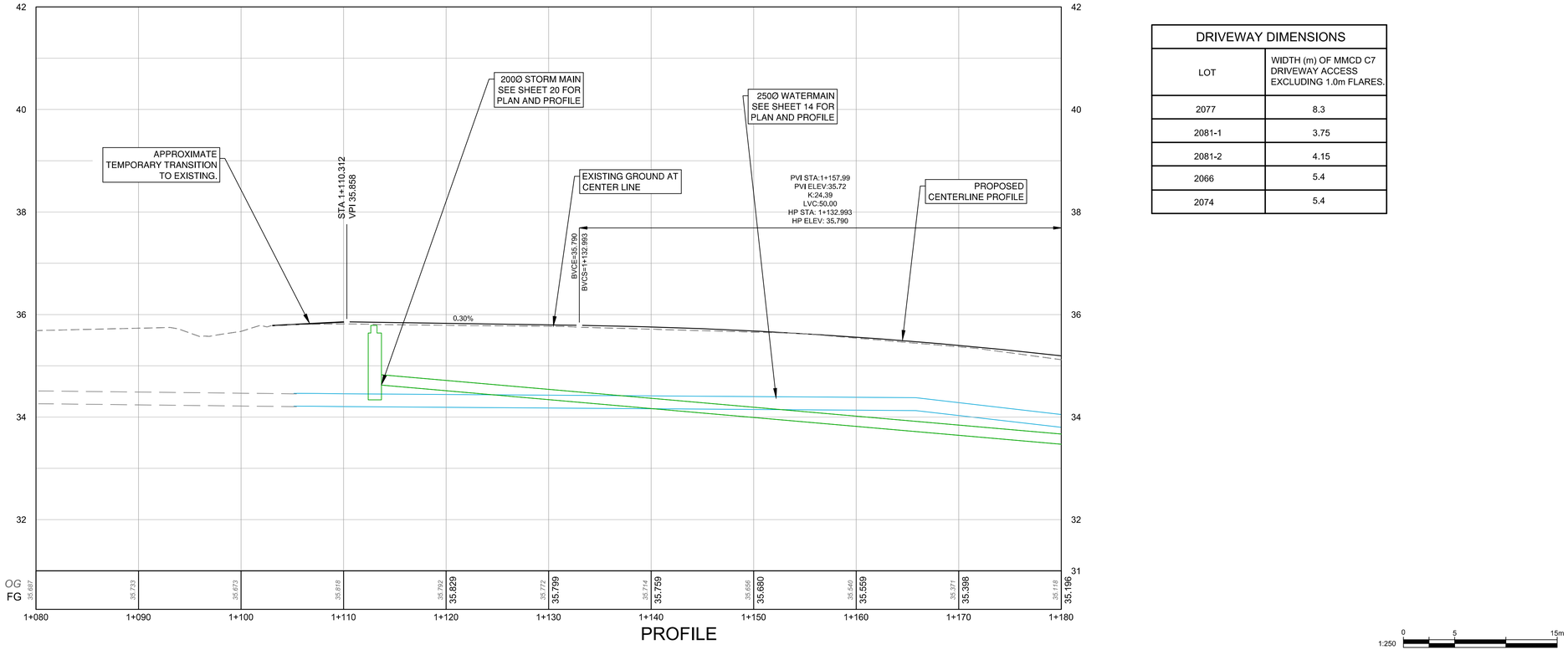

GENERAL NOTES:

1. ADJUST ALL EXISTING APPURTENANCES TO FINISHED GROUND.
2. DRIVEWAY TIE-IN LIMITS ARE APPROXIMATE. FINAL LIMITS AND GRADES TO BE COORDINATED WITH THE PROPERTY OWNER AND THE DISTRICT.
3. CONFIRM LOCATION AND ELEVATION OF ALL UNDERGROUND INFRASTRUCTURE PRIOR TO CONSTRUCTION.
4. LIMITS OF CONSTRUCTION ARE CONSIDERED APPROXIMATE. CONFIRM SOUTHERN EXTENT OF ROAD WORKS WITH THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.

DRIVEWAY DIMENSIONS	
LOT	WIDTH (m) OF MMCD C7 DRIVEWAY ACCESS EXCLUDING 1.0m FLARES.
2077	8.3
2081-1	3.75
2081-2	4.15
2066	5.4
2074	5.4

1:250 0 5 15m

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
PLAN AND PROFILE
STA 1+080 TO STA 1+180

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	05 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

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LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM
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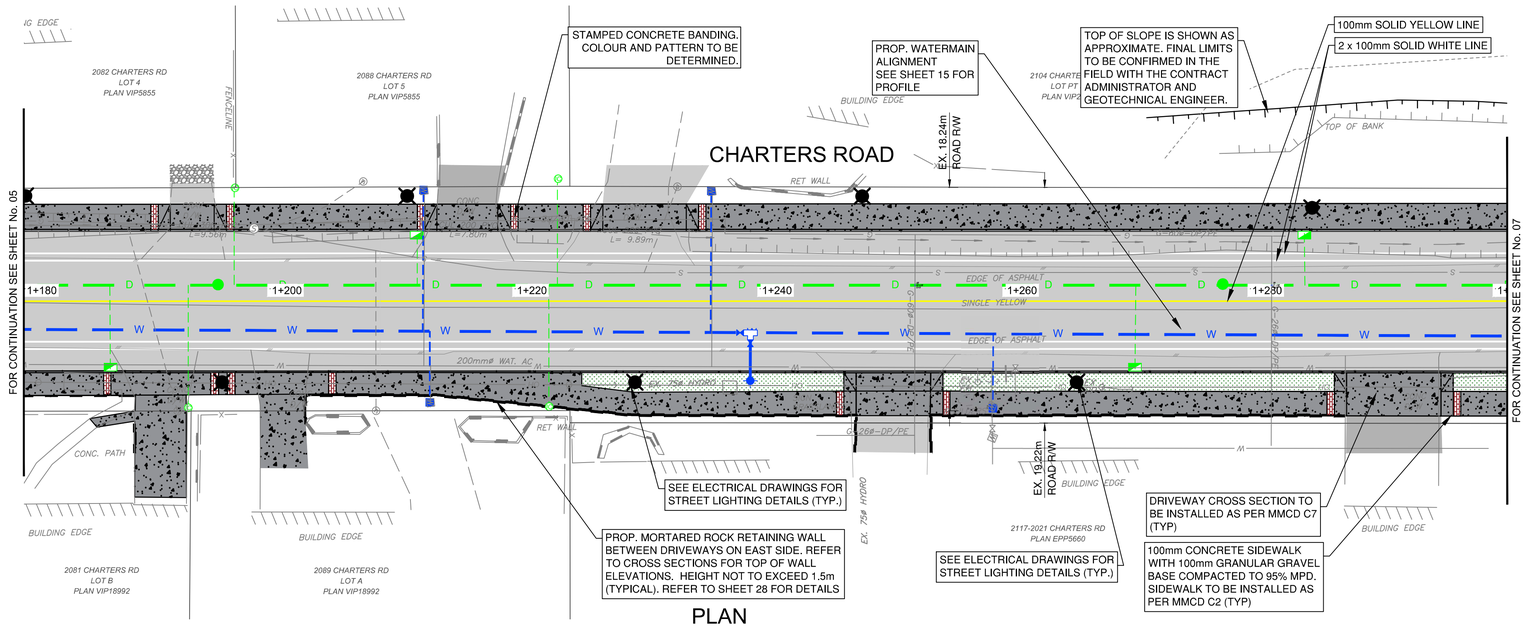
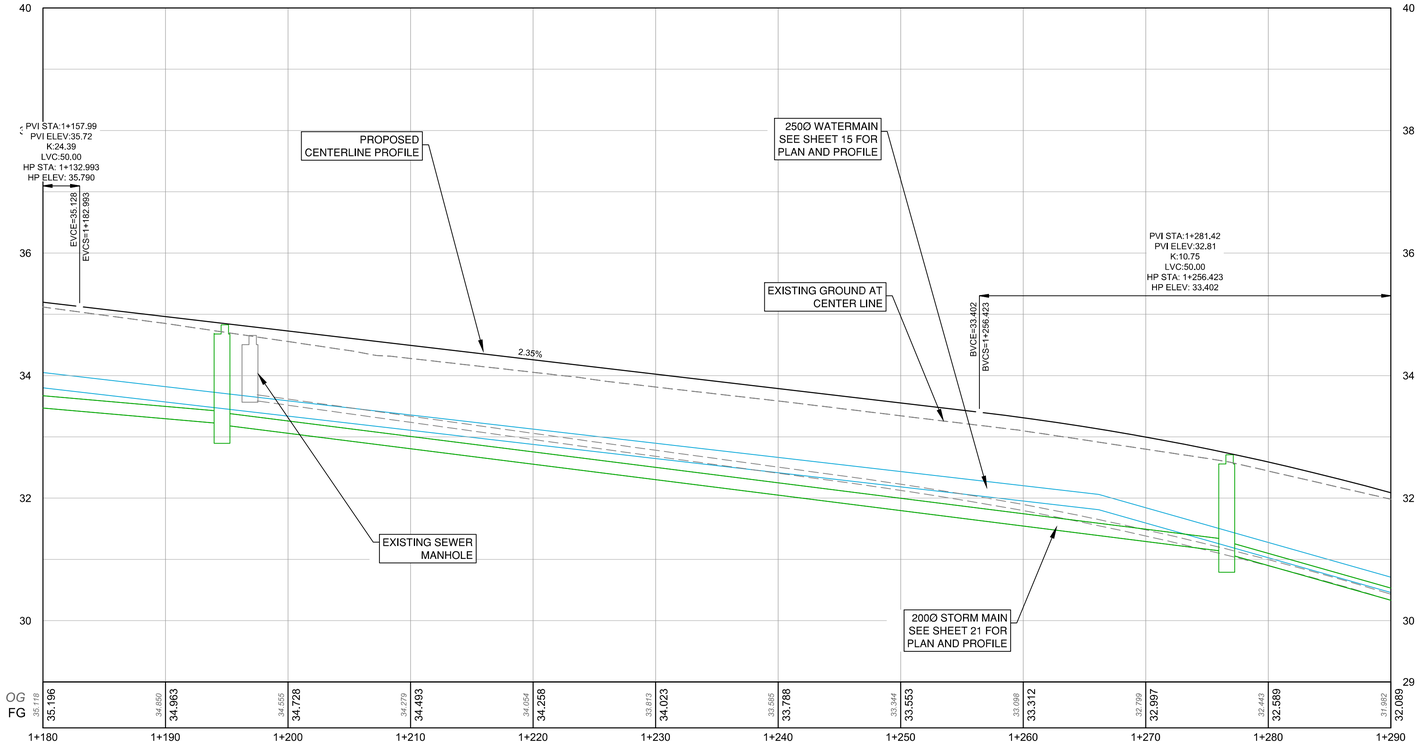


PLAN



PROFILE

GENERAL NOTES:

1. ADJUST ALL EXISTING APPURTENANCES TO FINISHED GROUND.
2. DRIVEWAY TIE-IN LIMITS ARE APPROXIMATE. FINAL LIMITS AND GRADES TO BE COORDINATED WITH THE PROPERTY OWNER AND THE DISTRICT.
3. CONFIRM LOCATION AND ELEVATION OF ALL UNDERGROUND INFRASTRUCTURE PRIOR TO CONSTRUCTION.

DRIVEWAY DIMENSIONS	
LOT	WIDTH (m) OF MMCD C7 DRIVEWAY ACCESS EXCLUDING 1.0m FLARES.
2081-2	4.15
2089	3.6
2117-2021-1	6.0
2117-2021-2	7.7
2082	5.0
2089	5.0
2104	6.8

1:250 0 5 15m

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230526

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
PLAN AND PROFILE
STA 1+180 TO STA 1+290

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	06 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

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LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM
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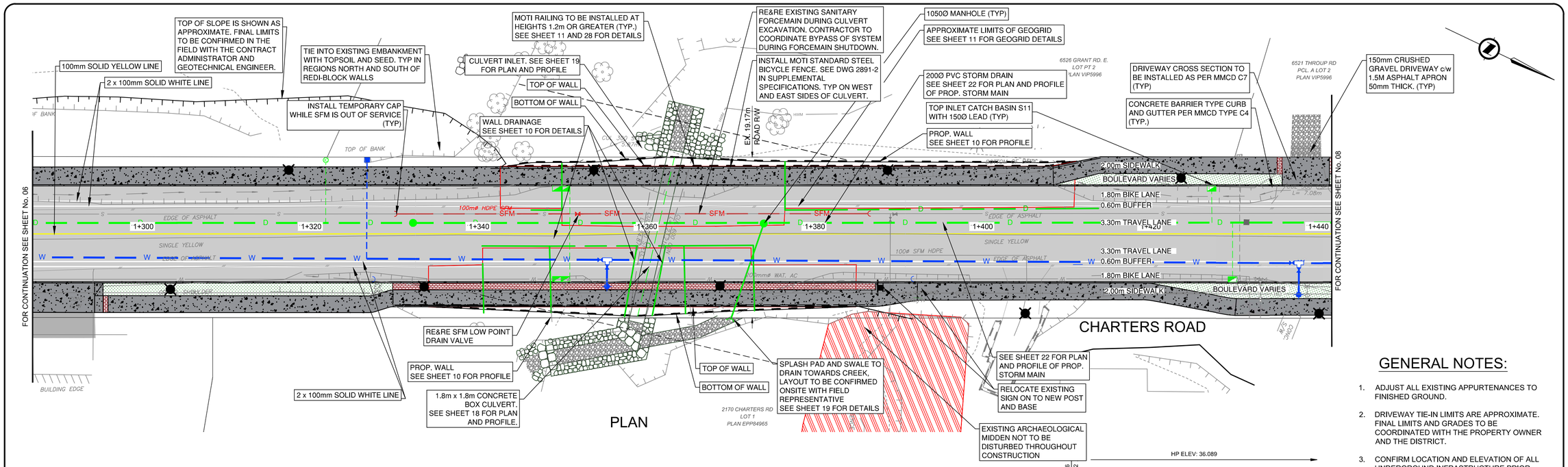

GENERAL NOTES:

1. ADJUST ALL EXISTING APPURTENANCES TO FINISHED GROUND.
2. DRIVEWAY TIE-IN LIMITS ARE APPROXIMATE. FINAL LIMITS AND GRADES TO BE COORDINATED WITH THE PROPERTY OWNER AND THE DISTRICT.
3. CONFIRM LOCATION AND ELEVATION OF ALL UNDERGROUND INFRASTRUCTURE PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO COORDINATION WATERMAIN SHUT DOWN WITH CRD WATER. TIMELINE OF WORKS TO BE APPROVED BY CRD WATER.
5. CONTRACTOR TO PROVIDE AND COORDINATE BYPASS OF EXISTING SANITARY FORCE MAIN DURECINT CONSTRUCTION

DRIVEWAY DIMENSIONS	
LOT	WIDTH (m) OF MMCD C7 DRIVEWAY ACCESS EXCLUDING 1.0m FLARES.
2117-2021-2	7.7
6521	5.6

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230526

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER
I. A. MCKINNON
#18121
PROVINCE OF BRITISH COLUMBIA
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
PLAN AND PROFILE STA 1+290 TO STA 1+440

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	07 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

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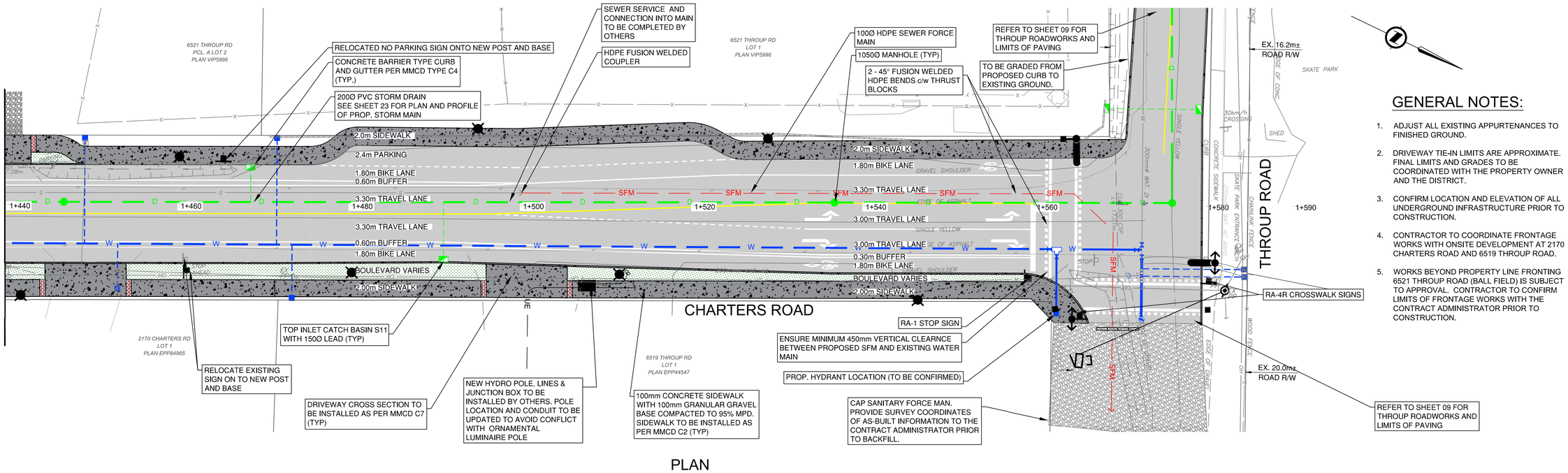
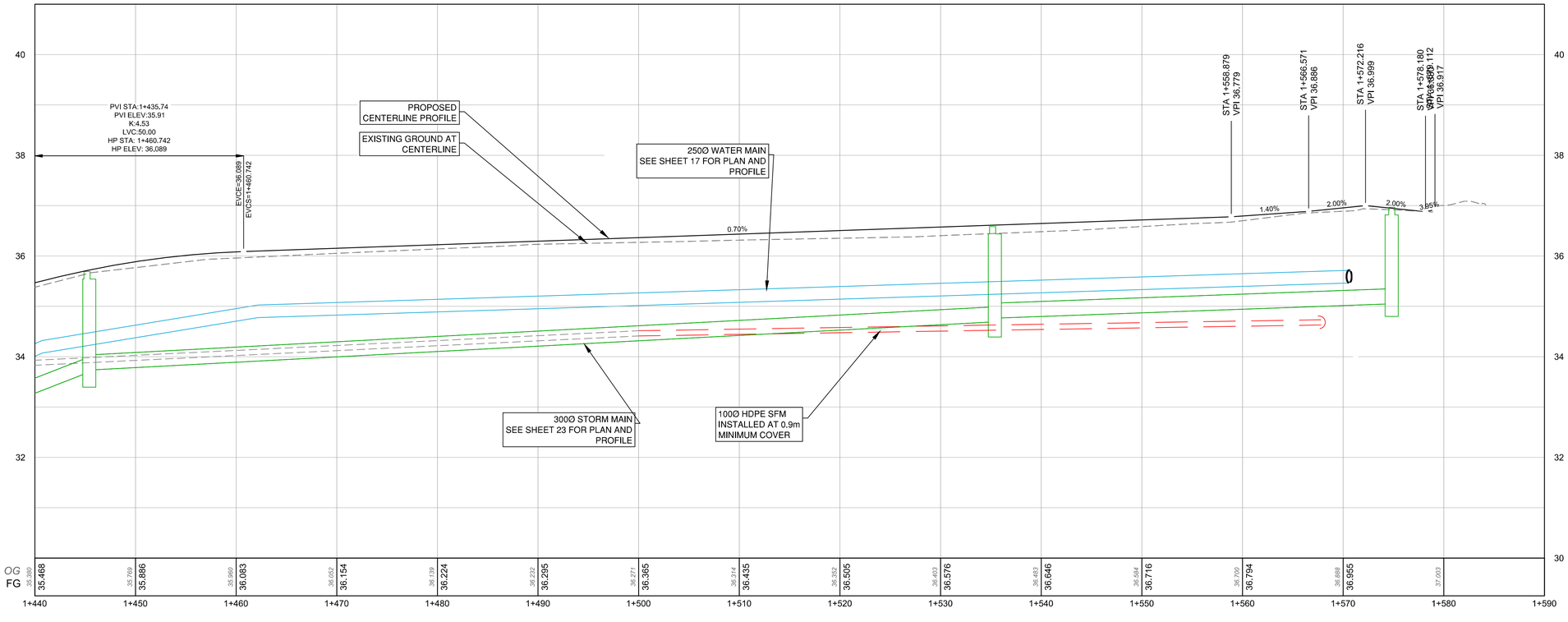


PLAN

GENERAL NOTES:

1. ADJUST ALL EXISTING APPURTENANCES TO FINISHED GROUND.
2. DRIVEWAY TIE-IN LIMITS ARE APPROXIMATE. FINAL LIMITS AND GRADES TO BE COORDINATED WITH THE PROPERTY OWNER AND THE DISTRICT.
3. CONFIRM LOCATION AND ELEVATION OF ALL UNDERGROUND INFRASTRUCTURE PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO COORDINATE FRONTAGE WORKS WITH ONSITE DEVELOPMENT AT 2170 CHARTERS ROAD AND 6519 THROUP ROAD.
5. WORKS BEYOND PROPERTY LINE FRONTING 6521 THROUP ROAD (BALL FIELD) IS SUBJECT TO APPROVAL. CONTRACTOR TO CONFIRM LIMITS OF FRONTAGE WORKS WITH THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.



PROFILE

DRIVEWAY DIMENSIONS	
LOT	WIDTH (m) OF MMCD C7 DRIVEWAY ACCESS EXCLUDING 1.0m FLARES.
2170	9.5
6519	9.5

1:250 0 5 15m

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230526

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — I. A. MCKINNON — 45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
PLAN AND PROFILE STA 1+440 TO STA 1+590

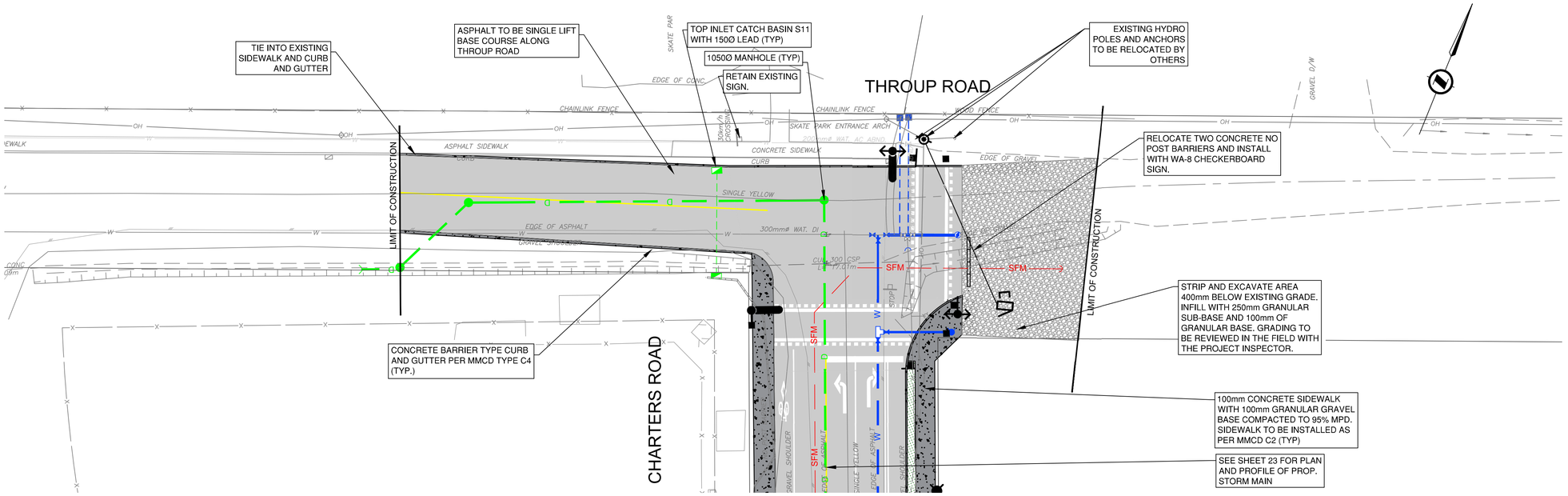
PROJECT TITLE:
CHARTERS ROAD

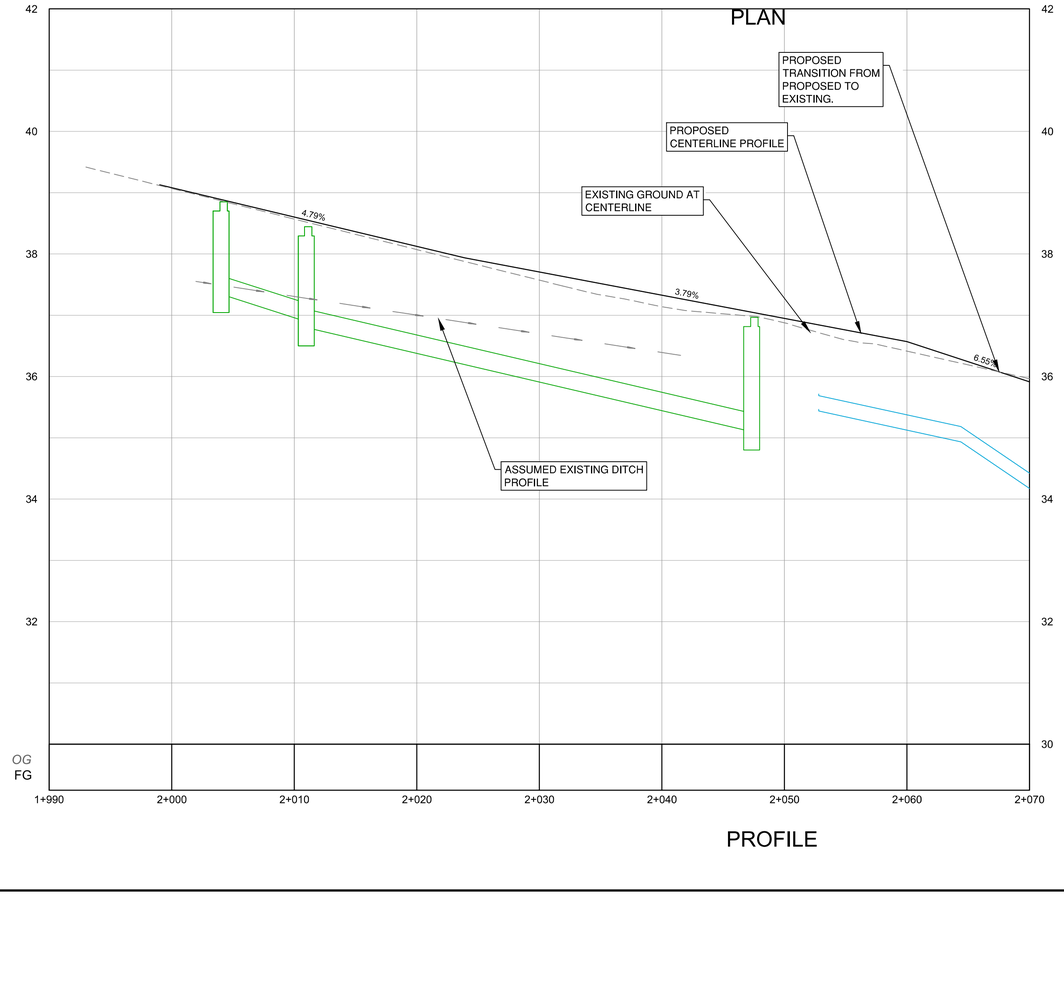
PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	08 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

FILENAME: 32859_SH_ROADWORK.dwg LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM LAST SAVED BY: APYM





GENERAL NOTES:

1. ADJUST ALL EXISTING APPURTENANCES TO FINISHED GROUND.
2. CONFIRM LOCATION AND ELEVATION OF ALL UNDERGROUND INFRASTRUCTURE PRIOR TO CONSTRUCTION.
3. LIMITS OF CONSTRUCTION ARE CONSIDERED APPROXIMATE. CONFIRM EXTENT OF ROAD WORKS ON THROUP ROAD WITH THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.
4. TEMPORARY TRANSITION ON THROUP ROAD IS APPROXIMATE. CONFIRM FINAL LIMITS IN THE FIELD WITH THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.

1:250 0 5 15m

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230526

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
THROUP PLAN AND PROFILE STA 2+000 TO STA 2+100

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	09 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

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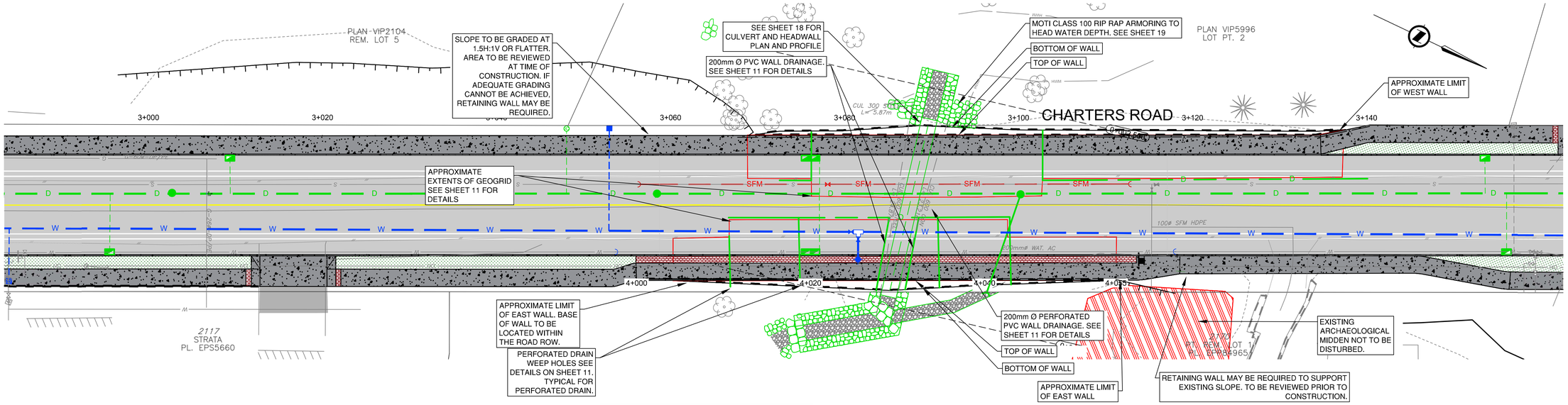
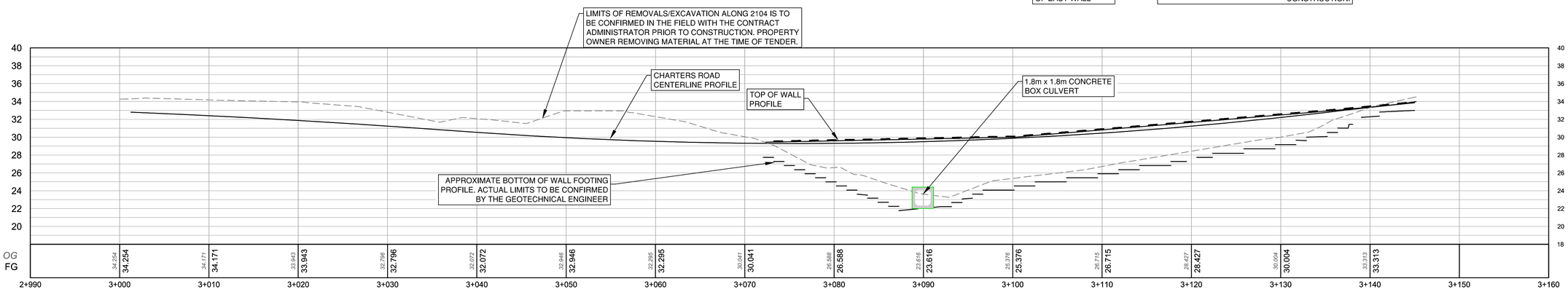
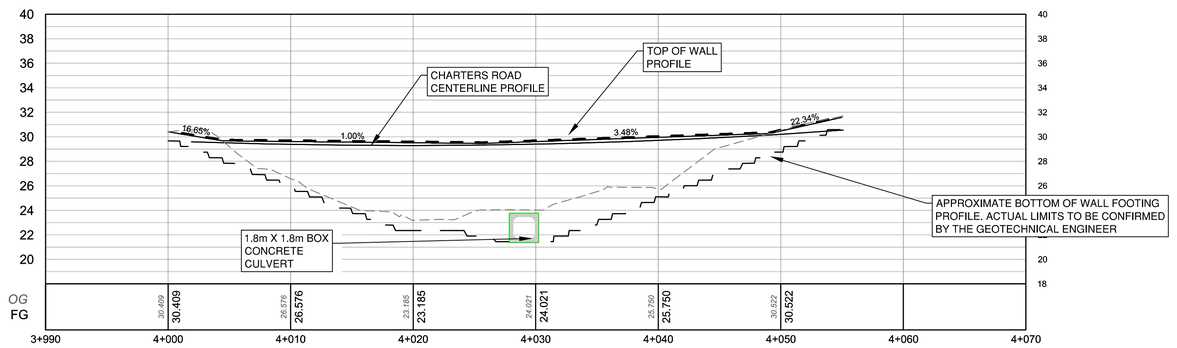




WEST WALL PROFILE - 1:250

GENERAL NOTES:

1. THE WALL SECTIONS WILL HAVE TWO DIFFERENT RAILING TYPES ON THE ROADWAY:
2. MOTI STEEL SIDEWALK FENCING
   - 2.1. FROM STN 0+072 TO STN 0+145 ON THE WEST WALL
   - 2.2. FROM STN 0+000 TO STN 0+055 ON THE EAST WALL
3. MORTAR ROCK HAND RAILING - C14
   - 3.1. FROM STN 0+000 TO STN 0+072 ON THE WEST WALL



EAST WALL PROFILE - 1:250

0 5 15m
1:250

District of Sooke

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0	230526	AP/AA	ISSUE FOR TENDER

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DRAWN BY	AP/AA	230501
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APPROVED BY	IM	230526

SCALE
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SEAL
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
ENGINEER
2023-05-26

ISL Engineering and Land Services

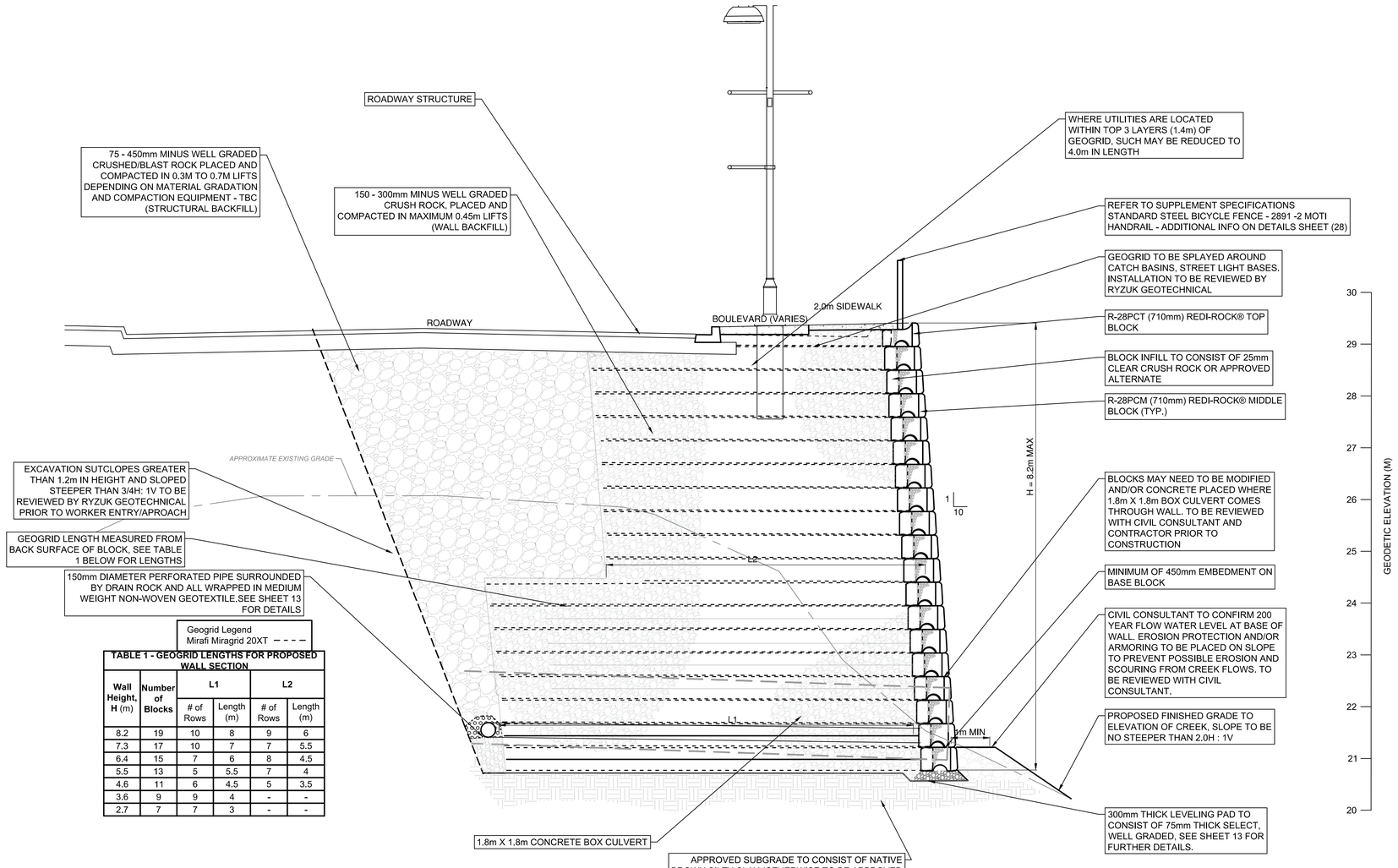
DRAWING TITLE:
WALL PLAN AND PROFILE

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	10 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

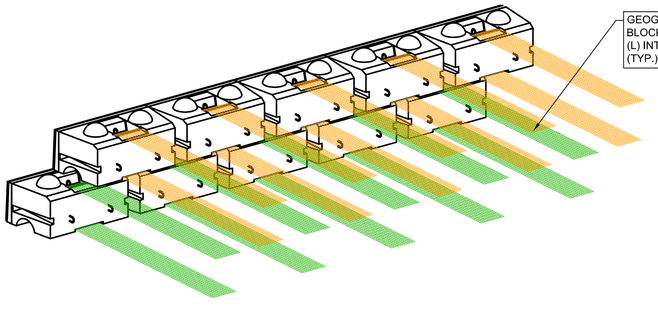


Geogrid Legend
Mirafi Miragrid 20XT – – – –

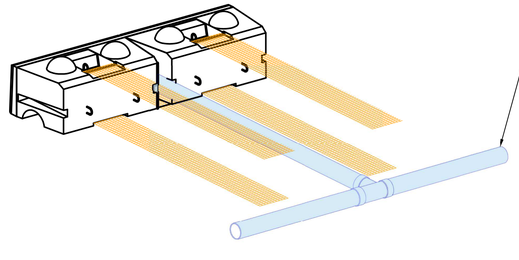
TABLE 1 - GEOGRID LENGTHS FOR PROPOSED WALL SECTION

Wall Height, H (m)	Number of Blocks	L1		L2	
		# of Rows	Length (m)	# of Rows	Length (m)
8.2	19	10	8	9	6
7.3	17	10	7	7	5.5
6.4	15	7	6	8	4.5
5.5	13	5	5.5	7	4
4.6	11	6	4.5	5	3.5
3.6	9	9	4	-	-
2.7	7	7	3	-	-

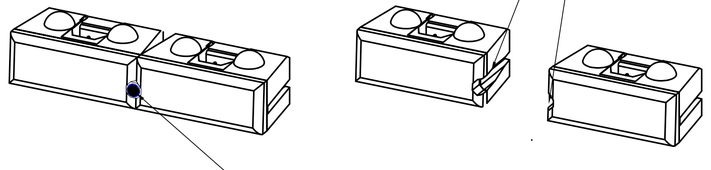
TYPICAL CROSS SECTION
SCALE: 1:50



GEOGRID INSTALLATION
NTS



WALL DRAIN
NTS



WALL DRAIN AND REDI-ROCK® BLOCK
NTS

District of Sooke

No.	DATE	BY	REVISION
0	230519	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230526

SCALE
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SEAL
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
EAST WALL DETAILS AND
TYPICAL CROSS SECTION

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	11 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

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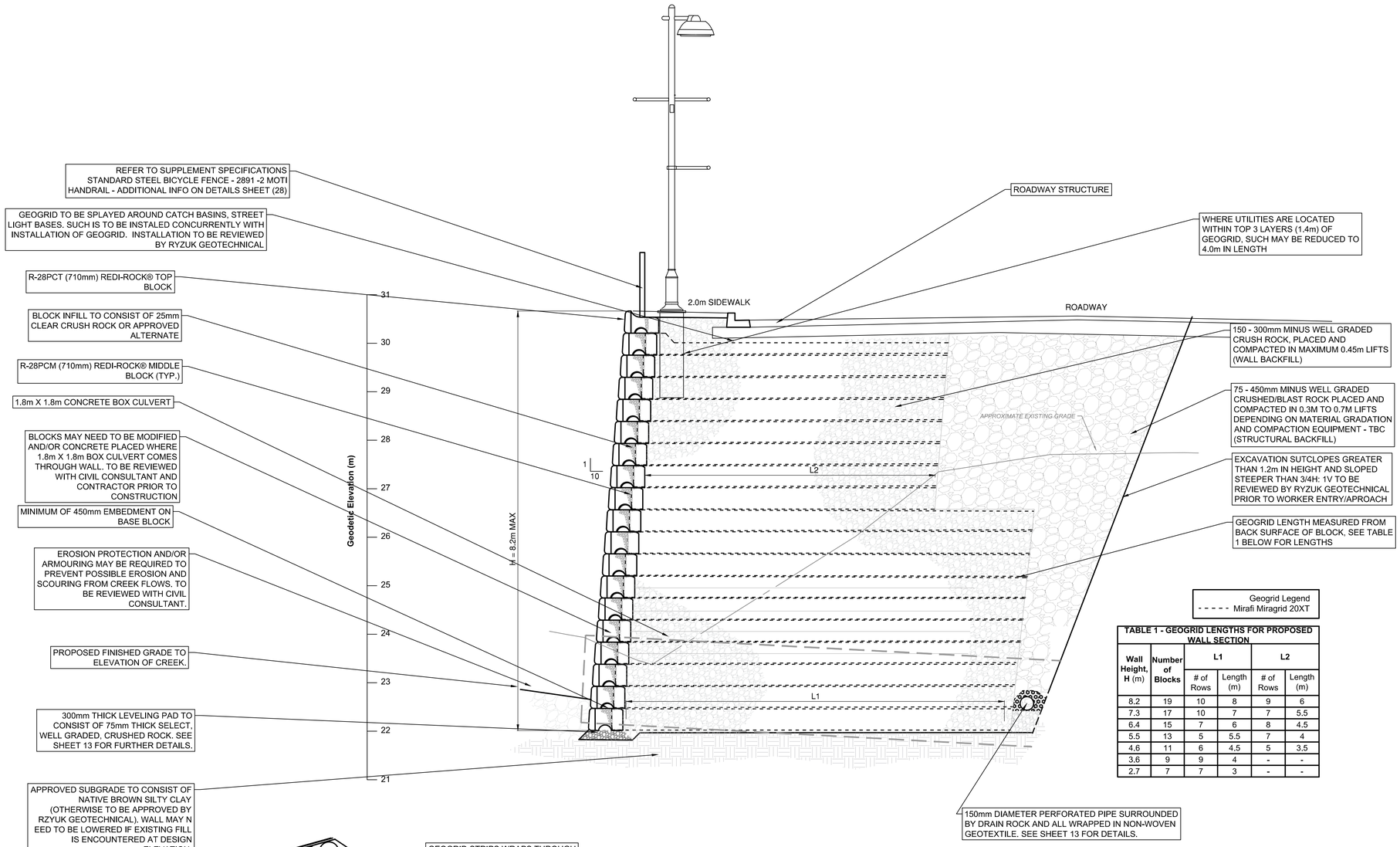

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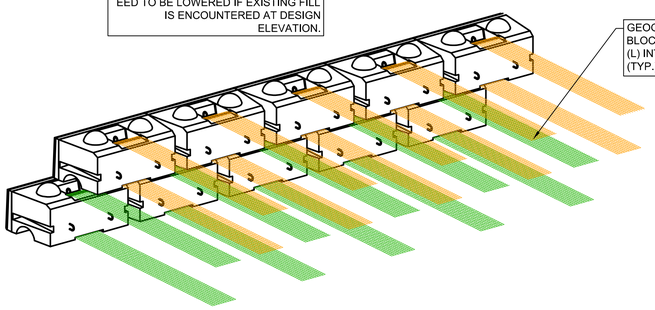
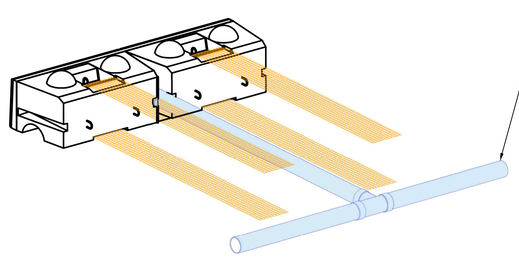
3.6	9	9	4	-	-
2.7	7	7	3	-	-

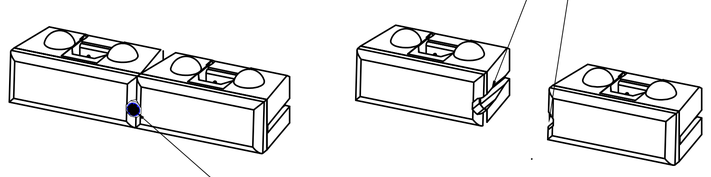
TYPICAL CROSS SECTION
SCALE: 1:50



GEOGRID INSTALLATION
NTS



WALL DRAIN
NTS



WALL DRAIN AND REDI-ROCK® BLOCK
NTS

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
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APPROVED BY	IM	230523

SCALE
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SEAL
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
WEST WALL DETAILS AND
TYPICAL CROSS SECTION

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	12 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

LAST SAVED BY: APYM
LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM
FILENAME: 32859_SH_WALL.dwg

GENERAL NOTES:

1.1. CONTRACTOR TO INSPECT THE ON-SITE GRADES AND EXCAVATIONS PRIOR TO CONSTRUCTION AND NOTIFY RYZUK GEOTECHNICAL IF ON-SITE CONDITIONS DIFFER FROM THE ELEVATIONS AND GRADING DETAILS SHOWN ON THE ENCLOSED RETAINING WALL DRAWINGS.

