Private Servicing Feasibility Letter

636040 Prince of Wales Road

The Jones Consulting Group Ltd.

Final- Confidential

Project No.: CA0013272.0492
Date: November 10, 2023

WSP
2611 Queensview Drive, Suite 300
Ottawa, ON, Canada
K2B 8K2

wsp.com

November 10, 2023

Final- Confidential

The Jones Consulting Group Ltd.
229 Mapleview Drive East
Barrie, Ontario
L4N 0W5

Attention: Ray Duhamel, Partner

Dear Mr. Duhamel:

Subject: Private Servicing Feasibility Letter – 636040 Prince of Wales Road

WSP Canada Inc. is pleased to present this Private Servicing Feasibility Letter for 636040 Prince of Wales Road. This project has been a considerable undertaking and a pleasure to work on. We have enjoyed the process and collaborating with you and your team.

Yours truly,

Brandon Aubin
Senior Technologist

Encl.
cc: Imad Aouli, Team Lead
WSP ref.: CA0013272.0492

2611 Queensview Drive, Suite 300
Ottawa, ON, Canada
K2B 8K2

wsp.com

Signatures

Prepared by

November 10, 2023

Brandon Aubin
Senior Technologist

Date

November 10, 2023

Imad Aouli
Team Lead – Rural Development, Environment

Date

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1 Introduction

1.1 Study Purpose and Objectives

The Jones Consulting Group Ltd. has retained WSP Canada Inc. (“WSP”) to prepare a Private Servicing Letter (the "Report") in support of a Functional Servicing Report previously issued by The Jones Consulting Group Ltd. which was received comments. This Report includes a discussion of the potential private sewage system servicing related to the proposed industrial development.

This Report provides the conceptual framework for sanitary sewage for this development, prior to the detailed design being undertaken. Several servicing options have been considered and presented in this Report, and at this time a final determination of how the proposed development will be serviced has not been made.

1.2 Site Description

Based on correspondence with The Jones Consulting Group Ltd, the proposed industrial development is located in the Town of Primrose, within the Township of Mulmur, within the County of Dufferin, in central Ontario. It is situated approximately 20 kilometers north of the urban centre of the Town of Orangeville. The proposed industrial development is to consists of four industrial blocks which will require servicing. Additional blocks have been reserved for snow storage, stormwater management, and an environmental protection area. The total site area is approximately 36.97 hectares (91.35 acres) in size. **Figure 1** shows the study area of the proposed industrial development. Based on the draft plan of subdivision provided in the “Preliminary Stormwater Management & Functional Servicing Report”, August 2021 by The Jones Consulting Group Ltd., approximately thirteen separate parcels within the site boundary appear to be provided for industrial development.

1.3 Existing Conditions

A preliminary desktop review of existing available reports was completed. The reports reviewed for existing conditions are as follows:

- The Jones Consulting Group Ltd. “Preliminary Stormwater Management & Functional Servicing Report”, August 2021
- WSP “Geotechnical Investigation”, March 2018
- WSP “Infiltration Study”, October 2018
- WSP “Geotechnical Testing”, June 2020

Based on the records reviewed, the current site classified as agricultural or pasture and has no existing structures. As a result, there are no existing municipal or private servicing located within the site boundary.

The existing topography of the site varies by 13.8m from elevation 463.3m to 449.5m and the surficial soils across the site also vary in percolation rate and soil identification. Each industrial lot development will require a site-specific topographic survey along with soils investigations at the time of detailed sewage system design. Based on previous WSP geotechnical work completed under separate scope, varied soil conditions were observed through a series of test pits across the site which primarily consisted of silty sand/sandy silt, trace gravel to clayey silt. Refusal on assumed bedrock was encountered at varying depths of 0.7m to 3.7m below ground surface and in some locations, bedrock was not encountered at all. For a conservative estimate, is has been assumed the percolation rates will range from 20-50 min/cm.

It is expected that private servicing will be provided to supply the industrial development with drinking water through private wells on each individual lot.

There is no existing sanitary sewer system or stormwater sewer infrastructure within or adjacent to the proposed industrial development.

In summary, no existing municipal infrastructure or utilities have been identified within the proposed industrial development boundary. New services are required to be extended and installed to service the proposed development of the proposed industrial development.

Figure 1: Study Area

2 Sanitary Sewage System

2.1 Proposed Sewage Design Flows

The sanitary servicing options considered for the industrial development consists of multiple decentralized private onsite sewage treatment and subsurface disposal systems. Considering the size of the industrial development and distance between facilities, a centralized communal treatment and subsurface disposal system was not considered practical. Due to the industrial development's remote location, options for connection to municipal infrastructure were not considered practical and were not pursued further.

Based on the proposed conceptual subdivision layout plan and overall size and use of each individual lot, the sanitary sewage systems are expected to be less than 10,000 L/d which would be approved under the Ontario Building Code (OBC) by the local regulator. Should any individual lot development exceed 10,000 L/d, the proposed sewage works will be subject to the requirements of Section 53 of the Ontario Water Resources Act (OWRA) administered by the Ministry of the Environment, Conservation and Parks (MECP). As part of the detailed design, the sewage works will require an Environmental Compliance Approval (ECA) from the MECP.

For the purposes of this Report, the theoretical daily design sanitary sewage flow for the proposed building types can be based on Table 8.2.1.3.B of the OBC provided in **Appendix A**.

The theoretical daily design sanitary sewage flow will need to be calculated during detailed design once the finalized building type and occupancies/fixture numbers have been determined.

