WESTBROOK Consulting Ltd.

February 19, 2020 3483.02

District of Sooke
2205 Otter Point Road
Sooke, BC
V9Z 1J2

Attn: Teunesha Evertse MCP RPP MCIP - Planner II

Re: Lot A / 6671 Wadams Way

Dear Ms. Evertse:

The following letter is provided in response to the District of Sooke request to evaluate the civil engineering aspects of the development of this site and is summarized below.

PROJECT UNDERSTANDING

The project site area is the remainder of Lot A for which we understand there is a proposal to construct two mixed-use buildings, a park (or public space), and parking areas. The northwest corner of the site is the location of the proposed new Vancouver Island Regional Library. The library site will occupy an approximate 4000 square meter area of the total parcel of approximately 21,500 square meters, and is currently in with the District for building permit approval.

The remaining proposed development area is approximately 17,500 square meters. Approximately two-thirds of which is illustrated on the District conceptual site plan (attached) to be covered by rooftops, parking, or accesses. The site condition is currently a cleared vacant parcel with small clusters of trees.

There exists a slight draw which bisects the property from the west side to the east, flowing toward the municipal drainage system in Wadams Way, and eventually outlets to Throup Stream and DeMamiel Creek. During the winter months ponding is evident near the center of the property.

ZONING

The property is currently zoned P2 – Community Facilities. It is proposed to be rezoned to a CTC Town Centre Mixed Use Zone for the development. This will permit *institutional usage, apartment buildings and retail* and allow for the construction of the new Library and apartment buildings with main level commercial.

The CTC Zone can be tailored for the specific site usage but generally allows for a maximum lot coverage of 85%, maximum building height of 22m, and small setbacks.

ASSUMPTIONS - *Based on the District Conceptual Site Plan*

The proposed development will include two - four to six storey buildings, containing approximately 150 residential units with parking and commercial on the main levels. Some underground parking will also be provided.

The new Vancouver Island Regional Library and associated servicing will be constructed prior to the development of the remainder of the site.

EARTHWORKS

To allow for positive drainage toward Wadams Way, and to allow room for stormwater storage, the site will have to be filled from the approximate centre to the rear of the site.

After removal of all topsoil and unusable fill material the Geotechnical Engineer, Ryzuk Geotechnical, recommends the following:

> *"Engineered fill is to consist of approved well graded granular material at or near optimum moisture content. Engineered fill is to be placed on approved subgrade, in maximum 300mm lifts and compacted to a minimum of 95% of Standard Proctor Maximum Dry Density (SPMDD), with in-situ density testing conducted to ensure compaction in the engineered fill. The engineered fill must have a footprint that extends horizontally beyond the footings at a distance equal to the thickness of the engineered fill, to provide adequate splay for foundation loads. In perimeter areas, it is inadvisable to have the fill splay extend beyond the property line."*

The elevation of the site is to be raised approximately 3m – 4m at the deepest point.

Further consideration or design for an overland flow route will have to be done. The north side of the mall is at an elevation of approximately 52m. Wadams Way at the proposed driveway access is at an elevation of approximately 54m. The lowest area of the site is at the north east corner at an elevation of approximately 51.25m.

We also understand from the Ryzuk Geotechnical, geotechnical assessment that perched ground water was encountered near the surface of their test pits. Existing soils were identified as *"stiff to very stiff native silts"* and that *"dewatering will need to be undertaken to manage groundwater"*. A well thought out erosion and sediment control plan is also recommended.

ACCESS

Reviewing the preliminary design drawings for the new Library (attached), a site access/driveway has been provided near the centre of the site frontage. Currently shown as 6m in width with room for expansion and at its steepest 12% down from Wadams Way to an elevation of approximately 51.2m.

Connections to Anna-Marie Road (2090) and Townsend Road (2091) appear achievable as properties come up for sale. These would be best designed as exits to minimize through traffic on the site and disturbance to neighbours, provide overflow parking on the Woonerf street space as needed, and provide an additional level of safety for pedestrian traffic.

The "potential vehicle access from Evergreen Mall" may be viable. Though this area of the mall is currently the site of the loading docks and will require some thought on safety. Pedestrian access to and from the mall can be provided should space in the mall parking area be provided. Coordination with the mall owners/managers will be required to determine if existing parking stalls can be removed.

Ryzuk Geotechnical recommends the pavement and road structure as follows:

> *"For light traffic areas, such as driveways and parking, pavement structure should consist of a minimum 50mm of asphalt over 100mm of 20mm minus road base gravel overtop of 150mm of 75mm minus gravel. For roads and heavier traffic areas, we recommend a minimum pavement structure of 75mm of asphalt over 150mm of 20mm minus road base gravel overtop of 150mm of 75mm minus gravel. All pavement structure materials are to be compacted to 95% Modified Proctor Maximum Dry Density (MPMDD)."*

STORM DRAINAGE – *See attached Conceptual Storm Water Management Plan*

The proposed development has been conceptually designed in accordance with Sooke Bylaw 404. We have confirmed that the site lies within a 13-15 ha drainage catchment from Townsend Road to Banford Park and DeMamiel Creek.

The developer of the Library site will extend the existing municipal underground drain main on Wadams Way and provide a suitable connection to the site. Final connection location to be determined.

The proposed drainage system will consist of the following:

- A conventional pipe and manhole drainage network which will outlet to the north and into the Wadams Way drainage system.
  - The service connection provided with the design of the library has adequate capacity but will need to be confirmed during detailed design of the site.

- An underground stormwater storage/management system or combination of visible water storage features.
  - The stormwater management system will require approximately 326 cubic meters of runoff storage and will contain all storms up to and including the 100-year design storm event and maintain predevelopment runoff levels.
  - Underground system to be a Stormtech arch chamber or Brentwood Industries crate system or similar.
    - This style of system will greatly reduce the footprint to that of a standard rock pit system.
  - Visible water storage features can be rain gardens or similar which will also treat stormwater runoff.
  - A flow control device in the system can maintain predevelopment runoff characteristics from the site.
    - It is recommended that flow be limited to the 2 year – 10 minute flow to reduce erosion with in the streams and creeks nearby.
  - Pervious paving or pavers should also be considered to reduce the impervious area in return reduce the required stormwater storage onsite.

- The storage system location will be determined during the detailed design phase of this project.
  - Possible installation locations appear to be the east side of the park, along the east property line or at the rear of the site.

- Given the low amount of green space on the east side / development side of the site (shown on the concept site plan) manufactured treatment systems are recommended.
  - Systems such as Stormceptor.
  - A combination of environmental and manufactured systems is also recommended.

- The site elevation will have to be design/graded in such a way as to provide an overland flow route to either the north or south.
  - If no overland flow route can be achieved, additional stormwater storage may be required.

SANITARY SEWER– *See attached Stantec Sewer System Analysis, Dated February 3, 2020*

Gravity sanitary sewer is available from the northwest corner of the property but will have to be extended to at least the site access/driveway. The new library has proposed to extend this gravity system as far as possible along the library frontage. This will however not be enough to get to the access, as we are at the end of the line. The library is proposing to provide a length of 100mm sanitary forcemain to reach the access area.

The site will require a new sanitary pump station in order to reach the gravity sanitary system. The location of the pump station (PS) is unknown at this point. Because the system will have to collect flows from the whole site, buildings and parks area, a central location is best. This will also reduce the depth and size of pump chamber.

Stantec has provided a sanitary sewer analysis which outlines the assumptions they have used and associated municipal sanitary protocols/standards. The Stantec analysis assumed the site was 50% developed (Approx. 1ha) and populated with commercial tenants on the main level with 150 residential units above. It also assumes that the flow will be directed to the existing main on Wadams Way.

The analysis concluded that with the current information and assumptions noted above, *"the development will not cause immediate concern for capacity issues within the Sooke Road pump station or pipe infrastructure."* The analysis also reviewed known "bottlenecks" and the potential upgrade of some sections of pipe. Namely along West Coast Road and Maple Avenue.

WATER – *See attached Fire Flow Requirements Report*

Assumptions Based on the District Conceptual Site Plan and CRD Water Model and Map
The proposed development will include two - four to six storey buildings, containing approximately 150 residential units with parking and commercial on the main levels. Some underground parking will also be provided. The buildings will have a fully supervised automatic sprinkler system and will be faced with 'Hardie Plank' style concrete construction. The commercial and parking areas, will be of fire-resistant concrete construction, with fire blocking at all connections to the adjoining floor, therefore it will not be considered as part of the floor area for the purpose of calculations.

Currently a 300mm water main exists on the Wadams Way frontage. The existing hydrants within the frontage of Wadams Way (SFD 405 and SFD 406) have be used to determine if the main and local system has sufficient pressure during fire flow conditions. One additional hydrant is located near the intersection of Anna Marie Drive and one near the intersection of Townsend Road.

The south building, identified on the Concept Site Plan as a 7,000 sq.m – 4 to 6 storey Mixed Use Building, was modeled because it was the largest. Because the residual pressure during fire flow conditions is the same as or less than the minimum residual pressure, we do recommend field testing of the hydrants. As well as additional / continued detailed design of the building.

It is our opinion, based on the District conceptual site plan and CRD water model information provided, that the water main on Wadams Way and surrounding area will be adequate to provide the fire flow with residual pressure in excess of 20 psi with further detailed design or reduced floor area (of the southerly building) and field testing.

UTILITIES

BC Hydro, Shaw, Telus and Fortis BC have been contacted. There are no internal plans for the utility extensions or upgrades in the area at this time. All utilities can provide service to the site, given the necessary information.

It is understood that existing H/T/C underground utility infrastructure is location at the intersection of Townsend Road and Wadams Way. This infrastructure will have to be extended on Wadams Way to the site.

Fortis BC gas service exists on Townsend Road and Church Road. A connection will have to be made to either roadway, along Wadams Way to provide gas service to the site.

CLOSING

We have assumed that approximately one quarter of the site will be occupied by the new Library, one quarter by the Park or Public Space, and one half by the proposed buildings as shown on the District's conceptual site plan. The buildings are assumed to consist of approximately 150 residential units (combined) and main level commercial or retail space.

Based on the preceding data and the District of Sooke conceptual site plan, servicing can be provided to the site in conjunction with the development of the new Library.

Offsite infrastructure upgrades are currently minor with the exception of the utilities. As design progresses, upgrades and requirements can be better defined.

If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

WESTBROOK CONSULTING LTD.

PROFESSIONAL
PROVINCE OF
K. W. STUBBS
43236
BRITISH COLUMBIA
ENGINEER

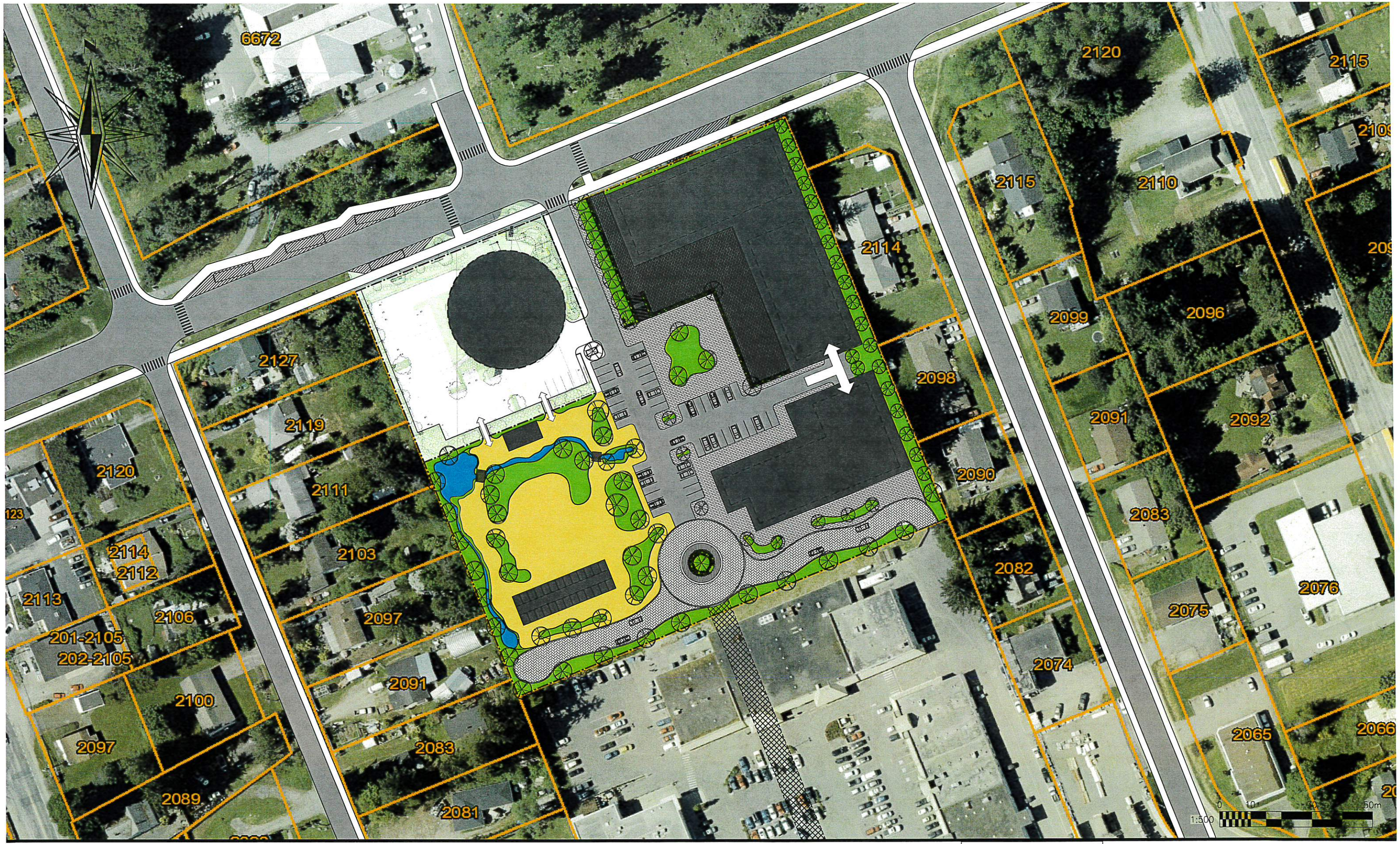
Feb 19/20

Kyle Stubbs, P.Eng, LEED AP
Project Manager

ENCL:

- District of Sooke Conceptual Site Plan and Servicing Layout
- Ryzuk Geotechnical Report – Dated February 27, 2018
- CTC and P2 Zoning Specifications
- Westbrook Consulting Ltd. Preliminary Sooke Library Design Drawings 322001-322005
- Westbrook Consulting Ltd. Concept Stormwater Management Plan – Dated February 19, 2020
- Stantec Sanitary Serviceability Review – Dated February 3, 2020
- Westbrook Consulting Ltd. Fire Flow Requirements – Dated February 19, 2020
- Westbrook Consulting Ltd. Class D Cost Estimate – Dated February 18, 2020

H:\PROJECTS\3483 6671 Wadams Way\02C Correspondence\L20200218 Summary.docx
2/18/2020 4:32 PM

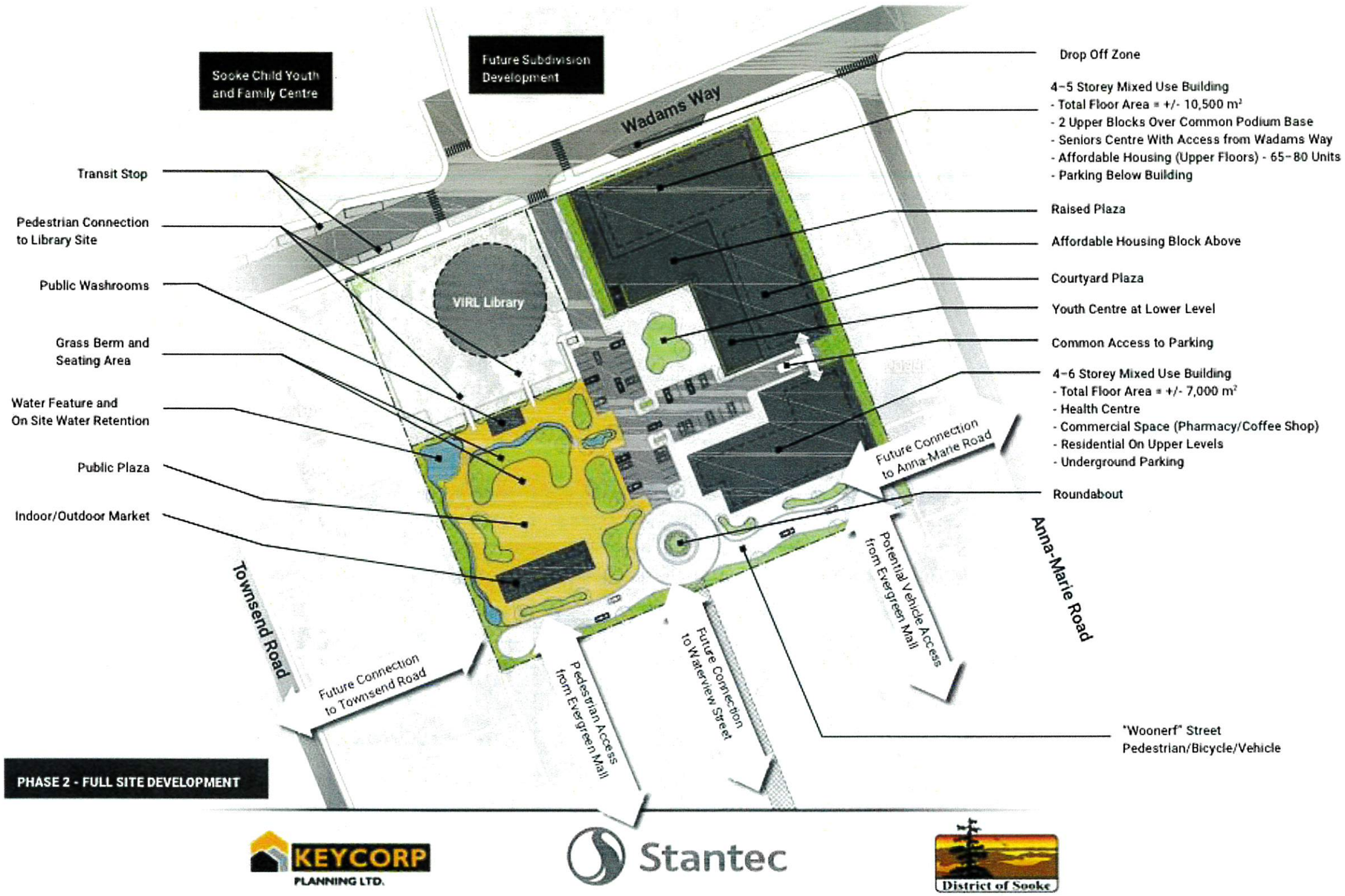


KEYCORP PLANNING LTD.

Stantec

District of Sooke

Attachment #1 - Lot A Concept Site Plan



Attachment #2 – Servicing Layout

Red – Sewer

Blue – CRD Water

Green – Storm Water

RYZUK GEOTECHNICAL
Engineering & Materials Testing

28 Crease Avenue, Victoria, BC, V8Z 1S3 Tel: 250-475-3131 Fax: 250-475-3611 www.ryzuk.com

February 27, 2018
File No: 8-3686-3

Vancouver Island Regional Library
PO Box 3333
6250 Hammond Bay Road
Nanaimo, BC
V9R 5N3

Attn: Joel Adams (By Email: jadams@virl.bc.ca)

Re: Sooke Library Soils Investigation
6617 Wadams Way – Sooke, BC

As requested, we have completed a geotechnical investigation of the soil conditions at the referenced site. This report summarizes the results of our investigation and associated recommendations as related to the proposed development. Our work in this regard has been carried out in accordance with, and is subject to, the attached Terms of Engagement.

EXISTING SITE CONDITIONS

The existing square shaped lot at 6617 Wadams Way is bounded by Wadams Way to the north, developed residential properties to the east and west, and a commercial development to the south. The terrain slopes down steeply from Wadams Way dropping approximately 2 to 3 m at approximately 45 degrees. South of this embankment, the site slopes at a gentle inclination between 5 and 10 degrees, undulating down to the south. A small ephemeral drainage course flows from west to east roughly through the middle of the lot, near the southern end of the proposed development area. Within the western half of the site, there is a pile of fill material which extends some 2 to 4 m above the surrounding site grades. We noted several of the low areas contained ponded water. Near the eastern half of the site there is a 0.3 m diameter culvert which drains to the east.

PROPOSED DEVELOPMENT

The proposed development will consist of a new library building and parking area on the northern half of the lot. We understand that the proposed structure will generally consist of a single story raised building, with the main floor located above an at grade open parking area. We anticipate that the building will comprise a reinforced concrete structure, with light to moderate foundations loads. A new driveway and surface parking area will also be constructed along with the new building.

INVESTIGATION & SUBSURFACE CONDITIONS

Our geotechnical investigation consisted of a review of available geological mapping and previous projects within the area, as well as our site attendance on February 02, 2018, to carry out a shallow subsurface investigation and microtemor survey. A review of geological maps and our previous work on

nearby projects indicates that the subsurface soil conditions at the site consisted of stiff to very stiff native silt and clay, with overlying topsoil and/or sand and gravel, which was confirmed during test pitting. Bedrock would not be expected within the depth of excavation required for this development. The attached Location Plan, Drawing No. 8-3686-3-1, shows the approximate test pit and microtremor survey locations.

A total of 11 test pits were advanced utilizing a rubber tire backhoe at select locations across the site, to depths between 1.4 and 2.0 m. Subsurface soil conditions as exposed in the test pits were consistent across the site, and soil stratigraphy generally consisted of 0.1 to 0.5 m of topsoil with roots overlying native mineral soils. Native mineral soils consisted of firm to very stiff light brown/grey silt with trace gravel, sand, clay. The silt was generally stiff to very stiff below a depth of 1.0 m. In test holes TP18-01, 10 and 11, on the eastern half of the site, cobbles were apparent at depths of between 0.6 and 1.4 m. As well, boulders ranging in diameter from 0.3 to 0.6 m were apparent at the surface across the site, and in test holes TP18-01 and 10. For additional details see attached Table 1: Summary of Test Pit Conditions.

Two microtremor surveys were conducted near the proposed building foundation locations. The microtremor surveys were conducted using our microtremor unit (Tromino), which measures and records small vibrations at the ground surface that can then be interpreted to provide an indication of seismic site class in conjunction with the geological setting. The analysis of the Fundamental Site Frequency data from the microtremor surveys revealed a range of depths to bedrock from 5 to 6 m below the existing site grade near the two building foundation locations.

Long term groundwater observations were not included in this scope of work. Surface runoff was observed to collect in two large low-lying areas near the western half of the site, and in the small drainage channel as noted above. During test pitting, groundwater seepage was observed at depths of between 0.5 and 1.1 m and appeared to be confined by the relatively impermeable native silt layer. From a review of well logs from nearby water wells, the static groundwater table appeared to be 9 to 10 m below the surface. Due to the impermeable site soils, we expect perched groundwater conditions exist nearer to the surface. The perched groundwater table is expected to be located at the stiff native silt layer, approximately 0.7 to 1.3 m below the existing ground surface. During periods of heavy and/or prolonged rainfall shallow/perched groundwater flows at the stiff native silt interface may be more prominent, resulting in near surface water levels and even surface water ponding in low-lying areas as observed on site.

GEOTECHNICAL ASSESSMENT AND RECOMMENDATIONS

On the basis of our investigation, we do not anticipate any unique geotechnical issues relating to development at this site as proposed. We expect that the foundations will include conventional spread footings bearing on stiff to very stiff native silts for all building areas. We anticipate that excavations on site can be done using open cutslopes as detailed below. As noted previously, perched groundwater was encountered near the surface, and dewatering will need to be undertaken to manage groundwater in excavations.

Excavation Considerations

Excavations will be associated with building footings and site servicing. In both cases, excavations are expected to not be deeper than 3 m. Bedrock was not encountered during the subsurface investigation, and

as such blasting of bedrock is not anticipated. If any blasting is conducted on site, it will need to be undertaken with care so as to not impact nearby properties or infrastructure. During construction, we expect that temporary excavation cutslopes will be stable at the following general configurations:

- 0.75H:1.0V (horizontal to vertical) surface topsoil and fills
- 0.5H:1.0V stiff to very stiff native silts

Depending on when the work is carried out, cutslopes in the native silts may need to be covered with polyethylene sheeting immediately after excavation to reduce erosion damage to cutslopes as a result of rainfall. Adjustments to the above configurations may be required upon site inspection during construction if variations of the soil conditions or seepage are observed. According to WorkSafeBC guidelines, excavations deeper than 1.2 m must be inspected and approved by a qualified geotechnical professional, unless sloped in accordance with the guidelines.

Due to the perched groundwater table conditions as previously noted, we expect water ingress will occur during the excavation and will need to be addressed with conventional dewatering methods using portable pumps and temporary sumps. Periodic dewatering of low areas within the excavation will be required, and discharge volumes will need to be treated per the erosion and sedimentation plan as specified by the civil consultant. Typically, groundwater can be addressed by gently sloping excavation areas to a low point, or temporary sump, where the water can then be collected and pumped out. A large amount of water observed at or near the existing ground surface, and as such could be directed away from excavation areas via temporary surface swales and grading, which would reduce the amount of water encountered in the excavations.

Seismic Considerations

Greater Victoria is situated in a region of very high seismicity. Considerable earthquake risk exists, stemming from our proximity to the Cascadia subduction zone and numerous more local faults in southwestern BC and northwestern Washington State. Based on our observations onsite and knowledge of the soil conditions from past work in the area, we expect that the Vs30 for the site to be between 360 and 760 m/s, which would correspond to a seismic site class of 'C'. Based on the 2010 National Building Code Seismic Hazard Calculation, for a 2% probability of exceedance in 50 years, the Peak Ground Acceleration (PGA) and Spectral Acceleration Values for seismic site class 'C are shown in Table 1:

Table 1. Summary of PGA and Spectral Acceleration Values (NBC 2010)

Period (sec)	**0.2**	**0.5**	**1.0**	**2.0**	**PGA (g)**
Response (g) Site Class 'C'	1.10	0.75	0.36	0.18	0.53

Note that at the time of report writing, the 2015 National Building Code (NBC) had been published. Similarly, the 2015 NBC Seismic Hazard Calculation, which includes new methods of calculating hazard values, has been released. Generally, British Columbia adopts the NBC within three years of the initial publication date. It is anticipated that the adoption of the 2015 NBC in the form of the British Columbia Building Code will occur sometime in 2018. If the proposed building is designed and constructed based on a new version of the BC Building Code, the following seismic hazard values, based on the 2015 NBC Seismic Hazard Calculation, are provided in Table 2.

Table 2: Summary of PGA and Spectral Acceleration Values (NBC 2015)

Period (sec)	0.2	0.5	1.0	2.0	5.0	10.0	PGA (g)	PGV (m/s)
Response (g) Site Class 'C'	1.35	1.24	0.76	0.45	0.14	0.05	0.61	0.88

Settlement Considerations

Provided unsuitable soils (topsoils or fills) are removed from all building/foundation areas, and other areas of expected moderate loading, we expect that settlement at this site will be minor, if any, and of minimal significance to the structural or geotechnical design.