1.2. SITE TOPOGRAPHY AND SITE GRADING INFORMATION PROVIDED BY ISL ENGINEERING AND LAND SERVICES DRAWING (JOB NUMBER 32859) - SHEET 06 STATION 1+350 M.

1.3. GEOTECHNICAL CONDITIONS BASED ON PREVIOUSLY COMPLETED SUBSURFACE INVESTIGATION BY RYZUK GEOTECHNICAL ON JANUARY 19TH, 2022.

1.4. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING WALL GEOMETRY IS COMPATIBLE WITH EXISTING CONDITIONS AND PROPOSED WORKS.

1.5. CONTRACTOR TO REVIEW SECTION 6 OF REDI-ROCK®'S RETAINING WALL DESIGN MANUAL 3.0 (REDI-ROCK® SPECIFICATIONS) PRIOR TO WALL CONSTRUCTION.

SUBMITTALS:

1.1. CONTRACTOR TO SUBMIT PRECAST MODULAR BLOCK (BLOCKS) CONCRETE TEST RESULTS (28 DAY COMPRESSIVE STRENGTH, AIR CONTENT, AND SLUMP) A MINIMUM OF 24 HOURS PRIOR TO PLACEMENT OF THE PRODUCT TO RYZUK GEOTECHNICAL. ADDITIONAL CONCRETE TESTING MAY BE NECESSARY IF REQUESTED BY RYZUK GEOTECHNICAL OR AN OWNER'S REPRESENTATIVE.

1.2. CONTRACTOR TO SUBMIT MILL/PRODUCT CERTIFICATES OF ALL GEOGRID REINFORCEMENT DELIVERED TO SITE FOR USE IN THE MECHANICALLY STABILIZED EARTH (MSE) WALL A MINIMUM OF 24 HOURS PRIOR TO THE PLACEMENT OF THE PRODUCT TO RYZUK GEOTECHNICAL.

DELIVERY, STORAGE AND HANDLING:

1.1. CONTRACTOR TO INSPECT MATERIALS UPON DELIVERY TO CONFIRM THAT THE CORRECT TYPE, GRADE, AND COLOUR OF MATERIALS HAVE BEEN DELIVERED.

1.2. CONTRACTOR TO HANDLE ALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN A MANNER THAT PREVENTS DETERIORATION OR DAMAGE DUE TO MOISTURE, TEMPERATURE CHANGES, CONTAMINANTS, CORROSION, BREAKING, CHIPPING, UV EXPOSURE, OR OTHER CAUSES. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

1.3. ALL GEOGRID REINFORCEMENT SHALL BE HANDLED IN ACCORDANCE WITH ASTM D4873. THE MATERIALS SHOULD BE STORED OFF THE GROUND AND PROTECTED FROM PRECIPITATION, SUNLIGHT, AND PHYSICAL DAMAGE.

1.4. PRECAST MODULAR BLOCKS SHALL BE STORED IN AN AREA WITH POSITIVE DRAINAGE AWAY FROM THE BLOCKS. CARE SHOULD BE TAKEN TO PROTECT THE BLOCKS FROM EXCESSIVE CHIPPING AND BREAKAGE. BLOCKS SHOULD NOT BE STACKED MORE THAN 3 UNITS HIGH IN STORAGE AREAS.

MATERIALS:

1.1. THE MSE WALL SYSTEM IS TO BE CONSTRUCTED OF PRECAST MODULAR REDI-ROCK® 0.71 M (28") STANDARD BLOCKS (BLOCKS) SIZED 1.17 M BY 0.46 M BY 0.71 M (L BY W BY D). BLOCK MATERIALS ARE TO BE IN ACCORDANCE WITH SECTION 6 OF THE REDI-ROCK® SPECIFICATIONS.

1.2. NON-WOVEN GEOTEXTILE FOR DRAINAGE SYSTEM FILTER FABRIC IS TO CONSIST OF MIRAFI® 140N OR APPROVED ALTERNATE.

1.3. GEOGRID IS TO CONSIST OF MIRAFI MIRAGRID® 20XT OR APPROVED ALTERNATES. GEOGRID LONG-TERM DESIGN STRENGTH (LTDS) HAS BEEN CALCULATED USING THE MANUFACTURER'S RECOMMENDED STRENGTH REDUCTION FACTORS SUMMARIZED IN TABLE 1:

TABLE 1 - LTDS PARAMETERS	
RF_{CR}	1.45
RF_{D}	1.15
RF_{ID}	1.6
COVERAGE RATIO	0.25 to 0.5

1.4. REINFORCED BACKFILL TO CONSIST OF 150 MM TO 300 MM MINUS WELL GRADED CRUSHED/BLAST ROCK. RYZUK GEOTECHNICAL TO INSPECT AND APPROVE FINAL MATERIAL GRADATION PRIOR TO INITIAL PLACEMENT.

1.5. BLOCKS TO BE INFILLED WITH A 25 MM (1") MINUS CLEAR ROCK IN ACCORDANCE WITH THE REDI-ROCK® SPECIFICATIONS, OR AN APPROVED ALTERNATE.

1.6. CONCRETE USED TO CONSTRUCT THE UNREINFORCED CONCRETE LEVELING PAD SHALL SATISFY THE CRITERIA FOR AASHTO CLASS B. THE CONCRETE SHOULD BE CURED A MINIMUM OF 12 HOURS PRIOR TO PLACEMENT OF THE BLOCK WALL UNITS AND EXHIBIT A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 30 MPA.

WALL DESIGN NOTES:

1.1. WALL CONSTRUCTION AND FILL PLACEMENT TO BE COMPLETED WITH SUPERVISION OF RYZUK GEOTECHNICAL.

1.2. NATIVE SUBGRADE MATERIAL/CONDITIONS, BLOCK PLACEMENT, GEOGRID EMBEDMENT LENGTH, FILL LIFT THICKNESS TO BE INSPECTED AND APPROVED BY RYZUK GEOTECHNICAL.

1.3. ANY AND ALL GEOTECHNICAL ELEMENTS OF THE DESIGN AND CONSTRUCTION PROCESS, CONTAINED HEREIN, MAY BE MODIFIED BY RYZUK GEOTECHNICAL DURING CONSTRUCTION TO SUIT THE GEOTECHNICAL & TOPOGRAPHICAL SITE CONDITIONS PRESENTED LOCALLY.

1.4. EXCAVATION REQUIREMENTS BEHIND RETAINING WALLS IN AREAS OF BEDROCK WILL ENTAIL A LEVEL SUBGRADE FOR THE FULL LENGTH OF THE FIRST ROW OF GEOGRID.

1.5. BLOCK CORE FILL CONSISTING OF 25 MM MINUS CLEAR ROCK (OR APPROVED ALTERNATE) SHALL BE PLACED IN THE PRECAST MODULAR BLOCK UNIT VERTICAL CORE SLOT. THE CORE FILL SHALL COMPLETELY FILL THE SLOT TO THE LEVEL OF THE TOP OF THE BLOCK UNIT. THE TOP OF THE BLOCK UNIT SHALL BE BROOM-CLEANED PRIOR TO PLACEMENT OF SUBSEQUENT BLOCK COURSE. NO ADDITIONAL COURSES OF PRECAST MODULAR BLOCKS MAY BE STACKED BEFORE THE UNIT CORE FILL IS INSTALLED IN THE BLOCKS ON THE COURSE BELOW. WALL INSTALLATION TO BE CARRIED OUT IN ACCORDANCE WITH THE REDI-ROCK® SPECIFICATIONS.

1.6. GEOGRID TYPE, LENGTH, AND LOCATION SHALL BE IN ACCORDANCE WITH ENCLOSED DRAWINGS. GEOGRID PANELS SHALL BE HELD TAUT DURING FILL PLACEMENT.

1.7. GEOGRID PANELS SHALL BE CONTINUOUS THROUGHOUT ITS ENTIRE LENGTH AND MAY NOT BE SPLICED. NO FIELD MODIFICATION OF THE GEOGRID ROLL WIDTH SHALL BE PERMITTED.

1.8. FILL PLACEMENT AND COMPACTION SHALL START NEAR THE FACE OF THE WALL AND MOVE REARWARDS TO REMOVE WRINKLES IN THE GEOGRID.

1.9. NEITHER RUBBER TIRE NOR TRACK VEHICLES MAY OPERATE DIRECTLY ON THE GEOGRID. CONSTRUCTION VEHICLE TRAFFIC IN THE REINFORCED ZONE SHALL BE LIMITED TO SPEEDS OF LESS THAN 8 KM/HR ONCE A MINIMUM OF 250 MM OF COMPACTED FILL HAS BEEN PLACED OVER THE GEOGRID REINFORCEMENT. SUDDEN BRAKING AND TURNING OF CONSTRUCTION VEHICLES IN THE REINFORCED ZONE SHOULD BE AVOIDED.

1.10. RIDE-ON COMPACTION EQUIPMENT SHALL NOT ENCROACH WITHIN 1.0 M OF THE BACK OF WALL DURING CONSTRUCTION. NO EQUIPMENT LARGER THAN A SKID STEER SHOULD ENCROACH WITHIN 1.0 M OF THE BACK OF WALL DURING CONSTRUCTION.

1.11. WALL BACKFILL TO CONSIST OF APPROVED SELECT 150 MM TO 300 MM MINUS CRUSHED/BLAST ROCK EXCEPT WITHIN THE 1 M BEHIND THE BLOCK. MATERIAL SHOULD BE PLACED IN MAXIMUM 0.45 M THICK LIFTS (DEPENDING ON FILL GRADATION) AND PLACED BETWEEN GEOGRID LAYERS AND COMPACTED WITH A VIBRATORY ROLLER. BACKFILL IS TO BE COMPACTED TO THE JUDGED EQUIVALENT OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD). SUITABILITY OF COMPACTION EQUIPMENT AND FILL MATERIAL TO BE JUDGED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION.

1.11.1. WITHIN 1 M OF THE BLOCK, FILL TO CONSIST OF 75 MM MINUS CRUSHED ROCK COMPACTED IN 150 MM TO 300 MM THICK LIFTS WITH A 450 KG VIBRATORY PLATE TAMPER (PER REQUIREMENTS OF 5.10)

1.12. STRUCTURAL BACKFILL TO CONSIST OF APPROVED SELECT 75 MM TO 450 MM MINUS CRUSHED/BLAST ROCK OR APPROVED ALTERNATE. MATERIAL SHOULD BE PLACED IN 0.3 M TO 0.6 M THICK LIFTS (DEPENDING ON FILL GRADATION) AND COMPACTED WITH APPROPRIATE EQUIPMENT (I.E. A VIBRATORY ROLLER FOR 450 MM MINUS) DEPENDING ON THE FILL GRADATION. BACKFILL IS TO BE COMPACTED TO THE JUDGED EQUIVALENT OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD). SUITABILITY OF COMPACTION EQUIPMENT AND FILL MATERIAL TO BE JUDGED BY THE GEOTECHNICAL ENGINEERING AT THE TIME OF CONSTRUCTION.

1.13. THE DESIGN OF THE RETAINING WALL IS BASED THE FOLLOWING SOIL PARAMETERS AND DESIGN LOADS:

NATIVE CLAY SUBGRADE
- UNIT WEIGHT: 20 KN/M^3
- FRICTION ANGLE: 10 DEGREES
- COHESION: 100 KPA

WALL BACKFILL
- 75 MM - 600 MM MINUS BLAST ROCK
- UNIT WEIGHT: 20.4 KN/M^3
- FRICTION ANGLE: 39 DEGREES

STRUCTURAL BACKFILL
- 150 MM - 300 MM MINUS BLAST ROCK
- UNIT WEIGHT: 20.4 KN/M^3
- FRICTION ANGLE: 39 DEGREES

LOADS ASSUMED
- VEHICLE LOAD: 12 KPA
- CONCRETE UNIT WEIGHT: 24 KN/M^3

1.11. WALL DESIGNED IN ACCORDANCE WITH ASSHTO 2002 / NHI-043 (ASD) AND THE ENGINEERS AND GEOSCIENTIST OF BRITISH COLUMBIA (EGBC) PROFESSIONAL PRACTICE GUIDELINES FOR RETAINING WALL DESIGN - VERSION 1.1.

1.12. SEISMIC DESIGN HAS BEEN BASED ON A SEISMIC SITE CLASSIFICATION OF C, WITH A HORIZONTAL ACCELERATION COEFFICIENT BASED ON A PGA OF 0.61G (2% PROBABILITY OF EXCEEDANCE IN 50 YEARS).

1.12.1. FOR GLOBAL MSE STABILITY, THE FULL $PGA_{2\%}$ WAS USED DURING DESIGN.

1.12.2. FOR INTERNAL STABILITY, A FACTOR OF 0.5 WAS APPLIED TO THE $PGA_{2\%}$ ASSUMING AN ALLOWANCE OF 50 MM OF WALL MOVEMENT, PER AASHTO 11.6.5.2.

LEVELING PAD:

1.1. SUBGRADE TO BE ASSESSED BY RYZUK GEOTECHNICAL PRIOR TO PLACING/POURING LEVELING PAD. LEVELING PAD DIMENSIONS/CONFIGURATION MAY BE ADJUSTED BASED ON SITE CONDITIONS AND APPROVAL FROM RYZUK GEOTECHNICAL.

1.2. LEVELING PAD SHOULD EXTEND LATERALLY A DISTANCE EQUAL TO THE THICKNESS OF THE PAD TO ACHIEVE A MINIMUM 1 HORIZONTAL : 1 VERTICAL SPLAY FROM THE EDGE OF THE BLOCK.

1.3. LEVELING PAD SHOULD BE SLOPED BACK AT A MINIMUM OF 1% TO ENSURE NECESSARY BATTER IS ACHIEVED DURING CONSTRUCTION OF THE WALL

1.4. WALL EMBEDMENT SHOULD BE A MINIMUM OF 450 MM AND THE FINAL GRADE SHOULD BE LEVEL FOR MINIMUM HORIZONTAL DISTANCE OF 1.0 M LATERALLY FROM THE BASE OF THE WALL BEFORE SLOPING DOWN OR BE ARMOURED WITH RIP-RAP ATOP NON-WOVEN GEOTEXTILE.

WALL DRAINAGE:

1.1. WALL DRAINAGE SHALL BE PROVIDED BY FREE DRAINING BACKFILL AND A PERFORATED DRAIN PIPE INSTALLED ALONG THE BACK OF THE GRID (TOE OF BLASTED ROCK) ADJACENT TO THE FIRST ROW OF BLOCKS.

1.2. PVC PIPING CONNECTING THE REAR PERFORATED DRAIN PIPE TO THE FRONT PERFORATED DRAIN PIPE SHOULD BE ORIENTED SUCH THAT THEY ARE PARALLEL WITH THE WEEP-HOLES (IF SELECTED).

1.3. FINISHED GRADES TO PROMOTE POSITIVE DRAINAGE AWAY FROM THE WALL.

1.4. ALTERNATE WEEPHOLE DETAILS CAN BE USED PENDING RYZUK GEOTECHNICAL'S APPROVAL.

CREST FINISHES:

1.1. REQUIREMENTS FOR CAST IN-PLACE CAPS, GUARD RAILS, AND TRAFFIC BARRIERS, ETC., TO BE CONFIRMED BY OTHERS AND CONSTRUCTED IN ACCORDANCE WITH REDI-ROCK® SPECIFICATIONS.

1.2. FENCE OR PEDESTRIAN GUARDS, WHERE REQUIRED, TO BE INSTALLED IN ACCORDANCE WITH REDI-ROCK® INSTALLATION SPECIFICATIONS.

District of Sooke

No.	DATE	BY	REVISION
0	230526	[illegible]	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	KF	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — J. A. MCKINNON — 18121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
EAST & WEST WALL - NOTES

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	13 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

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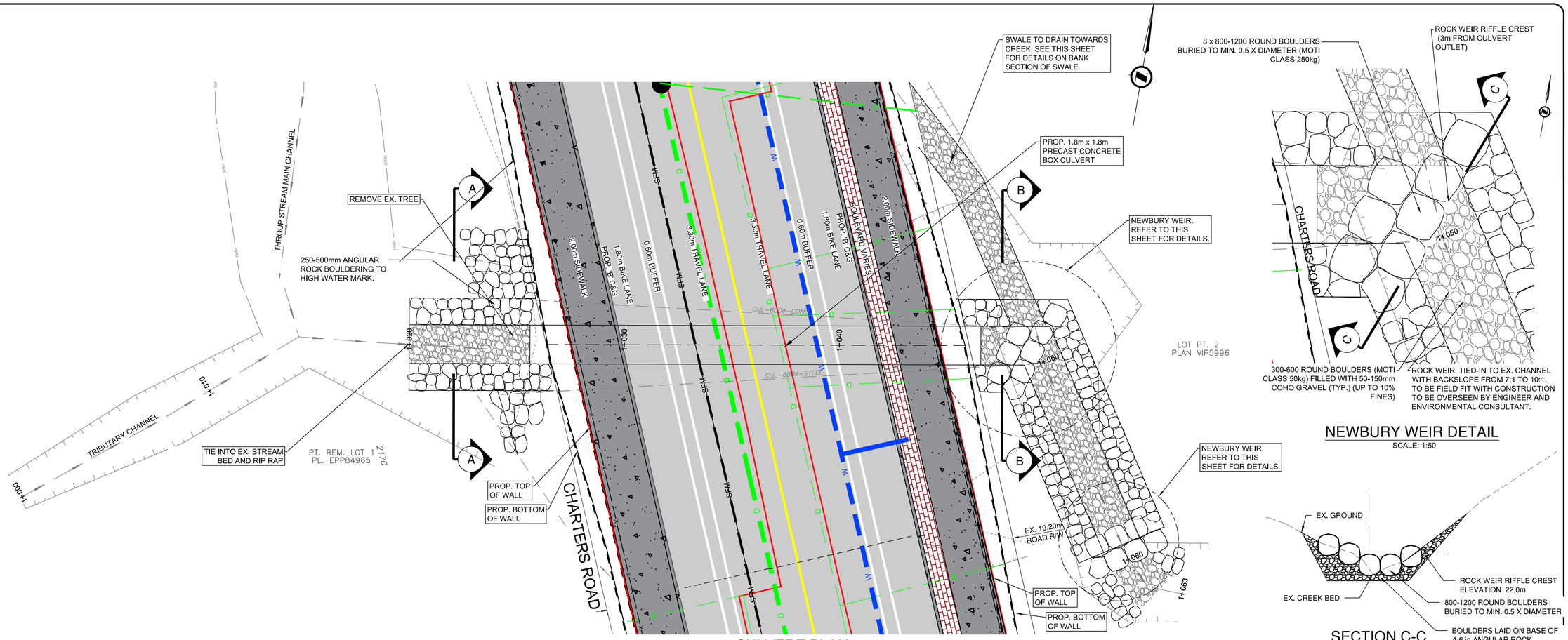
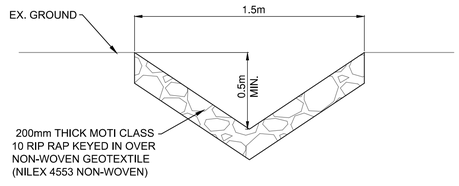


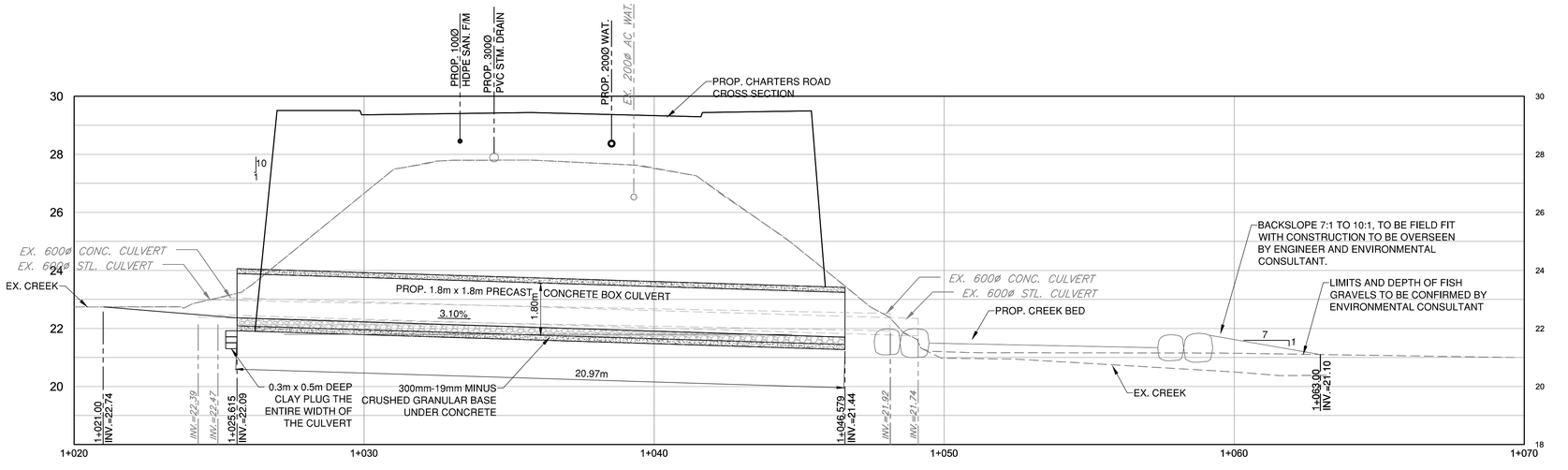
CULVERT PLAN
SCALE: 1:100

NEWBURY WEIR DETAIL
SCALE: 1:50

SECTION C-C
SCALE: NTS



SWALE DETAIL (BANK SECTION ONLY)
NTS



CULVERT PROFILE
SCALES: 1:100 H 1:100 V

1:100 0 2 6m

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: 1:100 VERT: 1:100

SEAL
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA I. A. MCKINNON 45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
CULVERT PLAN AND PROFILE THROUP STREAM

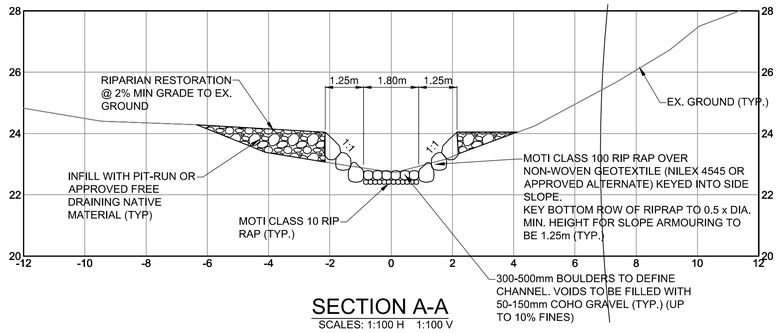
PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

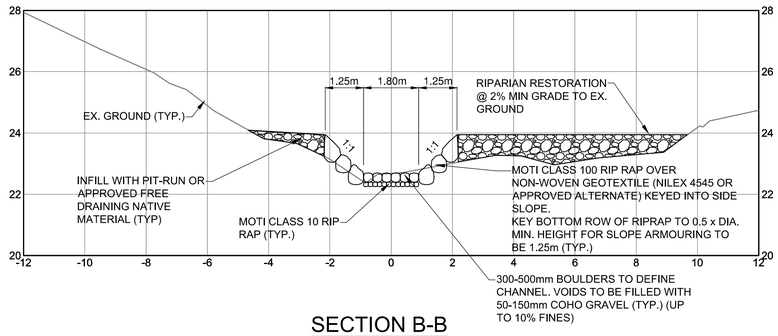
DRAWING No.	REV.	SHEET
32859	0	18 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

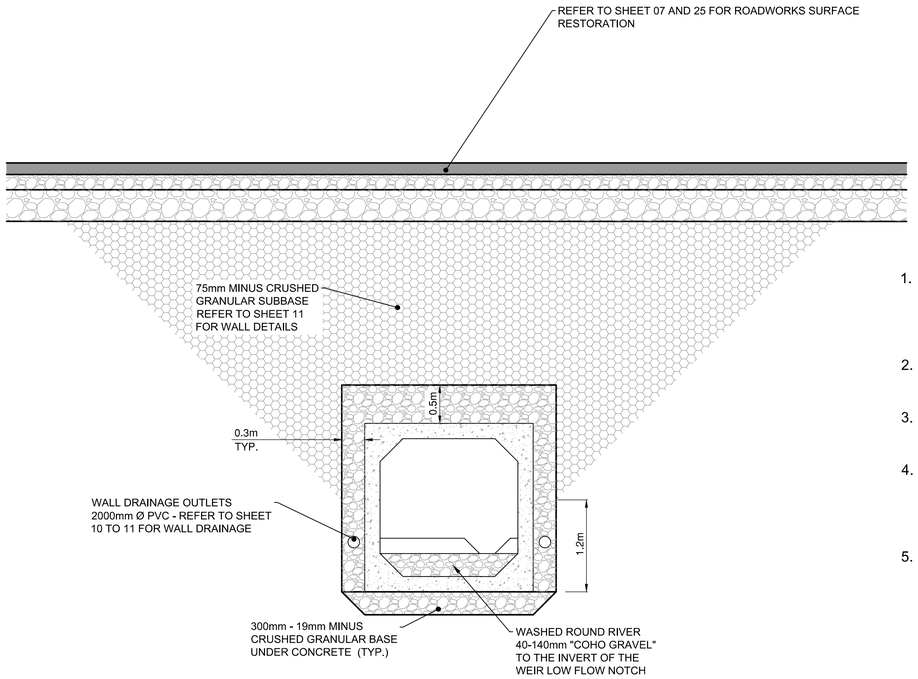
FILENAME: 32859_SH_Culvert.dwg LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM LAST SAVED BY: AP/IM



SECTION A-A
SCALES: 1:100 H 1:100 V



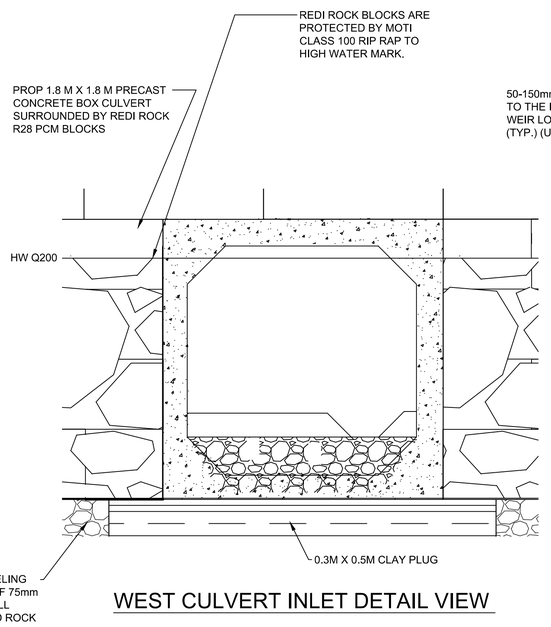
SECTION B-B
SCALES: 1:100 H 1:100 V



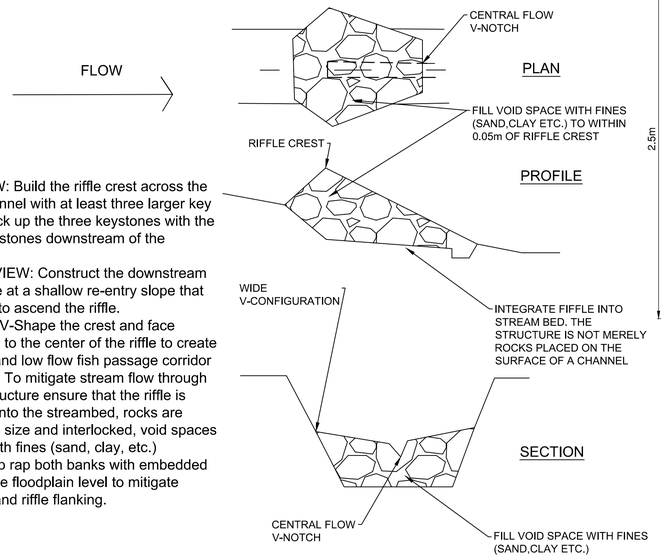
CULVERT SECTION DETAIL
SCALE: 1: 40

PRECAST CONCRETE BOX CULVERT AND FISH WEIR SUPPLIER TO PROVIDE SHOP DRAWINGS PRIOR TO FABRICATION C/W BC REGISTERED PROFESSIONAL ENGINEERS SIGN/SEAL.

Q DESIGN: 4.2 m^3/s
V DESIGN: 5.0 m/s

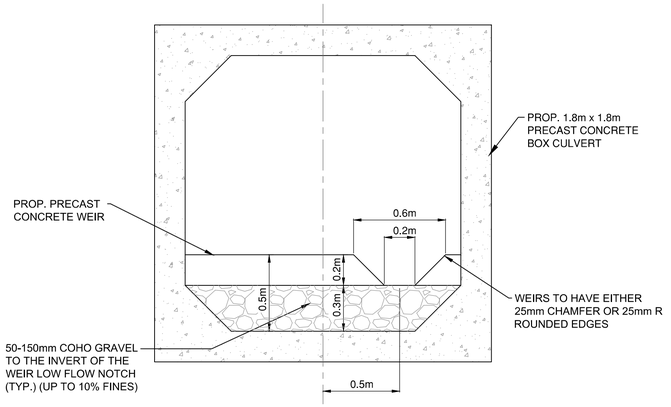


WEST CULVERT INLET DETAIL VIEW

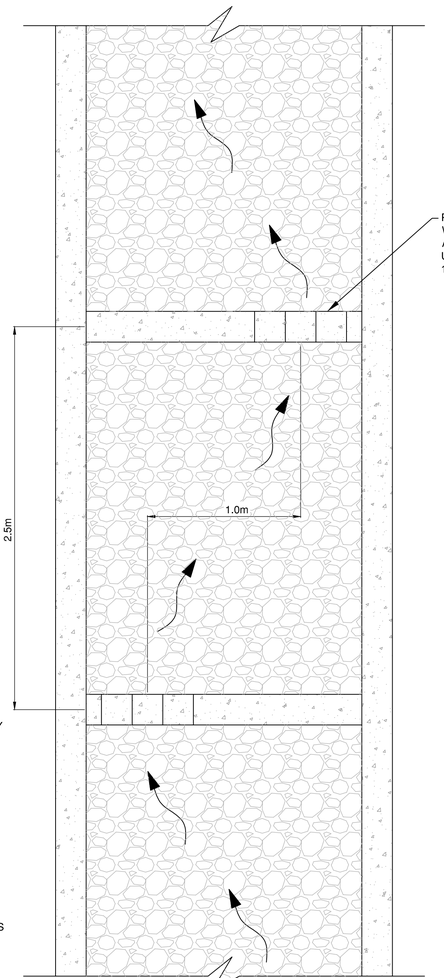


1. PLAN VIEW: Build the riffle crest across the stream channel with at least three larger key stones. Back up the three keystones with the next larger stones downstream of the keystones.
2. PROFILE VIEW: Construct the downstream face of riffle at a shallow re-entry slope that allows fish to ascend the riffle.
3. SECTION: V-Shape the crest and face downwards to the center of the riffle to create a thalweg and low flow fish passage corridor
4. SURFACE: To mitigate stream flow through the riffle structure ensure that the riffle is integrated into the streambed, rocks are appropriate size and interlocked, void spaces are filled with fines (sand, clay, etc.)
5. BANKS: Rip rap both banks with embedded rip rap to the floodplain level to mitigate sidescour and riffle flanking.

WEIR DETAIL VIEW



CONCRETE FISH WEIRS - ELEVATION
NTS



CONCRETE FISH WEIRS - PLAN
NTS

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: VERT: AS SHOWN

SEAL
PROFESSIONAL ENGINEER PROV / INCE OF BRITISH COLUMBIA
I. A. MCKINNON
18121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
CULVERT DETAILS
THROUP STREAM

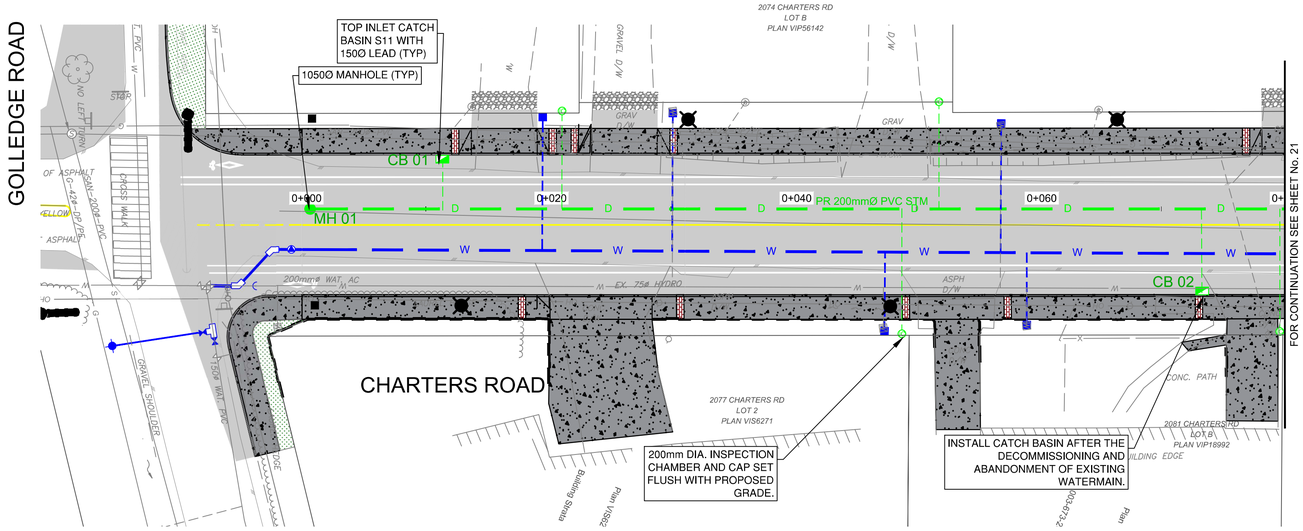
PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	19 / 34

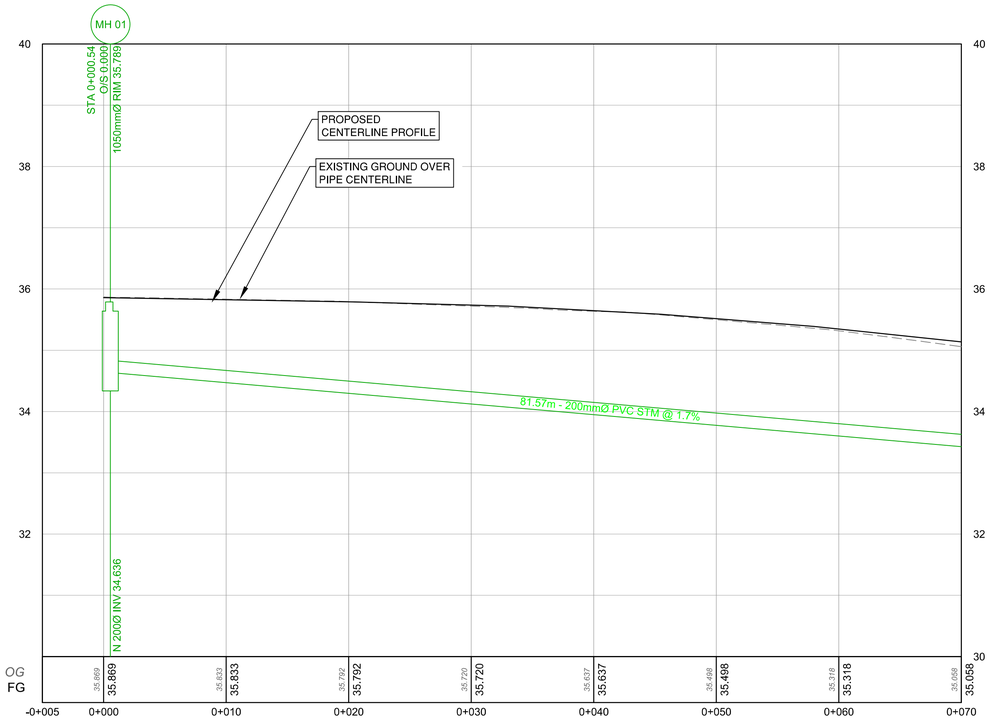
DESTROY PRINTS BEARING PREVIOUS NUMBER

LAST SAVED BY: APYM
LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM
FILENAME: 32859_SH_Culvert.dwg



DRAINAGE MAIN PLAN

CATCH BASIN TABLE			
CB NUMBER	RIM ELEVATION	STATION	OFFSET
CB 01	35.69	0+018.15	-4.40
CB 02	34.94	0+073.34	7.00



DRAINAGE MAIN PROFILE

1:250 0 5 15m

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
STORM STA 0+000 TO STA 0+070

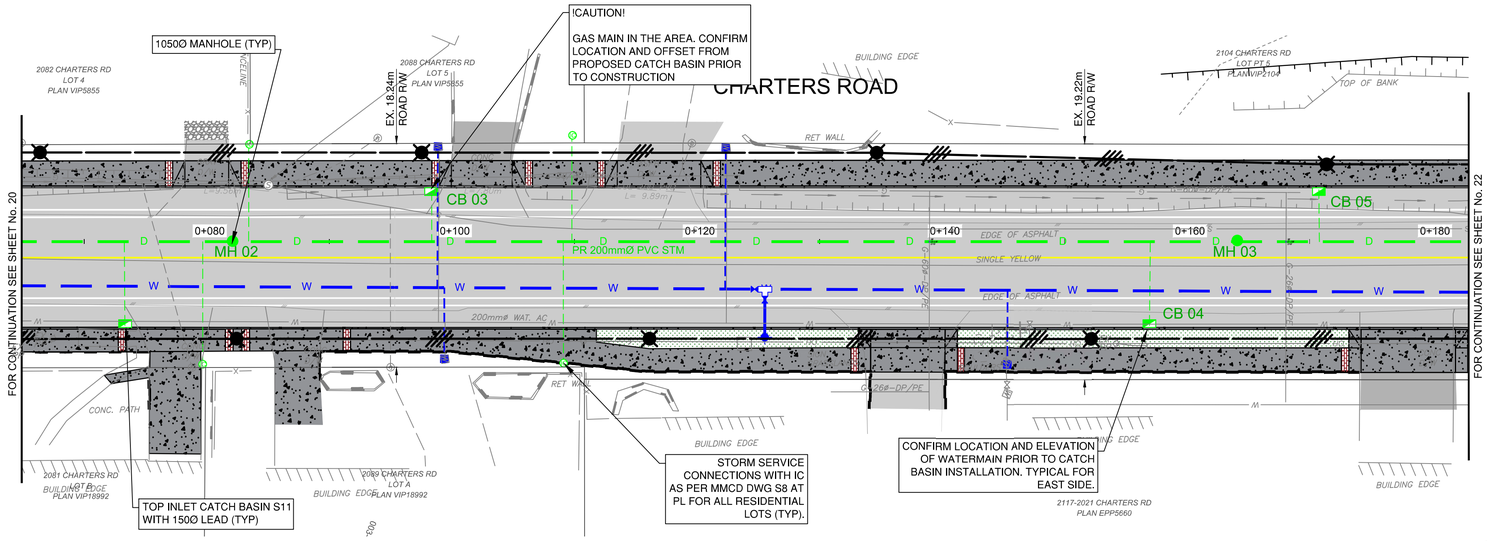
PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	20 / 34