2.2 Wastewater Strength

The primary source of wastewater from the commercial developments will consist of bathroom facilities (water closets, sinks and shower facilities). Given the source of the wastewater streams, it is assumed that the sewage will likely be consistent with domestic strength wastewater. Some industrial development options shown in **Appendix B** have been identified as having higher risk of wastewater strength exceeding domestic levels. As a result, the detailed design of the sewage system servicing those types of developments will need to consider the higher strength wastewater when selecting the treatment system.

2.3 Conceptual Leaching Beds

The detailed design of the leaching beds should take into consideration the overall area of the industrial development, proximity to surface water features and direction of groundwater flow. A list of current permitted uses within the industrial development has been provided in **Appendix B** and can be cross referenced with the table in **Appendix A** for comparable uses when determining the theoretical daily design sanitary sewage flow.

Should the proposed locations of industrial development amenities and respective leaching beds be located within any minimum setback distances, set by the local governing approval authorities, to existing watercourses, lakes or wetlands, it is anticipated that additional treatment will be required to accommodate total phosphorus (TP) objectives.

There are many different options available for subsurface disposal systems; however, based on the expected treatment requirements, a Level IV treatment system discharging to a raised Type A dispersal bed has been selected as the preferred servicing option. A Type A dispersal bed is a soil absorption system that is used in conjunction with a Level IV sewage treatment system. Type A dispersal beds are designed to further treat and disperse effluent within the soil. They are comprised of a stone layer situated on top of a sand layer and may be installed in, or on, native soils.

By using a Type A dispersal bed sewage disposal system, in conjunction with a Level IV treatment unit, there is capacity to hydraulically load the soils at a higher rate than conventional systems, due to the higher level of treatment and resulting reduced strength of the effluent being discharged. This allows for a reduction in the area required for the installation, and typically a corresponding reduction in cost, due to the reduction in the amount of materials required.

For the purposes of this Report, the leaching beds have been sized based on a percolation rate of 20 min/cm, to be conservative for the majority of the soils present at the industrial development. Individual assessments of the soils, groundwater and depth to bedrock will be required at each leaching bed location as part of the detailed design. Refer to the Preliminary Septic System Assessment for the proposed field program that should be completed at each proposed leaching bed.

Where a Type A dispersal bed is installed on soil having a percolation rate of greater than 15 min/cm, imported sand fill shall be used in its construction. The imported sand fill shall have a corresponding percolation rate between 6 and 10 min/cm and contain less than 5% silt and clay content. The imported sand fill shall be a minimum of 300 mm deep at all locations within the leaching bed area and extend a minimum of 15 m beyond the distribution pipe in the direction of horizontal shallow groundwater flow. The minimum area of the Type A dispersal bed is calculated using the formula:

$$A = QT/400$$

where:

A = the area of contact (sand area) (m^2)

Q = the total daily design sanitary sewage flow (L)

T = the percolation rate of the native soil to a maximum of 50 (min/cm)

Based on the above formula, the daily design sanitary sewage flow rate for a system with of 6,000 L/d and a percolation rate of 20 min/cm, the minimum size of the Type A bed is calculated to be approximately 300 m^2.

A stone layer, comprised of septic stone meeting the gradation criteria set forth in Table 8.7.3.3., of the OBC, shall be installed to accommodate the distribution piping to obtain even distribution of the treated sewage effluent. The stone area shall be a minimum of 200 mm in depth. Where

the daily design sanitary sewage flow exceeds 3,000 L/d, the minimum stone area is calculated based on:

$$A = Q/50$$

where:

A = the area of contact between the base of the stone layer and the underlying soils (m^2)
Q = the total daily design sanitary sewage flow (L)

Based on the above formula and a flow rate of 6,000 L/day the minimum stone area is calculated to be approximately 120 m^2.

For each building that is expected to require a Class IV sewage system, the conceptual daily design sanitary sewage flow rates, minimum sand contact areas, linear meters of pipe, and minimum stone areas have been provided in **Table 2-1**: Conceptual Conventional Leaching Bed Sizing Calculations

and **Table 2-2** below.

Table 2-1: Conceptual Conventional Leaching Bed Sizing Calculations

Total Daily Design Sewage Flow (L/day)	**Minimum Linear meters of pipe**	**Minimum Sand Contact Area (m^2) (where T=20)**
3,000	120	300.0
6,000	240	600.0
9,000	360	900.0
Total Daily Design Sewage Flow (L/day)		**Minimum Sand Contact Area (m^2) (where T =35)**
3,000	120	375.0
6,000	240	750.0
9,000	360	1,125.0
Total Daily Design Sewage Flow (L/day)		**Minimum Sand Contact Area (m^2) (where T =50)**
3,000	120	500.0
6,000	240	1,000.0
9,000	360	1,500.0

Table 2-2: Conceptual Type 'A' Bed Sizing Calculations

Total Daily Design Sewage Flow (L/day)	Minimum Sand Contact Area (m^2) (where t=20)	Minimum Stone Area (m^2)
3,000	150.0	40 (1)
6,000	300.0	120
9,000	450.0	180
Total Daily Design Sewage Flow (L/day)	**Minimum Sand Contact Area (m^2) (where t=35)**	**Minimum Stone Area (m^2)**
3,000	262.5	40 (1)
6,000	525.0	120
9,000	787.5	180
Total Daily Design Sewage Flow (L/day)	**Minimum Sand Contact Area (m^2) (where t=50)**	**Minimum Stone Area (m^2)**
3,000	375.0	40 (1)
6,000	750.0	120
9,000	1,125.0	180

Notes: (1) Minimum stone area based on Q/75 for flows less than 3,000 L/d.