Foundations

We expect that conventional pad and strip footings will be used for the proposed building. At a minimum, all existing topsoil and fill will need to be removed from the proposed building locations. Provided the footings bear directly on undisturbed native mineral soils, or engineered fill placed upon such, foundation elements can be dimensioned using ultimate limit state (ULS) bearing resistances of 225 kPa and 255 kPa for strip and pad footings respectively, assuming a geotechnical resistance factor of 0.5 as per the current Canadian Foundation Engineering Manual. For serviceable limit state (SLS), bearing resistances of 150 kPa and 170 kPa can be used for strip and pad footings respectively. Actual bearing resistances of the foundation subgrade will need to be confirmed at the time of construction.

We recommend minimum footing widths of 400 and 600 mm for strip and pad footings, respectively. For frost protection, the base of all footings should extend to a depth of at least 450 mm below adjacent finished grades.

Foundation Wall Backfill

Foundation walls should be backfilled per the Engineered Fill section. Where the grade elevation differs significantly between the two sides of a perimeter wall, and the wall is free to rotate in order to develop the active earth pressure state (rotation of 0.1% of the wall height, non rigid wall), the wall should be designed to resist a lateral earth pressure (due to granular backfill) similar in magnitude and distribution to that of a fluid having a unit weight of 6.3 kN/m^3. Lateral earth pressures due to floor loadings and/or foundation loads from adjacent portions of the building can be calculated assuming a lateral coefficient of 0.35. Where the wall cannot rotate (rigid wall), it should be designed to resist an at rest lateral earth pressure loading, similar in magnitude and distribution to that of a fluid having a unit weight of 8.6 kN/m^3. In this case, lateral earth pressure due to floor loadings and/or foundation loads from adjacent buildings can be calculated assuming a lateral coefficient of 0.45. Equipment larger than a bobcat should not be allowed within 1.5 m of the foundation walls during backfilling.
Lateral earth pressures resulting from seismic activity can be calculated according to the following equations:

Non Rigid Wall : $P_E = 0.375\ k_h\ \gamma\ H^2$
Rigid Wall : $P_E = 0.5\ k_h\ \gamma\ H^2$

where:

- P_E is the resultant force per unit length of wall;
- the coefficients of 0.375 and 0.5 are dimensionless;
- k_h is the design peak horizontal ground acceleration coefficient;
- γ is the moist unit weight of the backfill material, which is approximately 20.4 kN/m^3 for most granular backfill;
- H is the height of the wall

In the case of the non rigid wall, the backfill pressure distribution resulting from the earthquake loading can be assumed to be triangular, increasing from zero at the base of the wall to a maximum of 0.75 $k_h \gamma H$ at the top of the wall, with the resultant force acting at 0.67H above the base of the wall.

In the case of the rigid wall, the backfill pressure distribution resulting from the earthquake loading can be assumed to be parabolic, with the resultant force acting at 0.5H above the base of the wall.

For design purposes, the pressure distribution resulting from earthquake loading on the backfill should be added to either the active or at rest pressure distribution depending on whether the noted wall rotation can occur.

Engineered Fill

If it is desired to raise grades back to design grade after removal of topsoil/fill material, engineered fill would be required. Engineered fill is to consist of approved well graded granular material at or near optimum moisture content. Engineered fill is to be placed on approved subgrade, in maximum 300 mm lifts and compacted to a minimum of 95% of Standard Proctor Maximum Dry Density (SPMDD), with in-situ density testing conducted to ensure compaction in the engineered fill. The engineered fill must have a footprint that extends horizontally beyond the footings a distance equal to the thickness of the engineered fill, to provide adequate splay for foundation loads. In perimeter areas, it is inadvisable to have the fill splay extend beyond property lines.

Floor Slabs

Use of a grade supported floor slab for the elevator/stairwell areas is considered feasible. A minimum 150 mm of 19 mm minus crushed rock or free draining coarse sand is recommended immediately beneath the slab, as well as a conventional subslab moisture barrier to minimize capillary rise of moisture into the slab. All subslab fill material should be compacted as per the Engineered Fill section above.

In-ground Stormwater Disposal and Site Drainage

Infiltration testing was not undertaken on site as it was concluded that there is negligible infiltration potential for the site soils, inferred from the presence of ponded water on site, the perched groundwater table, and impermeable soil conditions. As noted previously, groundwater appeared to be confined by the relatively impermeable stiff native silt layer and perched groundwater is expected near the existing ground surface. As well, two low-lying areas with up to 0.5 m of ponded water were observed on the western half of the site, with a small drainage course running along the south site property line, flowing from west to east. A provision may be needed to address ponded water in the low-lying areas and the

drainage course running near the south edge of the site. We recommend against any stormwater infiltration at the site, which the site stormwater management plan will need to take into account.

Foundation Drainage

Conventional perimeter foundation drainage backfilled with the recommended free draining granular material will be suitable to limit hydrostatic pressure on the foundation walls. The foundation drain arrangement (perforated pipe and uniform gravel/drain rock) should be covered with non-woven geotextile filter fabric, or a suitably graded granular medium, to prevent migration of finer materials from the backfill into voids within the drain arrangement. Any pits below perimeter drainage are to be gravity drained or tanked and pumped.

Pavement / Road Structure

For light traffic areas, such as driveways and parking, pavement structure should consist of a minimum of 50 mm of asphalt over 100 mm of 20 mm minus road base gravel overtop of 150 mm of 75 mm minus gravel. For roads and heavier traffic areas, we recommend a minimum pavement structure of 75 mm of asphalt over 150 mm of 20 mm minus road base gravel overtop of 150 mm of 75 mm minus gravel. All pavement structure materials are to be compacted to 95% Modified Proctor Maximum Dry Density (MPMDD).

CLOSURE

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

Yours very truly,
Ryzuk Geotechnical

Shane Haxton, EIT
Junior Engineer

Andrew Jackson, P.Geo.
Review Geoscientist

PROFESSIONAL
PROVINCE OF
A. R. JACKSON
38270
BRITISH COLUMBIA
GEOSCIENTIST

Attachments:
- Terms of Engagement
- Drawing 8-3686-3-1, Location Plan
- Table 1: Summary of Test Pit Conditions

cc: HDR / CEI Architecture Associates, Inc.
Attn: Danielle Pepin, Dipl. Arch.Tech, Leed ap (By Email: Danielle.Pepin@hdrcei.com)

TERMS OF ENGAGEMENT

GENERAL

Ryzuk Geotechnical (the Consultant) shall render the Services, as specified in the agreed Scope of Services, to the Client for this Project in accordance with the following terms of engagement. The Services, and any other associated documents, records or data, shall be carried out and/or prepared in accordance with generally accepted engineering practices in the location where the Services were performed. No other warranty, expressed or implied is made. The Consultant may, at its discretion and at any stage, engage sub-consultants to perform all or any part of the Services.

Ryzuk Geotechnical is a wholly owned subsidiary of C. N. Ryzuk & Associates Ltd.

COMPENSATION

All charges will be payable in Canadian Dollars. Invoices will be due and payable by the Client on receipt of the invoice without hold back. Interest on overdue accounts is 24% per annum.

REPRESENTATIVES

Each party shall designate a representative who is authorized to act on behalf of that party and receive notices under this Agreement.

TERMINATION

Either party may terminate this engagement without cause upon thirty (30) days' notice in writing. On termination by either party under this paragraph, the Client shall forthwith pay to the Consultant its Charges for the Services performed, including all expenses and other charges incurred by the Consultant for this Project.

If either party breaches this engagement, the non-defaulting party may terminate this engagement after giving seven (7) days' notice to remedy the breach. On termination by the Consultant under this paragraph, the Client shall forthwith pay to the Consultant its Charges for the Services performed to the date of termination, including all fees and charges for this Project.

ENVIRONMENTAL

The Consultant's field investigation, laboratory testing and engineering recommendations will not address or evaluate pollution of soil or pollution of groundwater. The Consultant will cooperate with the Client's environmental consultant during the field work phase of the investigation.

PROFESSIONAL RESPONSIBILITY

In performing the Services, the Consultant will provide and exercise the standard of care, skill and diligence required by customarily accepted professional practices and procedures normally provided in the performance of the Services contemplated in this engagement at the time when and the location in which the Services were performed.

INSURANCE

Ryzuk Geotechnical is covered by Professional Indemnity Insurance as follows:

1. $ 2,000,000 each and every claim
2. $ 4,000,000 aggregate
3. $ 5,000,000 commercial/general liability coverage

LIMITATION OF LIABILITY

The Consultant shall not be responsible for:

1. the failure of a contractor, retained by the Client, to perform the work required for the Project in accordance with the applicable contract documents;
2. the design of or defects in equipment supplied or provided by the Client for incorporation into the Project;
3. any cross-contamination resulting from subsurface investigations;
4. any Project decisions made by the Client if the decisions were made without the advice of the Consultant or contrary to or inconsistent with the Consultant's advice;
5. any consequential loss, injury or damages suffered by the Client, including but not limited to loss of use, earnings and business interruption;
6. the unauthorized distribution of any confidential document or report prepared by or on behalf of the consultant for the exclusive use of the Client
7. Subsurface structures and utilities

The Consultant will make all reasonable efforts prior to and during subsurface site investigations to minimize the risk of damaging any subsurface utilities/mains. If, in the unlikely event that damage is incurred where utilities were unmarked and/or undetected, the Consultant will not be held responsible for damages to the site or surrounding areas, utilities/mains or drilling equipment or the cost of any repairs.

The total amount of all claims the Client may have against the Consultant or any present or former partner, executive officer, director, stockholder or employee thereof under this engagement, including but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to the amount of any professional liability insurance the Consultant may have available for such claims.

No claim may be brought against the Consultant in contract or tort more than two (2) years after the date of discovery of such defect.

DOCUMENTS AND REPORTING

All of the documents prepared by the Consultant or on behalf of the Consultant in connection with the Project are instruments of service for the execution of the Project. The Consultant retains the property and copyright in these documents, whether the Project is executed or not. These documents may not be used on any other project without the prior written agreement of the Consultant.

The documents have been prepared specifically for the Project, and are applicable only in the case where there has been no physical alteration to, or deviation from any of the information provided to the Consultant by the Client or agents of the Client. The Client may, in light of such alterations or deviations, request that the Consultant review and revise these documents.

The identification and classification as to the extent, properties or type of soils or other materials at the Project site has been based upon investigation and interpretation consistent with the accepted standard of care in the engineering consulting practice in the location where the Services were performed. Due to the nature of geotechnical engineering, there is an inherent risk that some conditions will not be detected at the Project site, and that actual subsurface conditions may vary considerably from investigation points. The Client must be aware of, and accept this risk, as must any other party making use of any documents prepared by the Consultant regarding the Project.

Any conclusions and recommendations provided within any document prepared by the Consultant for the Client has been based on the investigative information undertaken by the Consultant, and any additional information provided to the Consultant by the Client or agents of the Client. The Consultant accepts no responsibility for any associated deficiency or inaccuracy as the result of a miss-statement or receipt of fraudulent information.

JOBSITE SAFETY AND CONTROL

The Client acknowledges that control of the jobsite lies solely with the Client, his agents or contractors. The presence of the Consultant's personnel on the site does not relieve the Client, his agents or contractors from their responsibilities for site safety. Accordingly, the Client must endeavor to inform the Consultant of all hazardous or otherwise dangerous conditions at the Project site of which the Client is aware.

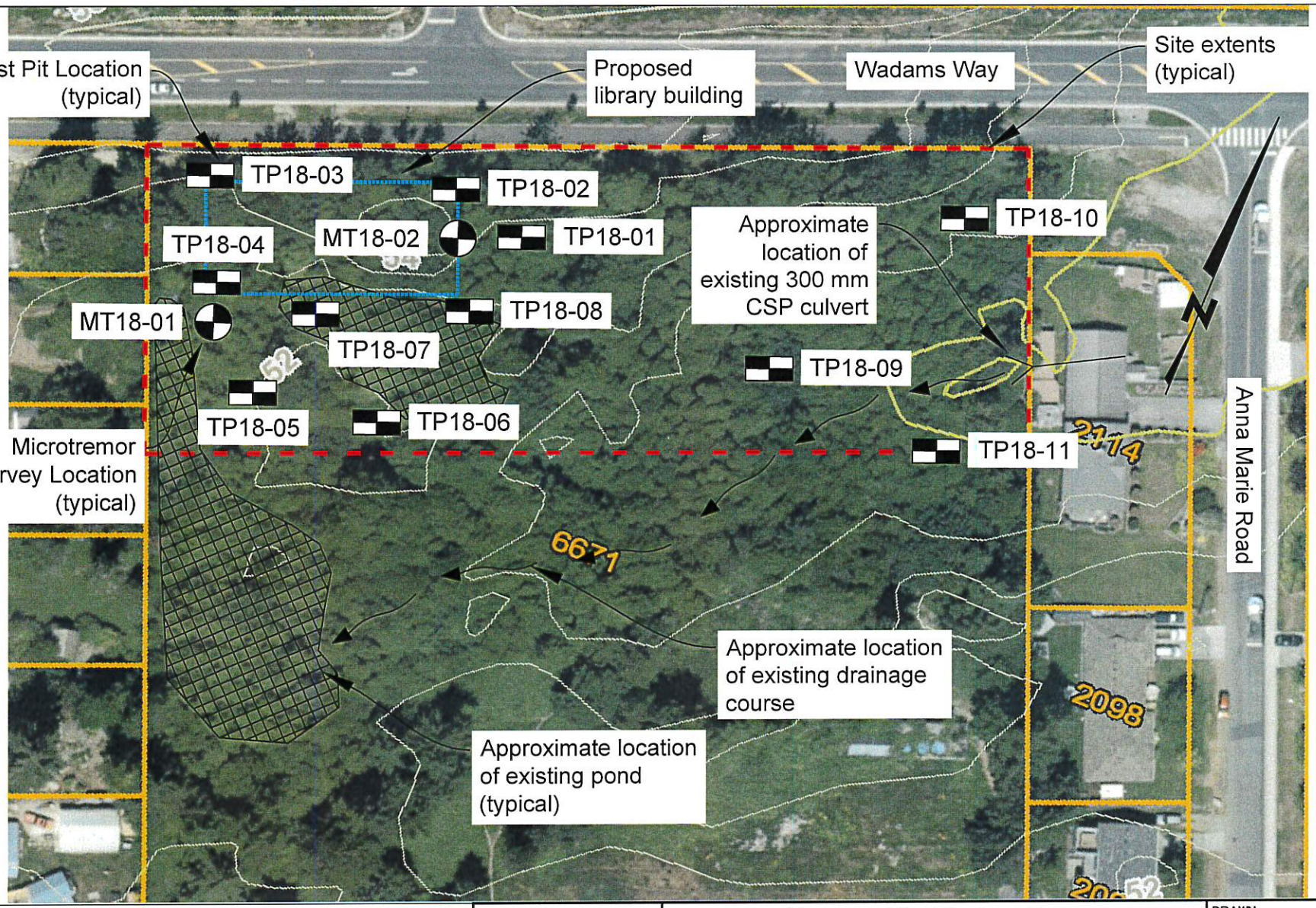
The client must acknowledge that during the course of a geotechnical investigation, it is possible that a previously unknown hazard may be discovered. In this event, the Client recognizes that such a hazard may result in the necessity to undertake procedures which ensure the safety and protection of personnel and/or the environment. The Client shall be responsible for payment of any additional expenses incurred as a result of such discoveries, and recognizes that under certain circumstances, discovery of hazardous conditions or elements requires that regulatory agencies must be informed. The Client shall not bring about any action or dispute against the Consultant as a result of such notification.