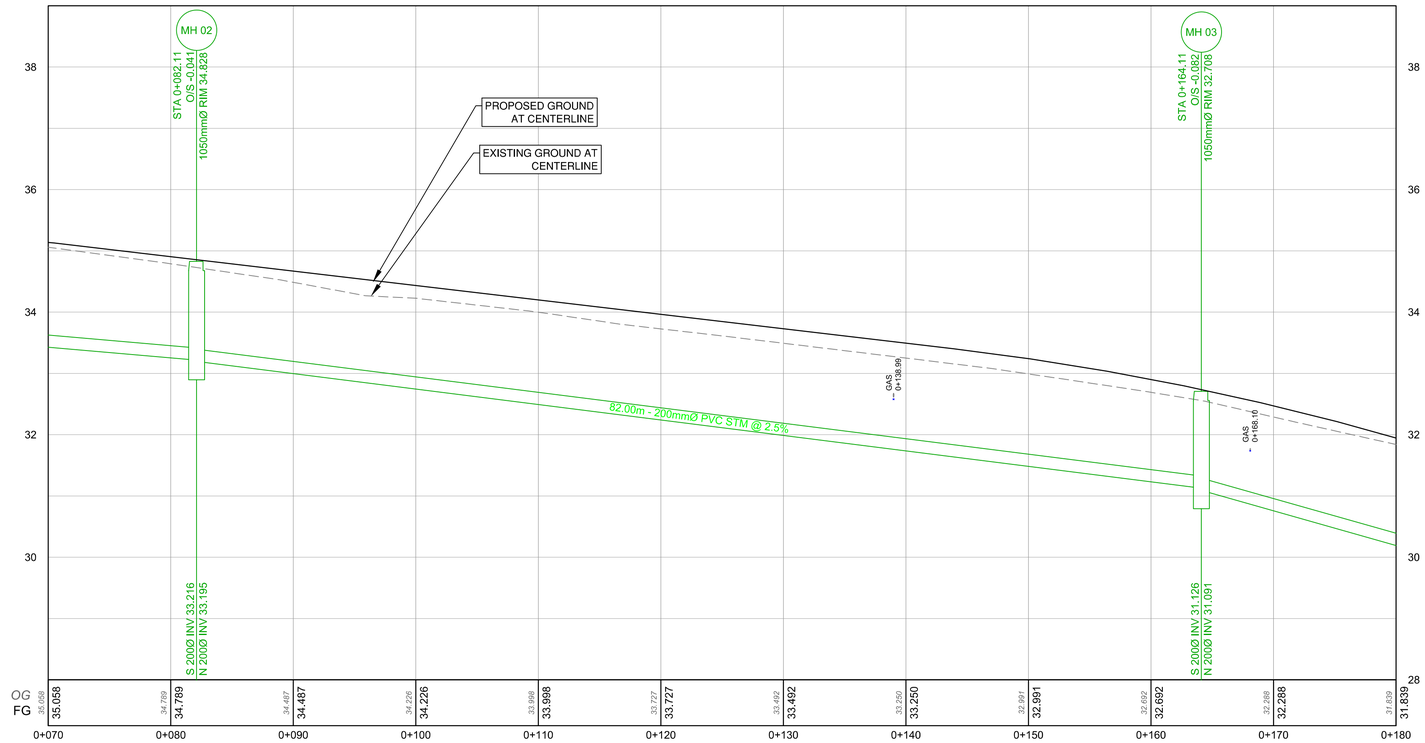
DESTROY PRINTS BEARING PREVIOUS NUMBER

FILENAME: 32859_SH_UTILITIES.dwg LAST SAVED DATE & TIME: Friday, Nov 25, 2022 8:52 AM LAST SAVED BY: APYM



DRAINAGE MAIN PLAN

CATCH BASIN TABLE			
CB NUMBER	RIM ELEVATION	STATION	OFFSET
CB 03	34.31	0+098.32	-4.40
CB 04	32.74	0+156.94	7.01
CB 05	32.24	0+170.78	-4.39



DRAINAGE MAIN PROFILE

1:250 0 5 15m

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — I. A. MCKINNON — 45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
STORM STA 0+070 TO STA 0+180

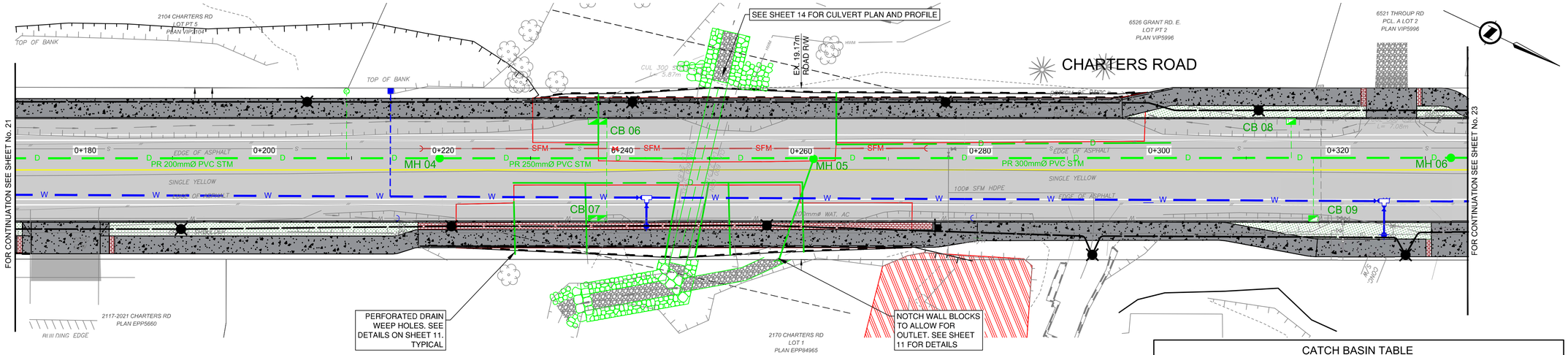
PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	21 / 34

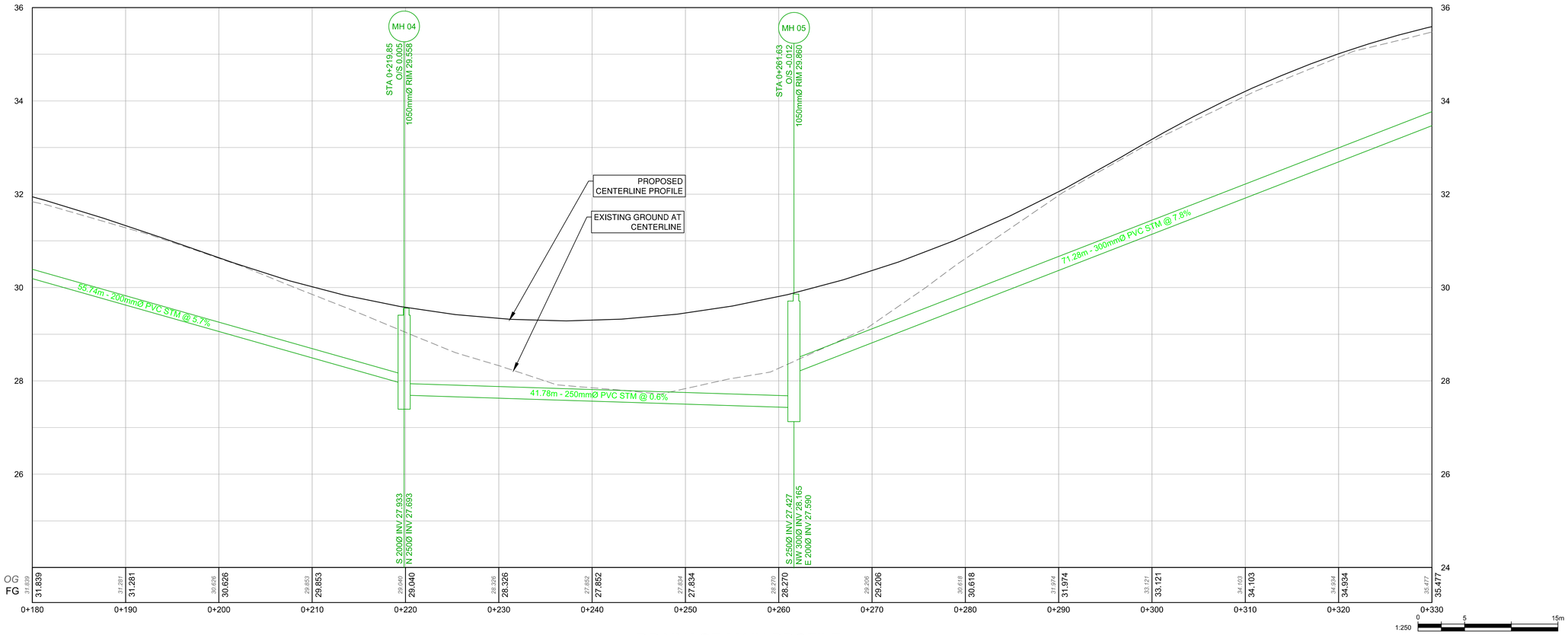
DESTROY PRINTS BEARING PREVIOUS NUMBER

FILENAME: 32859_SH_UTILITIES.dwg LAST SAVED DATE & TIME: Friday, Nov 25, 2022 8:52 AM LAST SAVED BY: APYM



DRAINAGE MAIN PLAN

CATCH BASIN TABLE			
CB NUMBER	RIM ELEVATION	STATION	OFFSET
CB 06	29.29	0+237.06	-4.37
CB 07	29.29	0+237.12	7.01
CB 08	34.50	0+315.02	-4.37
CB 09	34.72	0+317.50	7.02



DRAINAGE MAIN PROFILE

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	20230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230526

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
STORM STA 0+330 TO STA 0+465

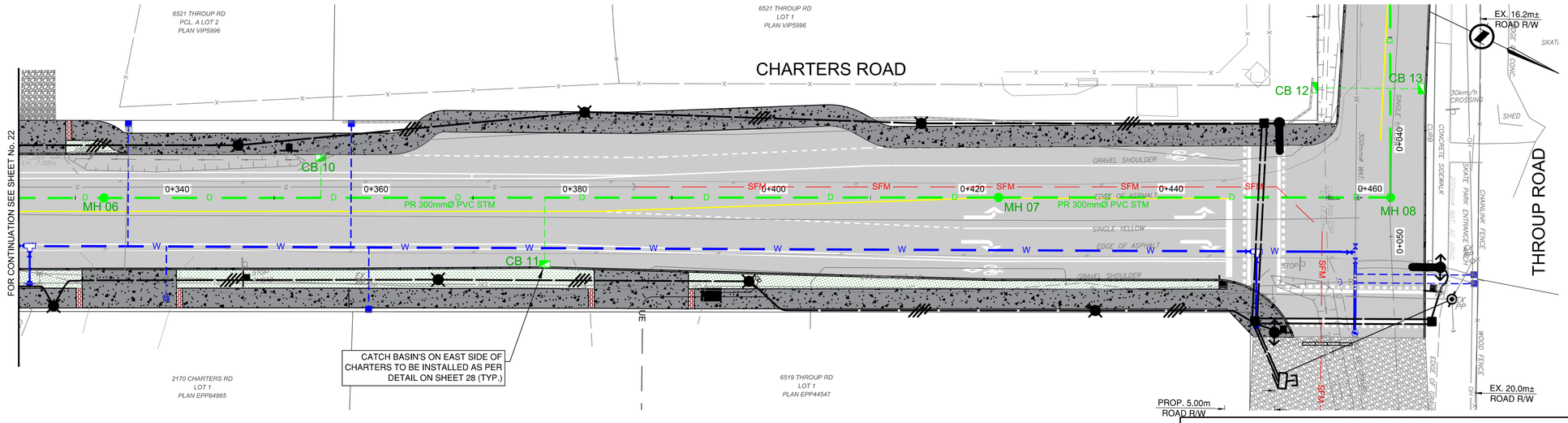
PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	22 / 34

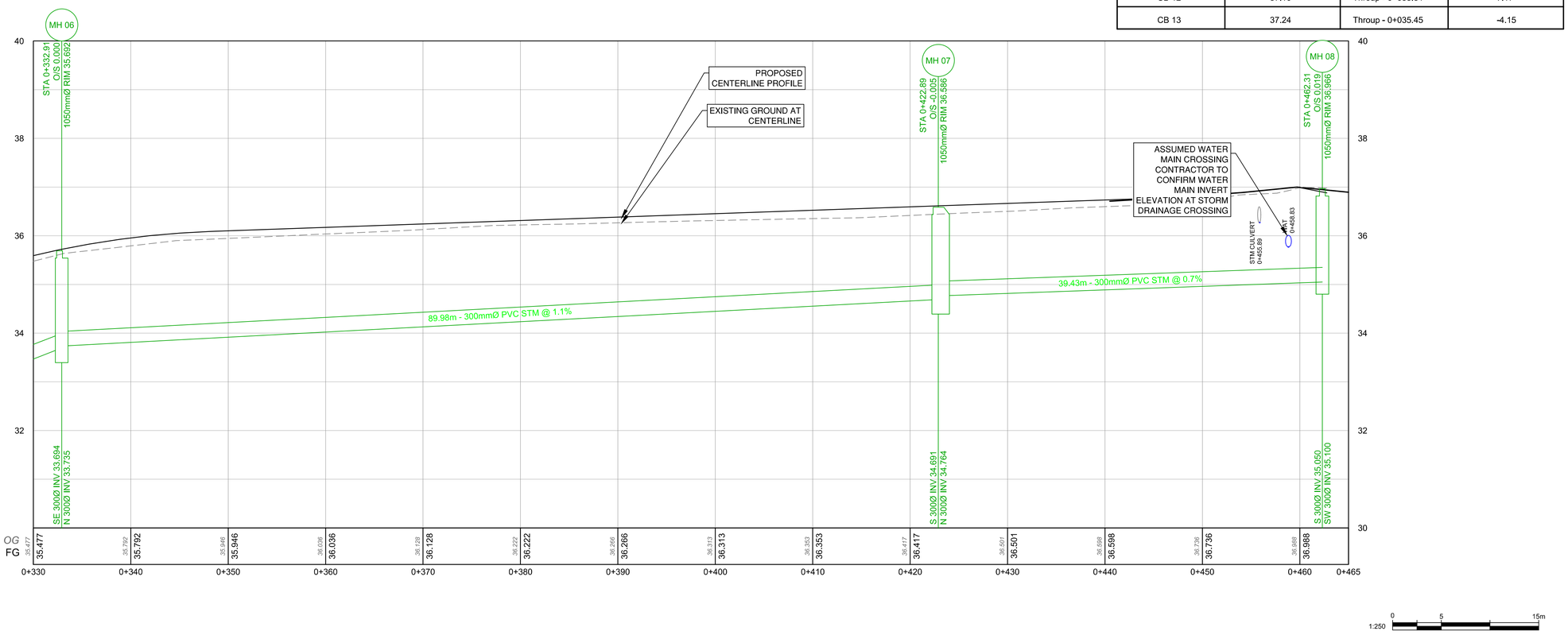
DESTROY PRINTS BEARING PREVIOUS NUMBER

FILENAME: 32859_SH_UTILITIES.dwg LAST SAVED DATE & TIME: Friday, Nov 25, 2022 8:52 AM LAST SAVED BY: APYM



DRAINAGE MAIN PLAN

CATCH BASIN TABLE			
CB NUMBER	RIM ELEVATION	STATION	OFFSET
CB 10	36.02	0+354.69	-4.34
CB 11	36.18	0+377.21	6.94
CB 12	37.10	Throup - 0+035.31	7.17
CB 13	37.24	Throup - 0+035.45	-4.15



DRAINAGE MAIN PROFILE

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER
PROV. OF B.C.
J. A. MCKINNON
18121
BRITISH COLUMBIA
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
STORM STA 0+330 TO STA 0+465

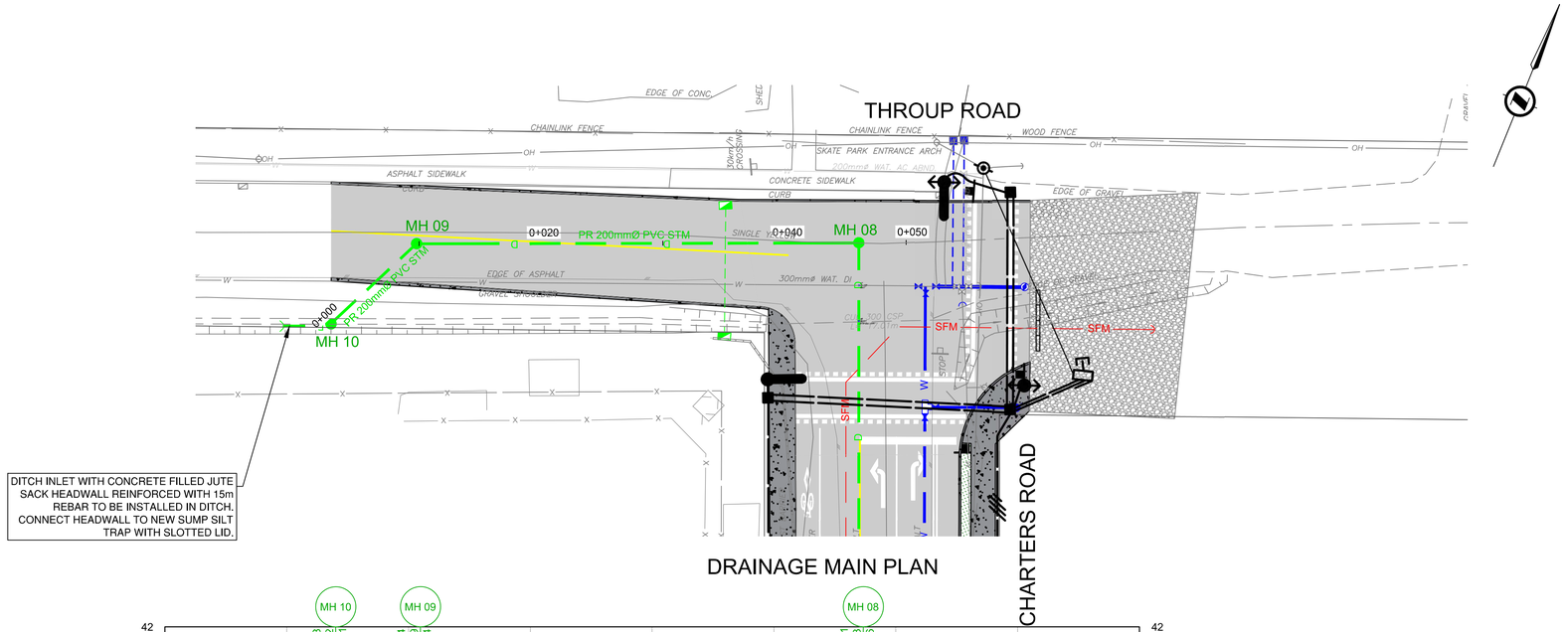
PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

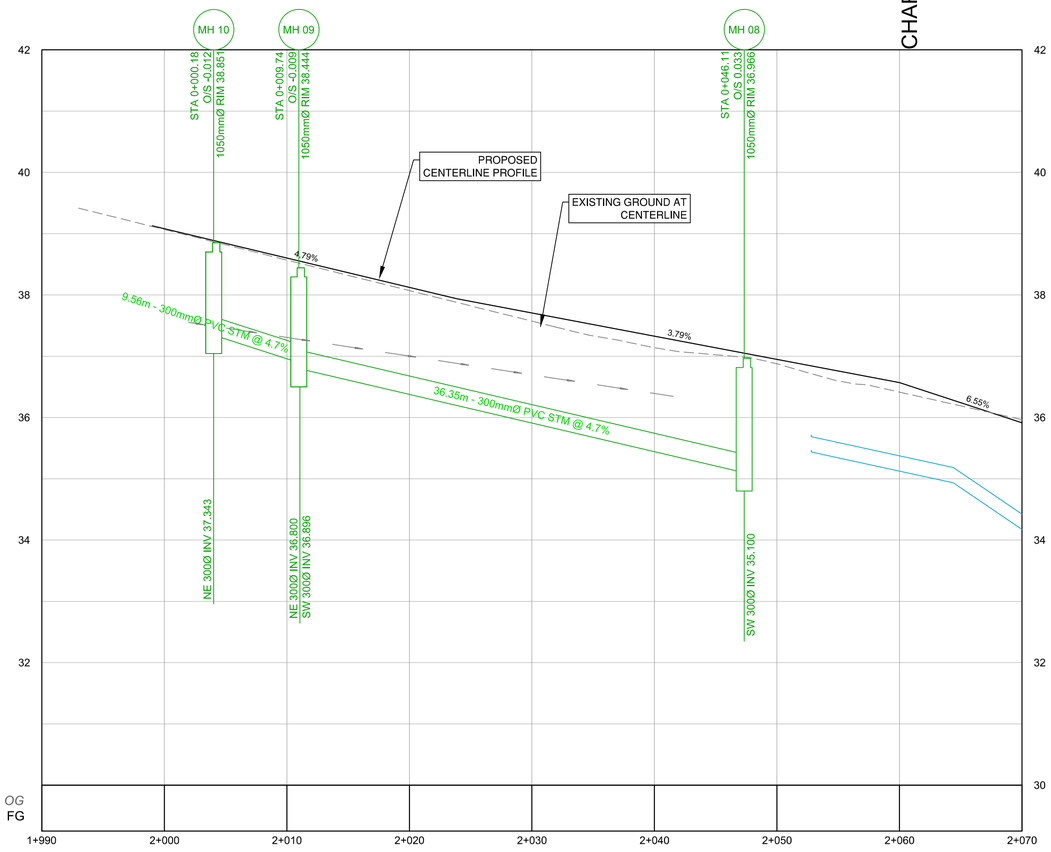
DRAWING No.	REV.	SHEET
32859	0	23 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

FILENAME: 32859_SH_UTILITIES.dwg LAST SAVED DATE & TIME: Friday, Nov 25, 2022 8:52 AM LAST SAVED BY: APYM



DRAINAGE MAIN PLAN



DRAINAGE MAIN PROFILE

1:250 0 5 15m

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: 1:250 VERT: 1:25

SEAL
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
I. A. MCKINNON
45121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
STORM THROUP ROAD

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	24 / 34

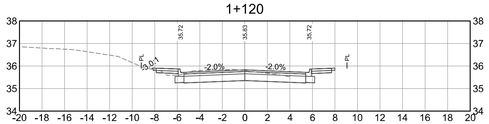
DESTROY PRINTS BEARING PREVIOUS NUMBER

FILENAME: 32859_SH_UTILITIES.dwg LAST SAVED DATE & TIME: Friday, Nov 25, 2022 8:52 AM LAST SAVED BY: APYM

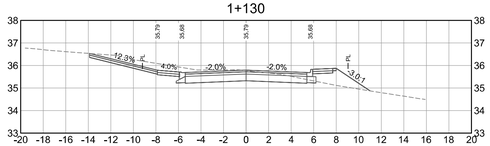
NOTES:

1. REFER TO SHEET 10 TO 13 FOR REDI ROCK LAYOUT AND DETAILS
2. REFER TO SHEET 05 TO 09 FOR MORTARED ROCK LIMITS AND ROAD WORKS LAYOUT

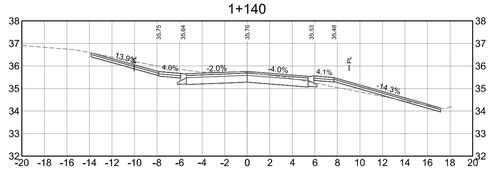
1+120



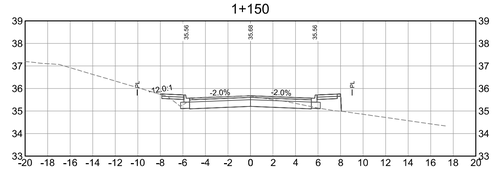
1+130



1+140



1+150



1+160

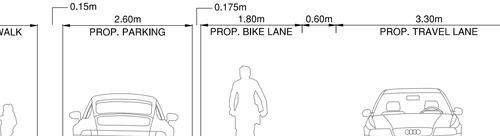
1+165.975

1+170

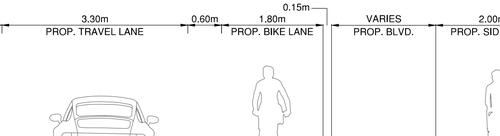
1+180

1+190

1+192.500



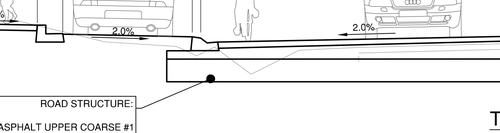
1+200



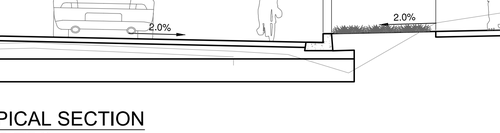
1+210

1+214.921

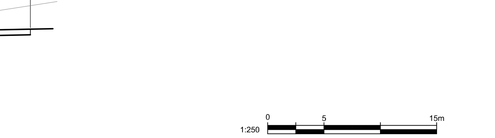
1+220



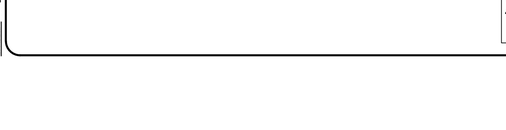
1+230



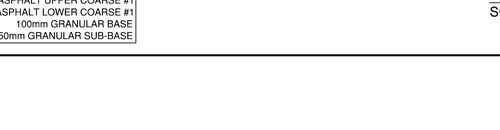
1+240



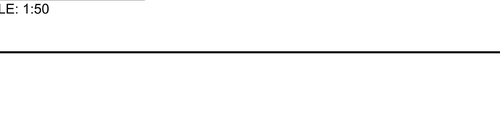
1+250

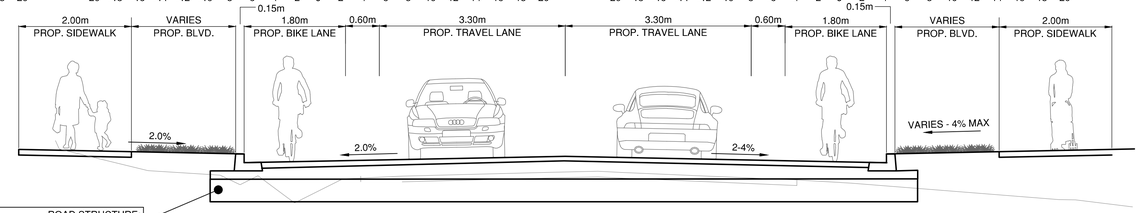


1+260



1+270





ROAD STRUCTURE:

40mm ASPHALT UPPER COARSE #1
40mm ASPHALT LOWER COARSE #1
100mm GRANULAR BASE
250mm GRANULAR SUB-BASE

TYPICAL SECTION

SCALE: 1:50

ROAD STRUCTURE:

40mm ASPHALT UPPER COARSE #1
40mm ASPHALT LOWER COARSE #1
100mm GRANULAR BASE
250mm GRANULAR SUB-BASE

TYPICAL SECTION

SCALE: 1:50

1:250 0 5 15m

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859

DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE

HORIZ: 1:250 VERT: 1:25

SEAL

PROFESSIONAL ENGINEER OF BRITISH COLUMBIA
J. A. MCKINNON
34121
ENGINEER
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:

SECTIONS - STA 1+120 TO STA 1+270

PROJECT TITLE:

CHARTERS ROAD

PROJECT LOCATION:

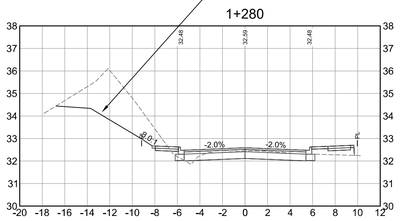
DISTRICT OF SOOKE

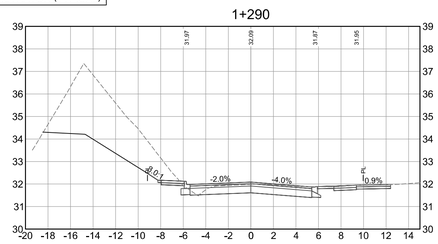
DRAWING No.	REV.	SHEET
32859	0	25 / 34

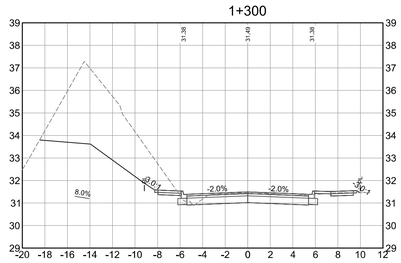
DESTROY PRINTS BEARING PREVIOUS NUMBER

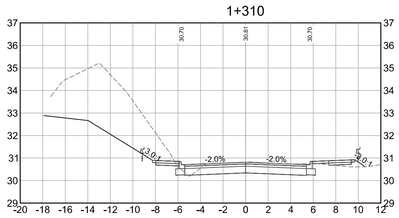
FILENAME: 32859_SH_SECTIONS_DETAILS.dwg
LAST SAVED DATE & TIME: Thursday, May 18, 2023 11:10 AM
LAST SAVED BY: AP/YM

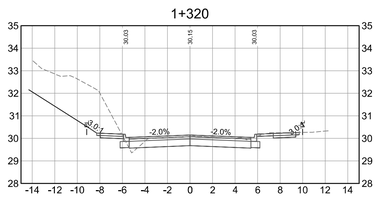
CUT SLOPES ALONG THE WEST OF THE CORRIDOR BETWEEN STATIONS 1+280 AND 1+340 ARE SHOWN AS APPROXIMATE. FINAL LIMITS WILL BE DETERMINED IN THE FIELD WITH THE CONTRACT ADMINISTRATOR (TYPICAL).

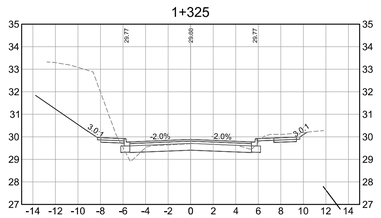


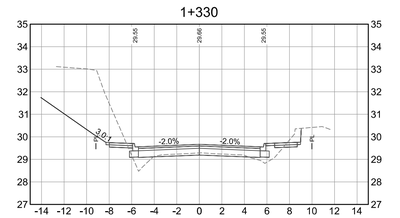


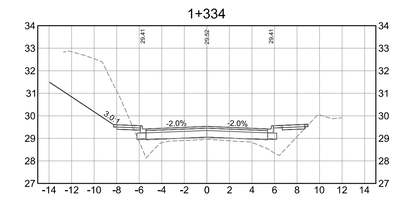


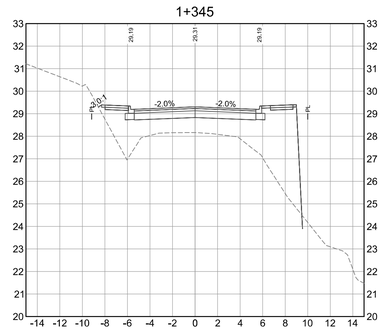


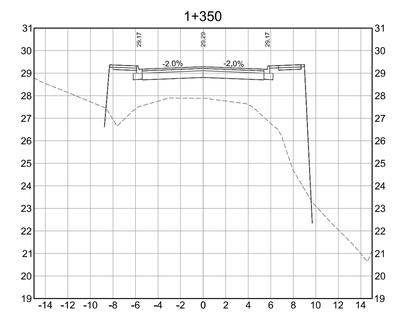


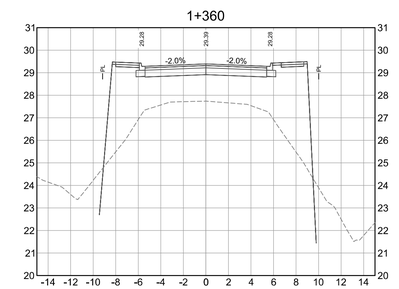


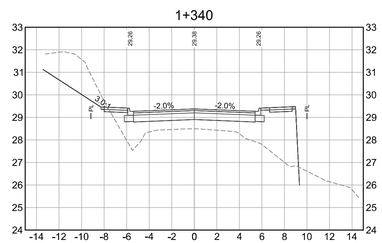


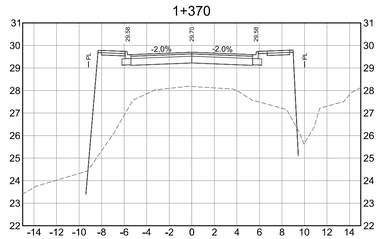


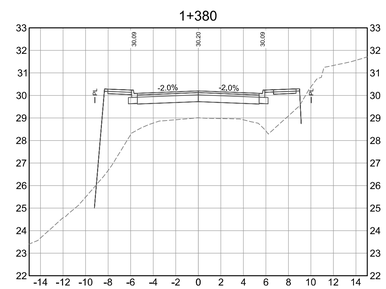


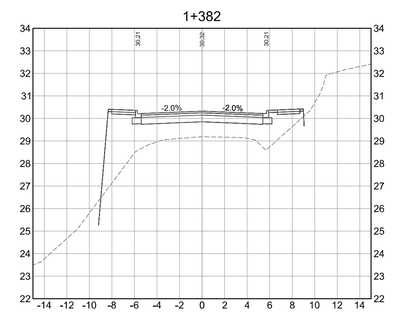


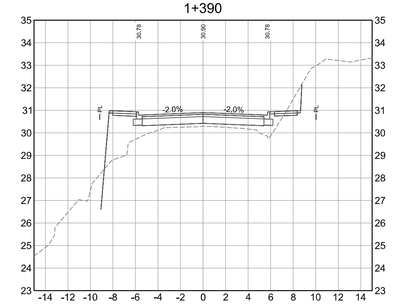












NOTES:

1. REFER TO SHEET 10 TO 13 FOR REDI ROCK LAYOUT AND DETAILS
2. REFER TO SHEET 05 TO 09 FOR MORTARED ROCK LIMITS AND ROAD WORKS LAYOUT

1:250 0 5 15m

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE

HORIZ: 1:250 VERT: 1:25

SEAL

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. A. MCKINNON
#48121
2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:
SECTIONS - STA 1+280 TO STA 1+390

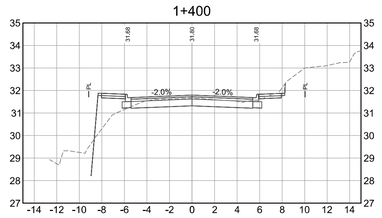
PROJECT TITLE:
CHARTERS ROAD

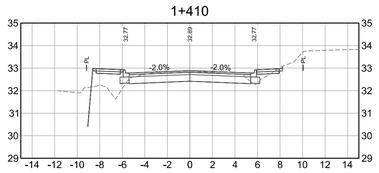
PROJECT LOCATION:
DISTRICT OF SOOKE

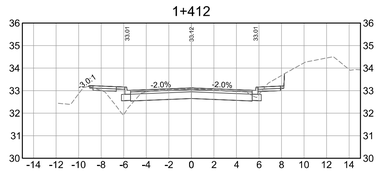
DRAWING No.	REV.	SHEET
32859	0	26 / 34

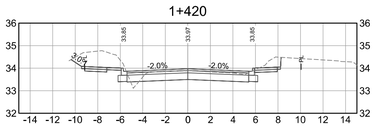
DESTROY PRINTS BEARING PREVIOUS NUMBER

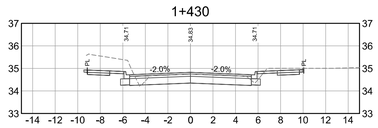
LAST SAVED BY: APYM
LAST SAVED DATE & TIME: Thursday, May 18, 2023 11:10 AM
FILENAME: 32859_SH_SECTIONS_DETAILS.dwg

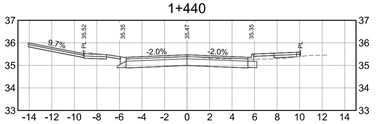


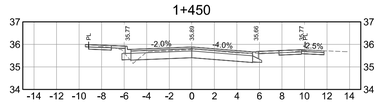


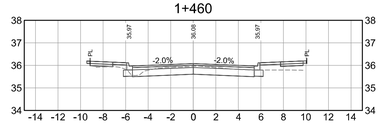


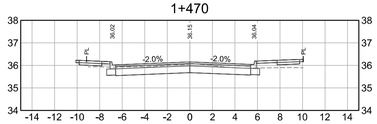


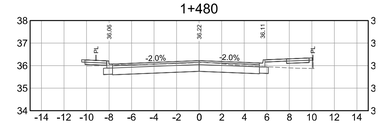


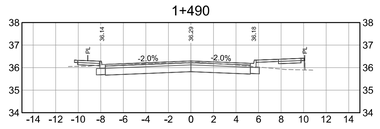


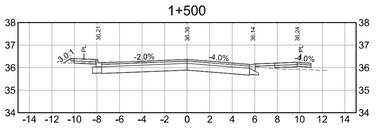


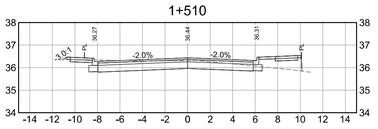


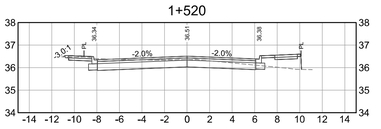


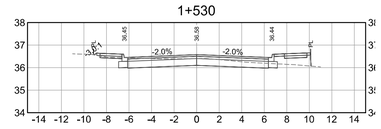


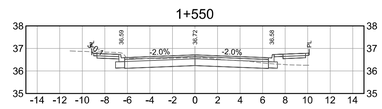












NOTES:

1. REFER TO SHEET 10 TO 13 FOR REDI ROCK LAYOUT AND DETAILS
2. REFER TO SHEET 05 TO 09 FOR MORTARED ROCK LIMITS AND ROAD WORKS LAYOUT

1:250 0 5 15m

DESTROY PRINTS BEARING PREVIOUS NUMBER

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE

HORIZ: 1:250 VERT: 1:25

SEAL

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA I. A. MCKINNON 34121

2023-05-26

ISL Engineering and Land Services

DRAWING TITLE:

SECTIONS - STA 1+400 TO STA 1+550

PROJECT TITLE:

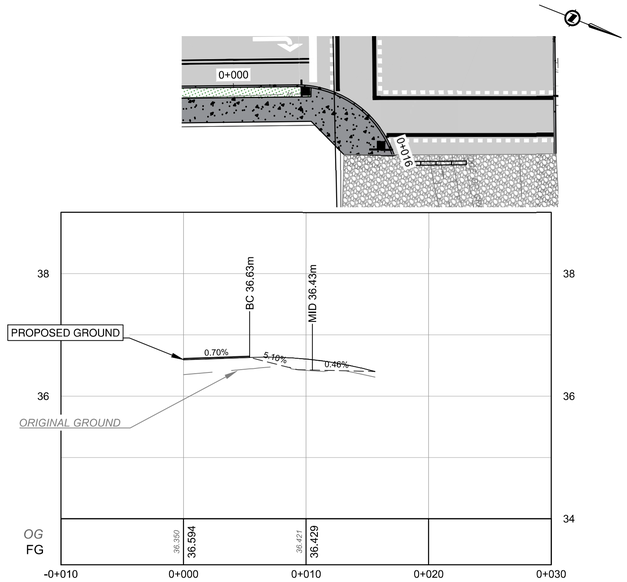
CHARTERS ROAD

PROJECT LOCATION:

DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	27 / 34

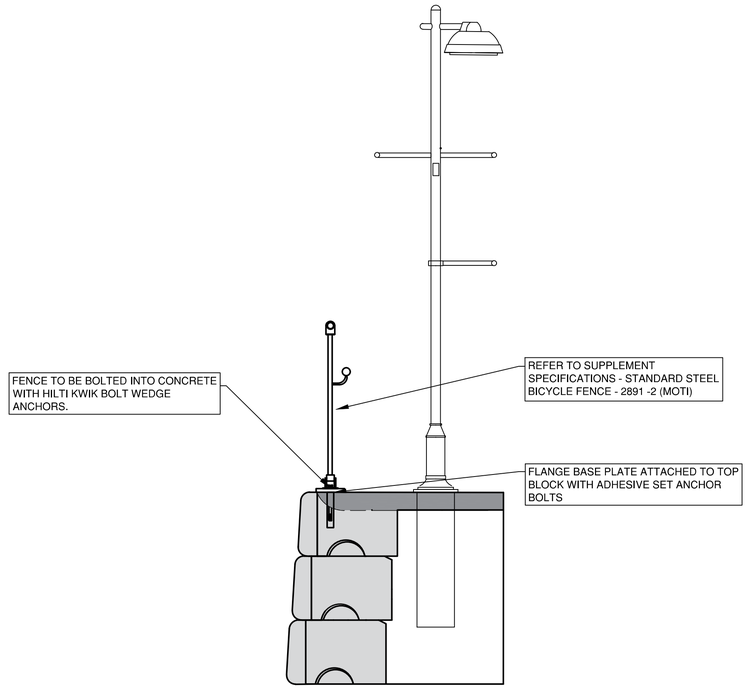
FILENAME: 32859_SH_SECTIONS_DETAILS.dwg LAST SAVED DATE & TIME: Thursday, May 18, 2023 11:10 AM LAST SAVED BY: AP/IM