The conceptual sewage system sizes are provided in **Appendix C.** The final location, size and orientation will need to be determined during detailed design.

2.4 Tanks and Treatment Systems

Assuming that a Level IV treatment system is required, there are still many different options available for providing the required level of treatment. The treatment system shall meet the requirements of Table 8.6.2.2 of the OBC and CAN/BNQ 3680-600, Onsite Residential Wastewater Treatment Technologies. Depending on the results of the nitrate impact assessment, nitrate reduction may also be required as part of the treatment system.

Each treatment system comes with its own advantages and disadvantages, such as odour, noise, electrical demand, maintenance requirements, additional pumps/equipment, replacement of media, etc. These factors should be considered when selecting a treatment system during the detailed design.

Based on the size of the sewage systems, shallow bedrock, shallow watertable, and potentially raised systems, pump chambers will likely be required to dose the treated effluent to the

proposed leaching beds where the minimum vertical separation distances cannot be achieved with gravity.

2.5 Setbacks

All clearance distances from leaching beds are to be measured from distribution piping, leaching chamber or edge of the stone layer, as applicable, and shall be in accordance with Table 8.2.1.6.B of the OBC. Given that the conceptual sewage disposal systems are proposed to be fully raised Type A dispersal beds, the standard minimum clearance distances from the stone in the bed must be increased by twice the raised height of the leaching bed to the designated objects noted in **Table 2-3** below. It is estimated that the bed will be raised by 1.0 m; therefore, the clearance distances must be increased by 2.0 m.

Table 2-3: Clearance Distances from Stone

Object	Minimum Clearance (m)	Adjusted Clearance (m)
Structure	5	7
Drilled Well (watertight casing to 6 m)	15	17
Any other well	30	32
Property Line	3	5
Water Body, Course, or Spring (1)	15	17

Notes: (1) Recommended minimum distance is 30 m to reduce phosphorus impacts.

All clearance distances from treatment tanks shall be in accordance with Table 8.2.1.6.A of the OBC. The standard minimum clearance distances from the treatment tanks to the designated objects are noted in **Table 2-4**: Clearance Distances from Treatment Tanks

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Table 2-4: Clearance Distances from Treatment Tanks

Object	Minimum Clearance (m)
Structure	1.5
Well	15

Object	Minimum Clearance (m)
Property Line	3
Water Body, Course, or Spring	15

2.6 Greywater Re-use

The daily greywater generation rate will vary for each building at the industrial development and is conceptually proposed to be collected in the basement of the buildings to be used for toilet flushing. The treatment of greywater can only take place if the greywater (sinks) plumbing is separated from the blackwater (toilets) plumbing. All greywater collected from each building could be treated and then returned for non-potable uses, such as flushing toilets or irrigation.

The greywater generated is anticipated to primarily consist of bathroom sink water. Therefore, small quantities of solids would be expected to enter the system, with the primary inputs being water and soap.

Some greywater re-use options have been summarized in **Table 2-5** below.

Table 2-5: Greywater Re-use Options

Options	Advantages	Disadvantages	Leaching Bed Required (Yes or No)
1. Greywater Systems	Water reclamation and associated cost savings.	Potential for unpleasant odours or discolouration of reclaimed water. Design/Retrofitting the building for greywater collection (dual plumbing). Treated greywater would likely need to be supplemented with private well water from the industrial development.	No.
2. Living Wall	Minimal footprint. Aesthetic qualities.	Unpleasant odours from the Living Wall. Labour intensive.	Yes. Greywater treatment for re-use only, still

Options	Advantages	Disadvantages	Leaching Bed Required (Yes or No)
	Potential energy savings from heating and cooling. Noise reduction. Potential for educational component.	Less control on effluent quality than other greywater treatment options.	need treatment and disposal for black water.
3. Greyter Water Systems	Minimal operation and maintenance requirements with self-cleaning filters. Small footprint.	Requirement to replace filter media. Requires an equipment room.	Yes. Greywater treatment for re-use only, still need treatment and disposal for black water.
4. Wahaso Water Harvesting Solutions	Minimal operation and maintenance requirements with self-cleaning filters. Small footprint.	Requirement to replace filter media. Requires an equipment room.	Yes. Greywater treatment for re-use only, still need treatment and disposal for black water.
5. Aqualoop	Small footprint. Can be installed underground.	Labour intensive with full removal of media every 1-2 years.	Yes. Greywater treatment for re-use only, still need treatment and disposal for black water.

The OBC outlines non-potable water systems for re-use in Section 7.7.4 and requires that these systems are, "designed, constructed and installed to conform to good engineering practice."

Health Canada produced *Canadian Guidelines for Domestic Reclaimed Water for Use in Toilet and Urinal Flushing*, 2010, which provides quality guidelines for greywater re-use.

1) Greywater Systems use water reclamation to reduce the amount of clean water to service some fixtures for non-potable use. There is potential for costs savings using this method but based on the expected flows, some additional water will be required to meet the demand.

2) A living wall system is a greywater treatment system that employs decorative plants that are grown in media, such as sand or plastic mesh, on the interior or exterior walls of a building. Other benefits of a living wall include a minimal footprint, improving air quality, aesthetic qualities, energy savings from heating and cooling, and noise reduction. The living wall system would consist of an underground equalization tank that pumps effluent to a living wall and percolates down to a collection system located at the bottom of the wall. Treated greywater would be collected into a tank, disinfected, and could be used for toilets or irrigation.