FIELD SERVICES

Where applicable, field services recommended for the Project are the minimum necessary, in the sole discretion of the Consultant, to observe whether the work or a contractor retained by the Client is being carried out in general conformity with the intent of the Services. Any reduction from the level of services recommended will result in the Consultant providing qualified certifications for the work.

DISPUTE RESOLUTION

If requested in writing by either the Client or the Consultant, the Client and the Consultant shall attempt to resolve any dispute between them arising out of or in connection with this Agreement by entering into structured non-binding negotiations with the assistance of a mediator on a without prejudice basis. The mediator shall be appointed by agreement of the parties. If a dispute cannot be settled within a period of thirty (30) calendar days with the mediator, the dispute shall be referred to and finally resolved by arbitration under the rules of the arbitrator appointed by agreement of the parties or by reference to a Judge of the British Columbia Court.



Notes:

1. Background image from CRD Maps 2015 imagery, taken January 31, 2018.
2. Library Builidng Plan from HDR CEI Architecture Associates, Inc. drawing

Vancouver Island Regional Library	DRAWN STH
LOCATION PLAN Sooke Library Soils Investigation 6671 Wadams Way Sooke, B.C.	DATE JAN, 2018 APPROVED SCALE N.T.S.
RYZUK GEOTECHNICAL Engineering & Materials Testing	DRAWING No. 8-3686-3-1

RYZUK GEOTECHNICAL
ENGINEERING & MATERIALS TESTING

Practical. Innovative. Experienced.

Project: Sooke Library Soils Investigation
6617 Wadams Way – Sooke, BC
Client: Vancouver Island Regional Library

Investigation Date: February 02, 2018
Location: See Location Plan drawing 8-3686-3-1

Inspector: STH
Ryzuk Job Number: 8-3686-3

Table 1: Summary of Test Pit Information

Test Pit 18-01 (TP18-01)

Stratigraphy:

0.0	to	0.2 m	Topsoil – dark brown, some roots, trace sand, moist
0.2	to	0.8 m	SILT – firm to stiff, brown, some gravel and roots, trace cobbles and boulders, moist to wet
0.8	to	1.4 m	SILT – stiff to very stiff, light grey, trace sand, moist
	at	1.4 m	End of test pit – desired depth

Notes: Seepage observed at 0.8 m, boulders encountered at 0.6 m and 1.4 m

Test Pit 18-02 (TP18-02)

Stratigraphy:

0.0	to	0.2m	Topsoil – dark brown, trace roots and sand, moist
0.2	to	0.9 m	SILT – firm, red / brown, some sand and gravel, trace clay and cobbles, moist to wet
0.9	to	1.5 m	SILT – stiff to very stiff, light grey, trace sand, moist
	at	1.5 m	End of test pit – desired depth

Notes: Seepage observed at 1.0 m

Test Pit 18-03 (TP18-03)

Stratigraphy:

0.0	to	0.2m	Topsoil – dark brown, trace roots and sand, moist
0.2	to	0.7 m	SILT – firm to stiff, brown, trace clay, sand and gravel, moist
0.7	to	2.0 m	SILT – stiff to very stiff, light grey, trace sand, moist
	at	2.0 m	End of test pit – desired depth

Notes: Minor seepage observed at 0.7 m, silt turns very stiff at 1.2 m

Test Pit 18-04 (TP18-04)

Stratigraphy:

0.0	to	0.1m	Topsoil – dark brown, trace roots and sand, moist
0.1	to	0.6 m	SILT – firm to stiff, brown, trace sand, moist to wet
0.6	to	1.3 m	SILT – stiff, light brown / grey mottled orange, trace clay, moist
1.3	to	1.8 m	SILT – stiff to very stiff, light brown / grey, trace clay, moist
	at	1.8 m	End of test pit – desired depth

Notes: Seepage observed at 0.6 and 0.9 m

Test Pit 18-05 (TP18-05)

Stratigraphy:

0.0	to	0.15m	Topsoil – dark brown, trace roots, moist to wet
0.15	to	0.8 m	SILT – stiff, light brown / grey mottled orange, some gravel, trace sand, moist
0.8	to	1.0 m	SILT – firm to stiff, dark brown, some organics, trace sand, wet
1.0	to	1.5 m	SILT – stiff to very stiff, light grey, trace sand and clay, moist
	at	1.5 m	End of test pit – desired depth

Notes: Seepage observed at 0.8 m

Test Pit 18-06 (TP18-06)

Stratigraphy:

0.0	to	0.1m	Topsoil – dark brown, trace roots, moist to wet
0.1	to	0.7 m	SILT – firm to stiff, brown, trace sand, moist
0.7	to	1.0 m	SILT – firm to stiff, dark brown, some organics, trace sand, wet
1.0	to	1.4 m	SILT – stiff, light grey, trace clay and sand, moist
1.4	to	1.9 m	SILT – stiff, bluish grey, some sand, trace clay, moist
	at	1.9 m	End of test pit – desired depth

Notes: Seepage observed at 0.7 m

Test Pit 18-07 (TP18-07)

Stratigraphy:

0.0	to	0.15m	Topsoil – dark brown, some roots, moist to wet
0.15	to	0.7 m	SILT – firm, dark brown / brown, trace sand, moist
0.7	to	1.1 m	SILT – firm, dark brown, sandy, some organics, wet
1.1	to	1.4 m	SILT – firm to stiff, light brown, trace clay and sand, moist
1.4	to	1.8 m	SILT – stiff, bluish light grey mottled orange, some sand, trace clay, moist
	at	1.8 m	End of test pit – desired depth

Notes: Seepage observed at 1.1 m

Test Pit 18-08 (TP18-08)

Stratigraphy:

0.0	to	0.1m	Topsoil – dark brown, some roots, moist to wet
0.1	to	0.9 m	SILT – firm, brown, trace sand and roots, moist
0.9	to	1.1 m	SILT – firm, dark brown, some sand and organics, wet
1.1	to	1.7 m	SILT – stiff, light brown / grey, trace sand and clay, moist to wet
	at	1.7 m	End of test pit – desired depth

Notes: Significant seepage and old 100 mm clay pipe observed at 1.1 m

Test Pit 18-09 (TP18-09)

Stratigraphy:

0.0	to	0.5m	Topsoil – dark brown, some silt and roots, trace ash and sand, moist
0.5	to	1.0 m	SILT – firm to stiff, light brown / grey mottled orange, some cobbles, trace sand, gravel and roots, moist
1.0	to	1.4 m	SILT – stiff to very stiff, light grey / light brown, trace clay, sand and gravel, moist
	at	1.4 m	End of test pit – desired depth

Notes: Seepage observed at 0.5 m

Test Pit 18-10 (TP18-10)

Stratigraphy:

0.0	to	0.4m	Topsoil – dark brown / brown, some silt and gravel, trace sand, roots and cobbles, moist
0.4	to	1.2 m	SILT – stiff, brown / grey, some gravel and cobbles, trace sand, moist
1.2	to	1.6 m	SILT – stiff to very stiff, grey, trace clay, gravel and cobbles, moist
	at	1.6 m	End of test pit – desired depth

Notes: Minor seepage observed at 1.0 m, 0.4 m diameter boulder encountered at 1.2 m

Test Pit 18-11 (TP18-11)

Stratigraphy:

0.0	to	0.3m	Topsoil – dark brown / brown, some roots, moist
0.3	to	1.2 m	SILT – stiff, light brown / grey, trace sand, gravel and cobbles, moist
1.2	to	1.5 m	SILT – stiff to very stiff, light grey, trace clay and sand, moist
	at	1.5 m	End of test pit – desired depth

Notes: Seepage observed at 0.7 m

Town Centre Mixed Use

CTC

405.1 **Purpose:** This zone provides for a wide range of commercial uses in the Town Centre

405.2 **Permitted Uses:**

Principal Uses:

a) Amusement facility – indoor
b) Apartment building *
c) Art gallery
d) Artisan industry
e) Assembly use
f) Auction rooms, excluding external storage
g) Auto service facility *
h) Bakery
i) Brew pub
j) Bus depot
k) Car wash
l) Cluster dwelling units
m) Commercial exhibit
n) Commercial school
o) Country market
p) Equipment sales/rentals including service & repair
q) Financial institution
r) Funeral home
s) Gas bar *
t) Hardware store
u) Health services
v) Hostel
w) Hotel and/or motel
x) Household equipment sales, service & repair
y) Institutional use
z) Live-work*
aa) Micro Brewery *[Added by Bylaw 630 (600-22) Adopted March 21, 2016]*
bb) Mixed commercial residential uses
cc) Office
dd) Parking lot, parkade
ee) Personal services
ff) Place of worship
gg) Plant nursery
hh) Playground
ii) Printer/publisher
jj) Private club
kk) Pub
ll) Residential above the first storey *
mm) Restaurant
nn) Retail*
oo) School
pp) Shopping centre
qq) Theatres
rr) Townhouse
ss) Vehicle repair*
tt) Veterinary clinic in an enclosed building

Accessory Uses:

uu) Accessory dwelling unit, one per lot *[Added by Bylaw 630 (600-22) Adopted March 21, 2016]*
vv) Limited home-based business
ww) Employee housing*

** See conditions of use.*

405.3 **Minimum Lot Size for Subdivision Purposes**: 600 m^2

405.4 **Minimum Width for Subdivision Purposes**: 15 m

405.5 Maximum Height: **See conditions of use.*

a) Principal Buildings: 6 storeys up to 22 m
b) Accessory Buildings: 9 m

Schedule 405 – Town Centre Mixed Use (CTC)

405.6 Maximum Lot Coverage: 85%

405.7 Minimum Setbacks:

Use	Front Lot Line	Flanking Lot Line	Side Lot Line	Rear Lot Line	Lane Lot Line
First storey of Building or Structure	0 m	0 m	0 m	0 m	0 m
Adjacent to Duplex/ Single Family Dwelling or Existing Housing per Town Centre Plan*	0 m	0 m	4.5 m	4.5 m	0 m

405.8 Conditions of Use:

a) The provisions of the RM4 zone apply to apartment buildings without commercial uses on the first storey.
b) Gross floor area for a single retail use other than grocery must not exceed 2200 m^2. Gross floor area for a grocery store must not exceed 3000 m^2.
c) Recession plane rules may apply for developments more than 6 m (2 storeys) in height. See General Regulations.
d) Accessory dwelling units must be located above or to the rear of the principal use. *[Amended by Bylaw 630 (600-22) Adopted March 21, 2016]*
e) Notwithstanding section 405.2, the following uses are only permitted north of Highway #14:
    i) Auto service facility
    ii) Equipment sales, repairs and rentals
    iii) Gas bar
    iv) Service station
    v) Vehicle repair
f) Live–work dwellings:
    i) Must be constructed as an employee housing unit within a mixed use building;

ii) Must have a private, exterior, residential entrance separate from the principal use;

iii) Parking for the residence must be the same as single family residential requirements.

g) Notwithstanding the Permitted Uses set out in section 405.2 for properties in the CTC zone, on the property identified as *Lot A, Section 10, Sooke District, Plan EPP32715*, Bus depot, Car wash, Cluster dwelling units, Funeral home, Plant nursery, Townhouse, Place of worship, drive-in and drive-thru facilities are prohibited uses. *(added by Bylaw No. 613 adopted September 14, 2015)*

h) Gross floor area for a Micro Brewery must not exceed 500m^2. *[Added by Bylaw 630 (600-22) Adopted March 21, 2016]*

i) Gross floor area for Artisan Industry must not exceed 200m^2. *[Added by Bylaw 630 (600-22) Adopted March 21, 2016]*

Community Facilities P2

602.1 **Purpose:** This zone provides for community facilities within the District of Sooke.

602.2 **Permitted Uses:**

Principal Uses:

a) Assembly use
c) Cemetery
d) Concession
e) Country market
f) Horticulture
g) Institutional use
h) Place of worship

Accessory Uses:

i) Accessory dwelling unit, one per lot *

**See conditions of use.*

602.3 **Minimum Lot Size for Subdivision Purposes**:

a) Within Sewer Specified Area: 600 m^2
b) Outside of Sewer Specified Area: 1 ha

602.4 **Minimum Width for Subdivision Purposes**: 30 m

602.5 **Maximum Height:**

a) Principal Buildings: 15 m
b) Accessory Buildings: 8 m

602.6 **Maximum Lot Coverage**:

a) Within Sewer Specified Area: 60%
b) Outside of Sewer Specified Area: 40%

602.7 **Minimum Setbacks:**

Use	Front Lot Line	Flanking Lot Line	Side Lot Line	Rear Lot Line
Building or Structure outside Sewer Specified Area	3 m	3 m	1.5 m	4.5
Building or Structure inside Sewer Specified Area	0 m	0 m	0 m	0 m
Adjacent to residential zones, including CD zones	0 m	0 m	6 m	6 m

602.8 Conditions of Use:

If an accessory dwelling unit is a detached single family residential dwelling, it must be located above or to the rear of the principal use.