CHARTERS-THROUP EAST CURB RETURN PROFILE

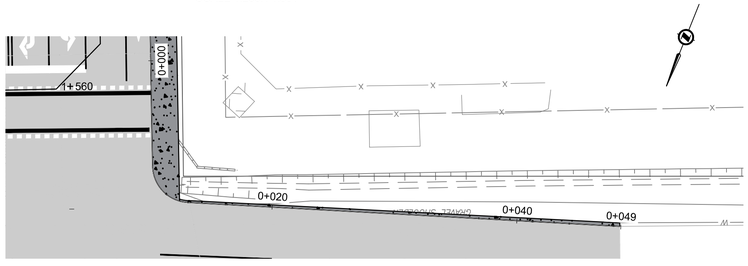
SCALE 1:250H 1:50V

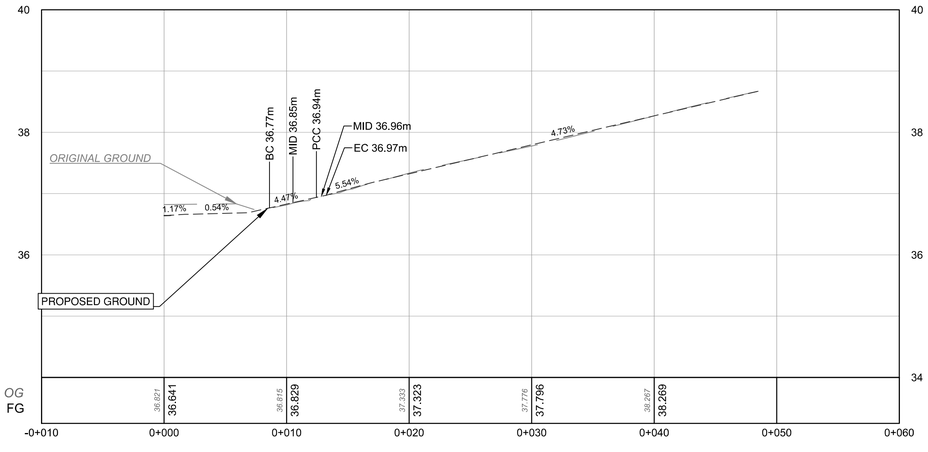
1:250 0 5 15m



MSE WALL FENCE/RAIL CONNECT DETAIL

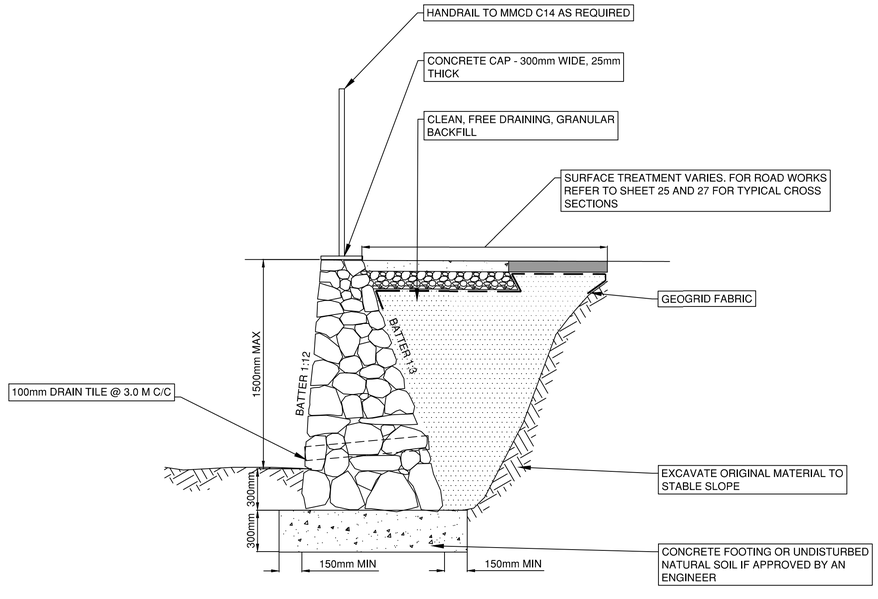
NTS





CHARTERS-THROUP WEST CURB RETURN PROFILE

SCALE 1:250H 1:50V



MORTAR ROCK RETAINING WALL DETAIL

NTS

District of Sooke

No.	DATE	BY	REVISION
0	230526	AP/AA	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	230401
DRAWN BY	AP/AA	230501
CHECKED BY	BJO	230519
APPROVED BY	IM	230523

SCALE
HORIZ: AS SHOWN VERT: -

SEAL

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA I. A. MCKINNON 45121
2023-05-26

ISL

DRAWING TITLE:
DETAILS

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	28 / 34

DESTROY PRINTS BEARING PREVIOUS NUMBER

FILENAME: 32859_SH_DETAILS.dwg LAST SAVED DATE & TIME: Friday, May 28, 2021 10:47 AM LAST SAVED BY: APYM

PBX ENGINEERING LTD.
PERMIT TO PRACTICE NUMBER:
1000208

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD) AND THE DISTRICT OF SOOKE BYLAW 404, SUBDIVISION AND DEVELOPMENT STANDARDS BYLAW, 2020.
2. ALL COMMON CIRCUIT WIRING SHALL BE TAGGED AND TY-RAPPED AS DETAILED IN THE MMCD, SECTION 26 56 01, SUBSECTION 3.8.
3. HANDHOLES SHALL BE POSITIONED ON THE DOWNSTREAM TRAFFIC SIDE OF POLE OR BEHIND.
4. ALL CONDUCTORS SHALL BE STRANDED COPPER, TYPE RW90 INSULATED AND COLOUR CODED, EXCEPT WHERE NOTED.
5. ELECTRICAL WORK SHALL CONFORM TO LATEST EDITION OF CANADIAN ELECTRICAL CODE AND BULLETINS PUBLISHED BY THE BC SAFETY AUTHORITY.
6. ALL WORK SHALL CONFORM TO ALL APPLICABLE REGULATIONS OF WORKSAFE BC.
7. THE CONTRACTOR SHALL SUPPLY ALL MATERIALS, EQUIPMENT AND LABOUR TO COMPLETE THE WORKS, EXCEPT AS NOTED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES FOR PERMITS AND INSPECTIONS, AS REQUIRED BY THE BC SAFETY AUTHORITY.
9. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
10. CONTRACTOR SHALL REPAIR CURBS AND SIDEWALKS TO MATCH EXISTING CONDITIONS WHERE DAMAGED DUE TO CONSTRUCTION ACTIVITIES.
11. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND DATA SHEETS FOR APPROVAL PRIOR TO ORDERING EQUIPMENT.
12. CONDUCTORS FROM JUNCTION BOX TO LUMINAIRE POLE SHALL BE:
    2 No. 10 LUM, 2 No. 10 RECEPT, AND 1 No. 12 BOND
13. CONDUCTORS FROM JUNCTION BOX TO PEDESTRIAN FLASHERS SHALL BE:
    2 No. 8 FLASHER AND 1 No. 10 BOND IN 1-50mm RPVC, UNLESS NOTED OTHERWISE.

CIVIL ELECTRICAL NOTES:

1. ALL CONDUITS SHALL BE VERIFIED AND CLEANED USING THE FOLLOWING PROCEDURE:
   - TO VERIFY INTEGRITY OF CONDUIT, PULL THROUGH EACH DUCT, A HARD RUBBER MANDREL NOT LESS THAN 300mm LONG AND OF A DIAMETER 6mm LESS THAN INTERNAL DIAMETER OF DUCT, PRECEDED BY A SWAB OF SUITABLE DIAMETER TO REMOVE SAND, EARTH AND OTHER FOREIGN MATTER.
   - NOTIFY PROJECT ENGINEER IN THE EVENT OF CONDUIT FAILURE.
   - CLEAN DUCTS BEFORE LAYING. CAP ENDS OF DUCTS DURING CONSTRUCTION AND AFTER INSTALLATION TO PREVENT ENTRANCE OF FOREIGN MATERIALS.
   - TERMINATE CONDUIT ENDS IN THE JUNCTION BOX AS PER STANDARD DRAWINGS.
   - CLEAN AND VACUUM JUNCTION BOXES.
2. WHERE MINIMUM CLEARANCES FROM UTILITIES CAN NOT BE MAINTAINED, NOTIFY THE PROJECT ENGINEER.
3. ALL CONDUITS FROM JUNCTION BOXES TO BASES ARE TO BE 53mm RPVC, UNLESS NOTED OTHERWISE.
4. ALL CONCRETE BASES AND JUNCTION BOX SYMBOLS, ARE NOT TO SCALE.
5. ALL JUNCTION BOXES SHALL BE MMCD STANDARD SINGLE SECTION ROUND PLASTIC C/W WITH GALVANIZED STEEL LIDS.
6. SPARE CONDUITS IN CONCRETE FOOTINGS SHALL HAVE COUPLINGS AND BE CAPPED AT BOTH ENDS.
7. INSTALL PULL LINE IN ALL EMPTY CONDUITS, INSTALL COUPLINGS AND THEN CAP.
8. THE CONTRACTOR SHALL NOT USE ANY FACTORY BENDS IN CONDUIT RUNS UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER IN THE FIELD. WHERE FACTORY 90 DEGREE BENDS ARE APPROVED, THE RADIUS SHALL BE GREATER THAN 900mm.
9. CONTRACTOR SHALL ENSURE ALL ELECTRICAL EQUIPMENT IS INSTALLED WITHIN DISTRICT OF SOOKE RIGHT OF WAY.
10. LUMINAIRE POLES SHALL BE INSTALLED EITHER DIRECTLY BEHIND SIDEWALK OR AT THE BACK OF THE BOULEVARD AS INDICATED ON THE DRAWINGS, UNLESS NOTED OTHERWISE.
11. UTILITY WARNING TAPE MUST BE PLACED 300mm OVER ALL UNDERGROUND CONDUIT RUNS.
12. ENSURE CLEARANCES FROM OVERHEAD AND UNDERGROUND UTILITY LINES AND UTILITY POLES MEET UTILITY AND WORKSAFE BC REGULATIONS PRIOR TO CONCRETE BASE INSTALLATION. CONTACT PBX ENGINEERING IN THE EVENT OF CONFLICT.
13. USED EXTREME CAUTION WHEN WORKING NEAR UNDERGROUND NATURAL GAS LINES AND UNDERGROUND UTILITIES. CONTRACTOR SHALL ENSURE MINIMUM CLEARANCE OF 300mm IS MAINTAINED BETWEEN GAS LINES AND ALL ELECTRICAL EQUIPMENT. CONTACT PBX ENGINEERING IN THE EVENT OF CONFLICT.

MATERIAL NOTES:

1. ALL MATERIALS SHALL BE NEW, IN ACCORDANCE WITH THE DISTRICT OF SOOKE BYLAW 404 EXCEPT WHERE NOTED. ALL LIKE MATERIALS SHALL BE FROM THE SAME MANUFACTURER.
2. ELECTRICAL MATERIAL, EQUIPMENT, AND FITTINGS MUST BEAR EVIDENCE OF C.S.A. APPROVAL OR SPECIAL CERTIFICATIONS ACCEPTABLE TO THE CHIEF ELECTRICAL INSPECTOR. UNAPPROVED ITEMS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
3. ALL POLE COMPONENTS SHALL BE POLYESTER POWDER COAT COLOUR: JET BACK (RAL 9005TX)
   POLE COMPONENTS ARE:
   - POLE: CYCLONE PS52 (POLE WALL THICKNESS SHALL BE SIZED AS REQUIRED TO SUIT THE POLE ACCESSORY LOADS AND THE LOCATION.)
   - BASE: CYCLONE BD57
4. LED LUMINAIRES SHALL BE:
   - 44W LED: CYCLONE NEW ERA-NEL30S-FGC-T2M-P30-40K-120-PX-BK-TX
   - 55W LED: CYCLONE NEW ERA-NEL30S-FGC-T2M-P40-40K-120-PX-BK-TX
   - 98W LED: GE EVOLVE ERLH-0-11-C3-40-BLCK-TX
5. A TRON HEB AA WEATHERPROOF FUSE HOLDER, C/W A 10A BUSS KTK FUSE AND 2 "L" TYPE INSULATION BOOTS, SHALL BE INSTALLED FOR EACH LUMINAIRE AND RECEPTACLE LIVE CONDUCTOR IN THE HANDHOLE IN ACCORDANCE WITH MMCD STANDARD DRAWING E7.11.
6. PEDESTRIAN FLASHING BEACONS SHALL BE JSF TECHNOLOGIES 200mm YELLOW LED AC FLASHER BEACON, C/W STANDARD ROUND MOUNT AND 18" SIDE ARM BRACKET AS REQUIRED. FLASHING BEACON COMPONENTS SHALL BE POWDER COATED RAL 9005-TX TO MATCH POLES.
   - DUAL-SIDED BEACON PART No. AB-2412-AC C/W HARDWIRED PUSHBUTTON.
7. PEDESTRIAN PUSHBUTTONS SHALL BE POLARA iNX. AUDIBLE PEDESTRIAN SIGNAL MESSAGE TO BE CONFIRMED WITH THE DISTRICT OF SOOKE.

L E G E N D (SOLID FILL DENOTES EXISTING)

F	LUMINAIRE POLE (SINGLE) 'F' DENOTES FRANGIBLE BASE
	LUMINAIRE POLE (DOUBLE)
	ORNAMENTAL LUMINAIRE POLE
JB	JUNCTION BOX - MMCD STANDARD SINGLE SECTION ROUND PLASTIC C/W STEEL LID
CJB	CONCRETE JUNCTION BOX OR VAULT
	SIGNAL POLE WITH SIGNAL HEAD MOUNTED ON SIDE
	COMBINATION LUMINAIRE/TRAFFIC SIGNAL POLE
	ILLUMINATED SIGN W/ AMBER FLASHERS
	POWER/TELEPHONE POLE
	FLASHER POLE
	SERVICE KIOSK
PEC	PHOTO ELECTRIC CELL
RPVC	RIGID P.V.C. CONDUIT

	RAISED CURB
	PROPERTY LINE
	EDGE OF GRAVEL SHOULDER
	EDGE OF PAVEMENT
	PAINT LINE
	FUTURE ELECTRICAL AND GEOMETRICS
	ELECTRICAL EQUIPMENT TO BE REMOVED
	1-53mm RPVC W/ 3 No. 8 LUM. CCTS A&B, 3 No. 8 RECPT. CCTS. C&D AND 1 No. 10 BOND
	1-53mm RPVC W/ 2 No. 8 LUM. CCT A OR B. 2 No. 8 RECPT. CCT. C OR D. AND 1 No. 10 BOND
	PROPOSED UNDERGROUND CONDUIT
	EXISTING UNDERGROUND CONDUIT
	FENCE
	CORRUGATED METAL PIPE (CULVERT)
G	U/G UTILITY: 'G' DENOTES GAS 'S' DENOTES STORM DRAINS/SEWERS 'W' DENOTES WATER 'UE' DENOTES ELECTRIC 'UT' DENOTES TELEPHONE 'SAN' DENOTES SANITARY SEWER

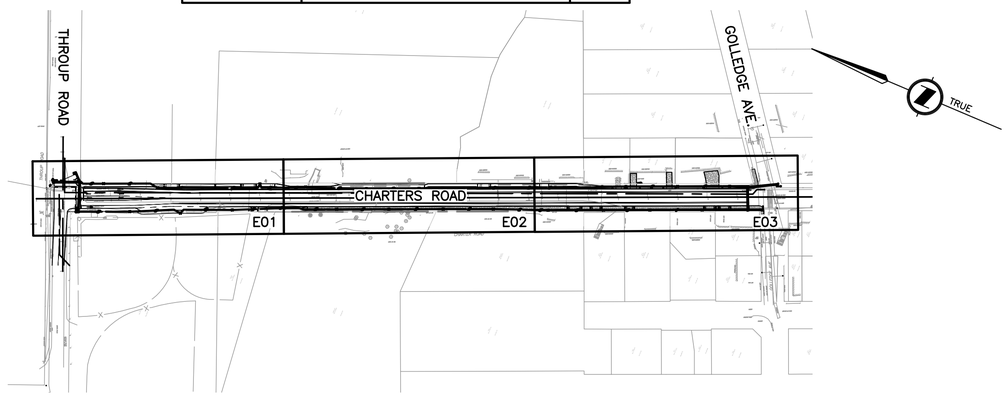
CHARTERS ROAD ACTIVE TRANSPORTATION PROJECT

ISSUED FOR TENDER

PREPARED BY:

PBX ENGINEERING

DRAWING INDEX		
DRAWING No.	DESCRIPTION	REV
E00	COVER SHEET - NOTES - KEY PLAN	1
E01	SITE PLAN	1
E02	SITE PLAN	1
E03	SITE PLAN	1
E04	ELEVATIONS - DETAILS	1
E05	SERVICE KIOSK DETAILS	1



KEY PLAN
N.T.S.

ISSUED FOR TENDER
NOT FOR CONSTRUCTION

Rev.	DATE	ISSUE / REVISION DESCRIPTION	DESN	QC	QA
1	230526	ISSUED FOR TENDER	AJB	MD	AB

CLIENT: District of Sooke

PROJECT: CHARTERS RD-NORTH OF GOLLEDGE AVE TO THROUP RD

PROFESSIONAL SEAL: PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, A. M. BEAUVILLIER # 45983
DATE: 2023-05-26

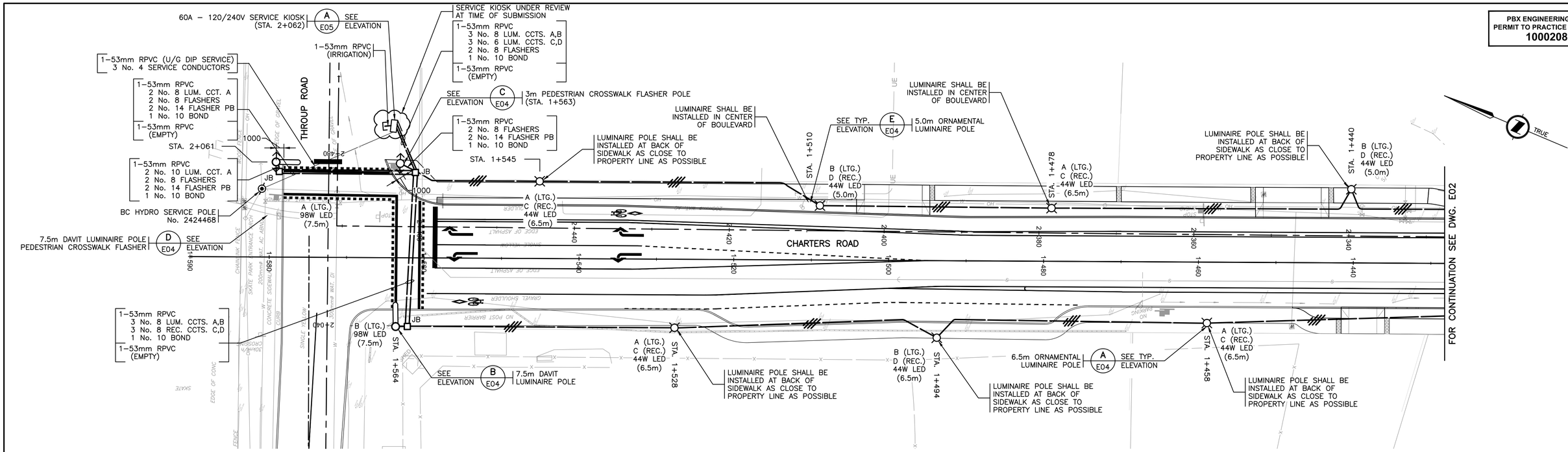
PBX ENGINEERING Ltd.
Suite 201 - 2612 Bridge St.
Victoria BC, V8T 4S9
Tel 250.388.7222
www.pbxeng.com

TITLE: CHARTERS ROAD
COVER SHEET - NOTES - KEY PLAN

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
AS SHOWN	220162	E00	1

P:\220162_DoS_Charters Rd - North of Golledge Ave to Throup Rd\Drawings\ACAD\E00_1i_26/05/2023 8:44 AM_ROBERT.PETERSON

PBX ENGINEERING LTD.
PERMIT TO PRACTICE NUMBER:
1000208



SITE PLAN

0 1:250 10

INTERSECTION LIGHTING DESIGN CRITERIA		
INTERSECTION NAME	CHARTERS ROAD AT THROUP ROAD	
ROAD CLASSIFICATION	MAJOR/COLLECTOR	
PEDESTRIAN CONFLICT	LOW	
WATTAGE/TYPE/ LUMINAIRE MANUFACTURER/ MODEL NUMBER	98W LED/TYPE III/GE EVOLVE/ERLH–0–11–C3–40	
	RECOMMENDED ILLUMINANCE	ACHIEVED ILLUMINANCE
ILLUMINATION LEVEL (AVG.)	15.0 LUX	24.7 LUX
UNIFORMITY RATIO (AVG:MIN)	3.0:1	2.2:1

NOTE: BASED ON TAC GUIDE FOR THE DESIGN OF ROADWAY LIGHTING TABLE 10–1

SIDEWALK LIGHTING DESIGN CRITERIA		
ROADWAY NAME	CHARTERS ROAD	
ROAD CLASSIFICATION	COLLECTOR	
PEDESTRIAN CONFLICT	LOW	
WATTAGE/TYPE/ LUMINAIRE MANUFACTURER/ MODEL NUMBER	44W LED/TYPE IIM/CYCLONE/NEL30S–FGC–T2M–P30–40K 55W LED/TYPE IIM/CYCLONE/NEL30S–FGC–T2M–P40–40K 98W LED/TYPE III/GE EVOLVE/ERLH–0–11–C3–40	
	RECOMMENDED ILLUMINANCE	ACHIEVED ILLUMINANCE
ILLUMINATION LEVEL (AVG.)	3.0 LUX	5.6 LUX
UNIFORMITY RATIO (AVG:MIN)	6.0:1	6.0:1

NOTE: BASED ON TAC GUIDE FOR THE DESIGN OF ROADWAY LIGHTING TABLE 9–3

ROADWAY LIGHTING DESIGN CRITERIA		
ROADWAY NAME	CHARTERS ROAD	
CLASSIFICATION	COLLECTOR	
PEDESTRIAN CONFLICT	LOW	
RECOMMEND LUMINANCE	0.4 cd/m²	
RECOMMEND VEILING LUMINANCE	L_{MAX}/L_{AV} = 0.4:1	
RECOMMEND UNIFORMITY	L_{AV}/L_{MIN} = 4.0:1 L_{MAX}/L_{MIN} = 8.0:1	
WATTAGE/TYPE/ LUMINAIRE MANUFACTURER/ MODEL NUMBER	44W LED/TYPE IIM/CYCLONE/NEL30S–FGC–T2M–P30–40K 55W LED/TYPE IIM/CYCLONE/NEL30S–FGC–T2M–P40–40K 98W LED/TYPE III/GE EVOLVE/ERLH–0–11–C3–40	
DIRECTION	NORTHBOUND	SOUTHBOUND
LUMINANCE (AVG.)	0.63 cd/m²	0.56 cd/m²
VEILING LUMINANCE	L_{MAX}/L_{AV} = 0.32:1	L_{MAX}/L_{AV} = 0.28:1
UNIFORMITY	L_{AV}/L_{MIN} = 3.1:1 L_{MAX}/L_{MIN} = 6.5:1	L_{AV}/L_{MIN} = 1.9:1 L_{MAX}/L_{MIN} = 2.7:1

NOTE: BASED ON TAC GUIDE FOR THE DESIGN OF ROADWAY LIGHTING (TABLE 9–2)

CONDUCTOR COLOUR CODE	
ITEM	CONDUCTOR COLOUR
LUMINAIRE CCT. A LUMINAIRE CCT. B	RED BLACK
RECEPTACLE CCT. C RECEPTACLE CCT. D	RED BLACK
NEUTRAL	WHITE
GROUND/BOND	GREEN

MAXIMUM RECEPTACLE LOAD IS 75W

SEE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD) – PLATINUM EDITION AND DISTRICT OF SOOKE BYLAW 404 FOR APPLICABLE STANDARDS AND DRAWINGS

CHECK BEFORE YOU DIG

CONTRACTOR SHALL CONFIRM THE LOCATIONS OF ALL UNDERGROUND UTILITIES.

ISSUED FOR TENDER NOT FOR CONSTRUCTION

ALL EQUIPMENT IS PROPOSED UNLESS NOTED OTHERWISE

LOCATING EQUIPMENT

FOR CLARITY, CONDUITS, JUNCTION BOXES AND STREETLIGHT POLES MAY NOT BE SHOWN AT DESIGN OFFSETS. CONTRACTOR SHALL LOCATE ALL EQUIPMENT BASED ON STATIONS AND/OR OFFSETS AS NOTED AND SHALL NOT RELY ON COORDINATES OBTAINED FROM PBX DIGITAL DRAWINGS.
CONTRACTOR TO REPORT ANY CONFLICTS OR DISCREPANCIES TO PBX ENGINEERING LTD. PRIOR TO ORDERING EQUIPMENT.

OVERHEAD POWER LINE CONFLICTS

CONTRACTOR SHALL CONFIRM ON SITE PRIOR TO CONSTRUCTION THAT POLES & EQUIPMENT WILL MEET WorkSafeBC CLEARANCE REQUIREMENTS FOR OVERHEAD PRIMARY AND SECONDARY LINES. CONTRACTOR TO REPORT ANY CONFLICTS OR DISCREPANCIES TO PBX ENGINEERING LTD. PRIOR TO ORDERING EQUIPMENT.

Rev.	DATE	ISSUE / REVISION DESCRIPTION	DESN	QC	QA
1	230526	ISSUED FOR TENDER	AJB	MD	AB

CLIENT: District of Sooke

PROJECT: CHARTERS RD–NORTH OF GOLLEDGE AVE TO THROUP RD

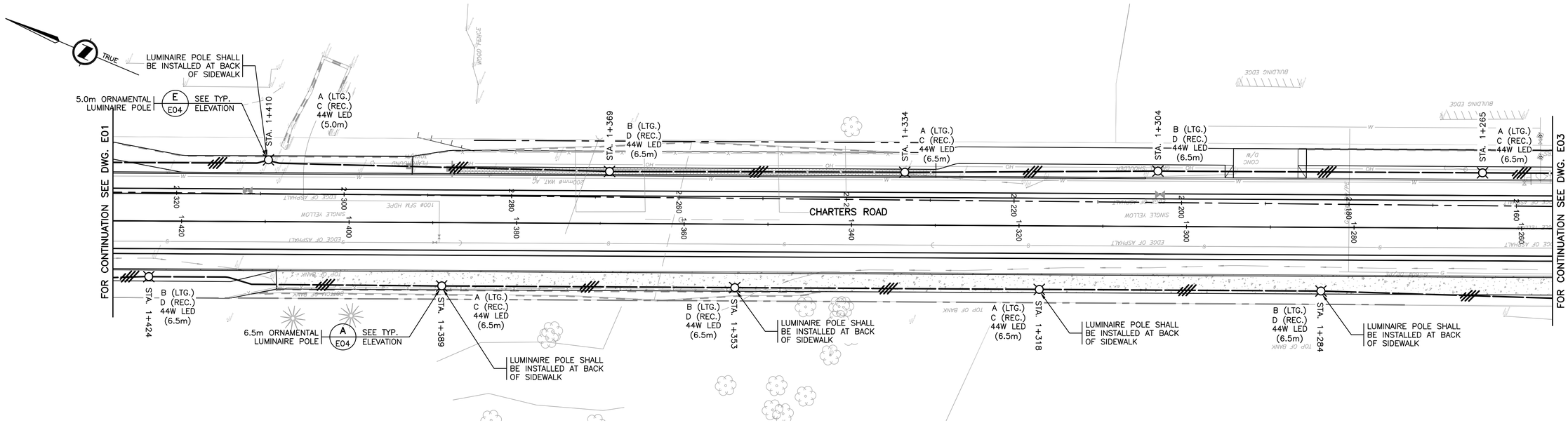
PROFESSIONAL SEAL: PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. M. BEAUVILLIER # 45363 – DATE: 2023-05-26

PBX ENGINEERING Ltd.
Suite 201 - 2612 Bridge St.
Victoria BC, V8T 4S9
Tel 250.388.7222
www.pbxeng.com

TITLE: SITE PLAN

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
AS SHOWN	220162	E01	1

PBX ENGINEERING LTD.
PERMIT TO PRACTICE NUMBER:
1000208



SITE PLAN

0 1:250 10

LOCATING EQUIPMENT

FOR CLARITY, CONDUITS, JUNCTION BOXES AND STREETLIGHT POLES MAY NOT BE SHOWN AT DESIGN OFFSETS. CONTRACTOR SHALL LOCATE ALL EQUIPMENT BASED ON STATIONS AND/OR OFFSETS AS NOTED AND SHALL NOT RELY ON COORDINATES OBTAINED FROM PBX DIGITAL DRAWINGS.
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MAXIMUM RECEPTACLE LOAD IS 75W

SEE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD) – PLATINUM EDITION AND DISTRICT OF SOOKE BYLAW 404 FOR APPLICABLE STANDARDS AND DRAWINGS

BC 1C

CHECK BEFORE YOU DIG

CONTRACTOR SHALL CONFIRM THE LOCATIONS OF ALL UNDERGROUND UTILITIES.

**ISSUED FOR TENDER
NOT FOR CONSTRUCTION**

ALL EQUIPMENT IS PROPOSED UNLESS NOTED OTHERWISE

Rev.	DATE	ISSUE / REVISION DESCRIPTION	DESN	QC	QA
1	230526	ISSUED FOR TENDER	AJB	MD	AB

CLIENT: District of Sooke

PROJECT: CHARTERS RD–NORTH OF GOLLEDGE AVE TO THROUP RD

PROFESSIONAL SEAL: PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, A. M. BEAUVILLIER # 45363

DATE: 2023-05-26

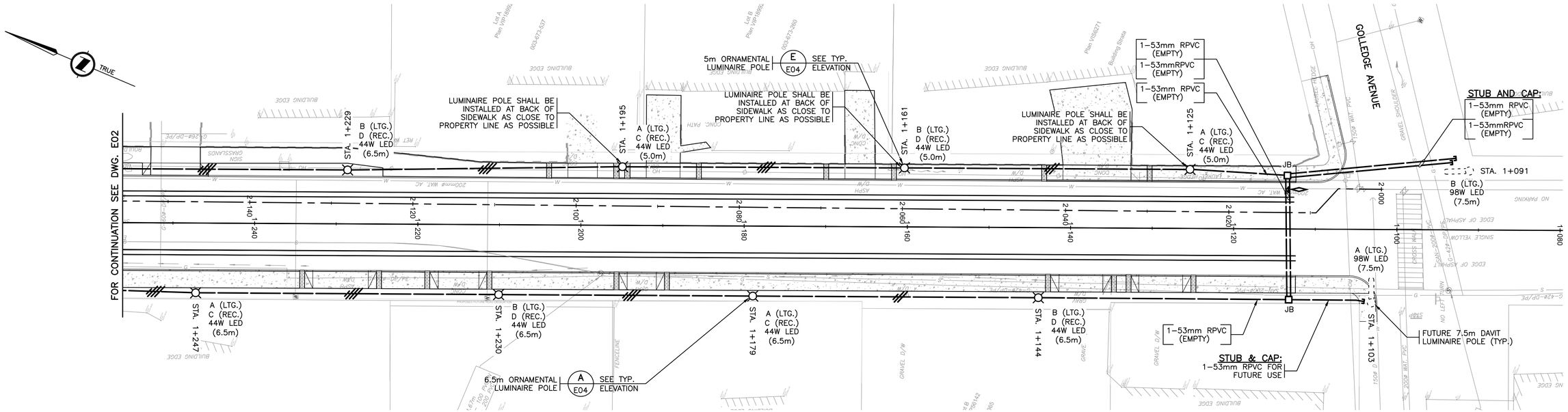
PBX ENGINEERING Ltd.
Suite 201 - 2612 Bridge St.
Victoria BC, V8T 4S9
Tel 250.388.7222
www.pbxeng.com

TITLE: SITE PLAN

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
AS SHOWN	220162	E02	1

P:\220162_DoS_Charters Rd – North of Golledge Ave to Throup Rd\Drawings\ACAD\E02_1, 26/05/2023 7:38 PM, ROBERT PETERSON

PBX ENGINEERING LTD.
PERMIT TO PRACTICE NUMBER:
1000208



SITE PLAN

0 1:250 10

MAXIMUM RECEPTACLE LOAD IS 75W

SEE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD) – PLATINUM EDITION AND DISTRICT OF SOOKE BYLAW 404 FOR APPLICABLE STANDARDS AND DRAWINGS

CHECK BEFORE YOU DIG

CONTRACTOR SHALL CONFIRM THE LOCATIONS OF ALL UNDERGROUND UTILITIES.

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LOCATING EQUIPMENT

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CONTRACTOR TO REPORT ANY CONFLICTS OR DISCREPANCIES TO PBX ENGINEERING LTD. PRIOR TO ORDERING EQUIPMENT.

OVERHEAD POWER LINE CONFLICTS

CONTRACTOR SHALL CONFIRM ON SITE PRIOR TO CONSTRUCTION THAT POLES & EQUIPMENT WILL MEET WorkSafeBC CLEARANCE REQUIREMENTS FOR OVERHEAD PRIMARY AND SECONDARY LINES. CONTRACTOR TO REPORT ANY CONFLICTS OR DISCREPANCIES TO PBX ENGINEERING LTD. PRIOR TO ORDERING EQUIPMENT.

Rev.	DATE	ISSUE / REVISION DESCRIPTION	DESN	QC	QA
1	230526	ISSUED FOR TENDER	AJB	MD	AB

CLIENT: District of Sooke

PROJECT: CHARTERS RD–NORTH OF GOLLEDGE AVE TO THROUP RD

PROFESSIONAL SEAL: PROFESSIONAL ENGINEER – PROVINCE OF BRITISH COLUMBIA – A. M. BEAUVILLIER # 45363

DATE: 2023-05-26

PBX ENGINEERING Ltd.
Suite 201 - 2612 Bridge St.
Victoria BC, V8T 4S9
Tel 250.388.7222
www.pbxeng.com

TITLE: SITE PLAN

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
AS SHOWN	220162	E03	1

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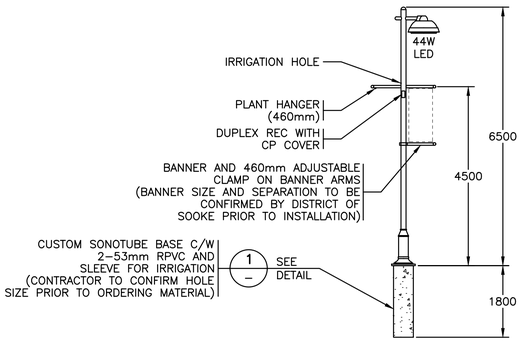
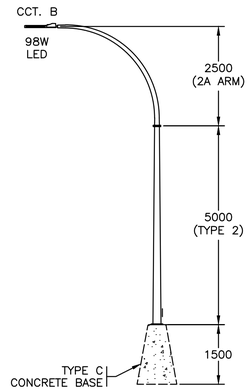
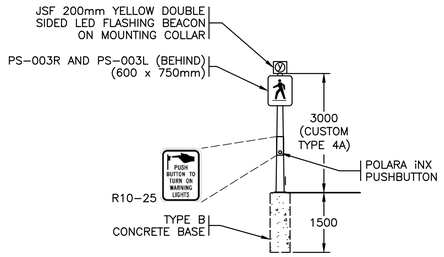
PBX ENGINEERING LTD.
PERMIT TO PRACTICE NUMBER:
1000208



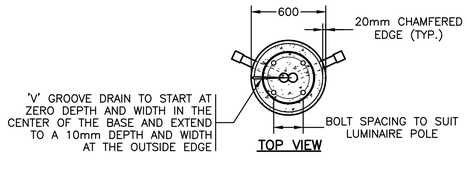
ELEVATION A E01 A E02 A E03 6.5m ORNAMENTAL LUMINAIRE POLE
1:75



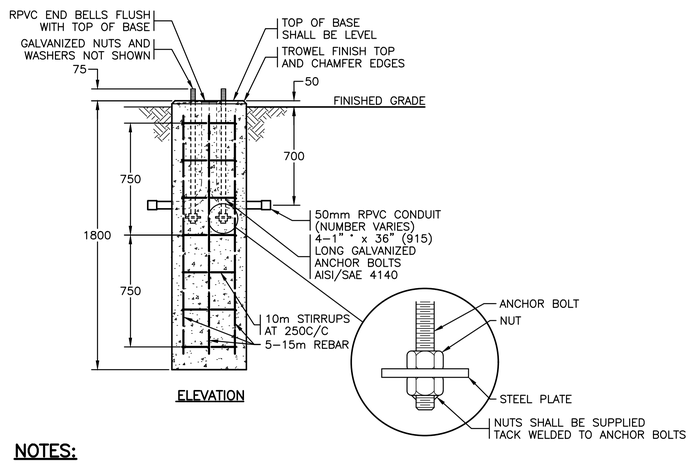
ELEVATION B E01 7.5m DAVIT LUMINAIRE POLE
1:75



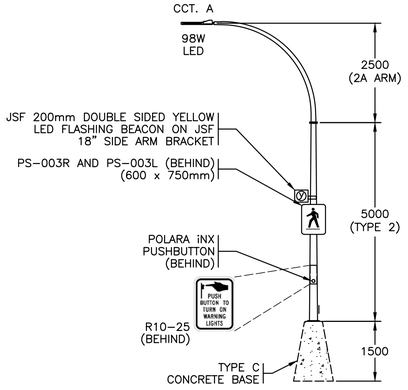
ELEVATION C E01 3m PEDESTRIAN CROSSWALK FLASHER POLE
1:75



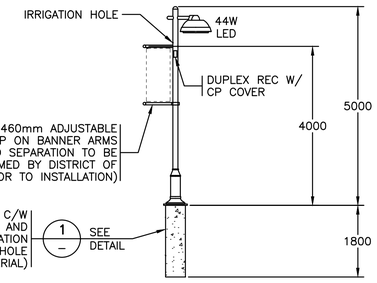
TOP VIEW



ELEVATION



ELEVATION D E01 7.5m DAVIT LUMINAIRE POLE WITH PEDESTRIAN CROSSWALK FLASHER
1:75



ELEVATION E E01 E E02 E E03 5.0m ORNAMENTAL LUMINAIRE POLE
1:75

NOTES:

1. ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH CAN/CSA G14–M92.
2. APPLY LUBRIPLATE OR OTHER SUITABLE GREASE TO EXPOSED PORTION OF ANCHOR BOLTS AND NUTS PRIOR TO POLE INSTALLATION.
3. CONCRETE TO HAVE A MINIMUM STRENGTH OF 30MPa AT 28 DAYS.
4. FOOTINGS ARE DESIGNED FOR SOILS WITH A MINIMUM ALLOWABLE BEARING PRESSURE OF 125kPa. AFTER EXCAVATION DESIGN ENGINEER SHALL CONFIRM SOIL AND EXCAVATION PRIOR TO CONSTRUCTION OF BASE.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
6. BACKFILL SHALL BE S.G.S.B. IN ACCORDANCE WITH SECTION 202 OF BC MoTI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NO MORE THAN 150mm THICK TO 100% STANDARD PROCTOR MAXIMUM DENSITY (ASTM D–698).

DETAIL 1 – CUSTOM SONOTUBE CONCRETE BASE
N.T.S.