3) The Greyter Water Systems collects greywater for treatment and re-use for non-potable sources. The greywater is treated using primarily physical filtration with a self-cleaning 100 micron pre-filter followed by a pleated filter cartridge that could range from 1 to 20 microns. The processed water is held in the storage tank where residual chlorine is added to maintain water quality in the storage tank as well as throughout the system, including in individual toilet bowls and tanks.

4) Wahaso Water Harvesting Solutions treatment begins with settling and biological treatment where chlorine or another oxidizing agent, such as ozone, is added. The greywater is held in a tank where large particles settle out, is then passed through a coarse filter, and followed by finer filters. The final step in the process is to store the now non-potable processed water in a holding tank for re-use. Chlorine levels are monitored to ensure adequate residual chlorine is maintained in the processed water.

5) Aqualoop greywater treatment systems are moving bed-membrane bioreactors (MB-MBR) which utilizes physical and biological treatment. The system is contained within tanks, which can be installed above or below ground surface. The treatment process begins with pre-filtration to remove larger debris using a self-cleaning coarse filter that is sized for the incoming flow rates. The biological treatment of the effluent is driven by the blowers supplying continuous oxygen as well as the plastic pieces, “growth bodies”, that are propelled around the tank. The final stage of treatment is the physical filtration through the membrane cartridges. The processed water is then stored until required throughout the building; at this time, disinfection can take place, if required, through the addition of chlorine.

As stated above, any supplied non-potable water is subject to Section 7.7.2.1 of the OBC which requires that non-potable water piping shall be identified by markings that are permanent, distinct, and easily recognized so as to ensure no fixtures intended to provide potable water are inadvertently connected to the non-potable water piping. Signage containing the words “Non-Potable Water”, and “Do Not Drink” in letters at least 25 mm high with a 5 mm strokes must be posted in a prominent and clearly visible location immediately above every fixture that is permitted to receive non-potable water. Although not necessarily a requirement of the OBC, signage associated with fixtures receiving non-potable water should indicate the hazard in both English and in French, as well as any other language that is relevant in the jurisdiction.

3 Erosion and Sediment Control (ESC)

3.1 Erosion and Sediment Control (ESC)

Construction activities can have a significant impact to the natural environment, including degrading water quality, increasing the potential for localized flooding, damage or destruction of fish and fish habitat, and damage or destruction of aquatic and terrestrial vegetation. There are also economic impacts associated with not installing or maintaining erosion and sediment control (ESC) measures, including removal of sediment deposits, restoration and stabilization, construction of new ecosystem habitats, construction delays and Stop Work Orders, and charges and fines.

ESC measures are often lumped together into a single category; however, they serve two independent purposes. Erosion control measures are proposed to mitigate the increase in suspension of sediment. Sediment control measures are proposed to mitigate the increase in sediment mobilization. While both serve to provide protection for the downstream watercourses, lakes and wetlands, erosion control measures should be prioritized over sediment control measures.

Erosion can occur from sheet flow, concentrated flow, raindrops, and even wind. It is important to consider all these forms of erosion when developing ESC plans. Typically, ESC plans focus more on sediment control at the edge of the development through the use of barriers or containment facilities. While these controls are still required, they should be considered a “last resort”. Erosion control can significantly reduce suspended sediments and sediment transport. Sediment controls should be installed through the active construction area to intercept sediment transport as close to the source as possible.

During construction, ESC measures should be provided to prevent sediment laden runoff to the proposed conveyance measures, end-of-pipe facilities, LID technologies or the natural environment. Due to the size of the Industrial development, multiple ESC plans will likely be required, each focussing on a specific area of the Industrial development.

The following are some of the typical ESC measures that could be included in the ESC plan for the development of industrial development:

Erosion Control:

Staging is an erosion control measure that reduces the amount of disturbed area on the construction site. Vegetation can be left in place for longer durations if they are outside the active construction zone.

Reinstatement of disturbed areas immediately following work. This allows vegetation to establish quicker in areas outside the active construction zone. Hydroseed should be applied at two different angles to provide a uniform coverage of the exposed soil.

Seed and Mulch of disturbed areas if they are to be left exposed for an extended period of time. This can also include stockpiles of material.

Tracking of Slopes perpendicular to the slope direction reduces runoff velocities and erosion potential.

Diversion of Runoff is a particularly useful erosion control measure as it redirects stormwater runoff away from areas with higher erosion potential (i.e. bare soil slopes).

Rolled Erosion Control Products (RECP) can be installed during construction activities or incorporated into the reinstatement of the site to protect areas until vegetation has established. RECP consist of erosion control blankets (ECB), which would be suitable for sideslopes and turf reinforcement mats (TRM), which would be suitable for protection of the channel invert. TRMs can be used in conjunction with flow check structures to reduce runoff velocities.

Snow Fences, Soil Roughening or Water/Chemical Applications are typical methods used for wind erosion. They work to slow down wind velocities or bind the soil particles together to reduce erosion.

Sediment Control:

Silt Fence Barriers are sediment control measures intended for sheet flow. They should not be installed in areas of concentrated flow. Silt fence barriers should be staked, dug into the ground and installed with "J" hooks on each end.

Straw Bale Barriers are similar to silt fence barriers and are also sediment control measures intended for sheet flow. They should not be installed in areas of concentrated flow. It is generally accepted that due to improper installation and maintenance, straw bale barriers experience more failures than successes.

Fiber Roll Barriers are similar to silt fence and straw bale barriers; however, have a limited space for sediment containment due to their reduced height. An advantage of fiber roll barriers is that they can be installed in areas with shallow bedrock as they can be weighed down instead of staked into the ground.