GENERAL NOTES

- ALL CONSTRUCTION AND MATERIALS TO BE IN ACCORDANCE WITH THE DISTRICT OF SOOKE SUBDIVISION AND DEVELOPMENT SERVICE BYLAW No. 404 UNLESS OTHERWISE NOTED.
- WHEN A CONFLICT BETWEEN THE SPECIFICATIONS ARISES, THE MOST STRINGENT SHALL APPLY.
- OBTAIN A PERMIT TO CONSTRUCT WORKS ON A MUNICIPAL RIGHT OF WAY FROM THE DISTRICT OF SOOKE ENGINEERING DEPARTMENT TWO WORKING DAYS PRIOR TO THE START OF ANY CONSTRUCTION.
- OBTAIN A DEMO PERMIT PRIOR TO REMOVAL OF ANY NON-CONFORMING STRUCTURES.
- CONTACT BC HYDRO, TELUS, SHAW CABLE AND FORTISBC GAS TWO WORKING DAYS PRIOR TO THE START OF ANY EXCAVATION.
- EXPOSE ALL EXISTING SERVICES AT CONNECTION AND CROSSING POINTS TWO WORKING DAYS PRIOR STARTING CONSTRUCTION ON ANY SUCH SERVICES. ENSURE ENGINEER HAS CONFIRMED THE HORIZONTAL AND VERTICAL LOCATION.
- BED ALL PIPE USING CLASS 'B' BEDDING.
- WHERE A TRENCH IS UNDER OR WITHIN 1.0m OF THE EDGE OF A ROAD OR DRIVEWAY, USE PIT RUN GRAVEL BACKFILL FROM THE TOP OF THE PIPE BEDDING TO THE TOP OF THE ROAD, PARKING OR DRIVEWAY SUBGRADE.
- DO NOT START ANY BACKFILL OPERATION UNTIL THE WORKS HAVE BEEN INSPECTED BY THE ENGINEER.
- AFTER CONSTRUCTION, RESTORE WORK AREAS AND ALL EXISTING FEATURES TO THEIR ORIGINAL CONDITION OR BETTER.
- MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS ALONG WADAMS WAY DURING CONSTRUCTION.
- COMPACT TRENCH BACKFILL, ROAD BASE AND DRIVEWAY BASE TO 95% MODIFIED PROCTOR DENSITY.
- ADJUST ALL PROPOSED AND EXISTING APPURTENANCES TO MEET THE FINAL DESIGN GRADES.
- ENSURE THAT ALL SERVICES TO THE EXISTING HOUSE REMAIN USABLE DURING CONSTRUCTION AND ARE CONNECTED TO ALL NEW SERVICES.
- CONSTRUCT SEWER, DRAIN, WATER AND ROADS WITHIN PRIVATE PROPERTY IN ACCORDANCE WITH THE BC PLUMBING CODE AND BC BUILDING CODE.

SEWER AND DRAIN

- SEWER AND DRAIN SERVICE CONNECTIONS TO BE 100ø PVC DR28 AT A MINIMUM GRADE OF 2.0% COMPLETE WITH INSPECTION CHAMBERS. CATCH BASIN LEADS TO BE 150ø PVC DR28 UNLESS OTHERWISE NOTED. IF COVER IS LESS THAN 750mm, USE DUCTILE IRON PIPE.
- SEWER AND DRAIN PIPE UP TO AND INCLUDING 150mm DIAMETER TO BE PVC DR28 AND DR35 FOR 200mm DIAMETER AND OVER. PIPE TO BE C.S.A. APPROVED PVC.
- ESTABLISH THE LOW POINT OF THE EXISTING PERIMETER TILE AROUND THE EXISTING HOUSE AND CONNECT TO THE NEW DRAIN CONNECTION.
- CONTRACTOR TO DYE TEST THE EXISTING HOUSE TO DETERMINE THE DRAIN OUTLET LOCATION AT THE BOULEVARD.
- TESTING TO COMPLY WITH BYLAW 404 AS DISCUSSED IN SECTION 4 OF SCHEDULE 5.
- CONNECT ALL ENCOUNTERED DRAINS TO THE PROPOSED SERVICE CONNECTION. CONTRACTOR TO RECORD THE LOCATION, ELEVATION, PIPE MATERIAL AND SIZE FOR THE AS CONSTRUCTED DRAWINGS.
- VIDEO INSPECT ALL INSTALLED SANITARY SEWER AND STORM DRAIN MAINS ON PUBLIC AND PRIVATE PROPERTY
- DISTRICT OF SOOKE WASTEWATER STAFF TO BE PRESENT FOR ANY CONNECTION TO THE SANITARY SEWER SYSTEM.
- SEWER CERTIFICATION AND TESTING SHALL FOLLOW REQUIREMENTS SET OUT IN SECTION 4 OF SCHEDULE 5 OF SOOKE BYLAW 404

WATER

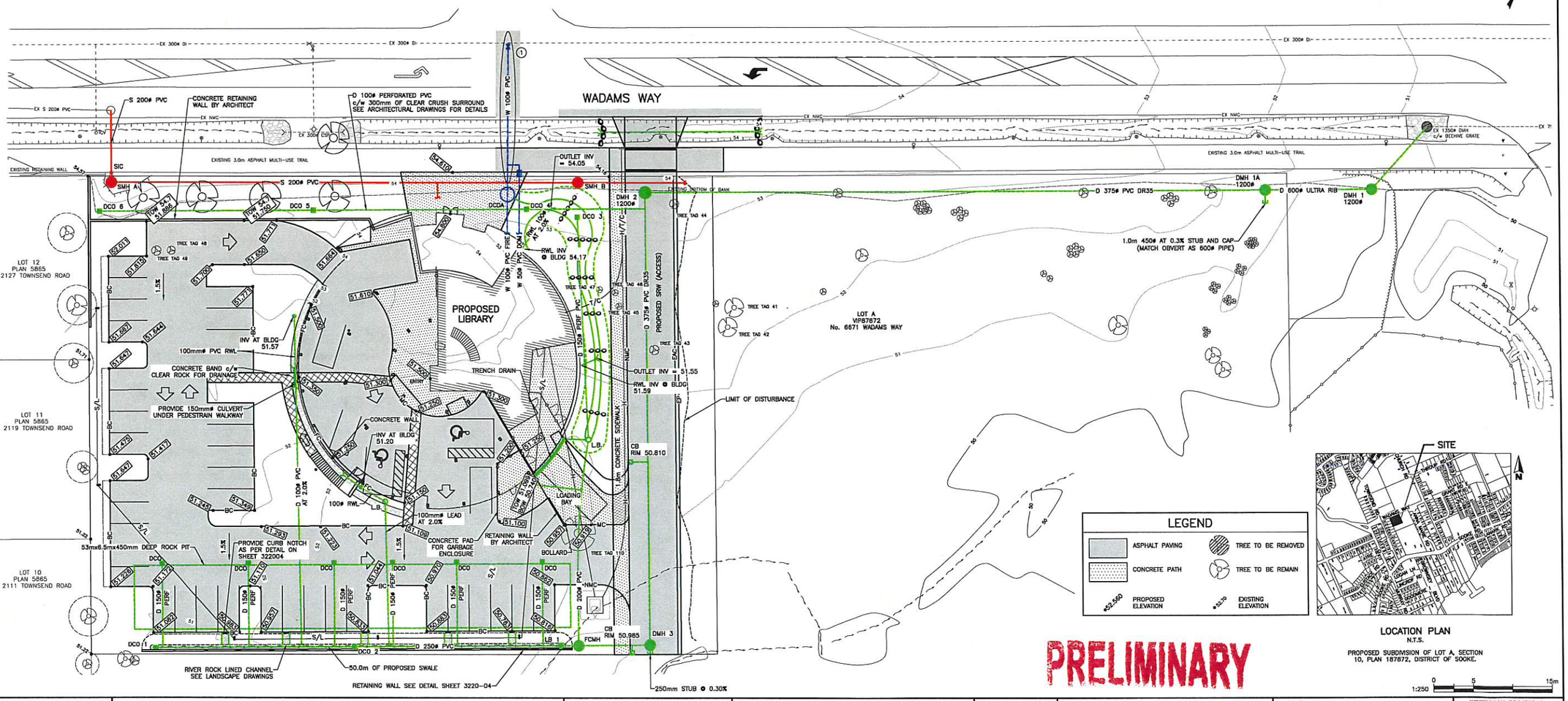
- CONSTRUCTION SHALL NOT PROCEED WITHOUT FIRST OBTAINING CRD WATER SERVICES ACCEPTANCE OF THE DESIGN DRAWINGS AND A CONSTRUCTION PERMIT FROM VIHA.
- CONTRACTOR SHALL BE REGISTERED WITH WORK SAFE BC.
- ALL WATERWORKS CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH CRD WATER SERVICES ENGINEERING SPECIFICATIONS AND STANDARD DRAWINGS.
- 19MM TO 25MM WATER SERVICES SHALL BE MUNICIPEX AS PER CRD APPROVED MATERIALS LIST.
- WATER MAINS 250ø AND UNDER 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 CRD WATER SERVICES
- WATER MAINS 300ø AND ABOVE SHALL BE DUCTILE IRON PRESSURE CLASS 350 TO AWWA C151.
- PROVIDE A MINIMUM 0.9M COVER TO A MAXIMUM OF 1.2M COVER FOR WATER MAINS UNLESS APPROVED BY A CRD FORCES ENGINEER.
- WATER MAINS 300ø AND GREATER SHALL BE MEGA LUG SERIES 1700 RESTRAINT HARNESS AT EVERY JOINT OR DUCTILE IRON TR FLEX PIPE COMPLETE WITH MEGA LUG 1100 FOR MECHANICAL JOINT RESTRAINTS.
- MARK WATER MAINS AND SERVICES BELOW GRADE USING A METALLIC DETECTABLE REINFORCED UNDERGROUND UTILITY MARKING TAPE. THE TAPE SHALL BE MINIMUM 150MM WIDE, METALLIC BLUE IN COLOUR AND SHALL BE MARKED "CAUTION: WATER LINE BURIED BELOW". INSTALL TAPE ON TOP OF THE PIPE CUSHION 300MM ABOVE THE TOP OF THE PIPE. PROVIDE "THORTEC" MARKING TAPE OR APPROVED EQUAL.
- MAINTAIN A MINIMUM OF 3M HORIZONTAL CLEAR SEPARATION AND 450MM CLEAR VERTICAL SEPARATION BETWEEN WATER MAINS AND ALL SANITARY SEWERS/SERVICES AND DRAIN SEWERS/SERVICES EXCEPT WHERE NOTED AND APPROVED BY CRD WATER SERVICES.
- 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 GASKETED PRESSURE RATED PIPE WITH A MINIMUM DR (DIMENSION RATIO) OF 28; OR HDPE MINIMUM DR17.
- MAINTAIN A MINIMUM OF 3M HORIZONTAL CLEAR SEPARATION AND 450MM 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 1.0M EXCEPT WHERE NOTED AND APPROVED BY CRD WATER SERVICES. VIHA APPROVAL IS REQUIRED FOR ANY REDUCTION IN THE SEPARATION.
- FOR CROSSING OF EXISTING SEWERS, WHERE THE WATER MAIN DOES NOT HAVE THE REQUIRED 450MM VERTICAL SEPARATION, WRAP WATER MAIN JOINTS WITH CANUS JOINT WRAP 3M EITHER SIDE OF THE WATER MAIN. WHERE A VERTICAL SEPARATION OF 150MM CANNOT BE ACHIEVED, SPECIAL MITIGATIVE MEASURES SHALL BE APPROVED BY CRD WATER SERVICES.
- WHERE NEW CATCHBASIN (CB) LEADS DO NOT HAVE A 450MM VERTICAL SEPARATION, WRAP CB LEAD JOINTS WITH CANUS JOINT WRAP.
- MAINTAIN A MINIMUM OF 1.5M HORIZONTAL CENTRE TO CENTRE AND 150MM CLEAR VERTICAL SEPARATION BETWEEN WATER MAINS AND ELECTRICAL CONDUITS, GAS MAINS AND TELEPHONE CONDUITS EXCEPT WHERE NOTED AND APPROVED BY CRD WATER SERVICES.
- MAINTAIN A MINIMUM OF 1.0M HORIZONTAL CENTRE TO CENTRE AND 150MM CLEAR VERTICAL SEPARATION BETWEEN WATER SERVICES AND ELECTRICAL, GAS AND TELEPHONE SERVICES EXCEPT WHERE NOTED AND APPROVED BY CRD WATER SERVICES.
- CONTRACTOR SHALL CONDUCT A PRESSURE TEST IN ACCORDANCE WITH CRD WATER SERVICES ENGINEERING SPECIFICATIONS AND IN THE PRESENCE OF CRD PERSONNEL.
- CONTRACTOR SHALL FLUSH AND DISINFECT WATER MAINS IN ACCORDANCE WITH AWWA STANDARDS AND AS APPROVED BY CRD WATER SERVICES. WATER SAMPLES FOR HEALTH TESTS SHALL BE COLLECTED AND PROCESSED BY CRD. PROVIDE 24 HOURS NOTICE TO CRD.
- NEUTRALIZE CHLORINE SOLUTIONS IN ACCORDANCE WITH MINISTRY OF ENVIRONMENT AND FISHERIES AND OCEANS CANADA REGULATIONS PRIOR TO DISCHARGE TO ANY DRAINAGE COURSE.
- CONTRACTOR SHALL PROVIDE 24 HOUR NOTICE TO CRD WATER SERVICES PRIOR TO PROCEEDING WITH ANY WATERWORKS.
- (1) CRD WATER SERVICES SHALL MAKE ALL CONNECTIONS TO EXISTING WATER MAINS AT DEVELOPER'S EXPENSE. CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE TO CRD WATER SERVICES FOR WORK REQUIRED BY CRD WATER SERVICES FORCES.
- WHERE PRACTICAL, SERVICE LINES AND METER BOXES SHALL BE INSTALLED TO FINISHED GRADE, OUTSIDE OF DRIVEWAYS OR PAVED AREAS.
- ANY TEMPORARY OR PERMANENT CONNECTION TO THE JUAN DE FUCA WATER DISTRIBUTION SYSTEM OR THE CRD SUPPLY SYSTEM SHALL BE PERFORMED BY CRD WATER SERVICES PERSONNEL ONLY.