ELEVATIONS
0 1:75 5

**ISSUED FOR TENDER
NOT FOR CONSTRUCTION**

SEE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD) – PLATINUM EDITION AND DISTRICT OF SOOKE BYLAW 404 FOR APPLICABLE STANDARDS AND DRAWINGS

ALL EQUIPMENT IS PROPOSED UNLESS NOTED OTHERWISE

Rev.	DATE	ISSUE / REVISION DESCRIPTION	DESN	QC	QA
1	230526	ISSUED FOR TENDER	AJB	MD	AB

CLIENT: District of Sooke

PROJECT: CHARTERS RD–NORTH OF GOLLEDGE AVE TO THROUP RD

PROFESSIONAL SEAL: PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, A. M. BEAUVILLIER # 45263
DATE: 2023-05-26

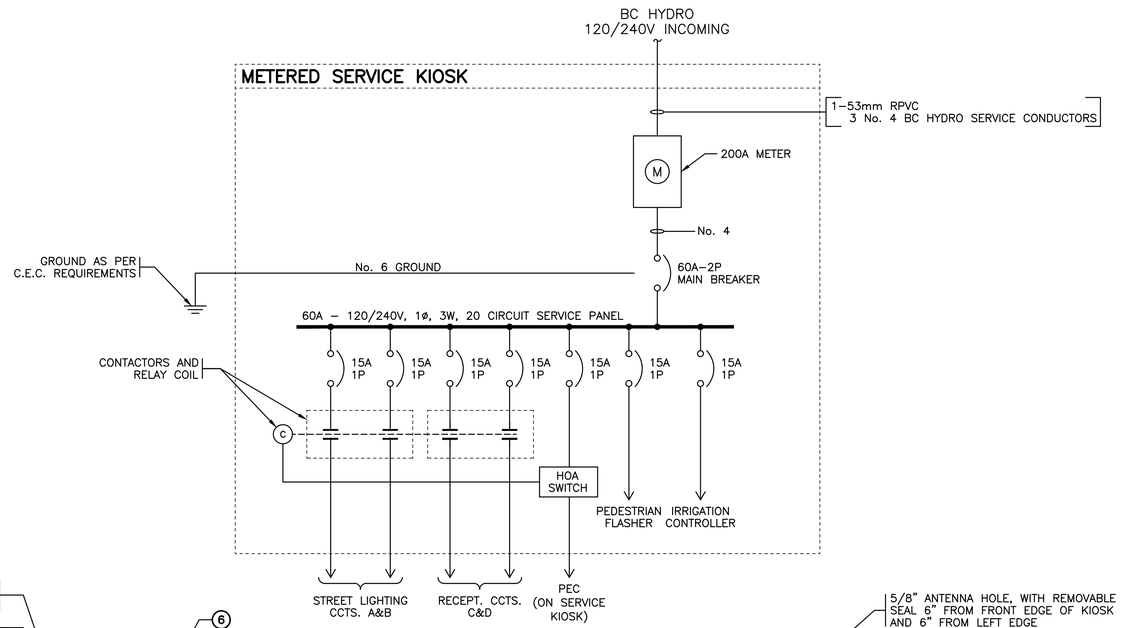
PBX ENGINEERING Ltd.
Suite 201 - 2612 Bridge St.
Victoria BC, V8T 4S9
Tel 250.388.7222
www.pbxeng.com

TITLE: ELEVATIONS – DETAILS

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
AS SHOWN	220162	E04	1

P:\220162 DoS Charters Rd – North of Golledge Ave to Throup Rd\Drawings\ACAD\E04_1: 26/05/2023 9:26 AM: ROBERT PETERSON

PBX ENGINEERING LTD.
PERMIT TO PRACTICE NUMBER:
1000208



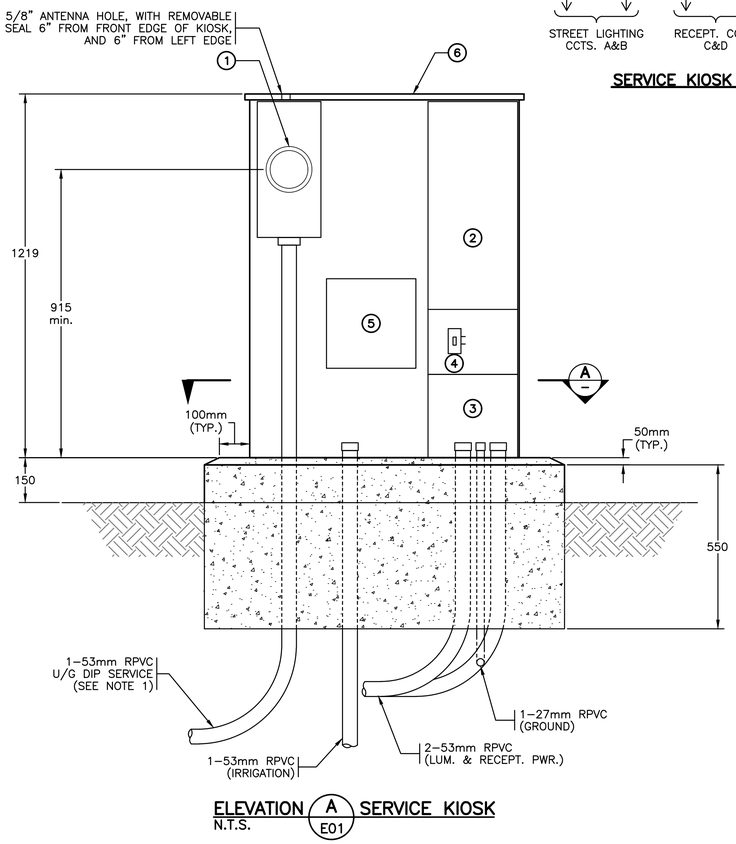
SERVICE KIOSK – WIRING DIAGRAM

KIOSK EQUIPMENT LIST:

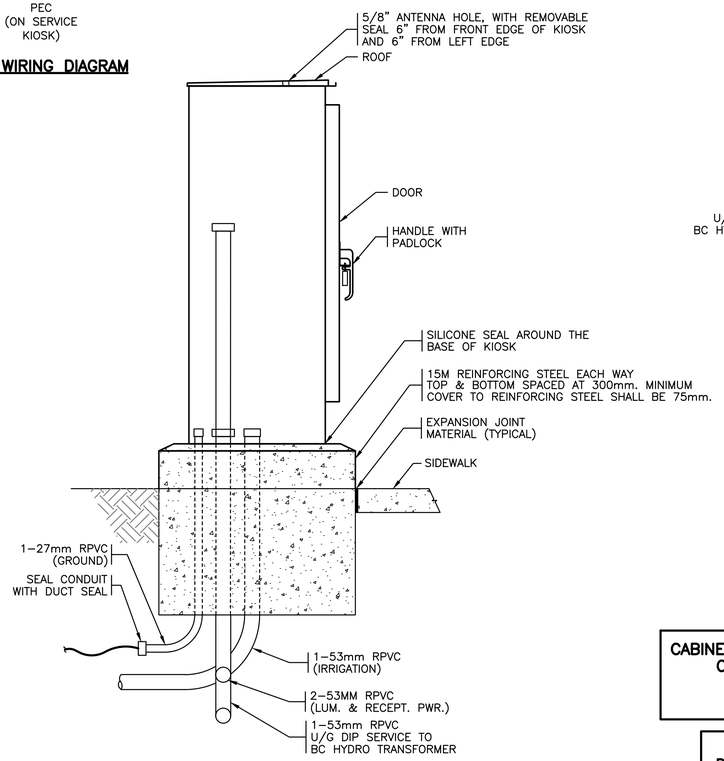
1. 200A – 4 JAW METER SOCKET IN COMPLIANCE WITH BC HYDRO STANDARDS. KIOSK DOOR SHALL BE COMPLETE WITH PLEXIGLAS WINDOW TO ALLOW FOR METER READING.
2. 60A – 120/240V, 1ø, 24 CIRCUIT PANELBOARD COMPLETE WITH THE FOLLOWING 10kA RATED BREAKERS:
   - 60A MAIN DISCONNECT (BREAKER TERMINALS SHALL BE RATED FOR 75 DEGREE CONDUCTOR TERMINATION TEMPERATURE OR HIGHER)
   - 2 x 15A – 1P BREAKERS (STREET LIGHTING)
   - 1 x 15A – 1P BREAKER (PEC)
   - 1 x 15A – 1P BREAKER (IRRIGATION CONTROLLER)
   - 2 x 15A – 1P BREAKER (RECEPTACLES)
   - 1 x 15A – 1P BREAKER (PEDESTRIAN FLASHER)
3. LIGHTING FEEDERS AND CONTACTORS WIREWAY.
4. ROADWAY LIGHTING HOA SWITCH.
5. SPACE FOR IRRIGATION CONTROLLER.
6. VALID MANUFACTURING PART No. KSDA483616P OR APPROVED ALTERNATE METERED SERVICE KIOSK.

KIOSK NOTES

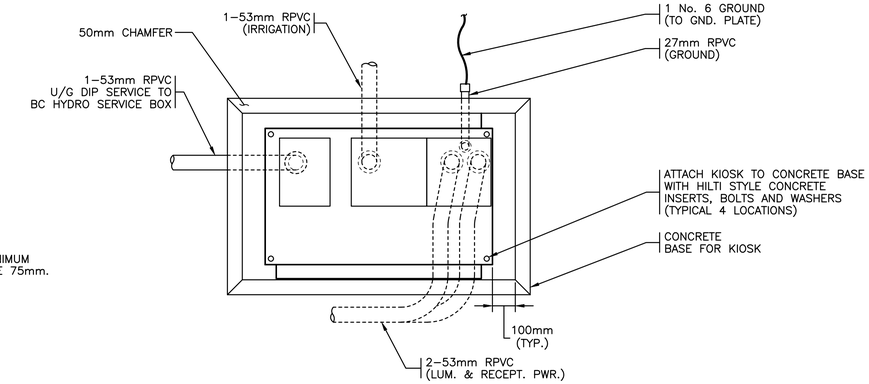
1. CONTRACTOR TO REFERENCE BC HYDRO DESIGN DRAWINGS FOR DETAILS ON CONDUIT AND CONDUIT FILL.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
3. CONCRETE BASE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 30Mpa @ 28 DAYS.
4. SERVICE KIOSK SHALL BE POWDER COATED JET BLACK (RAL9005TX).
5. KIOSK ENCLOSURE SHALL BE CONSTRUCTED IN ACCORDANCE WITH BC HYDRO STANDARDS.



ELEVATION A – SERVICE KIOSK
N.T.S. E01



SIDE VIEW
N.T.S.



SECTION A
N.T.S.

CABINET DIMENSIONS AND LAYOUT ARE FUNCTIONAL ONLY. CONTRACTOR SHALL PROVIDE MANUFACTURER'S SIGNED AND SEALED SHOP DRAWINGS FOR APPROVAL PRIOR TO ORDERING.

SEE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD) – PLATINUM EDITION AND DISTRICT OF SOOKE BYLAW 404 FOR APPLICABLE STANDARDS AND DRAWINGS

**ISSUED FOR TENDER
NOT FOR CONSTRUCTION**

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Rev.	DATE	ISSUE / REVISION DESCRIPTION	DESN	QC	QA
1	230526	ISSUED FOR TENDER	AJB	MD	AB

CLIENT: District of Sooke

PROJECT: CHARTERS RD–NORTH OF GOLLEDGE AVE TO THROUP RD

PROFESSIONAL SEAL: PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, A. M. BEAUVILLIER # 45983

DATE: 2023-05-26

PBX ENGINEERING Ltd.
Suite 201 - 2612 Bridge St.
Victoria BC, V8T 4S9
Tel 250.388.7222
www.pbxeng.com

TITLE: SERVICE KIOSK DETAILS

SCALE	PROJECT NUMBER	DRAWING NUMBER	REV.
AS SHOWN	220162	E05	1

CHARTERS ROAD – STREETSCAPE

GEOTECHNICAL DESIGN MEMORANDUM

File: T02-2023
May 2023

RYZUK GEOTECHNICAL
ENGINEERING & MATERIALS TESTING

Ryzuk Geotechnical
#6-40 Cadillac Ave.
Victoria, BC, Canada, V8Z 1T2
☎ 250-475-3131
✉ mail@ryzuk.com

GEOTECHNICAL DESIGN MEMORANDUM

Project No: 7930-29
Project: Charters Streetscape Design Comments
Project Address: 2100 Block Charters Road – Sooke, BC
Date: February 3, 2022

Client: ISL Engineering & Land Services Ltd.
Contact: Brad Ormiston
Email: BOrmiston@islengineering.com

As requested, we attended the above referenced site on January 19th, 2022, to conduct a subsurface geotechnical investigation. The following memorandum summarizes the results of our investigation and associated recommendations as such relates to the proposed roadway improvements in this area. Our work has been carried out in accordance with, and is subject to, our previously submitted Terms of Engagement.

PROJECT DESCRIPTION

The site area is located on Charters Road at the crossing of Throup Stream and comprises the berm area that crosses the stream and ravine. There is currently an existing asbestos-concrete watermain that runs beneath the east bound lane, a sanitary force main proposed beneath the west bound lane, and two existing culverts that cross under the road directing stream flow. On the east side of the road, the road surface elevation is approximately 7 m higher than the creek channel elevation to the east, while the west side of the road is approximately 3-4 m higher than the creek channel. The creek channel runs south beside the berm at the base, after discharging from the culverts on the east side, then turns and runs to the east. Topographically, the site area is located approximately 5 m below the crest of the roadway to the south, and approximately 7 m below crest of the roadway to the north, with a geodetic elevation of 18 m. From the base of the creek channel, both sides of the roadway slope steeply up at between 40 to 45 degrees, with some localized flatter and steeper areas.

The slope on the east side of the road has experienced some instability, notably a scarp that formed in 2016 and has recently encroached to the edge of the east lane. We understand the District of Sooke is committed to reconstructing this area to accommodate a new sidewalk and bike lane along the east side of Charters Road at the crossing of Throup Stream. The proposed roadway improvements will include the replacement of the existing culverts, fills within the berm, and construction of a retaining wall to support the pedestrian network. We also understand the District of Sooke is exploring the option of adjusting the vertical road alignment to allow for an improved sight lines for road users.

INVESTIGATION PROCEDURE

Prior to our subsurface geotechnical investigation, we completed a site reconnaissance to review soil conditions within the slopes and subsequently provided preliminary information and recommendations for the proposed work. Based on our site reconnaissance, we found the slopes adjacent to the roadway had been constructed of variable sand and gravel fill material, with some debris, logs and rubble mixed in, constructed atop native clay mineral soils.

Our subsurface geotechnical investigation consisted of a one-day drilling program, using a track mounted auger drill rig which was supplied and operated by Drillwell Enterprises Ltd. of Duncan, BC. A total of 4 test holes (TH22-01 to TH22-04) were advanced to various depths up to 12.2 m below ground surface, terminating within native mineral soils. The locations of the test holes are indicated on the attached Location Plan. Recovered soil samples were visually identified and logged in the field by Ryzuk Geotechnical staff in accordance with the Modified Unified Soil Classification System (MUSCS) and select samples were collected for further moisture testing. Our soil descriptions and results of our testing are presented on the attached Test Hole Logs.

SURFACE AND SUBSURFACE CONDITIONS

The results of our investigation conformed closely with the anticipated geological conditions that were identified in our site reconnaissance. The encountered soils generally consisted of disturbed silty sand with trace to some gravel (inferred fill) to a depth of between 0.5 m to 3.0 m below ground surface (mbgs) with the exception of TH22-04 where the silty sand fill transitioned to silty clay fill below 0.38 m to 2.8 mbgs. Beneath the fill, the native mineral soils consisted of very stiff to hard brown silty clay which transitioned to a stiff to very stiff grey silty clay below between 3.3 mbgs to greater than 6.1 mbgs. In TH22-03 we noted the silty clay to transition to a silty clay with some gravel, trace cobble below 6.4 m. Based on the results of our investigation, the native soils present in the area are a part of a glaciomarine deposit, however, from our review of the geological mapping, the site may be near/within the transition to a fluvial deposit.

While the above is presumed to generally describe the site, it should be noted that soil consistency/conditions may vary from our observations outside the tested locations, and deeper fills may be encountered. Detailed soil information is provided in the attached Test Hole Logs.

Long term groundwater observations were not undertaken as a part of our work during this investigation. However, during drilling advancement at TH22-02, we noted groundwater to be approximately 7.5 mbgs. Based on our experience, the transition between the brown and grey is indictive of the long-term groundwater table fluctuation for the area, which is between 3.3 m to greater than 6.1 m below grade. The relatively impermeable nature of the clay soils precludes free water conditions. Perched water table conditions should be anticipated during and after periods of heavy or prolonged precipitation, resulting in surface ponding and/or groundwater flow from the surrounding area.

EXCAVATION CONSIDERATIONS

The proposed retaining wall footprint and roadway/sidewalk footprint areas should be stripped of all disturbed, deleterious, and/or existing fill material to expose native very stiff to hard brown/grey silty clay. Where it is necessary to recover the design grade or infill of trenches for the proposed culvert replacements, engineered fill consisting of select granular material should be placed and compacted in suitably thin lifts as described in the Engineered Fill Section.

Based on the thickness of fills noted during our investigation and the approximate elevation of the existing culverts, we anticipate excavation depths will be in the order of up to 3.5 m below existing grade to remove existing fills with localized trenches extending down a further 4.5 m for the culvert replacement. Given the soil conditions encountered and the available space within the right of way, we anticipate temporary open excavation cutslopes will be achievable. Such may require closure of both road lanes and supporting or rerouting of existing utilities. We expect temporary cutslopes will be stable at the following configurations:

- 1H:1V (Horizontal to Vertical) for the variable fill materials, and
- 0.5H:1V for the native stiff to hard brown/grey silty clay.

Adjustments to the above configurations may be required during construction if variations in the soil/seepage conditions are observed. According to WorkSafeBC guidelines, the stability of temporary excavation cutslopes graded steeper than 0.75H to 1V and deeper than 1.2 m, or deeper than 6 m overall, must be inspected and approved by a qualified geotechnical professional prior to worker entry.

ENGINEERED FILL/FILL SLOPES

Engineered fill, where required, should be placed upon approved subgrade, and should consist of select, well-graded, free draining granular material such as 19 mm or 75 mm minus crushed rock. The engineered fill should be placed and compacted in suitably thin lifts under the supervision of a geotechnical professional to at least 95% of the Modified Proctor Maximum Dry Density (MPMDD) value or judged equivalent. The recommended lift thickness is dependent on both the type of material and the method of compaction (i.e. 300 mm thick lifts for 19 mm minus crushed rock fill compacted with a vibratory diesel plate compactor), and such should be confirmed before placement of fill. It should be expected that engineered fill should be placed to extend horizontally beyond the edge of the base of the retaining wall by a distance equal to the depth of fill placed unless suitable splay is present within approved

native soils. The engineered fill will need to extend a minimum of 1 m horizontally beyond the edges of the retaining wall plus the thickness of fill placed. Any permanent fill slopes will need to be assessed for slope stability and are to be no steeper than 1.5H:1V.

PROPOSED RETAINING WALL

Given the elevation difference between the base of the stream and the existing asphalt elevation on the east side, we foresee the use of a mechanically stabilized earth (MSE) retaining wall to be the most practical and economical to achieve the proposed road height and width. We consider the native very stiff to hard brown silty clay will be capable of providing adequate bearing resistance to the proposed retaining wall.

The MSE retaining wall would be comprised of a precast concrete block facing (likely either a Verti-Block or Redi-Rock) reinforced with geogrid. The geogrid will be composed of polyester multifilament yarns and will form a positive connection with the facing blocks. We anticipate the geogrid to extend back behind the blocks by a length in the order of 0.7 times the wall height. Retaining wall backfill material would generally consist of an approved 75 mm to 300 mm minus crushed rock or blast rock material that is free draining. We expect the retaining wall will be in the order of 1.5 m to 9 m in height as the wall follows the natural topography of the existing ravine. Both the Verti-Block and Redi-Rock precast blocks naturally provide the wall with a face inclination of no steeper than 1H:10V.

It is anticipated that the new culvert(s) will require a headwall and tailwall at the upstream and downstream sides of the creek. Depending on the type of culvert chosen, a poured concrete foundation may be required to ensure the precast concrete blocks tie into the sides of the culvert without leaving gaps. Such will need to be reviewed at the time of retaining wall design. A detailed wall design and drawings can be provided once final grading details are known.

PAVEMENT CONSIDERATIONS

Due to the presence of the deleterious, non-select fills, we recommend remediation also be completed where such are present beneath the roadway. This would entail, removing the noted fills, exposing very stiff to hard brown silty clay, and replacing with engineered fill to the underside of the pavement structure. Depending on the material used for engineered fill, it may be necessary to include a layer of geotextile atop the native subgrade to mitigate the likelihood of punching. For pavement structure, we suggest a minimum of 75 mm of asphalt over a minimum of 100 mm of 19 mm minus crushed rock base layer above a further 250 mm of 75 mm minus crushed rock subbase layer, in accordance with the District of Sooke's requirements. Alternative road structures, including possible geotextile or different base/subbase configurations can be explored if desired.

We recommend in-situ density testing be carried out (either at regular intervals or by spot checks) to ensure fill materials are compacted to a minimum of the 95% of the MPMDD value or judged equivalent for support of roads and civil infrastructure.

CLOSURE

We hope the preceding is suitable for your purposes at present. Please don't hesitate to contact our office if we can be of further assistance.

Regards,
Ryzuk Geotechnical

Austin Baird, EIT.
Advanced Junior Engineer

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. T. HAXTON
1002996
3/2/2022

Shane Haxton, P.Eng.
Intermediate Geotechnical Engineer
PN 1002996

Attachments: - Test Hole Location Plan dated February 2, 2022
- Test Hole Logs

RYZUK GEOTECHNICAL
ENGINEERING & MATERIALS TESTING
28 Crease Avenue, Victoria, BC, V8Z 1S3
Tel: 250-475-3131 Fax: 250-475-3611
mail@ryzuk.com ww.ryzuk.com

TEST HOLE LOG

TH22-01

PROJECT: Charters Streetscape Design Comments
PROJECT NO.: 7930-29
CLIENT: ISL Engineering & Land Services Ltd.
METHOD: Track Mounted Auger
LOCATION: Refer to Test Hole Location Plan.
ELEVATION (m): 21 (Approx.)
COORDINATES (m): UTM N 5359137 E 447130
CONTRACTOR: Drillwell
COMPLETION DATE: 2022-1-19
LOGGED/REVIEWED BY: AB/STH

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Recovery (%)	Torvane (kPa) 50 100 150 200 / PLASTIC M.C. LIQUID 12.5 25.0 37.5 50.0	COMMENTS	DEPTH (m)
0		ASPHALT FILL - sand, some silt, some gravel, poorly graded, grey, dry						0
1		CLAY - silty, hard, brown, damp, mottled						1
2				01		26.6		2
3								3
4		Below 3.6 m, transitioning to very stiff, moist						4
5								5
6		Below 5.2 m, transitioning to very stiff to stiff, grey		02		29.3		6
7							TORVANE = 42 kPa	7
8								8
9							TORVANE = 37 kPa	9
10		End of Test Hole at 9.1 m - Desired Depth - Backfilled with drill cuttings - Capped at surface with cold mix asphalt - No groundwater noted						10
11								11
12								12
13								13
13.5								

SAMPLE TYPE ☒ SPLIT SPOON ■ GRAB ▥ SHELBY TUBE ▬ BULK ▮ CORE ▨ NO RECOVERY

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TEST HOLE LOG

TH22-02

PROJECT: Charters Streetscape Design Comments
PROJECT NO.: 7930-29
CLIENT: ISL Engineering & Land Services Ltd.
METHOD: Track Mounted Auger
LOCATION: Refer to Test Hole Location Plan.
ELEVATION (m): 20 (Approx.)
COORDINATES (m): UTM N 5359182 E 447123
CONTRACTOR: Drillwell
COMPLETION DATE: 2022-1-19
LOGGED/REVIEWED BY: AB/STH

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Recovery (%)	Torvane (kPa) 50 100 150 200 / PLASTIC M.C. LIQUID 12.5 25.0 37.5 50.0	COMMENTS
0		FILL - sand, silty, some gravel, some organics, dark brown, moist					
		CLAY - silty, very stiff, brown, moist					
				01		27.6	TORVANE = 49 kPa
		Below 3.3 m, transitioning to very stiff to stiff, grey					
				02		29.1	
							TORVANE = 27 kPa
				03		26.2	
		End of Test Hole at 9.1 m - Desired Depth - Backfilled with drill cuttings - Capped at surface with cold mix asphalt - Groundwater measured to be approximately 7.5 m below ground surface					
13.5							

SAMPLE TYPE: SPLIT SPOON | GRAB | SHELBY TUBE | BULK | CORE | NO RECOVERY

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TEST HOLE LOG

TH22-03

PROJECT: Charters Streetscape Design Comments
CLIENT: ISL Engineering & Land Services Ltd.
LOCATION: Refer to Test Hole Location Plan.
COORDINATES (m): UTM N 5359205 E 447114
COMPLETION DATE: 2022-1-19

PROJECT NO.: 7930-29
METHOD: Track Mounted Auger
ELEVATION (m): 18 (Approx.)
CONTRACTOR: Drillwell
LOGGED/REVIEWED BY: AB/STH

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Recovery (%)	PLASTIC M.C. LIQUID 12.5 25.0 37.5 50.0	COMMENTS	DEPTH (m)
0		FILL - sand some gravel, trace to some silt, grey damp						0
1		At 0.91 m, 100 mm seam of crushed asphalt fill At 1.1 m, 100 mm seam of crushed asphalt fill						1
2		Below 1.5 m, becoming silty, trace gravel, trace clay		01				2
3		Below 2.7 m, transitioning to brown CLAY - silty, trace organics, hard, brown, damp, mottled						3
4		Below 3.3 m, transitioning to very stiff, grey/blue Below 4.3 m, becoming stiff						4
5		Below 4.6 m, trace wood/organics noted		02		20.4		5
6		Below 6.4 m, transitioning to some gravel, trace cobble						6
7		Below 7.6 m, transitioning to trace to no gravel, trace to no cobble, trace sand, brown						7
8		Below 8.2 m, transitioning to grey		03		29.4		8
9		Below 9.4 m, transitioning to gravelly, some cobble, very stiff						9
10								10
11								11
12								12
13		End of Test Hole at 12.2 m - Desired Depth - Backfilled with drill cuttings - Capped at surface with cold mix asphalt - Groundwater was not measured						13
13.5								

SAMPLE TYPE ☒ SPLIT SPOON ■ GRAB ▥ SHELBY TUBE ▤ BULK ◧ CORE ⧄ NO RECOVERY

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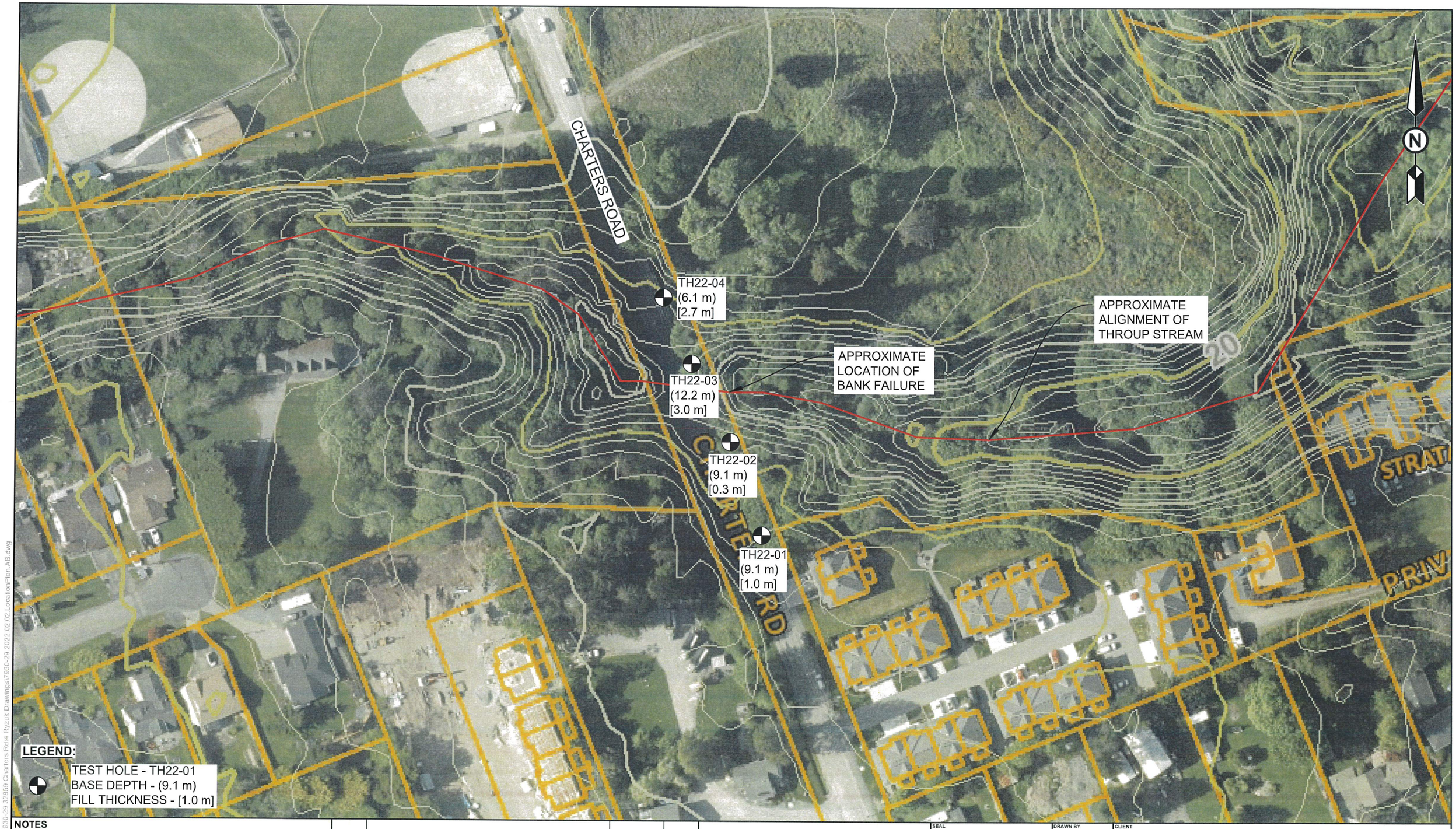
TEST HOLE LOG

TH22-04

PROJECT: Charters Streetscape Design Comments
PROJECT NO.: 7930-29
CLIENT: ISL Engineering & Land Services Ltd.
METHOD: Track Mounted Auger
LOCATION: Refer to Test Hole Location Plan.
ELEVATION (m): 20 (Approx.)
COORDINATES (m): UTM N 5359222 E 447121
CONTRACTOR: Drillwell
COMPLETION DATE: 2022-1-19
LOGGED/REVIEWED BY: AB/STH

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE #	Recovery (%)	COMMENTS	DEPTH (m)
0		FILL - sand, silty, some gravel, grey, moist					
		Below 0.38 m, transitioning to clay, silty, trace gravel, trace organics, inferred very stiff to hard, brown, damp - Increased moisture content with depth					
1							1
2		At 2.4 m, 250 mm seam of organics and wood debris					2
		CLAY - silty, hard, brown, damp, mottled					
3							3
4							4
5							5
6		End of Test Hole at 6.1 m - Desired Depth - Backfilled with drill cuttings - Capped at surface with cold mix asphalt - No groundwater noted					6
7							7
8							8
9							9
10							10
11							11
12							12
13							13
13.5							

SAMPLE TYPE ☒ SPLIT SPOON ■ GRAB ▥ SHELBY TUBE ▤ BULK ◧ CORE ⧄ NO RECOVERY



NOTES

1. This drawing is scaled for 11x17 sheet and does not require further scaling to fit. Scales will differ if printed on different sheet size.
2. Areial Imagery taken from the Capital Regional District's Regional Mapping.
3. Test Hole locations are approximate to within +/- 3 m.

REV.	DESCRIPTION	YY/MM/DD	BY
01	ISSUED WITH REPORT	22/02/02	AB
00	ISSUED FOR DISCUSSION	22/01/26	AB

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SEAL

DRAWN BY	AB
PROJECT MANAGER	STH
REVIEW	CJF
SCALE	1:1000
DATE	2022/02/02
CLIENT	ISL ENGINEERING & LAND SERVICES LTD.
PROJECT TITLE	SLOPE STABILITY ASSESSMENT
PROJECT ADDRESS	CHARTERS ROAD AT THROUP CREEK - SOOKE, BC
DRAWING NAME	TEST HOLE LOCATION PLAN
PROJECT No.	7930-29
SHEET No.	01 of 01
REVISION	01

R:\Ryzuk Data\8-7000 to 8-7999\7930-29 32850 Charters Rd\4 Ryzuk Drawings\7930-29 2022.02.02 LocationPlan AB.dwg

CHARTERS ROAD – STREETSCAPE

ENVIRONMENTAL MANAGEMENT PLAN

File: T02-2023
May 2023

Jeff Carter, Director of Operations
District of Sooke
2205 Otter Point Rd.
Sooke BC V9Z1J2

December 22, 2022
Updated May 16, 2023

RE: Environmental Management Plan for Throup Stream / Charter Road Culvert Replacement.

Updated text in blue.

During the heavy rainfall events of the BC State of Emergency, on November 15, 2021, the slope on the east side of Charters Road above Throup Stream partially failed, resulting in closure of 1 lane of the road. The resulting assessment by Jeff Carter, Director of Operations, District of Sooke, and Ian McKinnon, P.Eng. and Brad Ormiston AScT, MMCD CCA from ISL Engineering and Land Services Ltd., determined that the twin culverts (600 & 700 mm) under the road require replacement. The culvert replacement work will be done as part of a larger road upgrade project for this section of Charters Road.

This EMP is for the following proposed works (designed by ISL Engineering and Land Services Ltd.):

- Replacement culvert and reinstatement of Charters Road (Figure 1 and Appendix 1).

Fish Habitat

Throup Stream has fish habitat and the potential fish at the site are Coho and Chum salmon, Threespine Sticklebacks (juvenile and adult) and Spiny Sculpins (juvenile and adult). The stream and riparian corridor also provide habitat for non-fish species (e.g., large and small mammals, birds, amphibians, reptiles) for breeding, refuge, foraging and/or feeding. The existing Throup Stream culverts are perched and are barriers for fish and other organisms between the upstream and downstream channel corridors.

The current culverts under Throup Stream present an impassable barrier to habitat upstream of Charters Road. The fish passable replacement culvert will allow access to 245m of stream and fish habitat in the upstream section of Throup Stream.

Permits

The following environmental permits are required:

- Section 11 Water Sustainability Act Approval application to the Provincial Ministry of Forests, Lands, Natural Resource Operations and Rural Development
- Fisheries and Oceans Canada Project Review
- Fish Salvage: BC Scientific Fish Collection Permit and DFO License to Fish for Scientific, Experimental, or Educational Purposes

Proposed Work and Potential Impacts

The design drawings for the proposed work, by ISL Engineering and Land Services Ltd. are in Appendix 1.

The proposed work process is:

- Isolate the work site with fish barriers if there is flow or pooled water.
- Isolate the work site for a flow bypass if there is flow.
- Fish salvage from the worksite: combination of gee traps and dip nets as the water is drawn down.

- Salvage of native plants from the construction area for replanting (on or off site), in particular the BC Yellow-listed Pacific Waterleaf (*Hydrophyllum tenuipes*)
- Excavation of the site and removal of two culverts.
- Installation of 1.8 m wide x 1.8 m tall x 21m long concrete box culvert, with fish friendly gravel/cobble substrate and alternating weirs to direct low flows through the culvert and provide resting locations during high flows.
- Installation of downstream Newbury weirs and bank stabilization
- Removal of asphalt chunks in stream channel, both in and downstream of the works, to the degree feasible.
- Following instream works, install headwalls, backfill and re-instate the road.
- Planting exposed soils with native vegetation.
- Re-install salvaged native vegetation.

The potential environmental impacts from the proposed work are:

- Sedimentation into Throup Stream
- Spills of deleterious materials to Throup Stream
- Loss of riparian vegetation

Archaeological Potential

The District of Sooke employs Jonny Hall, RPCA, from Stantec Consulting Ltd. for archeological work, and they have applied for an archaeological permit. Additionally, the District has an agreement with the CRD, that because they are also installing CRD Water Main upgrades as a part of this project that the work can proceed under the CRD's archaeological permit.

T'Sou-ke Nation will be engaged the District of Sooke and/or Jonny Hall to ensure that representative guardians can be present the onsite before works are conducted.

The project will follow the Archaeological Impact Mitigation and Chance Find BMPs provided by Jonny Hall, RPCA, which will be sent to the province to attach to the WSA Section 11 Application as soon as Swell receives the document.

Environmental Protection Measures

The contractor must develop a site specific, detailed Environmental Protection Plan for the project prepared or reviewed/approved by a Qualified Environmental Professional (QEP), which should include, but is not limited to, the following:

DFO Interim Codes of Practice

- End-of-pipe Fish Protection Screens for Small Water Intakes in Freshwater Code of Practice
  - https://www.dfo-mpo.gc.ca/pnw-ppe/codes/culvert-maintenance-entretien-ponceaux-eng.html
- Temporary Coffer Dams and Diversion Channels Code of Practice
  - http://www.dfo-mpo.gc.ca/pnw-ppe/codes/cofferdams-batardeaux-eng.html
- Relevant protection measures from Culvert Maintenance Code of Practice
  - https://www.dfo-mpo.gc.ca/pnw-ppe/codes/culvert-maintenance-entretien-ponceaux-eng.html

Provincial Guidance Documents for Instream Works and Site Isolation

- Requirements and Best Management Practices for Making Changes In and About a Stream in British Columbia. Version 2022.01. Government of British Columbia.
    - https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/working-around-water/wsa-cias-requirements-bmps.pdf

- Appendix: Scope-specific Best Management Practices for Changes In and About a Stream under the WSA - Section A12 - Best Management Practices for Instream Work Area Isolation
    - https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/working-around-water/wsa-cias-requirements-bmps_appendix.pdf

Timing and General Environmental Protection Measures

- Instream work within the Coho and Chum Reduced Risk Timing Window is June 15 to September 15.
- Adjust or stop work activities during periods of heavy rain to minimize sediments entering stream
- Once the work has begun it must be completed as quickly as possible
- Copy of Environmental Management Plan and Section 11 Approval on site. Scientific Fish Collection Permits must be displayed during salvage.

Workplace Isolation and Fish/Wildlife Protection

- Fish may be present at the work site.
- Mark out the limits of clearing of vegetation on the site (avoid unnecessary clearing).
- Assess scope of vegetation clearing. Conduct a pre-clearing nest survey prior to clearing vegetation if work is taking place within the nest bird season (February 1 to August 15)
- Trim rather than excavate vegetation to allow for regrowth.
- Install temporary coffer dams in the channel to isolate the work area from flows or standing water using sandbags and polysheeting. In order to distribute the contents of the sandbags in the stream upon project completion, clean pea gravel must be used. If other substrates are used, in-stream dispersal must be approved by the QEPs.
- Once the site is isolated, QEP will establish fish presence/absence within the work area. If present, fish trapping must precede in-stream works where surface water conditions allow. Monitoring for fish presence will occur ongoing during works, and fish captured will be relocated to another stream section of Throup Stream. Fish trapping will be a combination of gee traps and dip nets as the water is drawn down.
- Amphibians and reptiles will be salvaged and relocated by QEP if observed during the culvert removal.
- Flow must be pumped or diverted around the work site. Downstream flows must be maintained (e.g. electric submersible pump).
    - Back up pump and hose set up will be available in case of heavy rainfall or pump failure .
    - Fish screen bucket (with appropriately sized holes and screens) to be used for pump intake.
    - Splash pad for pumped or diverted flows may be needed to avoid sedimentation to downstream flow.

Spill Prevention

- Equipment working within or over the stream must be power washed prior to arriving at site.
- Equipment must be checked for leaks or surface contamination from oils, or fuels, or grease, and from contamination of soil and plant material to avoid the spread of invasive species.
- Consider using biodegradable hydraulic fluids or covering joints with oil absorbent pads (zap strap around the joints).

- Spill response kits (capable of addressing the volume of fuel/oils/chemicals on site) are on site when any heavy machinery is working, and operators are trained in their use. This must include a boom capable of crossing the wetted stream channel.
- Equipment refueling is at a designated location and >30 m from aquatic ecosystems and isolated from stormdrains.
- Fuel generators (such as for pumps, etc) operating within 30 m of the watercourse must be placed in a spill-proof container capable of addressing 1.5 times the capacity of fuel tank (e.g. plastic bin, rigid tray or other impermeable containment area such as poly-lined bermed depression). Containment will be kept free of water (from pumping or rainfall).
- Store all fuel cans in spill-proof containers (e.g. as above) capable of addressing 1.5 times the capacity of the TOTAL volume of all containers placed in the container.
- Any deleterious substances used during the course of the work (oils, fuels, etc.) may not be stored near the worksite unless secured.
- Pump truck water may be required to compact base for the culvert: if this water is chlorinated, the environmental monitors will determine if application of Sodium Thiosulphate is required to dechlorinate the water.
- If concrete is to be cast in place on site, ensure wet concrete is not deposited into surrounding water, remove excess concrete, and do not allow water from equipment and tool cleaning to enter the aquatic ecosystem. Wet cement is highly alkaline and can have severely adverse effects on aquatic life, including fish. Any concrete pouring from the upper slope should be carefully monitored with no concrete to enter the stream environment. Freshly poured concrete needs to be covered when rain is forecasted, or runoff needs to be isolated from waterbodies during the curing process. Cast in place concrete will not come in contact with fish-bearing waters for at least 48 hrs.
- Prior to beginning work ensure a spill response plan is in place. In the event of a spill, the environmental monitor must be notified immediately. Works are to cease until Emergency Management BC has been notified and the problem has been remedied.
- In case of spills, the following general steps are recommended:
    - Stop source of spill/prevent further spillage (turn off valves, right overturned containers)
    - Block spill from reaching aquatic environment or pathways to waterbodies
    - Block spill from spreading
    - Call Environmental Monitors
    - Clean up spilled materials

Erosion and Sediment Control

- Minimize site clearing and soil disturbance by retaining as much vegetation as possible
    - only clear the construction footprint of the culvert and road works, not beyond (especially adjacent to the stream channel) (IE. for stockpiling materials, etc.)
    - Staging clearing activities so that there are not large areas of exposed soils left open with no active construction
- Instream work to be completed during the reduced-risk fisheries window (June 15-Septmber 15), works to be conducted within a dry work site, using flow bypass, as described previously.
- Sediment and sediment-laden water must not be deposited in the channel during or after construction.
- Equipment must operate from the banks (rather than in the channel), wherever possible.
- Material stockpiles must be placed where sediment cannot migrate from the piles into the stream (cover piles if needed to prevent material migrating).
- Stop work during heavy rainfall
- Install sediment fencing between work site and waterbodies, if needed, to prevent sediment migration.
- Cover exposed soils during rainfall (e.g. poly, tarps, geotextile fabric, mulch, and/or seeding)
- Disturbed soils should be left ‘rough and loose’ (not smoothed/contoured), avoid compaction

- If water must be pumped from the isolated construction site, it cannot be discharged into the stream unless it meets the provincial water quality guidelines for aquatic life (ie. change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters). https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/water-quality-guidelines/approved-wqgs/wqg_summary_aquaticlife_wildlife_agri.pdf
    - Water may be pumped into the forest floor or adjacent field, and must be monitored by the QEPs.
- If any problems are encountered or sedimentation release occurs, immediately cease work and contact the QEP and the Project Manager.
- Following completion of construction all exposed soils must be stabilized, using seeding, mulch, and/or compostable erosion mats, as appropriate.

Environmental Monitoring

Environmental Monitoring will occur throughout the project and the QEPs monitoring the project will:

- Ensure environment protection measures in the Environmental Protection Plan or permit requirements are implemented and maintained;
- Have the authority to stop work if the work is not in compliance with the Environmental Protection Plan or permit requirements, or if they observe the potential for harm to the environment;
- Provide advice to the Contractor to respond to incidence, repairs, or resolving non-conformance;
- Document and retain records of environmental protection measures and incident response;
- Report environmental incidents to the District of Sooke, site supervisor, and regulatory agencies, as required; and
- Prepare a post-construction completion report with a summary of the environmental protection measures, incidents, and responses/mitigation measures.

The QEP Environmental Monitor will be on site for:

- Pre-construction meeting with owner, engineer and contractors;
- Fish salvage;
- Vegetation salvage and clearing;
- Pre-clearing nesting survey (must have expertise in nest surveys);
- To guide installation of the flow bypass;
- Daily at the beginning of the culvert installation, until the QEP has determined the site is stabilized, then periodically until culvert installation is complete;
- During installation of in-channel works beyond the culvert footprint (e.g. Newbury weirs, pools, etc.);
- During any rainfall events;
- When the flow bypass is decommissioned; and
- During site restoration and planting.

The contractor will:

- Attend a pre-construction meeting with the QEPs to review environmental protection measures prior to work commencing;
- Communicate with the QEPs regarding schedule, schedule changes and discuss any changes to construction activities; and
- Inform the QEPs of any incidents that occur while they are not on-site.