Straw Bale Flow Check is a sediment control measure intended for concentrated flow. These should be installed sufficiently up the side slopes to have water flow over the check dam and not around it.

Rock Flow Check is a sediment control measure similar to the straw bale flow check and is also intended for concentrated flow. These should be installed sufficiently up the side slopes to have water flow over the check dam and not around it.

Turbidity Barriers are floating silt curtains installed within a watercourse or water body. They must not block the flow of water and should be installed parallel to the flow, not perpendicular. Turbidity barriers should be properly secured at the shoreline, weighted and equipped with a floatation device.

Vehicle Tracking Pads/Wheel Washing Stations reduce the amount of sediment that is tracked offsite and onto municipal roads.

Sedimentation Ponds are constructed areas where for discharging of water from dewatering activities. These ponds should be sized accordingly to allow the sediments sufficient time to settle out prior to discharge.

Guidance on the installation and maintenance of each of the above ESC measures can be found in the CVC/TRCA Low Impact Development Stormwater Management Planning and Design Guide (2010), the Sustainable Technologies Evaluation Program (STEP) interactive Mediawiki: http://wiki.sustainabletechnologies.ca or in the Ontario Ministry of Transportation (MTO) Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD).

Proper and timely construction and maintenance is important for the success of all ESC measures. All ESC measures will fail if improperly constructed or maintained through bypass of stormwater runoff, build-up of sediment or destruction of the control measures by construction activities, degradation or animals. Typically, control measures are inspected at the end of each day and after significant rainfall events (i.e. 25 mm in 24 hours). ESC measures need to be maintained throughout construction until such time that vegetation has been established (2 years from the placement of seed), at which time they should be removed.

A final ESC plan will need to be prepared during the detailed design, through consultation with the construction manager, to minimize construction impacts on any existing downstream watercourses, lakes and wetlands. The ESC pan should include construction techniques, required maintenance activities and the removal of the ESC measures following the establishment of vegetation.

4 Conclusions

This study has evaluated the servicing options for the possible industrial development options at 636040 Prince of Wales Road, Primrose. The proposed development features four industrial blocks which will require private servicing due to remote location and lack of readily available municipal services. Based on the analysis contained within this Report, private servicing through decentralized sewage systems/private sewage systems is feasible and viable for the proposed industrial development. Our conclusions and recommendations are as follows:

- Private onsite sewage systems will be required due to the remote location of the industrial development. It is expected that each individual lot will have a theoretical daily design sanitary sewage less than 10,000 L/d and will require approval under OBC. Should the flow exceed 10,000 L/d, an ECA will be required from the MECP under Section 53 of the OWRA.
- Conventional absorption trench beds may be viable where sufficient area is allocated for the sewage system components. Alternatively, Level IV treatment with a Type 'A' bed will allow for a reduced sewage system envelope and can provide additional treatment if required.
- The daily design flows for the list of current permitted uses and requested additional permitted uses can be calculated using Table 8.2.1.3.B. of the OBC. It is recommended greywater treatment options be reviewed at the time of detailed design for any garden centres, concrete product manufacturing plant, and light manufacturing or processing developments as examples. Additionally, any development providing food services (i.e. restaurants) should install a suitable oil grease separator to ensure only domestic strength waste is being discharged to the sewage system.
- Should a feed mill or sawmill be proposed at one of the proposed lots within the industrial development, it is recommended the operations and use of process water or by products from operations be evaluated as higher than domestic strength waste may be produced on site which will require additional treatment or disposal.

Appendix

A OBC TABLE 8.2.1.3.B. OTHER OCCUPANCIES

Table 8.2.1.3.B.

Other Occupancies

Forming Part of Sentence 8.2.1.3.(2)

Item	Column 1 Establishments(1)	Column 2 Volume, litres	Max Unit
1	Airports, Bus Terminals, Train Stations, Dock/Port Facilities (Food Services excluded)		
	a) Per passenger, and	20	500
	b) Per employee per 8 hour shift	40	250
2	Assembly Hall - per seat		
	a) No food service, or	8	1,250
	b) Food service provided	36	278
3	Barber Shop/Beauty Salon - per service chair	650	15
4	Bowling Alleys (Food Service not included) - per lane	400	25
5	Churches and Similar Places of Worship - per seat		
	a) No kitchen facilities, or	8	1,250
	b) Kitchen facilities provided	36	278
6	Country Club (excluding Food Service)		
	a) Per resident,	375	27
	b) Per employee per 8 hour shift, and	50	200
	c) Per member or patron	40	250
7	Day Care Facility per person (staff and children)	75	133
8	Dentist Office		
	a) Per wet service chair, and	275	36
	b) Per dry service chair	190	53
9	Doctors Office		
	a) Per practitioner, and	275	36
	b) Per employee per 8 hour shift	75	133
10	Factory (excluding process or cleaning waters) - per employee per 8 hour shift		
	a) No showers, or	75	133
	b) Including showers	125	80
11	Flea Markets(2) (open not more than 3 days per week)		
	a) Per non-food service vendor space,	60	167
	b) Per food service establishment / 9.25 m_2 of floor space, and	190	53
	c) Per limited food service outlet	95	105