ROAD

- CONSTRUCT ALL ROADWAYS AND CUL DE SACS IN ACCORDANCE WITH THE DISTRICT OF SOOKE STANDARD SPECIFICATIONS AND AS SHOWN ON THE TYPICAL SECTION AND DETAIL DRAWINGS.
- CONTRACTOR TO ENSURE EXISTING MONUMENTS ARE NOT DISTURBED DURING CONSTRUCTION. ANY MONUMENTS IN DANGER OF DISTURBANCE ARE TO BE REFERENCED BY AND, IF DISTURBED, BE REPLACED BY A B.C.L.S. AT THE CONTRACTOR'S EXPENSE.

HYDRO, TELEPHONE, CABLE, STREET LIGHTING AND GAS

- CONTACT "B.C. ONE CALL" AT 1-800-474-6886 A MINIMUM OF THREE WORKING DAYS PRIOR TO START OF CONSTRUCTION.
- LOT TO BE SERVICED UNDERGROUND.
- BC HYDRO, TELUS, SHAW CABLE AND FORTISBC FACILITIES ARE SHOWN SCHEMATICALLY ON THIS DRAWING. REFER TO UTILITY COMPANY DRAWINGS FOR CONSTRUCTION DETAILS.
- CONSTRUCT UNDERGROUND HYDRO, TELEPHONE AND CABLEVISION AS SPECIFIED AND IN ACCORDANCE WITH BC HYDRO, TELUS AND SHAW CABLE STANDARD SPECIFICATIONS AND DRAWINGS.
- THE DISTRICT OF SOOKE SHALL INSTALL THE 70w HPS P/T LUMINAIRES AND/OR 100w HPS POLEMOUNT LUMINAIRES COMPLETE WITH WIRING AT THE DEVELOPER'S EXPENSE.
- IF GAS IS REQUIRED, THE DEVELOPER IS TO CONTACT FORTISBC AT 1-888-224-2710 A MINIMUM OF 90 DAYS PRIOR TO INSTALL. FORTISBC SHALL INSTALL GAS SERVICE TO THE PROPERTY LINE.



PRELIMINARY

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND SERVICES ON THIS DRAWING MAY NOT BE ACCURATE OR COMPLETE. THE ACTUAL HORIZONTAL AND VERTICAL LOCATIONS MUST BE CONFIRMED BY UTILITY COMPANIES AND THE CONTRACTOR PRIOR TO THE START OF ANY EXCAVATION

LEGEND – Proposed services shown bold

WATER	W	EDGE PAVE.		GAS	G	ROAD SIGN		HYDRANT		MANHOLE	
SEWER	S	NON-MTBLE CURB	NMC	UNDERGROUND UTL.	H/T/C	ASPHALT		VALVE		CLEANOUT	
DRAIN	D	MOUNTABLE CURB	MC	COBRA/DAVIT LIGHT		CONCRETE		METER		CATCHBASIN	
DITCH/SWALE		FLAT CURB	FC	ORNAMENTAL STREETLIGHT		GRAVEL		REDUCER		MONUMENT	
CULVERT		BARRIER CURB	BC	POWER POLE		BRICK		FLUSH		LOT PIN	
HEADWALL		INVERT GUTTER	IG	ANCHOR		TREE		BUSHLINE		LEAD PLUG	

SEAL

REVISIONS

No.	DESCRIPTION	DATE	SIGN
7	ISSUED FOR BUILDING PERMIT	200108	WR
6	REVISED DP	191101	WR
5	DP SUPPLEMENTAL	190923	WR
4	REMOVED PARKING PULL OUT ON WADAMS WAY	190903	WR

DESIGNED	RD
DRAWN	WR
CHECKED	
DATE	MAY 2018
B.M.	
ELEV.	
SCALE Horz.	1:250
Vert.	N/A

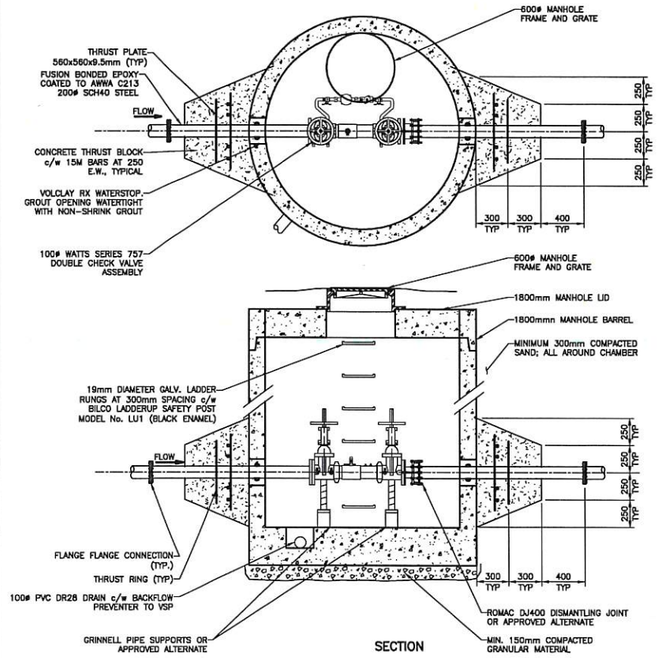
WESTBROOK Consulting Ltd.
#115 - 866 Goldstream Ave., Victoria, BC V9B 0J3
Telephone: 250-391-8592 Facsimile: 250-391-8593

PROJECT
SOOKE LIBRARY
HDR I CEI ARCHITECTURE, INC

SITE GRADING AND SERVICING PLAN

WESTBROOK PROJECT No. 3220
GOVERNING AUTHORITY FILE No.
SHEET 1 OF 5 REV. 7
WESTBROOK DRAWING No. 322001

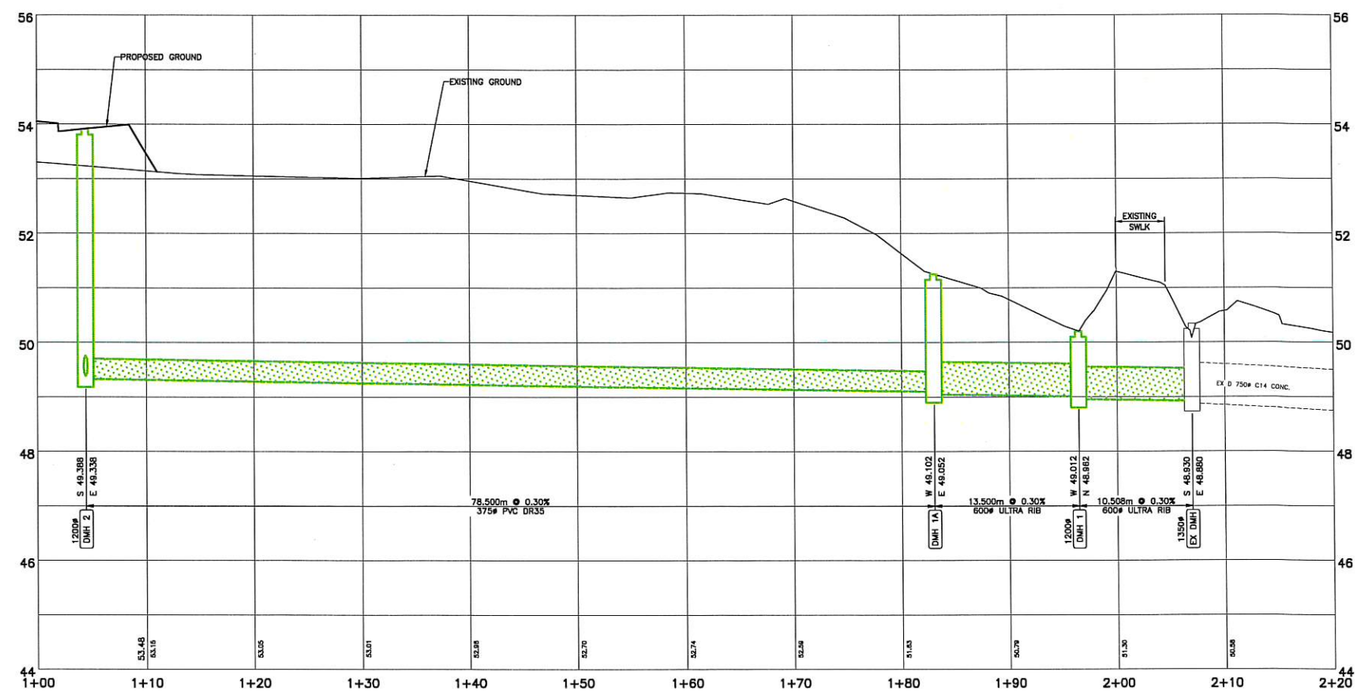
WESTBROOK CONSULTING LTD. - 2020-01-06 03:17PM H:\PROJECTS\3200 Series Library\040 Drawings\322001.dwg



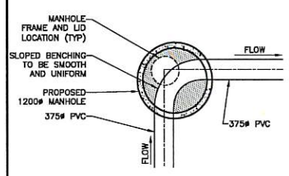
SECTION

100mm DOUBLE CHECK DETECTOR ASSEMBLY CHAMBER

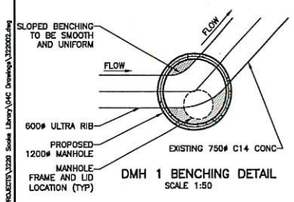
NTS



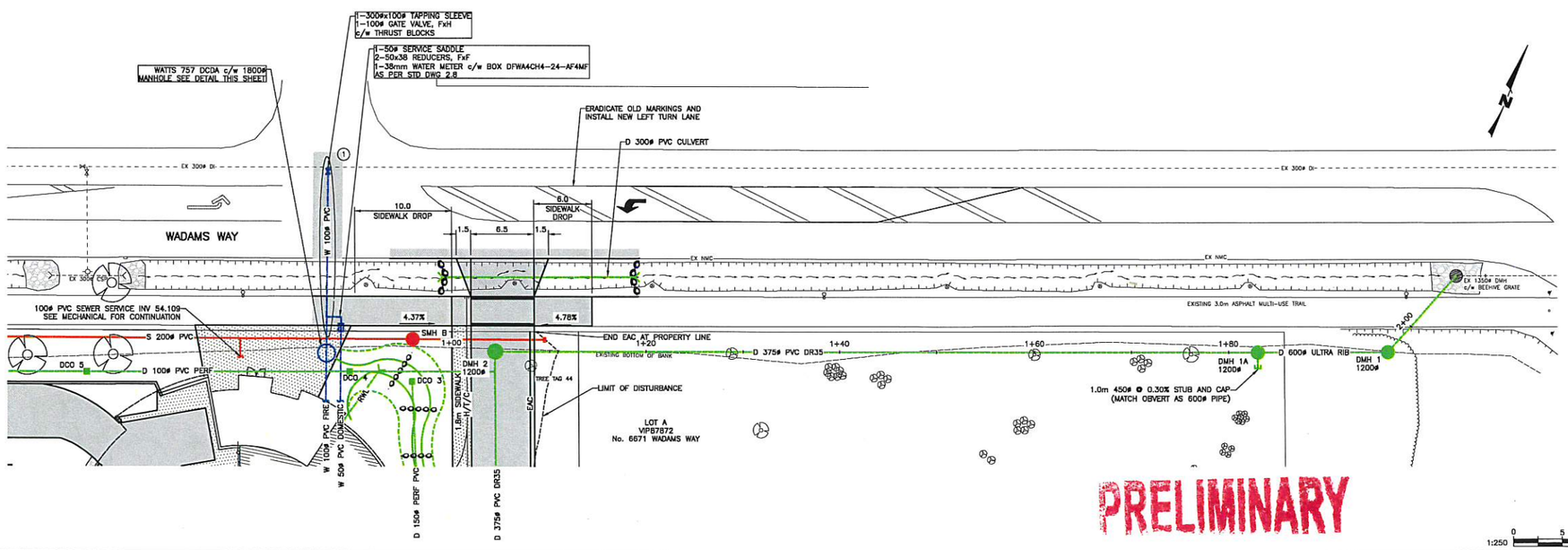
WADDAMS DRAIN PROFILE
H 1:250 V 1:50



DMH 2 BENCHING DETAIL
SCALE 1:50



DMH 1 BENCHING DETAIL
SCALE 1:50



PRELIMINARY

1:250 0 5 15m

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND SERVICES ON THIS DRAWING MAY NOT BE ACCURATE OR COMPLETE. THE ACTUAL HORIZONTAL AND VERTICAL LOCATIONS MUST BE CONFIRMED BY UTILITY COMPANIES AND THE CONTRACTOR PRIOR TO THE START OF ANY EXCAVATION