Materials to have on site:

At a minimum, the following materials must be available onsite during the construction period for the environmental protection measures. (Other materials may be required, depending on the detailed Environmental Protection Plan developed by the contractor).

- Materials to dam upstream and downstream to isolate site (e.g. sand bags with clean pea gravel, poly)
- Sediment fence
- Poly/tarps to cover exposed soils
- Bypass pump and hoses, plus duplicate back up
- Splash pad material for pump discharge (e.g. poly)
- Fish screen buckets (with appropriately sized holes and screens) for pump intake
- Spill-proof containers
- Spill kit(s)

Due Diligence on Worksite

The contractor is responsible for informing and enforcing all personnel or sub-contractors of the environmental protection measures relevant to their role at the site for the duration of the project. Too often, the environmental protection measures agreed to at pre-construction meetings are not conveyed to the personnel conducting the "hands on" activities, with detrimental results for fish and wildlife.

Please do not hesitate to contact us with any questions you may have.

Sincerely,

Lehna Malmkvist, MSc, RPBio (#1613)

Sara Stallard, BSc, AScT (#22338)

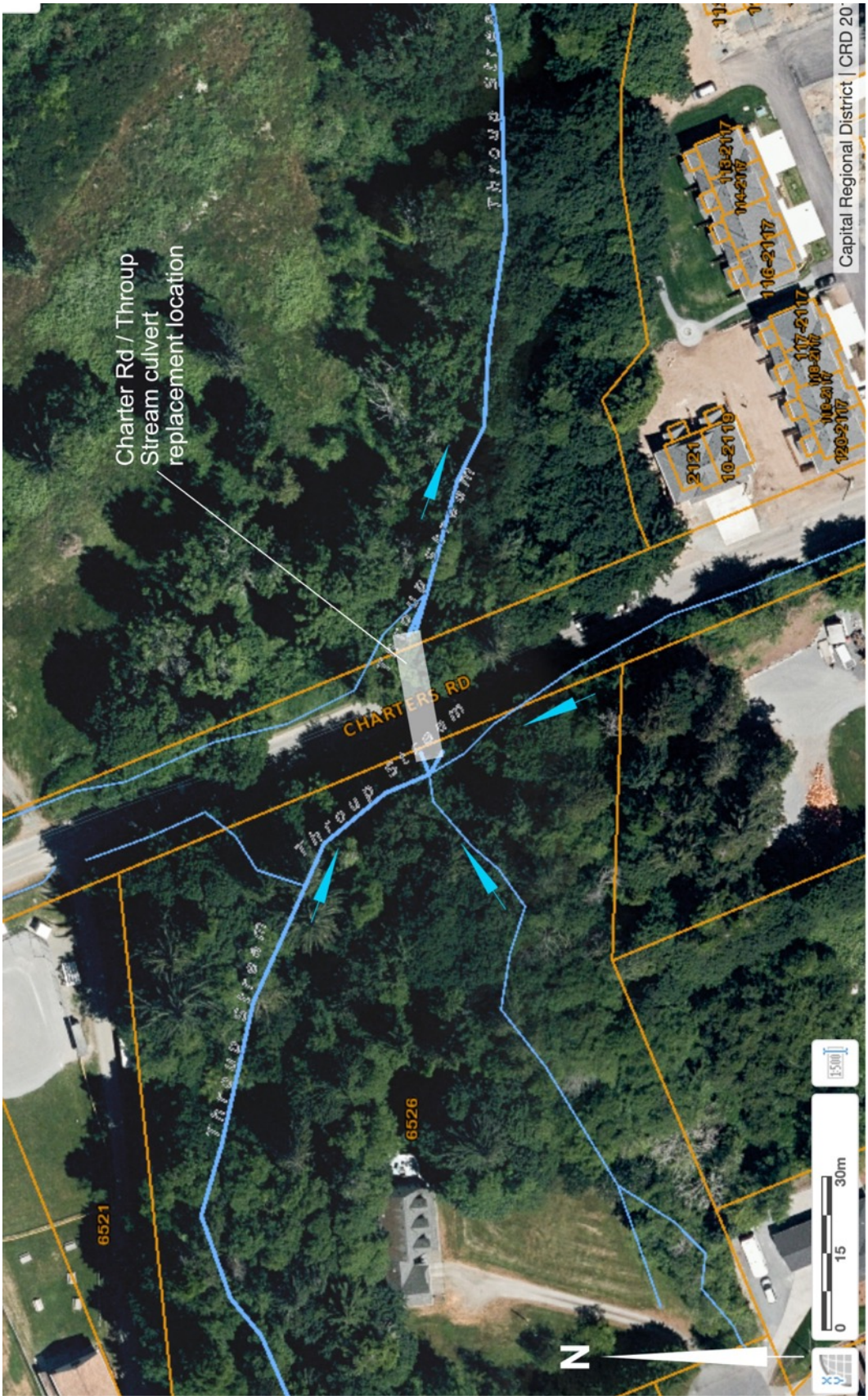

Figure 1. Project location at Charters Road and Throup Stream.

Photo 1. Throup Stream - upstream of culvert (July 2021 prior to November storm event).

Photo 2. Throup Stream - upstream of culverts (farthest right culvert on slope is from tributary roadside ditch) – May 2022.

Photo 3. Throup Stream - upstream of culvert partially blocked with debris (July 2021 prior to November storm event).

Photo 4. Perched culverts – downstream end of culverts (July 2021 prior to November storm event).

Photo 5. East side slope failure – May 2022.

Photo 6. Ongoing slope failure on east side of Charters Road above downstream end of Throup Stream culverts – May 2022.

Photo 7. Asphalt chunks in stream are located immediately below the current slope failure and also distributed downstream in a manner that implies ongoing pavement loss over the years – May 2022.

Photo 8. Downstream end of culverts showing stable large boulder substrate on east bank and in-stream – May 2022.

Photo 9. Downstream end of culverts showing stable large boulder substrate on far bank with mature bigleaf maple – May 2022.

Photo 10. Likely downstream limits of work site for weirs. Asphalt chunks continue downstream of this area. Note sedimentary rock bank – May 2022.

Photo 11. Beyond likely downstream limits of work site for weirs. Asphalt chunks continue downstream in this area – May 2022.

Photo 12. Vegetated slopes should be salvaged for native plants to use during post-construction restoration (downstream/east slope) – May 2022.

Photo 13. Vegetated slopes should be salvaged for native plants to use during post-construction restoration (upstream/west slope) – May 2022.

Photo 14. Instream vegetation should be salvaged for native plants to use during post-construction restoration (upstream) – May 2022.

Photo 15. BC Yellow-listed Pacific Waterleaf (*Hydrophyllum tenuipes*) should be salvaged to use during post-construction restoration (upstream/west slope) – May 2022.

Photo 16. BC Yellow-listed Pacific Waterleaf (*Hydrophyllum tenuipes*) should be salvaged to use during post-construction restoration (upstream/west slope) – May 2022.

Photo 17. Partial road closure – one-lane traffic – May 2022.

Appendix 1. Design Drawings by ISL Engineering and Land Services Ltd.

DISTRICT OF SOOKE

CHARTERS ROAD STREETSCAPE DESIGN

DRAFT ISSUE FOR TENDER
JANUARY
2023

DRAWING INDEX

SHEET	TITLE
00	COVER SHEET
01	GENERAL NOTES
02	REMOVALS - STA 1+110 TO STA 1+290
03	REMOVALS - STA 1+290 TO STA 1+550
04	REMOVALS - THROUP ROAD
05	ROADWORKS PLAN - STA 1+110 TO STA 1+180
06	ROADWORKS PLAN - STA 1+180 TO STA 1+290
07	ROADWORKS PLAN - STA 1+290 TO STA 1+440
08	ROADWORKS PLAN - STA 1+440 TO STA 1+590
09	ROADWORKS PLAN - STA 2+000 TO STA 2+070
10	WALL PLAN AND PROFILE
11	WALL DETAILS AND TYPICAL CROSS SECTION
12	WALL - NOTES
13	WATERMAIN PLAN & PROFILE
14	CULVERT PLAN PROFILE
15	CULVERT DETAILS
16	STORM STA 0+000 TO STA 0+070
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19	STORM STA 0+330 TO STA 0+465
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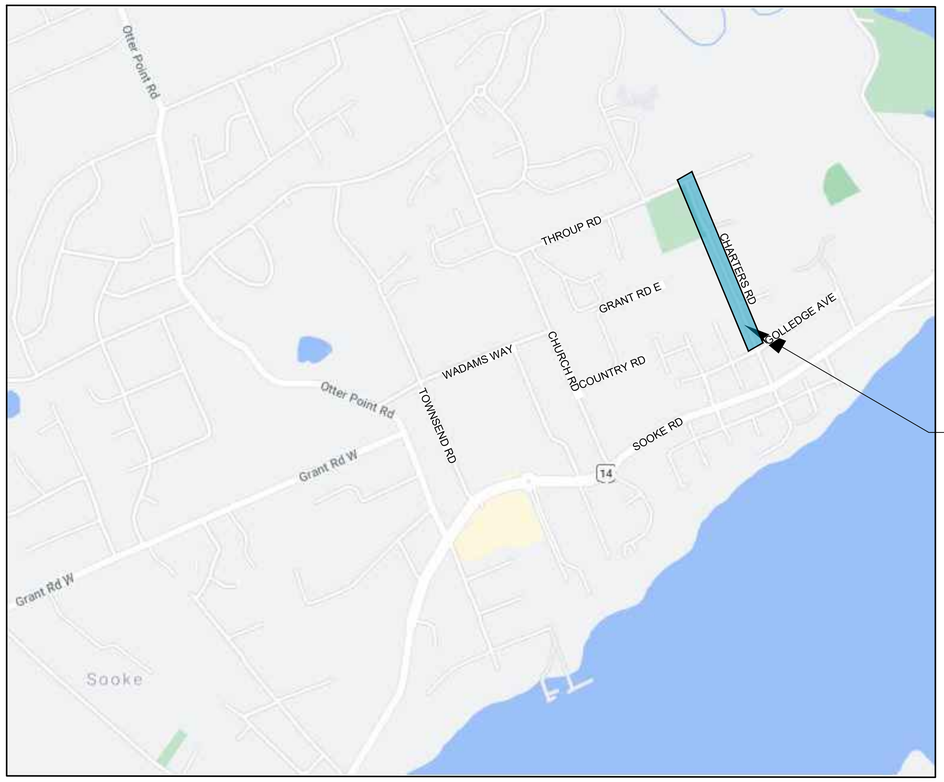
21	SECTIONS - STA 1+120 TO ST 1+310
22	SECTIONS - STA 1+320 TO STA 1+460
23	SECTIONS - STA 1+470 TO STA 1+550
24	DETAILS
25	ELECTRICAL - COVER SHEET - NOTES - KEY PLAN
26	SITE PLAN
27	SITE PLAN
28	SITE PLAN
29	ELEVATIONS - DETAILS
30	SERVICE KIOSK - DETAILS



LOCATION PLAN

ISL
1051 Vancouver Street, Victoria, BC V8V 3K3
T: (250)361-3230 F: (604)629-5756

District of Sooke

32859 **REV. 0**

GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH:
   - THE MASTER MUNICIPAL CONSTRUCTION DOCUMENT AND STANDARD DETAIL DRAWINGS (MMCD 2009), PLATINUM EDITION AND DISTRICT OF SOOKE SUPPLEMENTARY SPECIFICATIONS AND DETAILED DRAWINGS UNLESS OTHERWISE NOTED;
   - APPLICABLE CONTRACT DOCUMENTS AND ALL SPECIFICATIONS REFERENCED THEREIN;
   - THE DISTRICT OF SOOKE APPROVED PRODUCT LIST, LATEST EDITION;
   - MINISTRY OF TRANSPORTATION (MoTI) "BC TRAFFIC CONTROL MANUAL FOR WORK ON ROADWAYS", LATEST EDITION; AND
   - WORKSAFEBC, LATEST EDITION.
   - THE DISTRICT OF SOOKE BYLAWS.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE WRITTEN SPECIFICATIONS, DRAWINGS, AND OTHER DETAILS AS ISSUED FOR THIS PROJECT.
3. THE CONTRACTOR SHALL VISIT THE SITE TO CONFIRM SITE CONDITIONS PRIOR TO WORK. ANY DISCREPANCIES BETWEEN THE EXISTING SITE AND THE DRAWINGS ARE TO BE REPORTED TO THE CONSULTANT FOR CLARIFICATION PRIOR TO WORK.
4. THE LIMITS OF THE WORK ARE TO BE CLEARLY UNDERSTOOD BY THE CONTRACTOR PRIOR TO ANY WORK TAKING PLACE ON SITE. THE CONTRACTOR IS TO CONTACT THE CONTRACT ADMINISTRATOR FOR CLARIFICATION IF REQUIRED.
5. ALL ANCILLARY WORK NORMALLY ASSOCIATED WITH THE TYPE OF CONSTRUCTION INDICATED ON THE CONTRACT DRAWINGS AND DOCUMENTS SHALL BE DEEMED TO BE PART OF THE CONTRACT.
6. ANY AMBIGUITY IN THIS DRAWING OR ACCOMPANYING DETAILS IS TO BE REPORTED TO THE CONTRACTOR ADMINISTRATOR. THE CONTRACTOR SHALL NOT PROCEED WITHOUT A CLEAR UNDERSTANDING OF THE WORK.
7. LOCATIONS OF EXISTING UTILITIES AND SERVICES SHOWN ON THESE DRAWINGS ARE DERIVED FROM DISTRICT OF SOOKE BASE DRAWING, AGENCY AS-BUILTS, AND SURVEY INFORMATION. NO GUARANTEE IS MADE AS TO THEIR ACCURACY. THE CONTRACTOR IS TO COORDINATE WITH LOCAL UTILITY OPERATORS TO LOCATE OR ARRANGE THE LOCATE OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF WORK PRIOR TO THE START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL CONTACT BC ONE CALL (1-800-474-6886) BC HYDRO, TELUS, SHAW CABLE, FORTIS GAS AND DISTRICT OF SOOKE FOR UNDERGROUND UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE HOARDING AND PROTECTION OF ALL RETAINED ELEMENTS WITHIN THE LIMITS OF WORK; INCLUDING BUT NOT LIMITED TO: EXISTING CURBS, CONCRETE, ASPHALT, GRANULAR OR OTHER SURFACES, LANDSCAPE AMENITIES AND LIVE LANDSCAPE MATERIAL, INCLUDING TREES, SHRUBS, GRASSES AND GROUNDCOVERS WITHIN, OR ADJACENT TO, THE LIMITS OF CONSTRUCTION.
10. CAREFULLY RELOCATE EXISTING STREET FURNITURE, TRAFFIC SIGNS AND SITE FEATURES TO ACCOMMODATE CONSTRUCTION WORK, ALL EXISTING WORKS TO BE RETURNED TO AS FOUND OR BETTER CONDITION.
11. THE CONTRACTOR IS RESPONSIBLE FOR THE HAULING OF ALL EXCESS MATERIALS OFF THE SITE.
12. THE CONTRACTOR IS RESPONSIBLE FOR GENERAL SITE CLEAN UP.
13. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO LANDSCAPED AREAS AND MUST MAKE ALL NECESSARY RESTORATIONS AND REPAIRS.
14. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATION OF THE VARIOUS PARTS OF THE WORK.
15. THE CONTRACTOR TO COORDINATE AND BEAR ALL COSTS FOR MATERIAL TESTING, SUCH AS CONCRETE COMPRESSION STRENGTH, GRANULAR COMPACTION AND ASPHALT DENSITY TESTS. RESULTS TO BE PROVIDED TO CONTRACT ADMINISTRATOR FOR REVIEW.
16. ALL EXISTING ASPHALT TO BE SAWCUT SQUARE. SAWCUTTING AROUND MANHOLE LIDS AND VALVE BOXES TO BE DIAMOND SHAPE.
17. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS TO ALL BUILDINGS AND BUSINESSES AT ALL TIMES. SCHEDULE WORK TO MINIMIZE DISRUPTION TO VEHICULAR TRAFFIC. CONTRACTOR TO COORDINATE WITH BUSINESSES AFFECTED BY WORK FOR ALTERNATE DELIVERY OR ACCESS IF REQUIRED.
18. ALL PAVEMENT MARKINGS AND SIGNS SHALL BE COMPLETED IN ACCORDANCE WITH THE CURRENT TAC MUTCD FOR CANADA.
19. ALL SURFACE RESTORATION WORK TO MATCH EXISTING SURFACE TREATMENTS UNLESS OTHERWISE NOTED.
20. ALL CATCH BASIN GRATES, MANHOLE RIMS, UTILITY BOXES, AND OTHER APPURTENANCES TO BE ADJUSTED TO SUIT NEW SURFACE ELEVATIONS.
21. ALL POLE HOLDING/SUPPORTING TO BE COMPLETED BY THE CONTRACTOR AS REQUIRED AND WHEN EXCAVATING WITHIN 1m OF AN EXISTING POLE LOCATION.
22. ALL DAMAGED OR DISTURBED SURVEY MONUMENTS AND/OR IRON PINS ARE TO BE RECALIBRATED OR REPLACED AND TIED-IN BY A B.C.L.S. AT THE CONTRACTOR'S EXPENSE.
23. ALL EXISTING TREES WITHIN THE R.O.W. TO REMAIN, AND BE PROTECTED AS REQUIRED, UNLESS OTHERWISE NOTED.
24. ALL SIGN/POST HARDWARE TO BE STAINLESS STEEL C/W 2 WASHERS PER BOLT AND A VINYL LOCKING NUT. NUTS SHALL BE REPLACED IF REMOVED.
25. ALL NEW SIGN INSTALLATIONS IN BOULEVARD LOCATIONS SHALL INCLUDE A PROPER BASE AND SITE PREPARATION TO PREVENT MOVEMENT.
26. ALL SIGN POSTS SHALL HAVE A SLEEVE (DISTRICT SUPPLIED) INSTALLED C/W SUITABLE BOLT (TO PREVENT SIGN ROTATION) WITH SUFFICIENT THREADS TO ALLOW VINYL LOCKING NUT TO BE FULLY THREADED.
27. THERMOPLASTIC APPLICATION SHALL INCLUDE THE USE OF STENCILS AND/OR BOARDS TO ESTABLISH CLEAN AND CONSISTENT START/STOPS OF A UNIFORM THICKNESS.
28. REFER TO ELECTRICAL DRAWING SET FOR ELECTRICAL NOTES.
29. CONTRACTOR TO PROVIDE LAYOUT AND CUT SHEETS FOR CONCRETE CURB AND GUTTER 5 DAYS IN ADVANCE OF CONSTRUCTION.

ENVIRONMENTAL NOTES:

1. ALL CATCHBASINS IN PROXIMITY TO TRENCH WORK OR EXPOSED ROAD BASE WILL BE FITTED WITH MANUFACTURED INLET CONTROL DEVICES AND OR 'FILTER SACK' TYPE CATCHBASIN CONTROL (OR APPROVED ALTERNATIVE). CONTROL DEVICES TO BE MAINTAINED IN A FULLY FUNCTIONAL STATE AT ALL TIMES.
2. INLET CONTROL DEVICES (I.E. FILTER SACKS') MUST HAVE A MINIMUM 8" ' DROP FROM SURFACE OF THE CATCHBASIN.
3. UNDER NO CIRCUMSTANCES ARE CATCHBASINS TO BE FITTED WITH GEOTEXTILE SHEATHS CUT FROM STOCKPILE ROLLS.
4. AVOID EARTH DISTURBING ACTIVITIES DURING SUBSTANTIAL RAIN EVENTS.
5. THE CONTRACTOR SHOULD AVOID STOCKPILING SOILS, SANDS AND OTHER ERODIBLE MATERIALS ONSITE WHERE POSSIBLE. IT IS PREFERABLE TO " HOT-LOAD" SPOIL DIRECTLY INTO TRUCKS FOR OFFSITE DISPOSAL. IF TEMPORARY WASTE OR SOIL STOCKPILES ARE NECESSARY, MAKE SURE THEY ARE FULLY COVERED WITH POLYETHYLENE DRAWINGING OR TARPS AND WEIGHTED WITH SANDBAGS.
6. TRACKING OF SEDIMENT, SOIL AND/OR ROADBASE FROM WORKSITE TO VEHICLE TRAVEL LANES MUST BE PREVENTED.
7. ROADS MUST BE SWEPT CLEAN OF SOIL, LOOSE ROAD BASE, EARTH AND SEDIMENT. MECHANICAL SWEEPING IS PREFERRED TO MANUAL SWEEPING. HOWEVER, FREQUENT HAND SWEEPING IS PREFERABLY TO ONCE DAILY MECHANICAL SWEEPING.
8. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SEDIMENT OR SEDIMENT LADEN WATER IS DISCHARGED FROM THE WORKS TO THE OWNER'S DRAINAGE SYSTEM .
9. AN EMERGENCY SPILL KIT WILL BE KEPT ONSITE AT ALL TIMES THE CONTRACTOR IS OPERATING. SPILL KITS MUST INCLUDE BOOMS, SPILL PADS, GLOVES, AND CATCHBASIN BARRIERS. A SPILL KIT WITH AT LEAST 125 LITRES ABSORBENCY IS RECOMMENDED. SANDBAGS AND A SUPPLY OF SAND MUST BE KEPT ONSITE.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DEVELOP A SPILL RESPONSE PLAN THAT PROVIDES WRITTEN SAFE WORK PROCEDURES IN THE EVENT OF A SPILL.
11. THE CONTRACTOR IS TO HAVE ONSITE SODIUM THIOSULPHATE TO TREAT CHLORINATED WATER IN THE EVENT OF A WATER MAIN BREAK.
12. THE CONTRACTOR IS TO DISPOSE OF CHLORINATED WATER AT AN APPROVED LOCATION ONLY AFTER APPROPRIATE TREATMENT WITH SODIUM THIOSULPHATE. AT NO TIME WILL THE CONTRACTOR DISCHARGE WATER CHLORINATED WATER DIRECTLY TO A CATCHBASIN, CREEK, DITCH OR SWALE.
13. THE CONTRACTOR IS TO OBTAIN OWNER'S APPROVAL PRIOR TO DISCHARGING FLUSHING WATER OR DISINFECTION WATER TO OWNER SANITARY SEWER MANHOLES.

ROADWORKS NOTES:

1. SUBGRADE TO BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO SUBBASE OR BASE COURSE CONSTRUCTION
2. CONTRACTOR TO MAINTAIN DRAINAGE DURING CONSTRUCTION
3. FOR DETAILS OF GEOTECHNICAL CONDITIONS AND REQUIREMENTS REFER TO GEOTECHNICAL REPORT INCLUDED IN THE CONTRACT DOCUMENTS

RESTORATION NOTES:

1. WHERE TYING TO EXISTING CONCRETE CURB OR SIDEWALK, REMOVE AND REPLACE EXISTING CURB OR SIDEWALK TO THE NEAREST EXPANSION JOINT.

WATERMAIN NOTES:

1. MINIMUM COVER OVER WATERMAIN TO BE 1.0 METERS UNLESS OTHERWISE NOTED.
2. ALL ABANDONED HYDRANTS, VALVES AND NELSON BOXES TO BE REMOVED AND DISPOSED OFFSITE
3. ALL TIE IN LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

STORM & SANITARY SEWER NOTES:

1. CATCHBASIN LEADS TO HAVE MINIMUM 2.0% GRADE.
2. ALL MANHOLES ARE TO BE BENCHED UNLESS NOTED OTHERWISE ON THE DRAWINGS
3. ALL PIPE SIZES INDICATED REFER TO MINIMUM INSIDE DIAMETER DIMENSIONS

TRAFFIC CONTROL NOTES:

1. ALL TRAFFIC CONTROL TO CONFORM TO MOST CURRENT MOTI WORK ON ROADWAYS MANUAL, MMCD, DISTRICT OF SOOKE, AND THESE DRAWINGS.
2. STREET LIGHT AND TRAFFIC SIGNAL WITHIN PROJECT EXTENTS TO BE MAINTAINED BY PRIME CONTRACTOR FOR THE DURATION OF THE PROJECT.
3. PROVIDE TRAFFIC CONTROL, SIGNAGE, BARRICADES AND ILLUMINATION, AND DETOUR ROUTING AS REQUIRED TO MAINTAIN TRAFFIC FLOW AND EMERGENCY VEHICLE ACCESS.
4. ALL FLAG PERSONS TO HAVE PROOF OF CERTIFICATION.
5. AT THE END OF EACH DAY, EXCAVATION SHALL BE WELL SIGNED AND PROTECTED.
6. MAINTAIN SAFE PEDESTRIAN WALKWAYS AROUND WORK ZONE AND DELINEATE WITH TEMPORARY FENCING IF REQUIRED.
7. TRENCH PLATES SHALL INCLUDE NON SLIP COATING AND APPROPRIATE APPROACH TREATMENT TO REDUCE TRIPPING HAZARDS IN PEDESTRIAN AREAS.

GEOTECHNICAL NOTES:

1. CONTRACTOR TO INSPECT THE ON-SITE GRADES AND EXCAVATIONS PRIOR TO CONSTRUCTION AND NOTIFY RYZUK GEOTECHNICAL IF ON-SITE CONDITIONS DIFFER FROM THE ELEVATIONS AND GRADING SHOWN ON THE ENCLOSED RETAINING WALL DRAWINGS
2. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING WALL GEOMETRY IS COMPATIBLE WITH EXISTING CONDITIONS AND PROPOSED WORKS
3. CONTRACTOR TO REVIEW SECTION 6 OF Redi-Rock's Retaining Wall Design Manual 3.0 (Redi-Rock Specifications) PRIOR TO WALL CONSTRUCTION
4. CONTRACTOR SUBMIT PRECAST MODULAR BLOCK CONCRETE TEST RESULTS (28 DAY COMPRESSIVE STRENGTH, AIR CONTENT, AND SLUMP) A MINIMUM OF 24 HOURS PRIOR TO PLACE OF THE PRODUCT TO RYZUK GEOTECHNICAL.
5. CONTRACTOR TO SUBMIT MILL/PRODUCT CERTIFICATES OF ALL GEOGRID REINFORCEMENT DELIVERED TO SITE FOR USE IN THE MECHANICALLY STABILIZED EARTH (MSE) WALL A MINIMUM OF 24 HOURS PRIOR TO PLACEMENT OF THE PRODUCT TO RYZUK GEOTECHNICAL.

District of Sooke

No.	DATE	BY	REVISION
0	220909	KF	ISSUE FOR TENDER

JOB NUMBER:	32859	
DESIGNED BY	BJO	220519
DRAWN BY	KF	220519
CHECKED BY	BJO	220519
APPROVED BY	IM	220519

SCALE
HORIZ: AS SHOWN VERT: -

SEAL

ISL

DRAWING TITLE:
GENERAL NOTES

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	1	01 / 30

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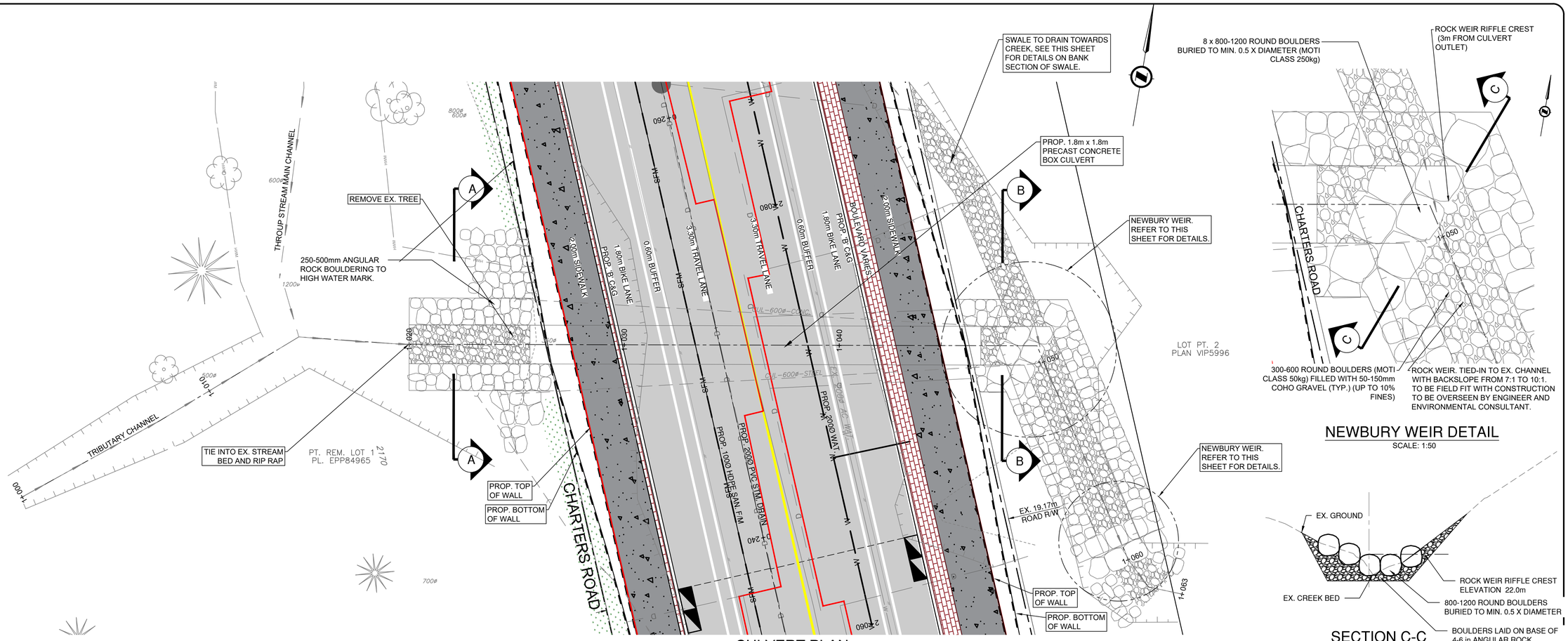
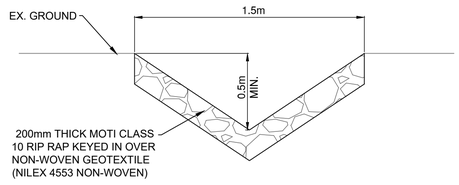
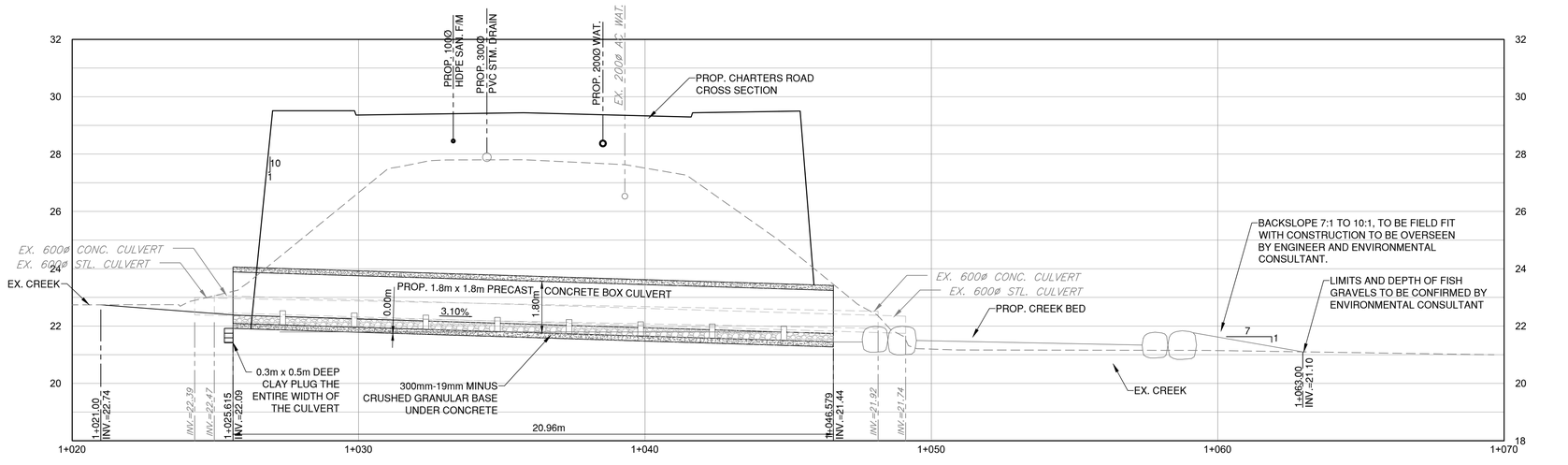




SWALE DETAIL (BANK SECTION ONLY)
NTS



CULVERT PROFILE
SCALES: 1:100 H 1:100 V

0 2 6m
1:100

District of Sooke

No.	DATE	BY	REVISION
#	######	##	###############

JOB NUMBER:	32859	
DESIGNED BY		
DRAWN BY		
CHECKED BY		
APPROVED BY		

SCALE
HORIZ: 1:100 VERT: 1:100

SEAL

ISL Engineering and Land Services

DRAWING TITLE:
CULVERT PLAN PROFILE
THROUP STREAM

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	14 / 30

DESTROY PRINTS BEARING PREVIOUS NUMBER

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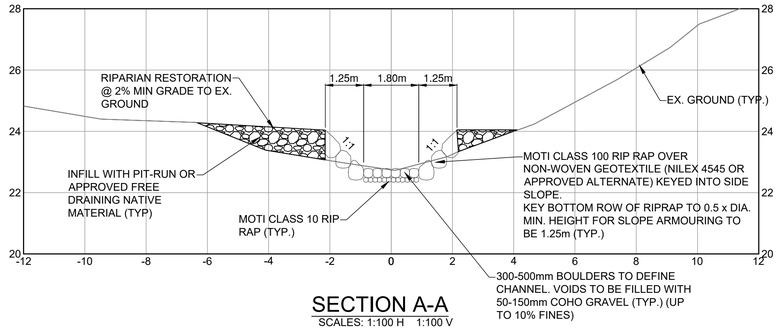

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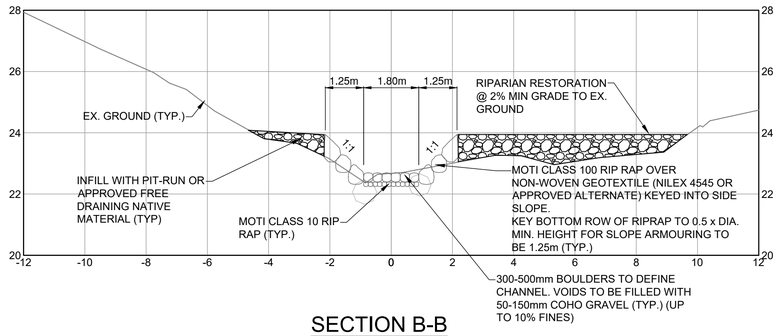

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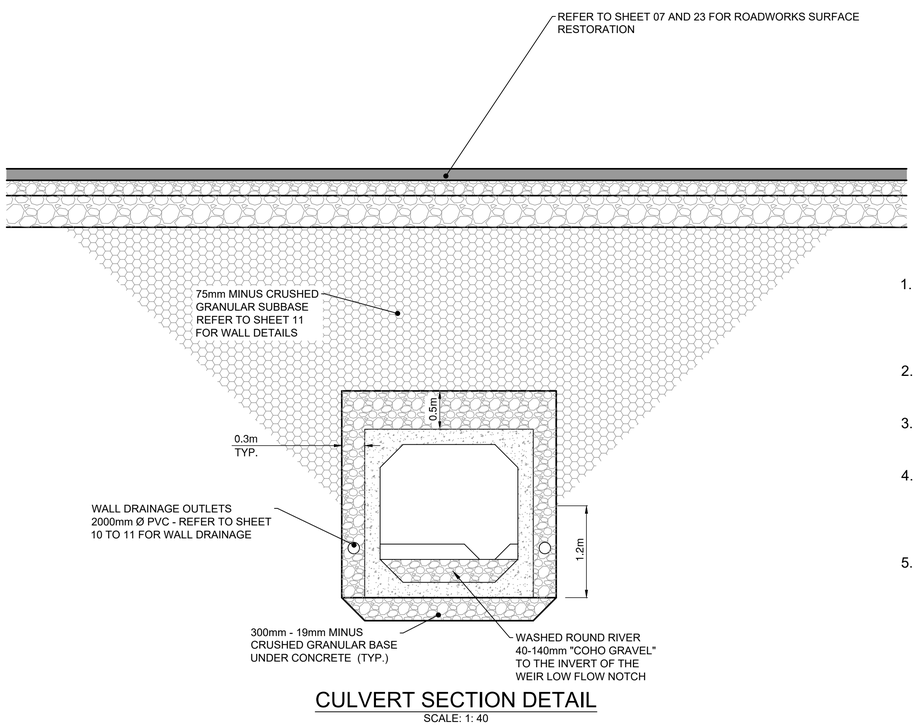
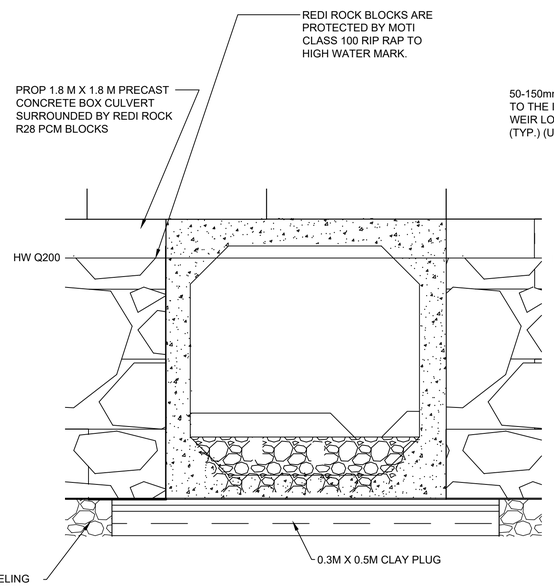


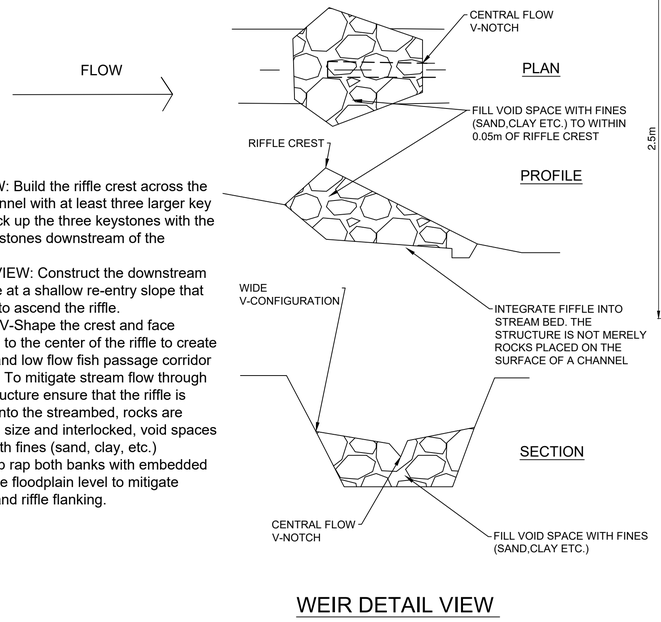
CULVERT SECTION DETAIL
SCALE: 1: 40

PRECAST CONCRETE BOX CULVERT AND FISH WEIR SUPPLIER TO PROVIDE SHOP DRAWINGS PRIOR TO FABRICATION C/W BC REGISTERED PROFESSIONAL ENGINEERS SIGN/SEAL.

Q DESIGN: 4.2 m^3/s
V DESIGN: 5.0 m/s

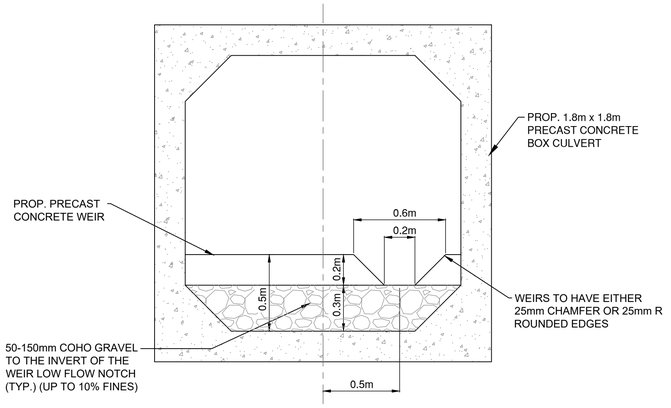


WEST CULVERT INLET DETAIL VIEW

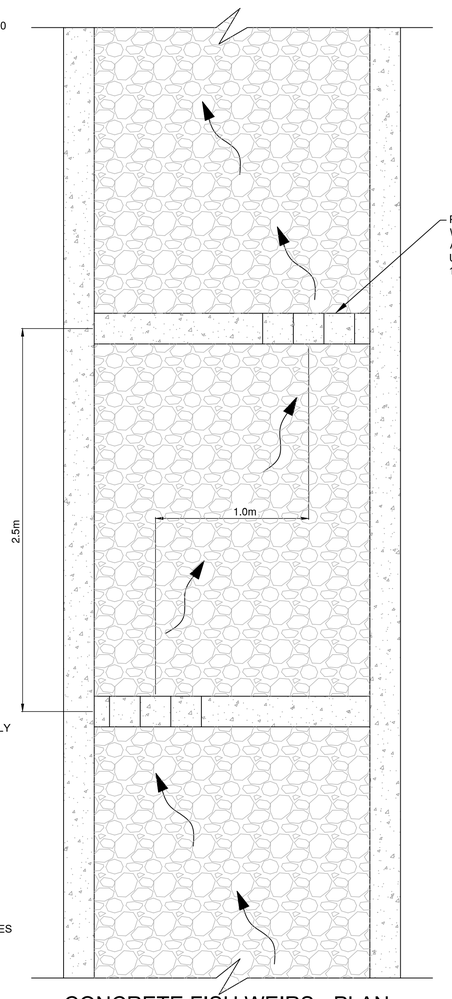


1. PLAN VIEW: Build the riffle crest across the stream channel with at least three larger key stones. Back up the three keystones with the next larger stones downstream of the keystones.
2. PROFILE VIEW: Construct the downstream face of riffle at a shallow re-entry slope that allows fish to ascend the riffle.
3. SECTION: V-Shape the crest and face downwards to the center of the riffle to create a thalweg and low flow fish passage corridor
4. SURFACE: To mitigate stream flow through the riffle structure ensure that the riffle is integrated into the streambed, rocks are appropriate size and interlocked, void spaces are filled with fines (sand, clay, etc.)
5. BANKS: Rip rap both banks with embedded rip rap to the floodplain level to mitigate sidescour and riffle flanking.