12	Food Service Operations		
	a) Restaurant (not 24 hour), per seat	125	80
	b) Restaurant (24 hour), per seat	200	50
	c) Restaurant on controlled-access highway, per seat	400	25
	d) Paper service restaurant, per seat	60	167
	e) Donut shop, per seat	400	25
	f) Bar and cocktail lounge, per seat	125	80
	g) Drive-in restaurant per parking space	60	167
	h) Take-out restaurant (no seating area)		
	i) per 9.25 m_2 of floor area, and	190	53
	ii) per employee per 8 hour shift	75	133
	i) Cafeteria - per meal	12	833
	j) Food outlet		
	i) excluding delicatessen, bakery and meat department, per 9.25 m_2 of floor space,	40	250
	ii) per 9.25 m_2 of delicatessen floor space,	190	53
	iii) per 9.25 m_2 of bakery floor space,	190	53
	iv) per 9.25 m_2 of meat department floor space, and	380	26
	v) per water closet	950	11
13	Hospitals - per bed		
	a) Including laundry facilities, or	750	13
	b) Excluding laundry facilities	550	18
14	Long-Term Care Homes, etc. - per bed	450	22
15	Office Building(3)		
	a) Per employee per 8 hour shift, or	75	133
	b) Per each 9.3 m_2 of floor space	75	133
16	Public Parks		
	a) With toilets only per person, or	20	500
	b) With bathhouse, showers, and toilets per person	50	200
17	Recreational Vehicle or Campground Park		
	a) Per site without water or sewer hook-up, or	275	36
	b) Per site with water and sewer hook-up	425	24
18	Schools - per student		
	a) Day school,	30	333
	b) With showers,	30	333

	c) With cafeteria, and	30	333
	d) Per non-teaching employee per 8 hour shift	50	200
19	Service Stations (no vehicle washing)(3)		
	a) Per water closet, and	950	6
	i) per fuel outlet(4), or	560	7
	ii) per vehicle served	20	500
20	Shopping Centre (excluding food and laundry) - per 1.0 m_2 of floor space	5	2,000
21	Stadiums, Race Tracks, Ball Parks - per seat	20	500
22	Stores(3)		
	a) Per 1.0 m_2 of floor area, or	5	2,000
	b) Per water closet	1230	8
23	Swimming and Bathing Facilities (Public) - per person	40	250
24	*Theatres*		
	a) Indoor, auditoriums per seat,	20	500
	b) Outdoor, drive-ins per space, or	40	250
	c) Movie theatres per seat	15	667
25	Veterinary Clinics		
	a) Per practitioner,	275	36
	b) Per employee per 8 hour shift, and	75	133
	c) Per stall, kennel or cage if floor drain connected	75	133
26	Warehouse		
	a) Per water closet, and	950	11
	b) Per loading bay	150	67

Notes to Table 8.2.1.3.B.:

(1) The *occupant load* shall be calculated using Subsection 3.1.17.

(2) Flea markets open more than 3 days per week shall be assessed using the volumes stated under the heading “Stores”.

(3) Where multiple calculations of *sanitary sewage* volume is permitted, the calculation resulting in the highest flow shall be used in determining the design daily *sanitary sewage* flow.

(4) The number of fuel outlets is considered the maximum number of fuel nozzles that