LEGEND – Proposed services shown bold

WATER	W	EDGE PAVE.		GAS	G	ROAD SIGN		HYDRANT	MANHOLE
SEWER	S	NON-MTBLE CURB	NMC	UNDERGROUND UTL.	H/T/C	ASPHALT		VALVE	CLEANOUT
DRAIN	D	MOUNTABLE CURB	MC	COBRA/DAVIT LIGHT		CONCRETE		METER	CATCHBASIN
DITCH/SWALE		FLAT CURB	FC	ORNAMENTAL STREETLIGHT		GRAVEL		REDUCER	MONUMENT
CULVERT		BARRIER CURB	BC	POWER POLE		BRICK		FLUSH	LOT PIN
HEADWALL		INVERT GUTTER	IG	ANCHOR		TREE		BUSHLINE	LEAD PLUG

SEAL

REVISIONS

No.	DESCRIPTION	DATE	SIGN
7	ISSUED FOR BUILDING PERMIT	200106	WR
6	REVISED DP	191101	WR
5	DP SUPPLEMENTAL	190923	WR
4	REMOVED PARKING PULL OUT ON WADAMS WAY	190903	WR

DESIGNED	RD
DRAWN	WR
CHECKED	
DATE	MAY 2018
B.M.	
ELEV.	
SCALE Horz.	1:250
Vert.	N/A

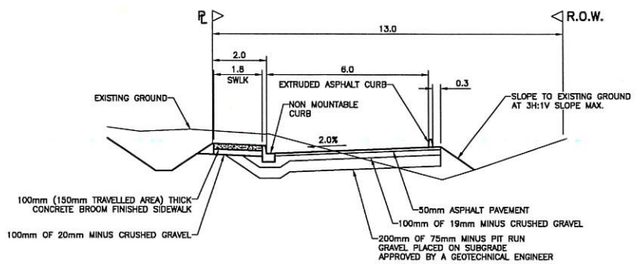
WESTBROOK Consulting Ltd.
#115 - 866 Goldstream Ave., Victoria, BC V9B 0J3
Telephone: 250-391-8592 Facsimile: 250-391-8593

PROJECT
SOOKE LIBRARY
HDR I CEI ARCHITECTURE, INC

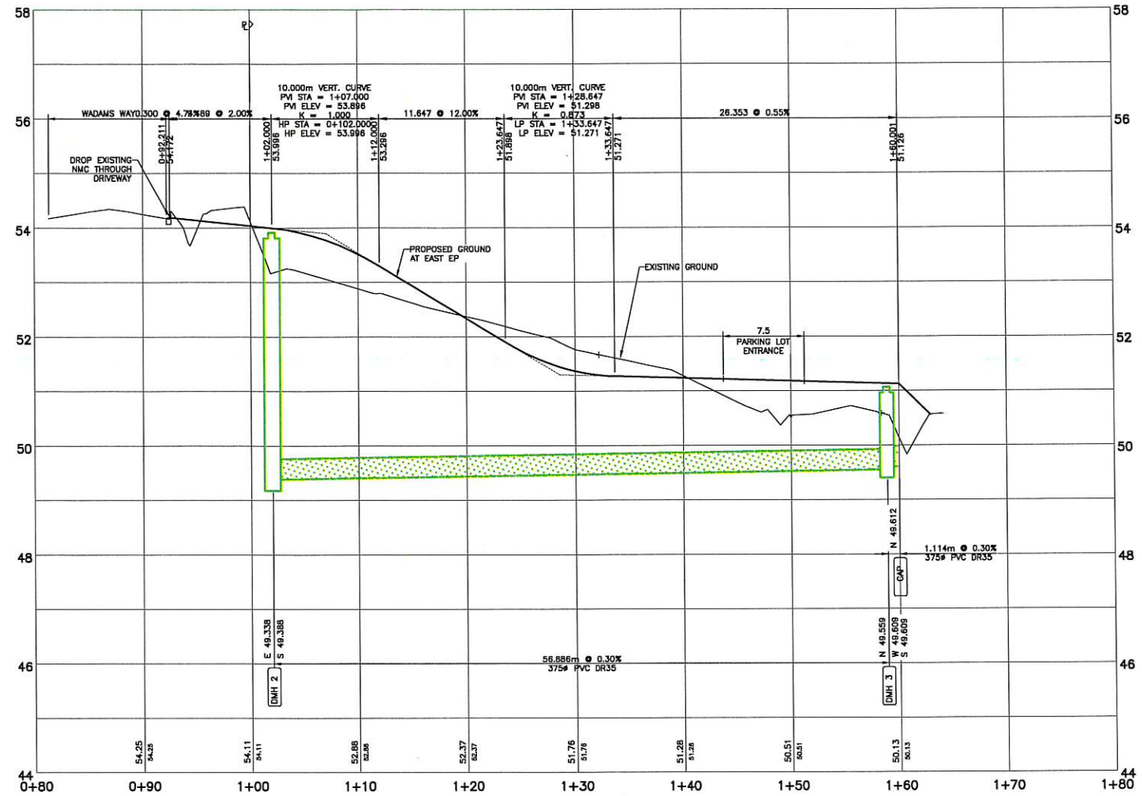
WADAMS WAY PLAN AND PROFILE

WESTBROOK PROJECT No. 3220
GOVERNING AUTHORITY FILE No.
SHEET 2 OF 5 REV. 7
WESTBROOK DRAWING No. 322002

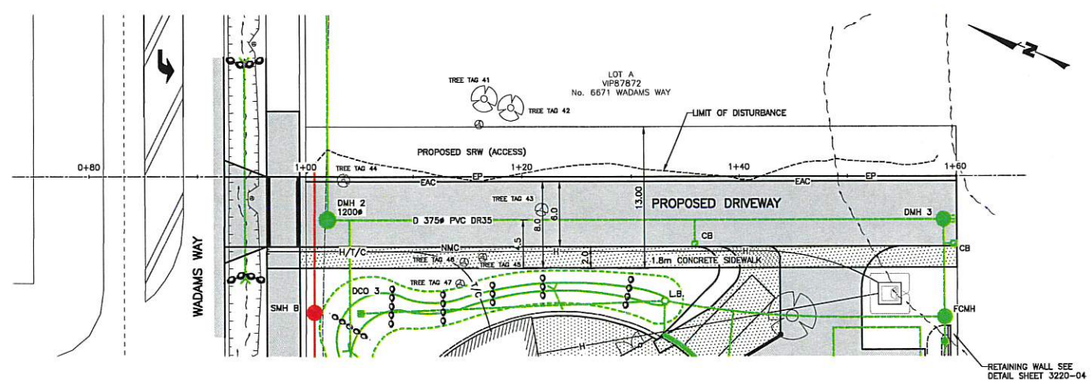
WESTBROOK CONSULTING LTD. – 2020-01-08 03:24PM H:\PROJECTS\3220 Sooke Library\CAD Drawings\322002.dwg



DRIVEWAY TYPICAL CROSS SECTION
N.T.S.



DRIVEWAY PROFILE
H 1:250 V 1:50



PRELIMINARY

1:250 0 5 15m

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND SERVICES ON THIS DRAWING MAY NOT BE ACCURATE OR COMPLETE. THE ACTUAL HORIZONTAL AND VERTICAL LOCATIONS MUST BE CONFIRMED BY UTILITY COMPANIES AND THE CONTRACTOR PRIOR TO THE START OF ANY EXCAVATION

LEGEND – Proposed services shown bold

WATER	W	EDGE PAVE.		GAS	G	ROAD SIGN		HYDRANT		MANHOLE	
SEWER	S	NON-MTBLE CURB	NMC	UNDERGROUND UTL.	H/T/C	ASPHALT		VALVE		CLEANOUT	
DRAIN	D	MOUNTABLE CURB	MC	COBRA/DAVIT LIGHT		CONCRETE		METER		CATCHBASIN	
DITCH/SWALE		FLAT CURB	FC	ORNAMENTAL STREETLIGHT		GRAVEL		REDUCER		MONUMENT	
CULVERT		BARRIER CURB	BC	POWER POLE		BRICK		FLUSH		LOT PIN	
HEADWALL		INVERT GUTTER	IG	ANCHOR		TREE		BUSHLINE		LEAD PLUG	

SEAL

REVISIONS

No.	DESCRIPTION	DATE	SIGN
7	ISSUED FOR BUILDING PERMIT	200106	WR
6	REVISED DP	191101	WR
5	DP SUPPLEMENTAL	190923	WR
4	REMOVED PARKING PULL OUT ON WADAMS WAY	190903	WR

DESIGNED	RD
DRAWN	WR
CHECKED	
DATE	MAY 2018
B.M.	
ELEV.	
SCALE Horz.	1:250
Vert.	N/A

WESTBROOK Consulting Ltd.
#115 - 866 Goldstream Ave., Victoria, BC V9B 0J3
Telephone: 250-391-8592 Facsimile: 250-391-8593

PROJECT
SOOKE LIBRARY
HDR I CEI ARCHITECTURE, INC

DRIVEWAY PLAN AND PROFILE

WESTBROOK PROJECT No. 3220
GOVERNING AUTHORITY FILE No.
SHEET 3 OF 5 REV. 7
WESTBROOK DRAWING No. 322003

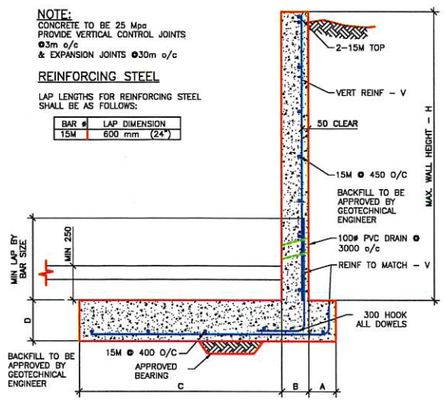
WESTBROOK CADD - 2020-01-10 09:13 PM

NOTE:
CONCRETE TO BE 25 Mpa
PROVIDE VERTICAL CONTROL JOINTS
@3m o/c
& EXPANSION JOINTS @30m o/c

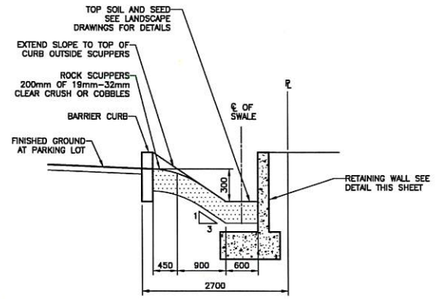
REINFORCING STEEL

LAP LENGTHS FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

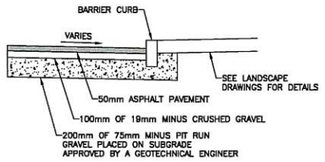
BAR #	LAP DIMENSION
15M	600 mm (24")



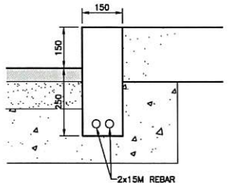
RETAINING WALL SCHEDULE - 4.80kPa SURCHARGE					
MAX. WALL HEIGHT H	VERT REINF V	WALL DIMENSIONS			
		A	B	C	D
1220	15M @ 500	200	200	700	250



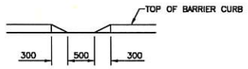
SWALE DETAIL
N.T.S.



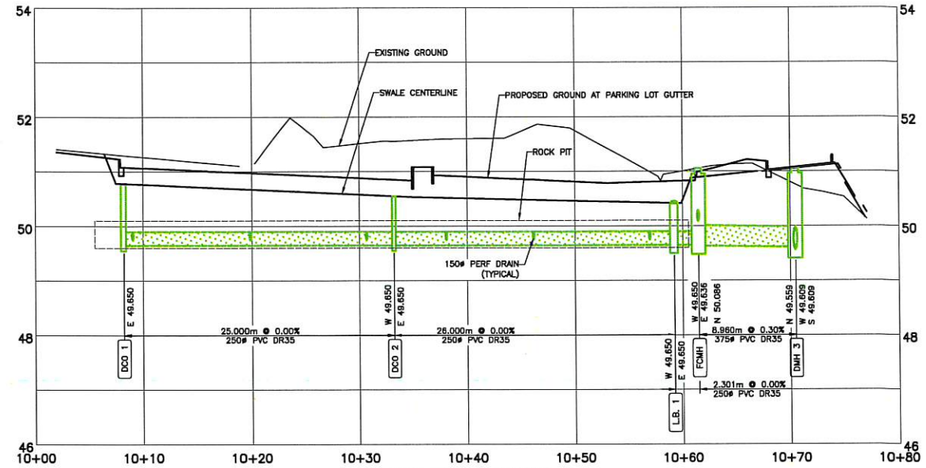
PARKING LOT CROSS SECTION
N.T.S.



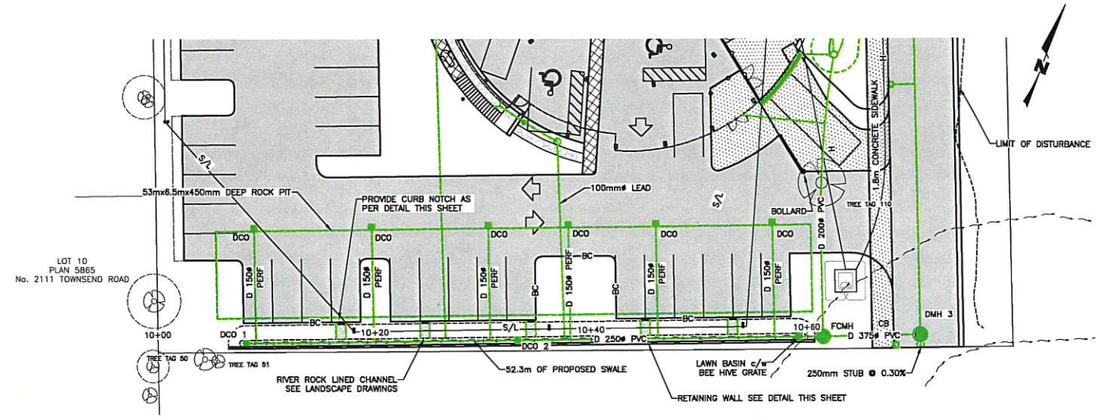
BARRIER CURB DETAILS
N.T.S.