WEIR DETAIL VIEW



CONCRETE FISH WEIRS - ELEVATION
NTS



CONCRETE FISH WEIRS - PLAN
NTS

District of Sooke

No.	DATE	BY	REVISION
#	######	##	################

JOB NUMBER:	32859
DESIGNED BY	
DRAWN BY	
CHECKED BY	
APPROVED BY	

SCALE
HORIZ: VERT: AS SHOWN

SEAL

ISL Engineering and Land Services

DRAWING TITLE:
CULVERT DETAILS
THROUP STREAM

PROJECT TITLE:
CHARTERS ROAD

PROJECT LOCATION:
DISTRICT OF SOOKE

DRAWING No.	REV.	SHEET
32859	0	15 / 30

DESTROY PRINTS BEARING PREVIOUS NUMBER

LAST SAVED BY: APYM
LAST SAVED DATE & TIME: Thursday, Apr 14, 2022 2:22 PM
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CHARTERS ROAD – STREETSCAPE

TRAFFIC MANAGEMENT STRATEGY

File: T02-2023
May 2023

Charters Road and Church Road Constructions Traffic Management Strategy

District of Sooke

FINAL REPORT

May 2023

Table of Contents

APPENDICES

TABLES

FIGURES

1.0 Introduction

ISL Engineering (ISL) has been retained by the District of Sooke (the District) to provide traffic engineering services and develop the Traffic Management Strategy (TMS) for two upcoming construction projects in Sooke.

The first project involves the full streetscape and culvert replacement along Charters Road between Throup Road and Golledge Avenue, which will require a full road closure during the work. The other project taking place simultaneously in the vicinity is the construction of a roundabout at the intersection of Church Road and Throup Road, where a single lane alternating traffic (SLAT) pattern will be implemented to maintain vehicle flow during peak periods.

The purpose of this TMS is to outline the necessary procedures and requirements related to traffic for both construction projects. The awarded Contractor is responsible for hiring qualified traffic control companies to implement this TMS. Any significant on-site adjustments to the plans must be made by a licensed Professional Engineer in British Columbia.

This TMS also serves as a guide for the Contractor to develop their Traffic Management Plan (TMP) based on the guidelines provided in the BC *Traffic Management Manual for Work on Roadways*. The objectives of the TMS are to minimize site-specific risks identified for the projects and ensure safe and efficient traffic flow for all road users within and around both work zones at the same time.

This TMS considers the impacts of both construction projects simultaneously and highlights major concerns and recommendations that should be addressed during the work phase by the TMP. The recommendations from this report are expected to be used in the tender documents for both constructions.

2.0 Project Overview

This section serves as an informative overview of the upcoming projects, presenting essential details to facilitate a clear understanding for the public. It encompasses key aspects such as the project location, schedules, work activities, hours of operation, and traffic management approach, which can foster transparency and effective communication, ensure that stakeholders remain well-informed and engaged throughout the project's duration. Two construction projects are planned in the western part of Sooke.

2.1 Project Location

The first project, prepared by ISL, involves full streetscape and culvert replacement along Charters Road, specifically between Throup Road and Golledge Avenue. The work zone also includes the intersection of Charters Road at Throup Road to prepare for future east-west connection with Phillips Road.

The second project, prepared by McElhanney, entails the construction of a roundabout at the intersection of Church Road and Throup Road, with Church Road between Throup Road and Wadams Way included in the work zone. Project locations and other details are illustrated in **Figure 2.1**, which will be further discussed in the following sections.

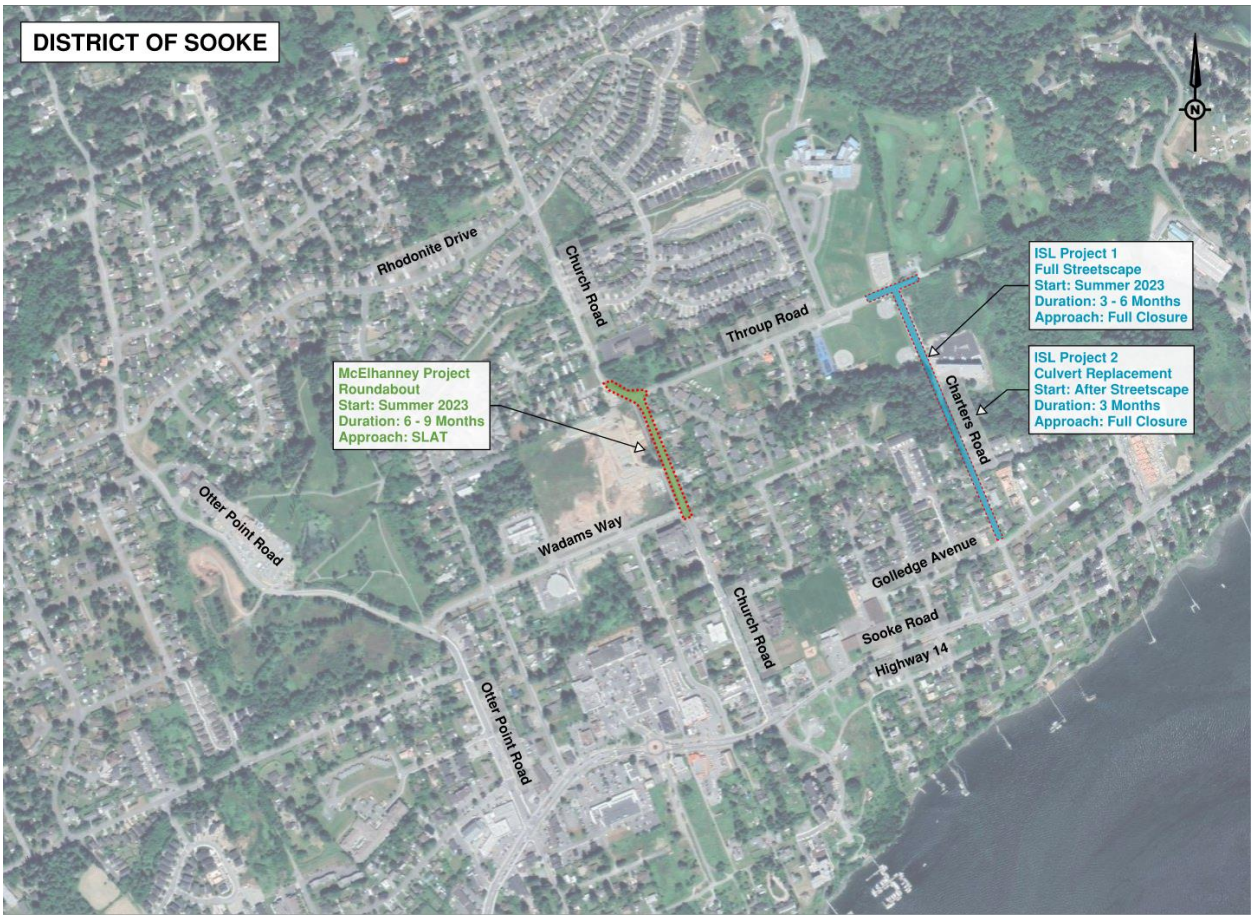

Figure 2.1: Upcoming Construction Project Locations

2.2 Project Schedules

The proposed schedules for both construction projects are expected to begin in summer 2023 with a duration of 3 to 9 months each; thus, there will be overlapped time and both of them are to be completed by fall 2024. Details are shown in **Table 2.1** below.

Table 2.1: Project Schedules

Project	Start	Duration
ISL Streetscape	Summer 2023	3 - 6 Months
ISL Culvert Replacement	After Streetscape	3 Months
McElhanney Roundabout	Summer 2023	6 - 9 Months

2.3 Work Activity

As discussed with the District, the proposed traffic management approaches for each construction are as follows:

- ISL Streetscape – Full Road Closure
- ISL Culvert Replacement – Full Road Closure
- McElhanney Roundabout – SLAT at times

2.4 Hours of Work

The hours of work will be mainly subject to the District's *Noise Control Bylaw No. 485* (dated 2011 and amended 2022), which permits construction within the following hours:

- 7 AM to 9 PM, Monday to Saturday
- 9 AM to 9 PM, Sundays and Statutory Holidays

However, using construction equipment or creating noise by blasting or the operation of drills will be subject to stricter time restrictions:

- 7 AM to 5 PM, Monday to Saturday
- Prohibited any time on Sunday and Statutory Holidays

For these projects, SLAT at the intersection of Church Road and Throup Road, is proposed for specified times throughout the day to minimize the impact to school traffic during peak pick-up and drop-off times:

- 9 AM to 2 PM during school days
- 7 AM to 7 PM during non-school days

As for night-time work, the Contractor must obtain permission (appropriate permits) from the District on a case-by-case basis, including a plan outlining the proposed work and why it is required for their project.

2.5 Traffic Management Approach

Technical Reference

To facilitate the traffic management, the Contractor must comply with the traffic control regulations and construction guidelines outlined in the project scope. Additionally, they must adhere to the requirements specified in the following documents, but are not limited to:

- *Traffic Management Manual for Work on Roadways* (2020), BC Ministry of Transportation and Infrastructure (the Ministry or BC MoTI)
- *Occupational Health and Safety Regulation Part 18: Traffic Control* (2021, amended in 2023), WorkSafe BC
- *Manual of Standard Traffic Signs & Pavement Markings* (2000), BC MoTI
- *Traffic and Highways Regulation Bylaw No. 67* (2002, amended in 2023), District of Sooke
- *Noise Control Bylaw No. 485* (2011, amended in 2022), District of Sooke

Preliminary Category Determination

The *Traffic Management Manual for Work on Roadways* (TMM) provides a systematic approach to categorize the type of traffic management for constructions or activities, in order to identify the minimum TMP requirements. The category determination consists of initial project category assessment which considers roadway and traffic characteristics as well as some specifics of the work-related activities, and project risk analysis which considers site-specific characteristics and potential risks.

A copy of the preliminary category determination for each construction can be found in **Appendix A** and **Appendix B**. It should be noted that these documents are provided for reference purposes only, the Contractor is responsible for conducting their own assessments.

According to the preliminary category determinations, the streetcape and culvert replacement project is classified as a Category 2, while the roundabout project is classified as a Category 3. Therefore, it is recommended that, for consistency with both projects, the Contractor prepares and submits Category 3 level TMPs, which shall be authenticated (signed and sealed) by a Professional Traffic/Transportation Engineer licensed in BC, qualified, and experienced in traffic management planning and road safety.

3.0 Existing Conditions and Potential Impacts

This section provides an overview of the existing conditions and identifies potential negative impacts that could result from the construction activities. To mitigate these anticipated impacts, the Contractor shall follow the instructions outlined in the following, and implement effective mitigation measures.

3.1 Road Network

The subject construction works will occur on Charters Road, Church Road, and Throup Road, which are located on the west side of Sooke. **Table 3.1** summarizes these and other relevant roadway characteristics in the vicinity.

Table 3.1: Study Road Network

Street Name	Road Classification	Number of Lanes	Traffic Control	Posted Speed	Roadway Alignment
Charters Road	Collector	2 lanes	Signal Stop sign	30 km/h	Vertical curve (slight) [north-south]
Church Road	Arterial Collector	2 lanes	Signal Stop sign	50 km/h	Vertical curve (slight) [north-south]
Throup Road	Arterial	2 lanes	Stop sign	30 km/h	Vertical curve (slight) [east-west]
Golledge Avenue	Local	2 lanes	Stop sign	30 km/h	Vertical curve (slight) [east-west]
Wadams Way	Arterial	2 lanes	Stop sign	50 km/h	Vertical curve (slight) [east-west]
Sooke Road (Highway 14)	Highway	2 lanes	Signal Stop sign	60 km/h	Horizontal curve [east-west]
Rhodonite Drive	Collector	2 lanes	Stop sign	40 km/h	Horizontal and Vertical curve [east-west]
Otter Point Road	Collector	2 lanes	Signal Stop sign	50 km/h	Horizontal curve [north-south]

3.2 Mobility

Vehicular Traffic

TRAFFIC IMPACT

In order to assess the construction impacts on the surrounding road network, a traffic operation analysis was undertaken using Synchro software (Version 11), which is based on the standard methods of the *Highway Capacity Manual* (HCM). In the HCM, control delay (second per vehicle) and level of service (LOS) are developed as measures of effectiveness. LOS is defined as the average vehicle delay, and the thresholds for signalized and unsignalized intersections are shown in **Table 3.2** (next page).

For intersection capacity analyses in urban areas, LOS D or better is generally considered acceptable for signalized or stop-controlled intersections. Improvement measures should be considered when overall intersection and/or individual turning movements operate at LOS E or F (critical movement). The 95th percentile queue length (5% probability of surpassing) was used to determine whether the vehicle storage length is adequate.

Table 3.2: LOS Definition for Signalized and Unsignalized Intersections in HCM

Traffic Control	LOS	A	B	C	D	E	F
Signalized	Delay (second/vehicle)	0 - 10	10 - 20	20 - 35	35 - 55	55 - 80	> 80
Unsignalized		0 - 10	10 - 15	15 - 25	25 - 35	35 - 50	> 50

All traffic-related information in this analysis was obtained from WATT Consulting Group, which includes turning movement counts, Synchro models (PM only) with signal timings, as well as growth rate assumptions and various other parameters.

With the available data, Synchro models of three weekday PM scenarios were set to simulate base condition (Scenario 1) and two detour conditions. In the first detour condition (Scenario 2), the impacted traffic (mainly Charters Road) is diverted to Church Road where SLAT is implemented. While the other detour condition (Scenario 3) is when all traffic that typically uses both Charters Road and Church Road are rerouted to Otter Point Road. The traffic volumes are projected to 2024 to estimate the worst case as the construction is expected to be completed until Fall 2024. It should also be noted that all detour routes must be shown on the TMP by the Contractor and submitted in a Traffic Control Plan for the District's approval.

The traffic analysis results for base condition and detour conditions are summarized in **Table 3.3** (next page).

Accordingly, for the Scenario 1, base condition, all intersections in the vicinity will be operating at satisfactory level of service (LOS C or better) during the PM peak.

For the detour condition (Scenario 2), Sooke Road and Church Road would experience high delays (LOS E) due to increased traffic, and the stop-controlled intersections along Church Road (that is, Wadams Way and Throup Road) would perform at LOS D as there will be SLAT in place.

For the other detour condition (Scenario 3), all intersection would perform at an acceptable level (LOS D or better). Although there are critical movements and insufficient storage length identified at Sooke Road intersections at Church Road and Otter Point Road, it was found that they can be improved by optimizing the signal timings.

Table 3.3: Traffic Operations Scenario Comparison

Study Intersection	Peak Hour	2024 Base (Scenario 1)			
		Delay (s)	LOS	Critical Movement	Insufficient Storage Length
Sooke Road & Charters Road	PM	0.2	A	-	-
Golledge Avenue & Charters Road	PM	2.4	A	-	-
Throup Road & Charters Road	PM	8.4	A	-	-
Sooke Road & Church Road	PM	22.8	C	EBL	-
Wadams Way & Church Road	PM	5.0	A	-	-
Throup Road & Church Road	PM	6.7	A	-	-
Sooke Road & Otter Point Road	PM	26.9	C	-	WBT

Study Intersection	Peak Hour	2024 Detour to Church Road (SLAT) (Scenario 2)			
		Delay (s)	LOS	Critical Movement	Insufficient Storage Length
Sooke Road & Charters Road	PM	0.6	A	-	-
Golledge Avenue & Charters Road	PM	5.7	A	-	-
Throup Road & Charters Road	PM	2.1	A	-	-
Sooke Road & Church Road	PM	55.2	E	EBL, WBT	-
Wadams Way & Church Road	PM	43.4	D	-	-
Throup Road & Church Road	PM	51.2	D	-	-
Sooke Road & Otter Point Road	PM	27.1	C	-	WBT

Study Intersection	Peak Hour	2024 Detour to Otter Point Road (Scenario 3)			
		Delay (s)	LOS	Critical Movement	Insufficient Storage Length
Sooke Road & Charters Road	PM	0.6	A	-	-
Golledge Avenue & Charters Road	PM	5.7	A	-	-
Throup Road & Charters Road	PM	2.1	A	-	-
Sooke Road & Church Road	PM	50.3	D	WBT	WBT
Wadams Way & Church Road	PM	7.9	A	-	-
Throup Road & Church Road	PM	9.6	A	-	-
Sooke Road & Otter Point Road	PM	40.7	D	SBL	SBL

In summary, if detouring the impacted traffic to Church Road (Scenario 2), the Sooke Road & Church Road intersection would be overloaded, and locations under SLAT (that is, Church Road at Wadams Way and Throup Road) would experience higher delay.

Therefore, detouring to Otter Point Road and Rhodonite Drive (Scenario 3) is encouraged as all intersection will operate at an acceptable level of service. Additionally, signal timing optimization could be considered to reduce the delays. The proposed detour plan is illustrated in **Figure 3.1** (next page).

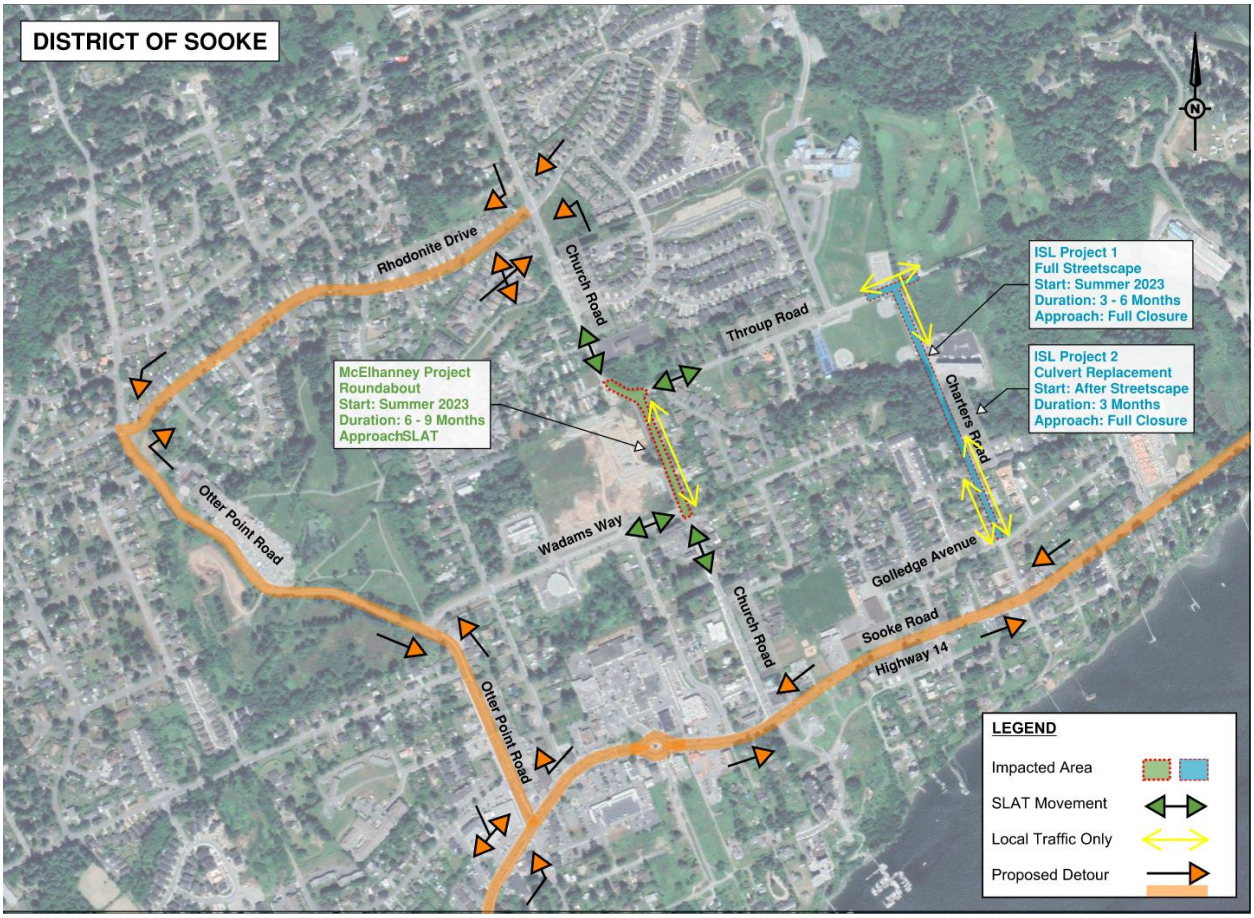

Figure 3.1: Proposed Detour Plan

PARKING IMPACT

According to ISL's site visit and Google Street View Map, it was found that a number of vehicles were parking on both sides of the roadway on gravel shoulder throughout Charters Road between Throup Road and Golledge Avenue. Similar conditions were seen along the study section of Church Road.

During construction, on-street parking on the above-mentioned sections should be restricted and temporary no-parking signs be installed, as full road closure will be required on Charters Road while SLAT will be implemented along Church Road.

As a result, the gravel shoulder parking space west to the softball fields and tennis/pickleball courts will be unavailable during the construction. For alternative parking options, attendees can either utilize the gravel shoulder on the south side of Throup Road or, if approved, park in the parking lot of Journey Middle School during non-school hours.

Pedestrians

To ensure pedestrian safety and accessibility, sidewalks (including multi-use pathways, MUP) and crosswalks are generally provided at corridors and intersections by the District.

Table 3.4 provides an overview of the pedestrian facilities within the study area, as well as the potential impact that may result from any construction activities.

Table 3.4: Pedestrian Facility and Potential Impact

Section	Construction Location	Pedestrian Facility	Potential Impact
Corridor	Charters Road (Throup Road - Golledge Avenue)	No sidewalk	No impact expected *
	Church Road (Throup Road - Wadams Way)	MUP (west side)	Minimal impact
Intersection	Charters Road & Throup Road	Path with raised curb (west leg, north side)	To be maintained during construction for accessing recreations
	Charters Road & Golledge Avenue	No sidewalk	Not applicable
		Crosswalk (south leg)	Minimal impact
	Church Road & Throup Road	Path with raised curb (east leg, north side)	To be maintained or assisted during construction
		Path with delineators (north leg, east side)	
		Crosswalk (east and north legs)	
	Church Road & Wadams Way	Crosswalk (west leg)	Minimal impact

* Note: The Contractor should still monitor and provide assistant and guidance to pedestrian if required.

Cyclists

Various types of cycling infrastructure are constructed to facilitate cyclists in of Sooke, including paved MUP and bike lanes. One of the construction activities is located along some of these bike routes. **Table 3.5** provides an overview of the cycling infrastructure in the study area, as well as the potential impact that may result from the construction.

Table 3.5: Cycling Infrastructure and Potential Impact

Section	Construction Location	Cycling Infrastructure	Potential Impact
Corridor	Charters Road	No bike lanes	Not applicable
	Church Road	MUP on the west side (north of Wadams Way)	Minimal impact
		MUP on the west side (south of Wadams Way)	To be accommodated during construction
		Bike lane on the east side (south of Wadams Way)	

Transit

BC Transit operates several bus routes in the area, connecting Sooke to neighbouring municipalities and to downtown Victoria. One of the bus routes currently travels along the study corridor. **Table 3.6** provides an overview of the transit routes and the potential impact due to the construction activities.

Table 3.6: Transit Provision and Potential Impact

Section	Construction Location	Transit Provision	Potential Impact
Corridor	Charters Road	No transit	Not applicable
	Church Road	Route 63: Otter Point (travelling northbound)	SLAT between Wadams Way and Throup Road
		Bus Stop ID: 102275 (located south of Wadams Way)	To be accommodated during construction (if impacted) *
		Bus Stop ID: 102278 (located between Church Street)	To be accommodated during construction (if impacted) *

* Note: The Contractor must coordinate with BC Transit and provide solutions to the bus stops if impacted.

Trucks and Construction Vehicles

In Sooke, most commercial developments are located on the south side by Highway 14; therefore, no commercial trucks are expected to travel by the work zones (that is, Charters Road and Church Road).

As for construction vehicles, in order to minimize disruption to the surrounding community, including residents, businesses, and schools, it is the Contractor's responsibility to ensure that all construction vehicles arrive at the work zone through the closest roadway on the designated truck routes approved by the District. Traffic control personnel (TCP) will assist in guiding the trucks or equipment to the staging area upon entry into the work zone and will also ensure their safe and efficient return to the general traffic lane as required.

To ensure visibility, all construction trucks must have flashing hazard lights activated when making any movements in to or out of traffic. While the construction trucks are within the staging area, measures must be taken to reduce their idling time to minimize the release of harmful exhaust gases and noise pollution within the local community. The Contractor is responsible for identifying suitable staging areas and developing plans to manage the movement of trucks in and out of these areas.

Emergency Vehicles

Throughout the construction process, it is crucial that TCP prioritize the movement of emergency vehicles with sirens on, wherever possible, by removing any lane closures and stopping other road users. In situations where sirens are not used, TCP must still take care to minimize disruptions to emergency vehicles. Although the expected impact on emergency services is moderate, it remains essential for TCP to prioritize their movement during construction activities on Church Road and Charters Road. These two areas have specific measures in place, including SLAT and road closures, respectively, which must be maintained throughout the construction process. By giving priority to emergency vehicles, TCP can help ensure that emergency services can respond to incidents quickly and efficiently, minimizing the impact on public safety.

3.3 Community

Noise, Dust, and Litter Control

The Contractor is responsible for effectively managing noise levels throughout their construction site. They must comply with the noise bylaw set forth by the District. Measures should be implemented to minimize and mitigate noise disturbances to the surrounding community and nearby properties.

Excavation activities during construction are anticipated to produce dust, which may affect the surrounding properties. As a result, the Contractor is responsible for implementing measures to minimize the amount of dust generated during construction. This includes, but not limited to, covering the construction vehicles that travel to and from the site to contain the dust produced and prevent debris from falling onto the District/Ministry roadways.

Additionally, the Contractor is responsible for litter control which means ensuring that the areas adjacent to the work zones are cleaned at the end of each workday. If necessary, street sweeping should be arranged to clean the roadways after the completion of each major stage. By taking these steps, the Contractor will help to mitigate the impact of construction activities on the surrounding environment and promote a cleaner work site.

Residential and Business Properties Accesses

The Contractor must maintain at least one access to the residential and business properties that are adjacent to the work zones, and make every effort to ensure that the impact on these accesses is minimized. Any accesses that are affected during construction hours shall be reinstated after construction working hours or as soon as they are no longer necessary. This measure aims to reduce the impact of the construction activities on the neighbouring properties and ensure the accessibility of these properties is not significantly disrupted.

The following are properties that their accesses could be impacted during construction:

- 2066, 2071, 2074, 2077, 2081, 2082, 2088, 2089, 2104, 2117 (multiple units), 2119, 2121, 2170 (multiple units) Charters Road
- 2139, 2147, 2149, 2171, 2175, 2177, 2185 Church Road

Institutions

Near the construction sites, there are several schools and churches that may be impacted by the construction activities. Their locations are as follows:

- Ecole Poirier Elementary School – 6526 Throup Road
- Journey Middle School – 6522 Throup Road
- Kingdom Hall of Jehovah's Witnesses – 2207 Church Road
- Knox Presbyterian Church – 2110 Church Road

In order to minimize the impact, the Contractor will:

- Notify these schools or churches in advance of construction activities and provide them the proposed detour plan such that the potential impacts to the pick-up and drop-off activities would be communicated to school staff/parents and church staff/members.
- Only implement SLAT at specified times throughout the day to minimize the impact to school traffic during peak pick-up and drop-off times.

Adjacent Projects and Private Developments

While two construction projects are taking place simultaneously, it has been observed that there are ongoing projects and upcoming developments in close proximity to the proposed construction sites. When these projects are underway, it is important to closely review their accesses, as they will have the potential to generate additional vehicle and pedestrian traffic volumes. The Contractor is responsible to liaise with the District and the Developers to minimize access and scheduling conflicts between the construction activities and their upcoming/ongoing construction projects.

Following are the projects/developments adjacent to the work zones:

- 2170 Charters Road – full built-out multi-family development (75 units)
- 6519 Throup Road – ongoing construction site
- Northwest quadrant of Church Road at Wadams Way (54 units) – ongoing construction site

It is understood that the residential development (2170 Charters Road) is not yet in operation, but residents may move in throughout the construction timeframe. Therefore, the Contractor is responsible to maintain the driveway access to the property and provide sufficient space for moving truck activities.

Solid Waste Collection

In Sooke, solid waste collection for single-family homes is typically conducted on roadways or in back alleys. Strata and commercial properties have their solid waste collection performed by a private company, Sooke Disposal. The Contractor will need to confirm schedules with Sooke Disposal prior to construction. The Contractor will also need to coordinate with the District, residents, and local businesses to ensure that solid waste collection is accommodated during construction activities, taking the schedules of Sooke Disposal into account.

Other Surrounding Facilities

The Contractor must take note of the location of power lines, lamp posts, street trees, catch basins, and fire hydrants near the work zones, and ensure that their construction activities do not cause any damage to them.

Special Events

The Contractor should also proactively consider and identify any recreational/institutional events or activities that will happen in the vicinity. The Contractor is responsible to communicate with the organizers of those activities or events and take necessary measures to minimize any potential impact on them.

4.0 Proposed Strategy

This proposed TMS aims to assist the Contractor in implementing the Traffic Control Plan, Incident Management Plan, Public Information Plan, and Implementation Plan per the TMM (Category 3). However, it is important to note that these strategies serve as a minimum requirement. The Contractor should also ensure that all relevant aspects are addressed and effectively incorporated into the overall traffic management approach.

4.1 Traffic Control Plan

General

The followings are the recommended traffic-related general guidelines:

- Existing street or roadside infrastructures (utility poles, sign posts, trees, etc.) might be required to be temporarily removed to obtain safe travel lane width. The Contractor is responsible to restore the roadway back to the pre-construction condition, as upgraded design, or as specified by the District.
- Pedestrian and cycling accesses must be maintained (or a pedestrian/cycling detour route must be provided).
- All property driveway accesses must be maintained, or an alternative driveway access must be provided with approval from the District and Property Owner. It is recommended to:
    - stage construction to close only half of a driveway at one time while permitting safe access on the unobstructed side, if construction permits, or
    - coordinate and obtain permission from the property owner to close the entire driveway for a short duration and reinstate access.
- The Contractor should identify off-site construction vehicle staging locations and develop a plan to avoid staging of vehicles on the roadway. Staging on residential roads is not permitted.
- Construction vehicles should not be routed along residential streets to access the work zone except for direct access to a work site on a residential street. Construction vehicles must use designated truck routes.
- The Contractor must ensure there will not be significant traffic delays and queues when construction vehicles ingress/egress to/from the site.
- On-street parking will be eliminated during the construction. Temporary no-parking signs should be installed along the restricted area.
- Delineators or equivalent must be used to separate the pedestrian path and the work zone. Where possible, install barriers to protect pedestrians and cyclists from construction activities.
- The Contractor should notify schools or churches in advance of construction activities and provide them the detour plan.
- The Contractor must prioritize the movement of emergency vehicles with sirens on, wherever possible, by removing any lane closures and stopping other road users.
- The Contractor should minimize their work zone to reduce the impact on the community.
- The Contractor should manage noise levels throughout their construction site. They must comply with the noise bylaw set forth by the District.

- The Contractor must provide a waste collection plan for the impacted residential units, and coordinate with the residents in advance.
- The Contractor is responsible to communicate with the Organizers of special events in the proximity and take necessary measures to minimize any potential impact on them.
- The Contractor shall install temporary pavement markings where required.
- CMS must be placed in advanced for both projects holistically to warn the public.

Charters Road – Streetscape / Culvert Replacement

The construction along Charters Road between Throup Road and Golledge Avenue will begin in summer 2023 and is expected to be finished by fall of 2024. A component of the construction will be replacing a culvert and constructing a retaining wall. The road section will be fully closed during the work. In order to mitigate the potential impact to the traffic and the community, the following traffic-related guidelines for the construction are recommended:

- The Contractor must obtain permission from the District before a full road closure can be permitted.
- A detour plan must be provided for north-south traffic during closure of Charters Road. Recommended to detour traffic on to Otter Point Road during the Charters Road closure.
- Local residential driveway access on Charters Road must be always maintained.
- The driveway access to 2170 Charters Road must be maintained, which is a newly built multi-family development and expected to occupy soon and possibly during the construction.
- DeMamiel Creek Golf Course, Sooke Skateboard Park, and Stickleback Trail accesses on Throup Road must be always maintained.
- The Contractor should communicate with the Developer of driveway access to 6519 Throup Road which is currently an ongoing construction site, to minimize access or scheduling conflicts.

Church Road – Roundabout

The new roundabout construction at Church Road and Throup Road is set to begin in the summer of 2023 and is expected to be completed in spring 2024 (earlier than the Charters Road project). Traffic is to be maintained at all times during the construction, in order to mitigate the potential impacts of the construction on traffic, and to ensure the safety of all road users and construction workers.

The following traffic-related guidelines for the roundabout construction are recommended:

- A SLAT pattern will be provided along Church Road between Throup Road and Wadams Way to maintain traffic flow at times.
- TCPs must be employed to monitor traffic and to enforce SLAT at Church Road and Throup Road, as well as Church Road and Wadams Way.
- Travel lane width must be at least 3.5 metres to permit bus and truck access. If the travel lane width cannot be achieved, then the Contractor must immediately notify the Traffic Manager/Engineer, and provide an alternative solution for consideration.
- Local residential driveway access on Church Road must always be maintained.

- The Contractor must coordinate with BC Transit to relocate or close any bus stop(s) during construction. It is the responsibility of the Contractor to provide BC Transit with the advance notice lead time required for any changes to the existing bus services.
- The Contractor must obtain permission from the District before night-time work can be completed. Additional requirements must be followed for night operations, including but not limited to night-time apparel, night equipment, night lighting, night-time speed management, etc.
- MUP on Church Road must always be maintained.
- Sidewalks on Church Road and Throup Road must always be accommodated.
- TCPs should be in place to assist pedestrians (or cyclists) crossing and ensure their safety to walk on sidewalk or MUP.
- The northbound bicycle lane on Church Road ends at the south end of Wadams Way where no crossing facilities are provided to connect it to MUPs on the other side. TCPs should be aware and standby to assist or accommodate north-south road cyclists to cross safely and travel on (including to/from MUP).

4.2 Incident Management Plan

It is the Contractor's responsibility to ensure the safe and efficient movement of incident response vehicles and staff through or around any incidents occurring near the work zone. The Contractor must also help emergency response personnel as required. An incident includes, but not limited to, motor vehicle accidents, emergency road repairs, disabled vehicles, and debris on the road.

Incident Management Procedures

Where there is an incident within or in the vicinity of the work zone, the Traffic Control Supervisor will follow the procedures below:

- Immediately inform the Traffic Manager of the incident.
- Evaluate the severity of the incident.
- If the incident is deemed severe, contact emergency response agencies.
- Depending on the severity, adjust traffic flow and secure the area until the incident is resolved.
- Maintain two-way traffic whenever possible.
- Allow emergency responders to access the incident area and assist them in placing equipment.
- Modify the work zone if needed to accommodate traffic impacted by the incident.
- Clear the incident area of any construction equipment, material, or other obstructions that may interfere with incident management operations.
- After the incident is resolved, survey the incident area for any damage to infrastructure or traffic inventories.
- Resume normal traffic flow when the incident area is clear.
- Prepare an Incident Management Report documenting the time, location, severity, emergency response attendance, and any actions taken during the incident.

Emergency Responder Access

The Traffic Control Supervisor is responsible for ensuring that sufficient staging and parking space is made available for emergency responders upon their arrival at the scene. If feasible, the allocated area should be part of the traffic control layout and already cordoned off from regular traffic, minimizing disruption to through traffic. During the time when emergency responders are on-site, the Traffic Control Supervisor must ensure that only vehicles necessary for emergency response are granted access to the location of the incident.

Upon the conclusion of an incident, the Contractor will remove all vehicles and debris from the incident area before returning traffic flow to its normal state or the state outlined in Traffic Control Plan. A survey of the nearby infrastructure should be conducted to identify any damage, and the information should be made available to the District. If the incident caused substantial damage to the surrounding infrastructure or traffic inventory, the affected areas should be secured from general traffic and the public. Repairs should be carried out in collaboration with the District.

Incident Reporting

The Contractor will create an Incident Management Report that outlines the time and location of the incident. The report must specify if the incident was related to any construction activities and include information about the emergency services that attended the scene. Within 24 hours of clearing the incident, copies of the report should be forwarded to the District. The Traffic Manager must review all incidents with the Traffic Control Supervisor to investigate whether modifications to the work area and traffic control layout could have prevented the incident.

4.3 Public Information Plan

The Contractor will maintain effective communication with the District and the local community concerning the construction activities scheduled in the project area. The communication strategies outlined in this section for public engagement should be reviewed and executed in collaboration with the District and other stakeholders.

Advance Signage

To inform drivers about the construction in the study area, the Contractor will supply, install, and maintain Changeable Message Signs (CMS) throughout construction. The CMS will display details about the timing and location of the construction impact. The Contractor should deploy the CMS at least one week before the commencement of construction work to ensure that road users are notified in advance.

To redirect traffic around the road closure, detour signs will be strategically placed throughout the adjacent road network. The location of each detour sign will be illustrated in the corresponding Traffic Control Plan drawings.

Furthermore, static advisory signs will be positioned at strategic points in the surrounding road network, notifying drivers of the construction work occurring along Charters Road, Church Road, and Throup Road, so that drivers will use caution when navigating the construction zone.

Construction Notice

The Contractor will issue written notifications to the local community (such as school district and recreational facilities) ahead of the construction work, highlighting its potential impact on traffic. Local emergency services agencies, schools, and stakeholders in the vicinity of the construction area will also be notified in writing before the deployment of the Traffic Control Plan.

A project sign displaying the project name and relevant contact details will be erected on the construction site in a location easily visible to the general public. If possible, updates about the construction and traffic will be posted on the Contractor's or District's project website and/or at the site itself to provide current information to the public.

Contact List

The Contractor will develop a contact list together for the Traffic Control Plan. The Traffic Control Supervisor will need to keep copies available on-site and accessible at all times for the duration of the project.

4.4 Implementation Plan

The Contractor will create and deliver an Implementation Plan that adheres to the TMM. The Implementation Plan should guarantee that the Traffic Control Plan, Incident Management Plan, and Public Information Plan are implemented in an efficient and suitable manner.

Traffic Manager

The Contractor will appoint a Traffic Manager who will have the following responsibilities, including, but not limited to:

- Develop, implement, and ensure the TMP meets the requirements of the District and Ministry.
- Coordinate and communicate with the residents, businesses, and establishments, including schools.
- Ensure that the TMP is kept up to date and updated to reflect variations required due to unsatisfactory conditions noted during implementation.
- Coordinate traffic control with any adjacent construction activities.

Traffic Engineer

The Contractor will appoint a Professional Engineer as a Traffic Engineer, who will have the following responsibilities, including, but not limited to:

- Develop and implement the TMP.
- Authenticate (sign and seal) the individual localized Traffic Control Plans required to manage traffic at specific construction areas.
- Ensure that elements of the emergency response plan are incorporated into the stamped Traffic Control Plans.

Traffic Control Supervisor

The Contractor will appoint Traffic Control Supervisors, as required, to manage traffic control operations during construction. The Traffic Control Supervisors shall be responsible for, but not limited to:

- Be present on site and having full authority over the TCPs.
- Be present in each distinctive separate area where traffic control is implemented to direct the traffic control.
- Oversee all requirements of the TMP to ensure the safe and orderly movement of vehicles, pedestrians, and cyclists through the work zone.
- Control all traffic on the work area.
- Monitor lane closures, significant queue lengths, and other significant disruptions to the stated traffic management objectives and record these instances to be provided to the District.
- Have industry standard training and certification, be qualified in the deployment and operation of traffic control devices.

IMPLEMENTATION

The Traffic Control Supervisor working on-site will be responsible for inspecting and adjusting traffic control devices deployed in the field as follows:

Before Work

- Inspect and repair all construction signs and traffic control devices that require maintenance during off-hours.
- Implement all construction signage and traffic control devices in accordance with the approved Traffic Control Plan.
- Cover any signs that conflict with or are not required according to the Traffic Control Plan drawings.
- Verify the TMS for the day's activities.
- Perform an inspection to ensure the effectiveness of the signing and traffic control devices.

During Work

- Examine all construction signs and traffic control devices on a regular basis.
- Conduct instant repairs when necessary.
- Modify signs when necessary and document all modifications made.
- Ensure the cleanliness and absence of dust and debris on all roadways used by workers.
- Coordinate street sweeping operations when required.
- Ensure that the pedestrians and cyclists can safely navigate the site.

After Work

- Conduct a pre-close down inspection.
- Inspect the area to identify any unnecessary construction signs or traffic control devices that can be removed.
- Install delineation devices where necessary to ensure safety.
- Document the details of the inspection and any changes made to the layout.

SITE SAFETY

During the construction period, it will be the responsibility of the Traffic Control Supervisor to ensure the safety of the work site. At the end of each workday, the Traffic Control Supervisor should prepare the Traffic Control Daily Report and Incident Management Report (as required).

Traffic Control Personnel (TCP)

During construction, TCP will be deployed to manage traffic in high-risk locations (such as high pedestrian areas), ensuring that there are no conflicts between road users and construction activities. It is mandatory for all TCP to possess the required training certificates and relevant experience working on roadways, as per the standards specified by BC MoTI and WorkSafe BC. Safety must be the topmost priority for all TCP throughout their deployment.

APPENDIX A

Full Streetscape and Culvert Replacement
Preliminary Project Category Determination

3.3 Project Category Determination

A structured process is used to determine the Project Category.

1. **Initial Category Assessment** — Assess the roadway and traffic features.
2. **Risk Analysis** — Identify the project-specific risks.
3. **Final Category Determination** — Combine the initial project assessment with the risk analysis to determine the final project category.

Project Categories are defined as:

- **Category 1** - minimal impact on the travelling public, are typically located on simple terrain, and involve two-lane highways or roads, often with lower speeds and traffic volumes.
- **Category 2** - may be located on higher-speed or higher-volume corridors and involve some complexity. Impacts on the travelling public may be moderate because of the roadway characteristics or the type of work.
- **Category 3** - complex and have a significant impact on the travelling public because of factors such as higher volumes and speeds, project duration, active night work, mountainous terrain, and/or a requirement for lane closures and/or detours.