Appendix

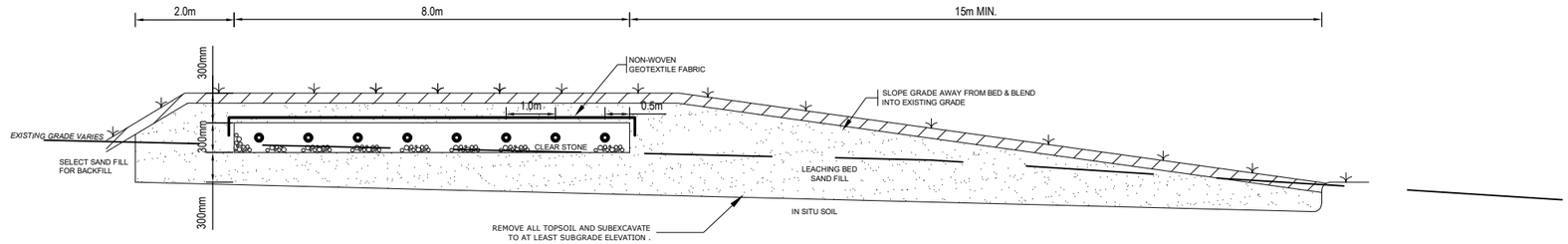
B LIST OF CURRENT / REQUESTED USES

Business Park Gateway (BP-G)	Business Park Core (BP-C)	Business Park Transition (BP-T)
Current Permitted Uses		
One accessory dwelling unit/lot	Building supply and lumber outlet	One accessory dwelling unit/lot
Activity centre	Business, professional, and administrative office	~~Activity centre~~
Business, professional, and administrative office	Bulk fuel depot	Business, professional, or administrative office
Emergency services facility	Concrete product manufacturing (1)	Child Care Facility
Farmers Market	Contractor's Yard	Farmers Market
Gas Station	Feed Mill (3)	Personal Services Shop
Garden Centre (1)	Light Manufacturing, processing, or assembly (1)	Parking Lot
Hotel or Motel	Motor vehicle body shop	Open space or park, park and trail access facility
Parking Lot	Motor vehicle repair garage	Research and development establishment
Personal Service Shop	Motor vehicle dealership	Service shop (non-vehicle)
Post Office	Outdoor storage, ancillary to a permitted use, within a fully enclosed, screened and gated area	Tourist information centre, interpretive centre or recreational trailhead facility
Practitioner's office	Repair shop (non-vehicle)	~~Cannabis retail~~
Retail Store, including convenience store	Retail sales accessory to a permitted use not exceeding 35% of the total floor area	
Restaurant (2)	Sales, services, and rental establishment	
Sales, services and rental establishment	Self-storage facility	
Repair Shop (non-vehicle)	Sawmill (3)	
Tourist Information Centre	Telecommunications towner, transmission towers and hydroelectric substations	
Veterinary Clinic	Transportation depot	
	Warehouse	
	Workshop	
Business Park Gateway (BP-G)	**Business Park Core (BP-C)**	**Business Park Transition (BP-T)**
Requested Additional Permitted Uses		
Building supply and lumber outlet	Emergency services facility	~~Emergency services facility~~
Child Care Facility	Farmers Market	~~Gas Station~~
Motor vehicle body shop	Gas Station	Garden Centre
Motor vehicle repair garage	Garden Centre	Stormwater facilities
Motor vehicle dealership	Parking Lot	~~Hotel or Motel~~
Research and development establishment	Practitioner's office	Practitioner's office
Service shop (non-vehicle)	Retail Store	Retail Store, including convenience store
Workshop	Veterinary Clinic	Sales, services and rental establishment
Stormwater facilities	Research and development establishment	Repair Shop (non-vehicle)
Places of Worship	Service shop (non-vehicle)	Tourist Information Centre
Schools	Stormwater facilities	Veterinary Clinic
		Building supply and lumber outlet
		~~Motor vehicle body shop~~
		~~Motor vehicle repair garage~~
		~~Motor vehicle dealership~~
		Places of Worship
		Schools
		Outdoor storage, ancillary to a permitted use, within a fully enclosed, screened and gated area
		Self-storage facility
		~~Transportation depot~~
		Workshop

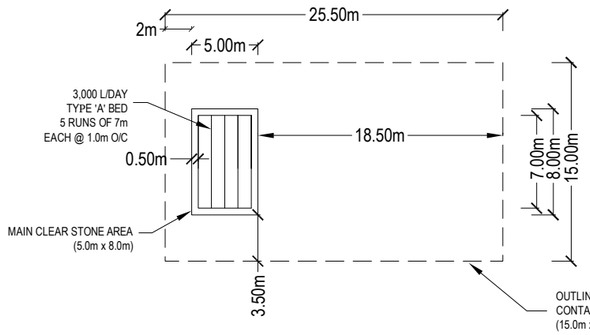
(1) Considerations to additional greywater system to reduce daily design flow
(2) Considerations to installaing oil grit/oil grease separator
(3) Higher than domestic strength level waste may be expected based on type of processing operations

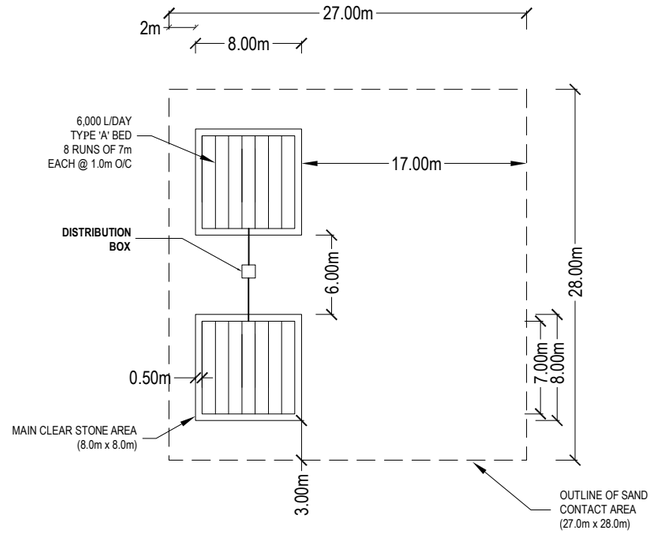
Appendix

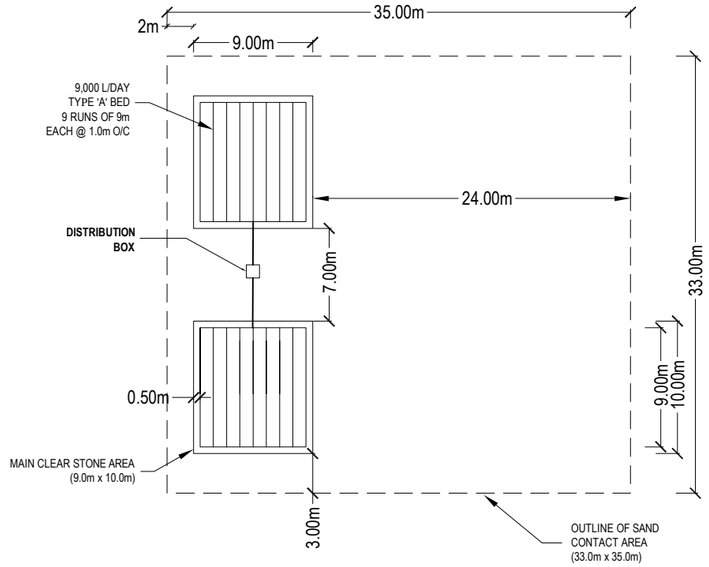
C CONCEPTUAL LEACHING BED LAYOUTS



TYPICAL CROSS SECTION OF TYPE 'A' BED
N.T.S.