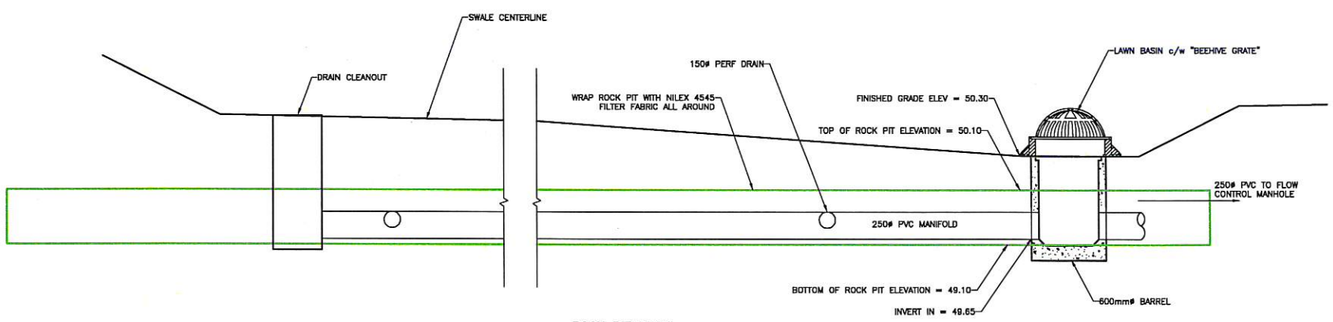


DRAINAGE NOTCH DETAIL
N.T.S.

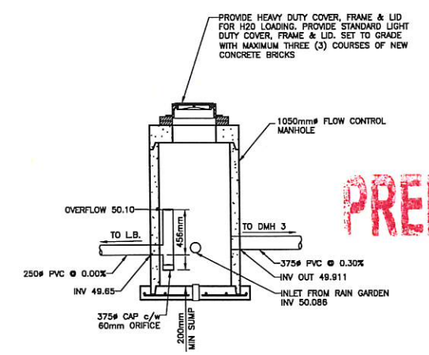


DRAIN AT SWALE PROFILE
H 1:250 V 1:50





ROCK PIT DETAIL
N.T.S.



FLOW CONTROL MANHOLE DETAIL
NTS

PRELIMINARY

1:250 0 5 15m

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND SERVICES ON THIS DRAWING MAY NOT BE ACCURATE OR COMPLETE. THE ACTUAL HORIZONTAL AND VERTICAL LOCATIONS MUST BE CONFIRMED BY UTILITY COMPANIES AND THE CONTRACTOR PRIOR TO THE START OF ANY EXCAVATION

LEGEND – Proposed services shown bold

WATER	W	EDGE PAVE.		GAS	G	ROAD SIGN		HYDRANT		MANHOLE	
SEWER	S	NON-MTBLE CURB	NMC	UNDERGROUND UTL.	H/T/C	ASPHALT		VALVE		CLEANOUT	
DRAIN	D	MOUNTABLE CURB	MC	COBRA/DAVIT LIGHT		CONCRETE		METER		CATCHBASIN	
DITCH/SWALE		FLAT CURB	FC	ORNAMENTAL STREETLIGHT		GRAVEL		REDUCER		MONUMENT	
CULVERT		BARRIER CURB	BC	POWER POLE		BRICK		FLUSH		LOT PIN	
HEADWALL		INVERT GUTTER	IG	ANCHOR		TREE		BUSHLINE		LEAD PLUG	

SEAL

REVISIONS

No.	DESCRIPTION	DATE	SIGN
7	ISSUED FOR BUILDING PERMIT	200106	WR
6	REVISED DP	191101	WR
5	DP SUPPLEMENTAL	190923	WR
4	REMOVED PARKING PULL OUT ON WADAMS WAY	190903	WR

DESIGNED	RD	
DRAWN	WR	
CHECKED		
DATE	MAY 2018	
B.M.		
ELEV.		
SCALE Horz.	1:250	
Vert.	N/A	

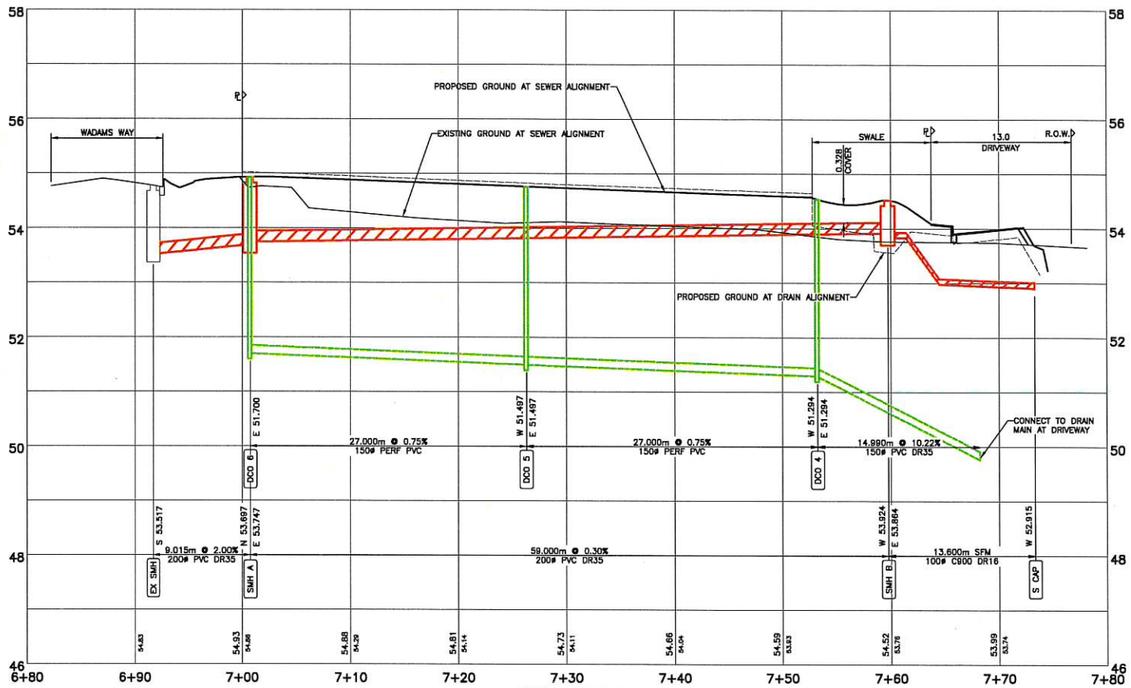
WESTBROOK Consulting Ltd.
#115 - 866 Goldstream Ave., Victoria, BC V9B 0J3
Telephone: 250-391-8592 Facsimile: 250-391-8593

PROJECT
SOOKE LIBRARY
HDR I CEI ARCHITECTURE, INC

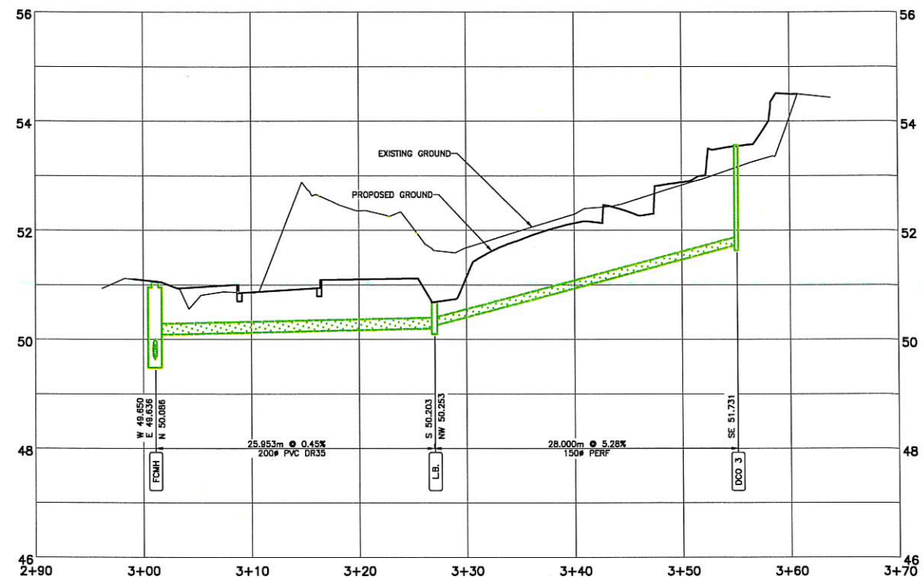
SWALE PLAN AND PROFILE

WESTBROOK PROJECT No. 3220
GOVERNING AUTHORITY FILE No.
SHEET 4 OF 5 REV. 7
WESTBROOK DRAWING No. 322004

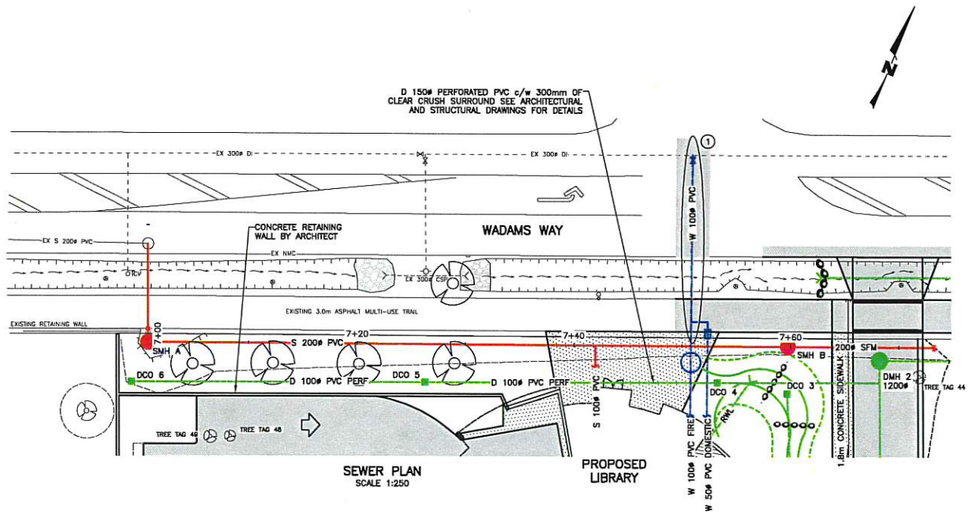
WESTBROOK CONSULTING LTD. - 2020-01-08 03:18PM H:\PROJECTS\3200 Series Library\340 Drawings\322004.dwg



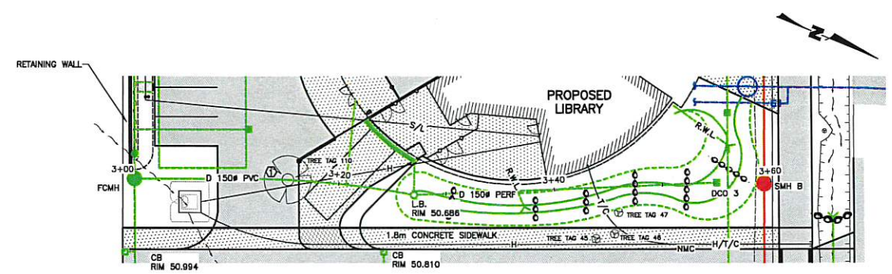
SEWER PROFILE
H 1:250 V 1:50



ONSITE DRAIN PROFILE
H 1:250 V 1:50



SEWER PLAN
SCALE 1:250



FCMH – DCO 3 PLAN
SCALE 1:250

DRAIN CURVE DATA						
NO.	RADIUS	DELTA	ARC L	TAN L	BC	EC
1	89.960m	10°27'52"	16.430m	8.238m	3+10.655	3+27.086

PRELIMINARY

1:250 0 5 15m

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND SERVICES ON THIS DRAWING MAY NOT BE ACCURATE OR COMPLETE. THE ACTUAL HORIZONTAL AND VERTICAL LOCATIONS MUST BE CONFIRMED BY UTILITY COMPANIES AND THE CONTRACTOR PRIOR TO THE START OF ANY EXCAVATION

LEGEND – Proposed services shown bold

WATER	W	EDGE PAVE.		GAS	G	ROAD SIGN		HYDRANT	MANHOLE
SEWER	S	NON-MTBLE CURB	NMC	UNDERGROUND UTL.	H/T/C	ASPHALT		VALVE	CLEANOUT
DRAIN	D	MOUNTABLE CURB	MC	COBRA/DAVIT LIGHT		CONCRETE		METER	CATCHBASIN
DITCH/SWALE		FLAT CURB	FC	ORNAMENTAL STREETLIGHT		GRAVEL		REDUCER	MONUMENT
CULVERT		BARRIER CURB	BC	POWER POLE		BRICK		FLUSH	LOT PIN
HEADWALL		INVERT GUTTER	IG	ANCHOR		TREE		BUSHLINE	LEAD PLUG

SEAL

REVISIONS

No.	DESCRIPTION	DATE	SIGN
7	ISSUED FOR BUILDING PERMIT	200106	WR
6	REVISED DP	191101	WR
5	DP SUPPLEMENTAL	190923	WR
4	REMOVED PARKING PULL OUT ON WADAMS WAY	190903	WR

DESIGNED	RD
DRAWN	WR
CHECKED	
DATE	MAY 2018
ELEV.	
SCALE Horz.	1:250
Vert.	N/A

WESTBROOK Consulting Ltd.
#115 - 866 Goldstream Ave., Victoria, BC V9B 0J3
Telephone: 250-391-8592 Facsimile: 250-391-8593

PROJECT
SOOKE LIBRARY
HDR I CEI ARCHITECTURE, INC
ONSITE DRAIN AND SEWER PLAN AND PROFILE

WESTBROOK PROJECT No. 3220
GOVERNING AUTHORITY FILE No.
SHEET 5 OF 5 REV. 7
WESTBROOK DRAWING No. 322005

WESTBROOK CONSULTING LTD - 2020-01-06 03:18PM H:\PROJECTS\3220 Sooke Library\DWG Drawings\322005.dwg