3.3.1 Initial Project Category Assessment

The initial project category assessment considers road and traffic characteristics, as well as specific work activities.

Table 3.1: Initial Project Category Assessment on the following pages is used to determine the initial project category.

The total point value calculated at the end of Table 3.1 indicates that the project is initially assessed as a Category 1, 2, or 3.

Table 3.1: Initial Project Category Assessment

Traffic Consideration	Value	Point Value	Score
Posted or Statutory Speed Regular posted speed limit of the roadway	≤ 50 km/hr	1 point	1
	60 - 70 km/hr	3 points	
	≥ 80 km/hr	4 points	
Traffic Volume Traffic volume (both directions) in peak hours	< 1,000 vehicles/hr	1 point	1
	1,000 to 3,000 vehicles/hr	3 points	
	> 3,000 vehicles/hr	4 points	
Lanes Number of lanes in both directions (including auxiliary lanes)	2 lanes	0 point	1
	3 lanes	2 points	
	4 lanes or more	3 points	
Encroachment Location of work	Off roadway	0 point	4
	Shoulder work/partial lane closure	3 points	
	Full lane closure, ramp closure, or intersection closure	4 points	
Detours	No detour during construction	0 point	4
	Detour traffic on temporary roadway during construction next to work zone.	3 points	
	Detour route during construction takes traffic off regular route away from work zone; requires detour signing	4 points	
Duration of Work	Short-duration work (no more than one day-time shift).	1 point	4
	Long-duration work (less than 2 weeks)	2 points	
	Long-duration work (2 or more weeks)	4 points	
Allowable Delays Delay time plus time to travel through work zone in minutes	< 20 minutes	1 point	1
	≥ 20 minutes	3 points	
	No allowable delay	4 points	

Traffic Consideration	Value	Point Value	Score
Time of Day Time of day that work will occur	Day-time only work	1 point	3
	Active day-time work, with traffic control devices in place at night	3 points	
	Active night-time work	4 points	
Vertical Alignment	Flat terrain	0 point	1
	Rolling terrain	1 point	
	Mountainous terrain	2 points	
Horizontal Alignment	Tangent	0 point	0
	Horizontal curves, no curve advisory speeds	1 point	
	Horizontal curves, with curve advisory speeds	2 points	
Intersections	No intersections or stop-controlled intersection(s)	0 point	0
	Signalized intersection(s) with no left or right turn phases, or single lane roundabout	2 points	
	Signalized intersection(s) with left or right turn phase(s), or multi-lane roundabout	4 points	
	Interchange(s)	5 points	
Runaway Lanes	No runaway lanes	0 point	0
	Runaway lanes in or near the work zone; they will not be blocked at any time during course of work	1 point	
	Runaway lanes in or near work zone; they may be blocked by work or queues during course of work	4 points	
Pedestrians and Cyclists	No pedestrians or cyclists	0 point	2
	Possible pedestrians and cyclists	2 points	
	Designated cycle route, sidewalk or multi-use pathway	3 points	

Traffic Consideration	Value	Point Value	Score
HOV or Bus Lane	No HOV or bus lane	0 point	0
	HOV or bus lane	4 points	
Counter-Flow Lane	No counter-flow lane	0 point	0
	Counter-flow lane	4 points	
		Total Score	22
		Category 1	< 16
		Category 2	16 to 25
		Category 3	> 25
		Initial Project Category	2

3.3.2 Project Risk Analysis

A project risk analysis is the process of reviewing site-specific characteristics and considering the likelihood and consequence of each item listed. It is able to highlight potential hazards that are not captured in the Initial Project Category Assessment.

Each project has a unique combination of site-specific characteristics, and the risk analysis considers potential hazards associated with the specific project and/or location.

Table 3.2: Project Risk Analysis on the following pages is used to determine whether each potential hazard creates a low, medium, or high risk for the project and location.

The total point value calculated at the end of Table 3.2 indicates that the project is assessed as a low-risk, medium-risk, or high-risk project.

Combining the results of the initial project category assessment and the risk analysis will determine the final project category (see *Section 3.3.3: Final Project Category Determination*).

Table 3.2: Project Risk Analysis

The Project Risk Analysis is a general guideline, applicable to most projects. If significant project-specific hazards are not included in the risk analysis below, the Evaluator may consider increasing the final risk rating. This modification and the justification for it should be documented.

All high-risk, project-specific hazards should be addressed and mitigated in the Traffic Management Plan.

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 point	1
	Medium	Working within a known avalanche or rock fall area; no recent evidence of activity	2 points	
	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 points	
Nature of work activity	Low	Work activity is not expected to create a significant hazard	1 point	3
	Medium	Work activity will create excessive dirt, dust, or gravel on the road surface, and will thereby create a potential hazard	2 points	
	High	Work activity such as blasting, scaling, or excavation < 2 metres from active travelling lanes will create a potential hazard	3 points	
Removal of safety devices	Low	No removal of safety devices	1 point	1
	Medium	Removal of safety devices such as pavement markings, signage, traffic signal, or reflectors	2 points	
	High	Removal of containment devices, such as barrier, guard rail, crash attenuators, fencing, etc.	3 points	
Equipment movement through work zone	Low	Minimal conflict with traffic (e.g., work commencing off travelled roadway)	1 point	2
	Medium	Conflict with normal traffic flow; no queuing or traffic stoppages	2 points	
	High	Conflicts with normal traffic; may create queuing and require traffic stoppages. Difficult for equipment to enter and exit site	3 points	

Item	Risk	Definition	Point Value	Score
Roadway surface condition during construction	Low	Roadway surface is maintained	1 point	3
	Medium	Roadway surface, such as milling and grinding (consistent surface), creates a hazard for road users	2 points	
	High	Roadway surface is inconsistent, with multiple changes or work tasks (manholes, culvert installation, etc.)	3 points	
Storage of equipment and material	Low	Stored outside the shoulder	1 point	2
	Medium	Stored on the shoulder but outside travelled roadway	2 points	
	High	Stored on shoulder but encroaching on travelled roadway	3 points	
Load restrictions as a result of construction	Low	No load restrictions	1 point	1
	Medium	Narrow lanes restrict wide loads	2 points	
	High	Overweight/overheight vehicles restricted (may result in structural damage)	3 points	
Lane widths	Low	Maintain existing lane widths	1 point	n/a
	Medium	n/a	n/a	
	High	Lane width not maintained throughout work zone, or Single-lane alternating traffic	3 points	
Work zone or queues block access (active or inactive site)	Low	None	1 point	2
	Medium	Side street or business access	2 points	
	High	Major public facility and/or major secondary roadway	3 points	
Transit access	Low	No transit or school bus stops	1 point	1
	Medium	Community shuttle or school bus stops	2 points	
	High	Express transit or major bus route	3 points	
Impacts of special events	Low	No known event	1 point	1
	Medium	Moderate public event with attendance under 5,000	2 points	
	High	Major public event with attendance over 5,000 or moderate public event (under 5,000) with no alternative access or route	3 points	

Item	Risk	Definition	Point Value	Score
Overlapping work	Low	No overlapping work	1 point	3
	Medium	Another work site within 3 km; traffic control for the projects could impact one another	2 points	
	High	Work sites adjacent or overlapping	3 points	
Emergency facility (ie. hospital, police, ambulance, and fire stations)	Low	No emergency facility near work site	1 point	1
	Medium	24-hour manned emergency facility	2 points	
	High	Volunteer-staffed emergency facility; consider responder access through work zone to the facility, and emergency response from facility through the work zone	3 points	
			Total Score	21
			Low Risk	< 23
			Medium Risk	23 to 28
			High Risk	> 28
			Project Risk	Low

3.3.3 Final Project Category Determination

The matrix in *Table 3.3: Final Project Category Determination* should be used to make the final project category determination.

It combines the initial project category assessment with the results of the risk analysis to identify a final project category based on roadway and traffic characteristics and risks.

It may be appropriate to increase the final category level for high-risk projects to reflect the complexity or hazards associated with the work.

Table 3.3: Final Project Category Determination

		Initial Project Category Assessment		
		1	2	3
Project Risk	Low	Category 1	Category 2	Category 3
	Medium	Category 1	Category 2	Category 3
	High	Category 2	Category 3	Category 3

The final project category determination should be used to identify required and recommended sub-plans and special conditions addressed in the Traffic Management Plan.

This process is a guide and may not capture all components of the project which should be considered when determining the Project Category.

APPENDIX B
Roundabout
Preliminary Project Category Determination

3.3 Project Category Determination

A structured process is used to determine the Project Category.

1. **Initial Category Assessment** — Assess the roadway and traffic features.
2. **Risk Analysis** — Identify the project-specific risks.
3. **Final Category Determination** — Combine the initial project assessment with the risk analysis to determine the final project category.

Project Categories are defined as:

- **Category 1** - minimal impact on the travelling public, are typically located on simple terrain, and involve two-lane highways or roads, often with lower speeds and traffic volumes.
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- **Category 3** - complex and have a significant impact on the travelling public because of factors such as higher volumes and speeds, project duration, active night work, mountainous terrain, and/or a requirement for lane closures and/or detours.

3.3.1 Initial Project Category Assessment

The initial project category assessment considers road and traffic characteristics, as well as specific work activities.

Table 3.1: Initial Project Category Assessment on the following pages is used to determine the initial project category.

The total point value calculated at the end of Table 3.1 indicates that the project is initially assessed as a Category 1, 2, or 3.

Table 3.1: Initial Project Category Assessment

Traffic Consideration	Value	Point Value	Score
Posted or Statutory Speed Regular posted speed limit of the roadway	≤ 50 km/hr	1 point	1
	60 - 70 km/hr	3 points	
	≥ 80 km/hr	4 points	
Traffic Volume Traffic volume (both directions) in peak hours	< 1,000 vehicles/hr	1 point	1
	1,000 to 3,000 vehicles/hr	3 points	
	> 3,000 vehicles/hr	4 points	
Lanes Number of lanes in both directions (including auxiliary lanes)	2 lanes	0 point	1
	3 lanes	2 points	
	4 lanes or more	3 points	
Encroachment Location of work	Off roadway	0 point	3
	Shoulder work/partial lane closure	3 points	
	Full lane closure, ramp closure, or intersection closure	4 points	
Detours	No detour during construction	0 point	4
	Detour traffic on temporary roadway during construction next to work zone.	3 points	
	Detour route during construction takes traffic off regular route away from work zone; requires detour signing	4 points	
Duration of Work	Short-duration work (no more than one day-time shift).	1 point	4
	Long-duration work (less than 2 weeks)	2 points	
	Long-duration work (2 or more weeks)	4 points	
Allowable Delays Delay time plus time to travel through work zone in minutes	< 20 minutes	1 point	1
	≥ 20 minutes	3 points	
	No allowable delay	4 points	

Traffic Consideration	Value	Point Value	Score
Time of Day Time of day that work will occur	Day-time only work	1 point	3
	Active day-time work, with traffic control devices in place at night	3 points	
	Active night-time work	4 points	
Vertical Alignment	Flat terrain	0 point	1
	Rolling terrain	1 point	
	Mountainous terrain	2 points	
Horizontal Alignment	Tangent	0 point	2
	Horizontal curves, no curve advisory speeds	1 point	
	Horizontal curves, with curve advisory speeds	2 points	
Intersections	No intersections or stop-controlled intersection(s)	0 point	0
	Signalized intersection(s) with no left or right turn phases, or single lane roundabout	2 points	
	Signalized intersection(s) with left or right turn phase(s), or multi-lane roundabout	4 points	
	Interchange(s)	5 points	
Runaway Lanes	No runaway lanes	0 point	0
	Runaway lanes in or near the work zone; they will not be blocked at any time during course of work	1 point	
	Runaway lanes in or near work zone; they may be blocked by work or queues during course of work	4 points	
Pedestrians and Cyclists	No pedestrians or cyclists	0 point	3
	Possible pedestrians and cyclists	2 points	
	Designated cycle route, sidewalk or multi-use pathway	3 points	

Traffic Consideration	Value	Point Value	Score
HOV or Bus Lane	No HOV or bus lane	0 point	0
	HOV or bus lane	4 points	
Counter-Flow Lane	No counter-flow lane	0 point	0
	Counter-flow lane	4 points	
		Total Score	24
		Category 1	< 16
		Category 2	16 to 25
		Category 3	> 25
		Initial Project Category	2

3.3.2 Project Risk Analysis

A project risk analysis is the process of reviewing site-specific characteristics and considering the likelihood and consequence of each item listed. It is able to highlight potential hazards that are not captured in the Initial Project Category Assessment.

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	Medium	Work activity will create excessive dirt, dust, or gravel on the road surface, and will thereby create a potential hazard	2 points	
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	Medium	Removal of safety devices such as pavement markings, signage, traffic signal, or reflectors	2 points	
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	High	Overweight/overheight vehicles restricted (may result in structural damage)	3 points	
Lane widths	Low	Maintain existing lane widths	1 point	3
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Emergency facility (ie. hospital, police, ambulance, and fire stations)	Low	No emergency facility near work site	1 point	1
	Medium	24-hour manned emergency facility	2 points	
	High	Volunteer-staffed emergency facility; consider responder access through work zone to the facility, and emergency response from facility through the work zone	3 points	
			Total Score	29
			Low Risk	< 23
			Medium Risk	23 to 28
			High Risk	> 28
			Project Risk	High

3.3.3 Final Project Category Determination

The matrix in *Table 3.3: Final Project Category Determination* should be used to make the final project category determination.

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It may be appropriate to increase the final category level for high-risk projects to reflect the complexity or hazards associated with the work.

Table 3.3: Final Project Category Determination

		Initial Project Category Assessment		
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	Medium	Category 1	Category 2	Category 3
	High	Category 2	Category 3	Category 3

The final project category determination should be used to identify required and recommended sub-plans and special conditions addressed in the Traffic Management Plan.

This process is a guide and may not capture all components of the project which should be considered when determining the Project Category.

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CHARTERS ROAD – STREETSCAPE

CHANCE FIND PROTOCOL FOR ARCHAEOLOGICAL SITES

File: T02-2023
May 2023

Chance Find Protocol for Archaeological Sites

Prepared by:
Stantec Consulting Ltd.
11 – 2042 Mills Road, Sidney,
British Columbia, V8L 5X4

2023

Table of Contents

LIST OF FIGURES

1.0 INTRODUCTION

A Chance Find Protocol provides those involved in ground disturbing activities, including activities in foreshore, intertidal and subtidal areas, with a framework for identifying archaeological sites and assists in minimizing unforeseen impacts to archaeological sites. The protocol provides basic descriptions of archaeological materials commonly found in the region and the types of sites most likely to be encountered during project work. All people involved in ground disturbing activities should be familiar with the typical types of archaeological sites present in the region. In the event that a potential archaeological site is encountered, you are advised to stop all work in the vicinity of the find and contact Stantec Consulting Ltd. or the Archaeology Branch so that the nature and integrity of the find can be accurately assessed. Contact information is provided at the end of the Chance Find Protocol.

In British Columbia, archaeological sites are legally protected by provincial legislation called the *Heritage Conservation Act* (HCA). The provisions of the HCA apply to archaeological sites located on both public and private land. The HCA automatically protects archaeological sites if they:

1. Pre-date 1846
2. Are of unknown age but may pre-date AD 1846
3. Contain human remains or aboriginal rock art of historical or archaeological value (regardless of age)
4. Consist of shipwrecks or airplane wrecks more than two years in age

In accordance with the HCA (section 13[2]), it is unlawful to destroy, excavate or alter an archaeological site without a permit issued by the Minister or designate.

2.0 WHAT IS AN ARCHAEOLOGICAL SITE?

An archaeological site is a location where there is physical evidence of past human activity. Archaeological sites can include things such as stone tools, remains of ancient houses and campsites, shell middens, burials, and wet sites. The type and nature of archaeological sites vary widely across British Columbia. The following section provides examples of those most likely encountered in the project area.

3.0 TYPES OF ARCHAEOLOGICAL SITES POTENTIALLY PRESENT IN THE PROJECT AREA

3.1 SHELL MIDDENS

Shell middens are typified by the presence of shellfish (clam, mussel, scallop, etc.) shells discarded after consumption, but they also commonly contain charcoal, ash and burnt sediments, fire-broken rocks, stone, bone and antler artifacts, and human remains (Figure 1). Shell midden deposits vary from small pockets to very large sites many hundreds of metres long. They are typically, though not always, found along or near the shoreline. Shell midden sites often represent villages or seasonal encampments where shellfish were consumed in quantity. Shell middens are unique inasmuch as the shells neutralize soil acidity, which can promote preservation of archaeological materials, such as bone and antler, that usually degrade quickly.

Figure 1 Profile View of Shell Midden Exposure

3.2 HUMAN REMAINS AND BURIAL FEATURES

Human remains can be represented by as little as a single tooth to a complete skeleton, and can be from individuals of any age (i.e., infants, juveniles, adults). All bones and teeth that are reasonably similar to those of a human should be considered to be human remains until confirmed otherwise. Respect is paramount when dealing with human remains. Mortuary

features represent deliberate depositional events and can be identified by a number of different practices some of which include barrows/mounds, burial cairns (Figure 2), or interment within shell middens.

Figure 2 Burial Cairn

3.3 LITHIC (STONE) SCATTERS

Lithic scatters are sites comprised of stone tools, stone tool fragments, and debitage—the flakes of stone that are produced when stone tools are manufactured. These stone artifacts may be found scattered across the ground surface or may have been buried since their original deposition. These sites may vary from a single, isolated artifact—a stone arrowhead, knife, adze, or hand maul, for example—to extensive scatters of hundreds of tools, tool fragments and pieces of debitage (Figure 3 to 7).

Figure 3 Lithic Scatter

Figure 4 Lithic Debitage

Figure 5 Projectile Points

Figure 6 Adzes

Figure 7 Hand Maul

3.4 WET SITES

Wet sites are archaeological sites with exceptional preservation due to special conditions found in waterlogged settings. In this setting, rare organic artifacts such as basketry, cordage, and wood artifacts can be preserved in the unique anaerobic (oxygen-less) environments (Figure 8 to Figure).

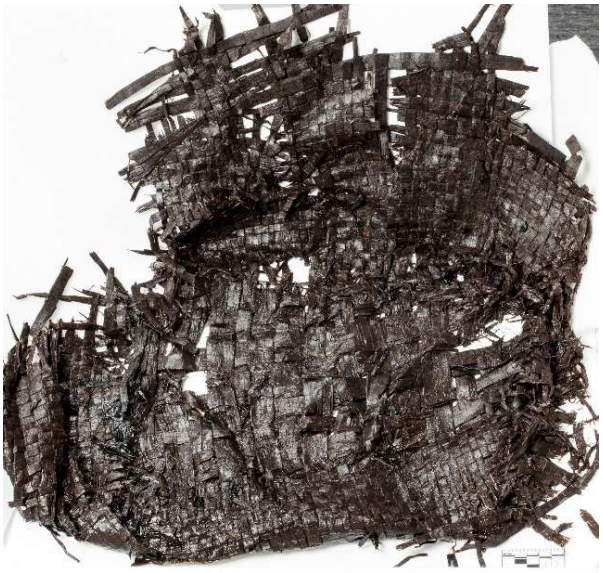

Figure 8 Basketry

Figure 9 Wood Artifacts

Figure 10 Cordage

4.0 IF YOU ENCOUNTER ARCHAEOLOGICAL RESOURCES

If you believe you have encountered archaeological resources during the project the following steps should be followed.

- Stop work and notify your supervisor immediately
- If possible human remains are encountered, cease all forms of ground disturbing activities in the vicinity so that an archaeologist can confirm the nature of the remains. If the remains are determined to be human, the archaeologist will contact First Nations and the Archaeology Branch for direction. If an established human remains protocol has not yet been developed, mitigation of burial features will not proceed until the designated individuals from the First Nations have been informed and a decision on how to proceed has been reached. All remains will be protected during the notification process.
- If you have found surface or buried archaeological deposits, cease all forms of ground disturbance in the vicinity of the find and leave all possible archaeological materials in place.
- Briefly note the type of archaeological materials you think you've encountered, and their location, including, if possible, the depth below surface of the find.
- Photograph the exposed materials, preferably with a scale (a yellow plastic field binder will suffice; a Sharpie or a loonie will do in a pinch).
- Notify the archaeology team at Stantec Consulting Ltd. by telephone at (250) 361-8639 or by email at jonny.hall@stantec.com, or the Archaeology Branch by telephone at 250-953-3334.

Note that work in the vicinity of the possible archaeological site cannot recommence until an archaeologist has confirmed that all appropriate measures have been undertaken and it is appropriate to do so. There may be requirements for HCA permits before work can continue.

CHARTERS ROAD – STREETSCAPE

CRD – APPENDIX A – APPROVED MATERIALS

File: T02-2023
May 2023

Making a difference...together

APPENDIX A

APPROVED MATERIALS

479 Island Highway
Victoria, BC V9B 1H7
Tel: (250) 474-9600
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Latest Revision: May 2023

All persons utilizing these documents are advised to visit the Capital Regional District website https://www.crd.bc.ca/service/drinking-water/engineering-specifications to ensure that all specifications and drawings are the current version.

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REVISION	DATE	UPDATES
v05	2021.03.16	1.10.3 item 5 – New approved product 1.16.2 item 4 – New approved product
v06	2022.11.02	1.18.3 item 4 – correction 1.33.3 item 2 – New approved product
v07	2023.05.08	1.18.3 item 5 – New approved product

1 APPROVED CONSTRUCTION MATERIALS

1.1 GENERAL

This section covers the approved materials for use in the Juan de Fuca Water Distribution System. The list is not intended to be exhaustive, requests for materials to be included must be submitted to CRD Water Services for review and approval. Materials not appearing in this list, or subsequently approved, will not be accepted.

1.2 GATE VALVES - 50MM - 500MM

1.2.1 Conform to the latest version of AWWA/ANSI C509.

1.2.2 Valves shall be resilient wedge design, Hub X Hub, Hub X Flange, Flange X Flange, M.J. X Flange or M.J. X M.J.

1.2.3 50mm Valves to be threaded NPT.

1.2.4 Valves shall be coated internally and externally in accordance with AWWA C550-90 and certified to NSF61.

1.2.5 Valves intended for use in the CRD Water Services Distribution System shall be Right Hand opening (RHO) or clockwise opening and have a 31mm (1 ¼") square operating nut for buried applications and rising stem (OS&Y) with hand wheels for vault installations. Valves shall be rated for a working pressure of 250psi unless otherwise noted.

1.2.6 Approved Gate Valves:

.1 Mueller – A-2361 Series

.2 Clow - F6100

.3 AVK – 45 Series

.4 T.C.I.W - 3000 Series

1.3 DUCTILE IRON FITTINGS

1.3.1 Conform to the latest version of ANSI/AWWA A21.10/C110 including all bends, tees, reducers, and caps.

1.3.2 Compact Ductile Iron fittings (3" to 48"), including flanged fittings shall conform to the latest version of ANSI/AWWA C153/A21.53.

1.3.3 Fittings may be Hub X Hub, Hub X Flange, M.J. X M.J., M.J. X Flange, or F X F. Hub ends shall have lugs with holes suitable for restraint rods.

1.3.4 Approved Manufacturers:

.1 Sigma

.2 Clow

.3 T.C.I.W

.4 Tyler Union

1.4 PVC PIPE - 100MM - 250MM

1.4.1 PVC DR18 to the latest version of AWWA C900

1.4.2 Approved PVC pipe manufacturers:

.1 IPEX

.2 Royal Plastics

1.5 DUCTILE IRON PIPE – 100MM TO 600MM

1.5.1 Ductile Iron Pressure Class 350 to the latest version of AWWA C151.

1.5.2 Ducticle Iron 300mm and larger shall be a fully restrained system, the pressure rating of the joint shall equal the pressure rating of the pipe (Class 350) when deflected to its maximum joint deflection. Restrained push-on joints for in-line pipe joints shall utilize ductile iron locking segments or a mechanical joint (MJ) restraint harness consisting of multiple gripping wedges incorporated into follower glands to AWWA C110. All Ductile Iron bends, elbows, and valves etc. shall be restrained with a mechanical joint (MJ) consisting of multiple gripping wedges incorporated into follower glands to AWWA C110 unless otherwise approved by the CRD.

1.5.3 Approved Manufacturers:

.1 Canada Pipe

.2 US Pipe

1.6 HDPE PIPE

1.6.1 HDPE DR11 to the latest version of AWWA C906, only on a case by case pre-approval.

1.7 FIRE HYDRANTS

1.7.1 Conform to the latest version of AWWA C502 with the following features:

.1 Compression style.

.2 Right hand opening (CW).

.3 2 - 63.5 mm (2 ½") hose nozzles BC standard fire thread and one 100mm (4") Storz nozzle c/w thread-on cap.

.4 Inlet shall be 150mm hub with lugs.

.5 Self-Draining.

.6 Operating nut shall be 41.28mm (1 9/16") pentagon.

.7 Hydrants shall be rated for a minimum working pressure of 200psi

1.7.2 Approved Manufacturers and Models:

.1 Mueller - Super Centurion 350™, Series A-423

.2 T.C.I.W - Model C-71P or H105 Heritage

.3 AVK - Model 2780

.4 Clow - Model M93 Brigadier

1.8 BOLTED, SLEEVE-TYPE COUPLINGS FOR PLAIN-END PIPE

1.8.1 Conform to the latest version of AWWA C219.

1.8.2 Approved Manufacturers and Models

.1 Robar - 1506

.2 Romac – XR501, Alpha

.3 Smith Blair – 421

.4 Hymax – 2, Grip

.5 Ford

1.9 PRESSURE REDUCING VALVES

1.9.1 Approved manufacturers:

.1 CLA-VAL

.2 Singer

1.9.2 All pressure reducing valves shall have speed controls.

1.10 PIPE JOINT RESTRAINT

1.10.1 Restrainers shall have UL and FM approval.

1.10.2 Pressure rating.

.1 Restraints shall be rated to at least 235 psi for 250mm diameter and smaller pipe.

.2 Restraints shall be rated to at least 350 psi for 300mm diameter and larger pipe.

.3 Restraints shall utilize mechanical joint (MJ) at fittings for 250mm diameter and larger pipe to prevent any pressure de-rating.

1.10.3 Installers must follow manufacturer's specifications and ensure that they are using the right restraint for the type of pipe material being installed.

.1 Ford – Series: 1300, 1350, 1360, 1390

.2 EBAA Iron – Series 1100, 1500 & 2800 MEGALUG

.3 Smith Blair – Cam-Lock Model 111 (75mm-1200mm)

.4 Sigma – PV Lok & One-Lok

.5 Star Pipe Products – Series 1000, 1100, 3000, 4000,

1.11 RESTRAINING RODS & NUTS

1.11.1 Approved Materials:

.1 High strength, low alloy, corrosion resistant material. i.e. "Corten".

1.12 CHECK VALVES

1.12.1 Conform to the latest version of AWWA C508 with the following features:

1.12.2 Flange x Flange ends.

1.12.3 Swing check with resilient disc to meet NSF 61.

1.12.4 Stainless steel hinge pin with bronze bushings with “O” ring seal.

1.12.5 Must have outside lever and weight.

1.12.6 Interior coating shall be fusion bonded epoxy certified to NSF 61.

1.12.7 Approved manufacturers and models:

.1 Mueller - A-2600-6-01 (outside lever and weight)

.2 T.C.I.W - Model 5110-Rubber disc trim (outside lever and weight)

.3 Clow - 1106LW (outside lever and weight)

1.13 COMBINATION AIR VALVES

1.13.1 Conform to the latest version of AWWA C512 with the following features:

1.13.2 Stainless steel trim.

1.13.3 Interior and exterior coating shall conform to ANSI/AWWA C550. Interior coating shall be fusion bonded epoxy and certified to NSF 61.

1.13.4 Approved Manufacturers and Models:

	APCO	VALMATIC	G.A. (low profile)	CRISPIN	ARI
12mm (1/2")			945		D040
25mm (1")			945		D040
50mm (2")	145C	202C	945		D040
75mm (3")	147C	203C	945	UL30	D060
100mm (4")	149C	204C	945	UL41.1	D060
150mm (6")	150C	206C	N/A	C61	D060
200mm (8")	151C	208C	N/A	C81	D060

N/A - Not Available

1.14 STAINLESS STEEL REPAIR CLAMPS

1.14.1 Clamps shall be fully passivated 304 stainless steel shell.

1.14.2 Bolts shall be18-8 stainless steel with rolled NC thread with nylon and stainless steel washers.

1.14.3 Gaskets shall have tapered ends, girded surface, and stainless steel armours**.**

1.14.4 Approved Manufacturers:

.1 Robar - 5626

.2 Canada Pipeline Accessories (1986) Corp. – CR2

.3 Mueller - 510

.4 Ford – FS2

.5 Smith Blair – 261,262,263

.6 Romac – SS1, SS2, SS3

1.15 VALVE BOXES

1.15.1 Valve boxes shall have square, flat top, with direction of flow clearly shown.

1.15.2 Approved manufacturer and model:

.1 T.C.I.W – Robar Box

1.16 ADAPTER FLANGES

1.16.1 Adapter flanges shall have UL and FM approval.

1.16.2 Approved manufacturers and models:

.1 Ford - UniFlange

.2 EBBA Iron - Series 1000 (75mm - 250mm), Series 2100 MegaFlange, both for ductile iron pipe only.

.3 Romac - Within rated working pressure of the field flange.

.4 Star Pipe Products – Series 7200

1.17 UNDERGROUND SERVICE LINE VALVES AND FITTINGS

1.17.1 Conform to the latest version of AWWA C800.

1.18 SERVICES SADDLES

1.18.1 All service saddles for pipe greater than 200mm shall be minimum 18 gauge fully passivated 304 stainless steel full circle. **Outlets shall be FIPT, not CC thread.**

1.18.2 All service saddles for pipe less than 200mm shall be 20 gauge fully passivated 304 stainless steel. **Outlets shall be FIPT, not CC thread**.

1.18.3 Approved Manufacturers and Models:

.1 Robar - Series 2616;

.2 Canada Pipeline Accessories – SC-2 (Cold tap only for ductile iron and max 235psi), SC-4 (Not for ductile iron pipe)

.3 Ford - FS313

.4 Smith-Blair 370 Series

.5 **Cambridge Brass – 403 TECK Stainless-Steel Service Saddle with Integral Corporation Stop**

1.19 CORPORATION STOPS (BALL VALVE STYLE)

1.19.1 Corporation stops shall be rated for minimum 150psi working pressure.

1.19.2 Threads shall be N.P.T.

1.19.3 Approved Manufacturers and Models:

Size	Mueller	McDonald	Cambridge	Ford
12mm (1/2")	H15028 Ball N/A	Ball N/A	Ball N/A	Ball N/A
19mm (3/4")				
MIP X Comp	B-25028	4704BT	201-M3H3	FB1100-3-Q
MIP X FIP	B-20046	3149B	201-M3H3	FB1700-3
MIP X MIP	Ball N/A	3131B	201-M3H3	FB500-3
25mm (1")				
MIP X Comp	B-25028	4704BT	201-M4H4	FB1100-4-Q
MIP X FIP	B-20046	3149B	201-M4H4	FB1700-4
MIP X MIP	Ball N/A	3131B	201-M4H4	FB500-4
38mm (1 1/2")				
MIP X Comp	B-25028	4704BT	201-M6H6	FB1100-6-Q
50mm (2")				
MIP X Comp	B-25028	4704BT	201-M7H7	FB1100-7-Q
MIP X FIP	N/A	3149B	201-M7H7	FB1700-7
MIP X MIP	N/A	3131B	201-M7H7	FB500-7

1.20 COPPER PIPE CONNECTORS

1.20.1 Connectors shall be rated for minimum 150 psi working pressure.

1.20.2 Threads shall be N.P.T.

1.20.3 Approved Manufacturers and Models:

	Mueller	McDonald	Cambridge	Ford
Couplings C X C				
12mm (5/8")	H-15403	N/A	118-H2H2	C44-11-Q
12mm X 19mm (5/8 x ¾)	H-15403	4758T	118-H3H2	C44-22-Q
19mm (3/4")	H-15403	4758T	118-H3H3	C44-33-Q
25mm (1")	H-15403	4758T	118-H4H4	C44-44-Q
38mm (1 ½")	H-15403	4758T	118-H6H6	C44-66-Q
50mm (2")	H-15403	4758T	118-H7H7	C44-77-Q
Male Adapter C X MIP				
12mm (5/8")	H-15428	N/A	117-H2M2	C84-12-Q
19mm (3/4")	H-15428	4753T	117-H3M3	THRU
25mm (1")	H-15428	4753T	117-H4M4	C84-77-Q
38mm (1 ½")	H-15428	4753T	117-H6M6	
50mm (2")	H-15428	4753T	117-H7M7	
Female Adapter C X FIP				
12mm (5/8")	H-15451	4754T	117-H2F2	C14-33-Q
19mm (3/4")	H-15451	4754T	117-H3F3	THRU
25mm (1")	H-15451	4754T	117-H4M4	C14-77-Q
38mm (1 ½")	H-15451	4754T	117-H6M6	
50mm (2")	H-15451	4754T	117-H7F7	
Tee C X C, CX IP				
12mm (5/8")	H-12941	N/A	N/A	T444-333
19mm X 19mm (3/4")	H-12941	4760T	150-H3H3	THRU
25mm (1")	H-12941	4760T	150-H4H4	T884-444
38mm (1 ½ X 1 ½ X ¾)	H-12941	N/A	N/A	
50mm (2 X 2 X 3/4)	H-12941	N/A	N/A	
50mm (2 X 2 X 1)	H-12941	N/A	N/A	

N/A - Not Available

1.21 CURB VALVES & STOPS (BALL VALVE STYLE)

1.21.1 Curb valves and stops shall be rated for minimum 150 psi working pressure.

1.21.2 Approved Manufacturers and Models:

	Mueller	McDonald	Cambridge	Ford
12mm (1/2") C X C	H-15209	N/A	N/A	N/A
19mm (3/4") C X C	H-15209	6100T	202-H3H3	B44-333-Q
25mm (1") C X C	H-15209	6100T	2020H4H4	B44-444-Q

N/A - Not Available

1.22 ANGLE METER STOPS (BALL VALVE STYLE)

1.22.1 Stops shall be rated for minimum 150 psi working pressure.

1.22.2 Approved Manufacturers and Models:

Size	Mueller	McDonald	Cambridge	Ford
¾" comp x ¾" swivel	B-24258	4642BT	210-H3T3	BA43-231W-Q
¾" comp x 1" swivel	B-24258	4642BT	210-H3T4	BA43-232W-Q
1" comp x 1" swivel	B-24258	4642BT	210-H4T4	BA43-342W-Q
1" comp x 1 ¼:" swivel	B-24258	4642BT	210-H4T5	BA43-444W-Q
1 ½" comp x Mtr Flg	B-24276	4602BT	N/A	BFA43-666W-Q
2" comp x Mtr Flg	B-24276	4602BT	N/A	BFA13-777W-Q
1 ½" FIPT X Mtr Flg	B-24286	4604B	N/A	BFA13-666W
2" FIPT X Mtr Flg	B-24286	4604B	N/A	BFA13-777W

N/A - Not Available

1.23 STRAIGHT METER STOPS WITH LOCKWING (BALL VALVE STYLE)

1.23.1 Stops shall be rated for minimum 150 psi working pressure.

1.23.2 Approved manufacturers and models:

Size	Mueller	McDonald	Cambridge	Ford
¾" comp x ¾" swivel	B24350	6100MWT	212-H3T3	B43-231W-Q
¾" comp x 1" swivel	B24350	6100MWT	212-H3T4	B43-232W-Q
1" comp x 1 ¼" swivel	B24350	6100MWT	212-H4T5	B43-342W-Q

1.24 BRASS "Y" CONNECTORS 25MM X 19MM X 19MM

1.24.1 Connectors shall be rated for minimum 150 psi working pressure.

1.24.2 Approved Manufacturers and Models:

.1 Mueller Part #H-14258

.2 McDonald Part #4768T

.3 Cambridge Part # 174-H4H3

.4 Ford "Q" style. Y44-243-Q

1.25 BRONZE GATE VALVES 12MM - 75MM CLASS 125

1.25.1 Valves shall be left hand opening (counter-clockwise), screwed or flanged ends.

1.25.2 Approved manufacturers and models:

.1 Red and White Figure # 206-A.

1.26 METER BOXES AND LIDS

1.26.1 Meter box and lid to be H20 load rated DFW Plastics Inc, or approved equal.

1.26.2 For 19mm-26mm Water Meters

.1 DFW486WBC4-12-AF4MF

1.26.3 For 50mm Water Meters

.1 DFWA4CH4-24-AF4MF

1.26.4 For off road flush (50mm-100mm)

.1 DFWA2CNP4-12-AF4M-Water

1.27 VAULT HATCH – OUTSIDE OF ROAD SURFACE

1.27.1 Hatched to be bolt down, surface mount, 6061 Aluminium, comes with locking hold open arm.

1.27.2 Pedestrian load rated for a minimum of 150PSF.

1.27.3 Hatches will require H20 loading for in road use, and will be approved on a case by case basis.

1.27.4 Approved Manufacturers and Models:

.1 USF Fabrication….Hatch SRR-I 36”x36” aluminium w/s.s gas shock, exterior staple. Drawing # 1000097824

.2 MSU Mississauga LTD…MSU CRD bolt down access hatch 895mmx875mm clear opening. Drawing # 895x875CRD

1.28 VAULT LADDER

1.28.1 Vault ladder to be CSA Grade 1, load rated for 300lbs and meet or exceed CSA/ANSI/OSHA.

1.28.2 Rungs to be 32mm in diameter with 305mm center to center spacing. Overall ladder width to be minimum 467mm.

1.28.3 Ladder to be anchored top and bottom and must have a mid-span brace if over 10 feet long.

1.28.4 Ladder must be min of 150mm offset from vault wall and maximum 200mm to allow for the installation of a safety post.

1.28.5 Ladder must have safety post installed.

1.28.6 Approved Manufacturer and Model:

.1 Featherlite Series 4000 Extra Heavy Duty Aluminium Ladder Assembly or approved equal.

1.29 VAULT SAFETY POST

1.29.1 Safety post to be constructed from schedule 40 aluminium, with an overall length of 2.29m.

1.29.2 Safety post to be mounted to two ladder rungs with stainless steel brackets.

1.29.3 Approved Manufacturer and Model:

.1 U.S.F Fabrication Inc, retrofit aluminium safety extension for 32mm dia ladder rungs, Drawing 28492 or approved equal.

1.30 50MM METER SETTER

1.30.1 50mm Meter setter to be made of copper and brass. Have NPT threaded inlet and outlet. Be equipped with a lockable ball valve shutoff, check valve and lockable bypass.

1.30.2 Approved Manufacturers and Models:

.1 Cambridge Brass…….6020NL715F7F7UQB

.2 Mueller……...B2423-2N112

.3 Ford……VHH77-12B-1177-NL

1.31 ANGLE DUAL CHECK VALVES

1.31.1 Valves shall be rated for minimum 150 psi working pressure.

1.31.2 Approved manufacturers and models:

Size	Mueller	Ford	McDonald	Cambridge
5/8”	H14244	HHA31-313	12-3HE-33	N/A
¾”	H14244	HHA31-323	12-3HE-43	500/501-T3-F3*
1”	H14244	HHA31-344	12-3HE-54	N/A
2”	H14244	HHFA31-777	N/A	N/A

* with test port 501-T3-F3

1.32 STRAIGHT DUAL CHECK VALVES

1.32.1 Valves shall be rated for minimum 150 psi working pressure.

1.32.2 Approved manufacturers and models:

Size	Mueller	Ford	McDonald	Cambridge
¾"	H14242	HHS31-323	113JF-43	511-T3-F3*
1"	H14242	HHS31-344	113JF-54	N/A

* with test port

1.33 PEX SERVICE TUBING (19MM-50MM)

1.33.1 Conform to the latest version of AWWA C904 and CSA B137.5

1.33.2 Cross-linked polyethylene pipe to latest version of AWWA C904 and CSA B137.5, or approved equal. A stainless steel pipe stiffener must be used at each compression joint. Pipe insert to be Mueller water products part number 506141 for 50mm services, 504385 for 25mm services and 504281 for 19mm services or approved equal.

Approved Manufacturers and Models:

.1 Rehau Municipex

.2 AquaPure PE-RT tubing

1.33.3 **Tracer wire to be used on all service lines**. Tracer wire to be 14awg solid copper designed for direct burial. It must be fastened to the service line at regular intervals using zip ties or 3M Linerless rubber splicing tape model 2242. Each bare end of wire to be terminated with underground low voltage waterproof connectors.

Approved Manufacturers and Models:

.1 Deca Cables - Part number 20-705

.2 Southwire UL 600v - Part number 54491

1.34 MISCELLANEOUS

1.34.1 BOLTS: Approved materials:

.1 Minimum grade 2, hot dipped galvanized, NC thread.

.2 Stainless Steel.

1.34.2 GASKET MATERIAL: Approved materials:

.1 Neoprene, minimum 3mm in thickness, with double cloth insert.

1.35 THREAD SEALANT

1.35.1 Sealant shall be non-toxic, NSF 61 approved.

1.35.2 Approved material:

.1 Teflon Tape.

.2 J.C. Whitlam Seal Unyte Thread & Gasket Sealer.

1.36 PVC GLUE AND PRIMER - ASTM D2564

1.36.1 Joints shall be made in accordance with the pipe manufacturer's recommendations and conform to the recommended practice for making solvent-cemented joints described in ASTM D2855.

1.36.2 Approved manufacturers and types:

.1 Weld-On.

1.37 ANTI-CORROSION PROTECTIVE TAPE WRAP AND PASTE.

1.37.1 Approved manufacturers:

.1 DENSO Tape and paste;

.2 Petro Wrap.

1.38 DETECTABLE REINFORCED UNDERGROUND UTILITY MARKING TAPE

1.38.1 Approved reinforced detectable marking tape shall be installed a minimum of 300mm directly above all water mains.

1.38.2 Tape shall be detectable reinforced marking tape, 150 mm wide, Safety

Precaution Blue, marked "*Caution Water Line Below*".

1.38.3 Shall be 8 mil overall thickness, warp oriented, coated and closed cross woven 10 x 7 count, solid aluminium foil core with permanent printing beneath mylar layer).

1.38.4 Approved manufacturers: Thortec

1.39 COATINGS - APPROVED MATERIALS:

.1 NSP – Epoxy;

.2 NSP - 100 Epoxy Concrete Sealer;

.3 NSP - 122 Epoxy-Phenolic Floor Coating.