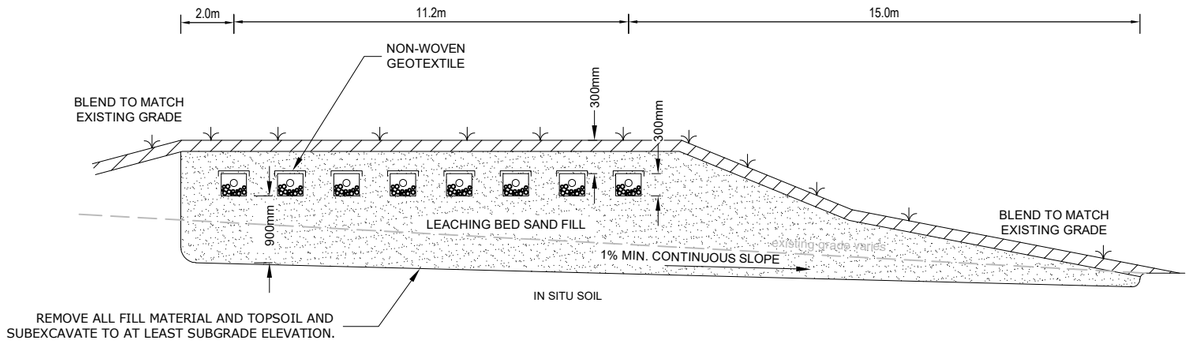
636040 PRINCE OF WALES ROAD
CONCEPTUAL TYPE 'A' BED LAYOUT

N

0 25 50 100 150 250

SCALE 1:4000m

C - 2
CONCEPTUAL LAYOUT



TYPICAL CROSS SECTION OF LEACHING BED
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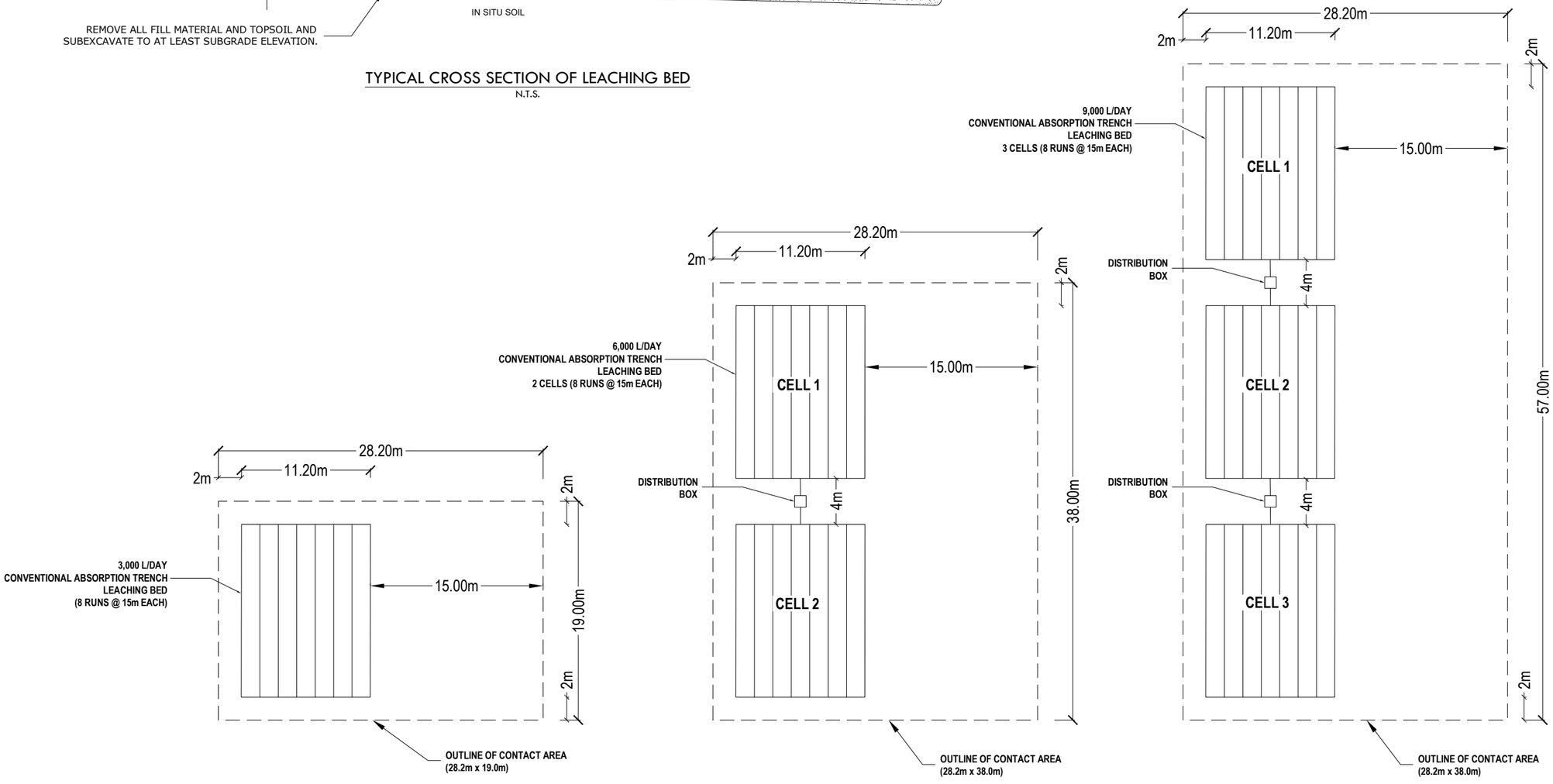

636040 PRINCE OF WALES ROAD
CONCEPTUAL CONVENTIONAL LAYOUT

N

0 25 50 100 150 250
SCALE 1:4000m

C - 1
CONCEPTUAL LAYOUT