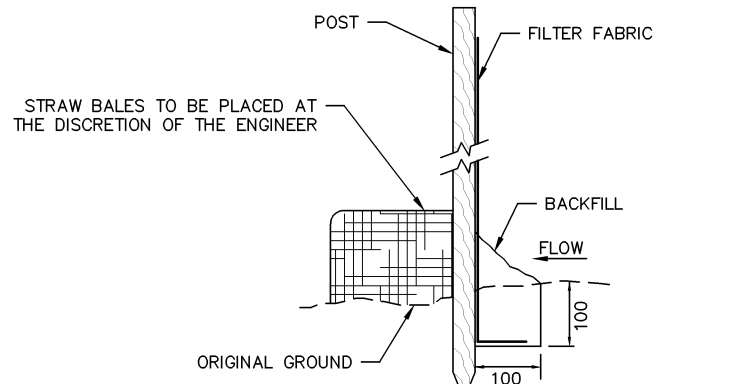


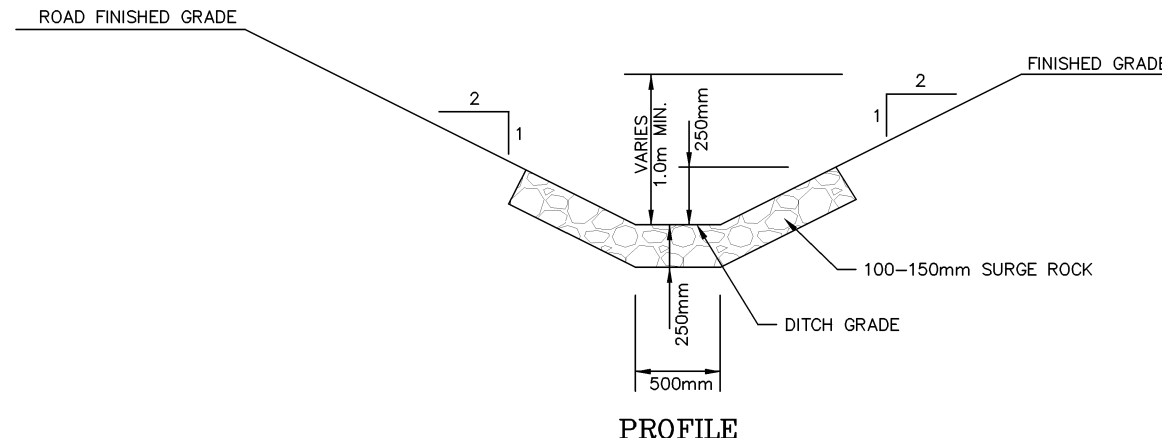
DETAIL #1
TYPICAL CROSS-SECTION RURAL ROAD
NOT TO SCALE

NOTES:
1. SHOULDERS TO BE CONSTRUCTED WITH 140mm TYPE 1S GRAVEL INSTEAD OF ASPHALTIC CONCRETE.



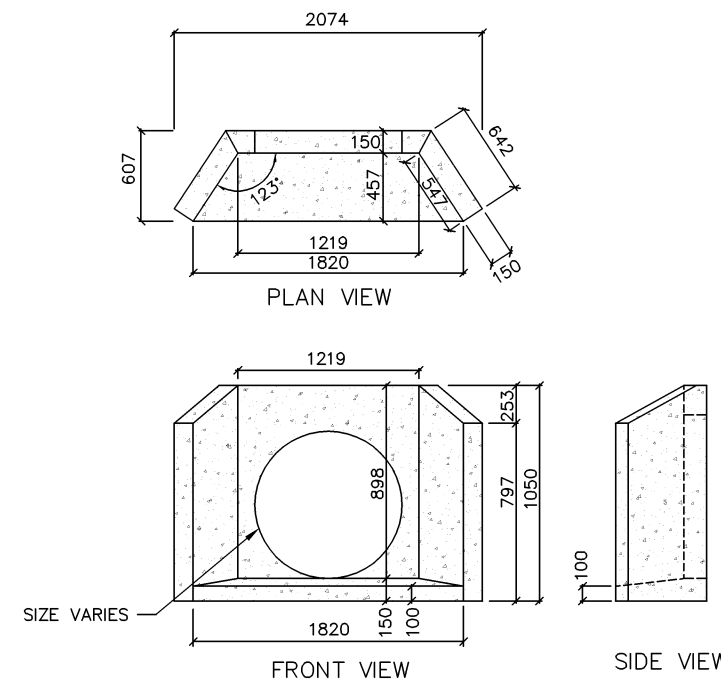
DETAIL #3
SILT FENCE
NOT TO SCALE

NOTES:
1. EXCAVATE A 100X100 TRENCH IN A CRESCENT SHAPE, ACROSS THE FLOW PATH, WITH DOTS POINTING UPSLOPE.
2. SET WOOD STAKES SUPPLIED BY MANUFACTURER. DRIVE STAKES SECURELY INTO GROUND 900MM APART FROM THE DOWNSLOPE SIDE OF THE TRENCH.
3. STAPLE FILTER FABRIC TO THE UPSTREAM SIDE OF THE STAKES, EXTENDING THE BOTTOM 200mm INTO THE TRENCH.
4. FILTER FABRIC SHOULD NOT EXCEED 900mm IN HEIGHT.
5. BACKFILL AND COMPACT THE SOIL IN THE TRENCH OVER THE FILTER FABRIC AND VEGETATE SOIL IMMEDIATELY.



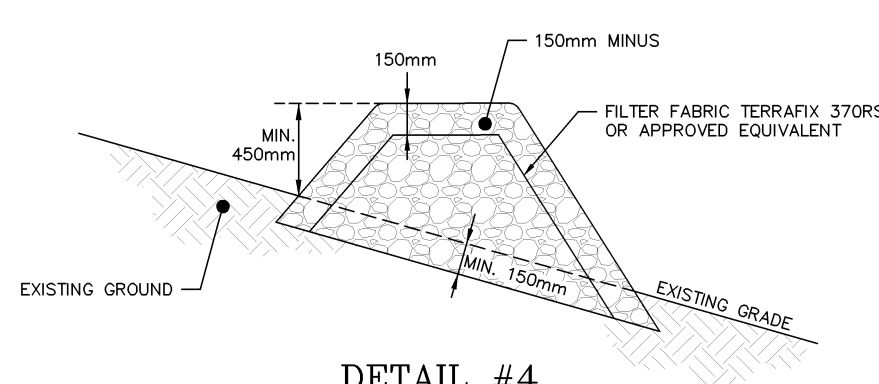
DETAIL #6
RIP-RAP DITCH LINING
NOT TO SCALE

NOTES:
1. PROVIDE RIP-RAP DITCH LINING AS SHOWN ON ALL DITCHES THAT EXCEED 4.0%.



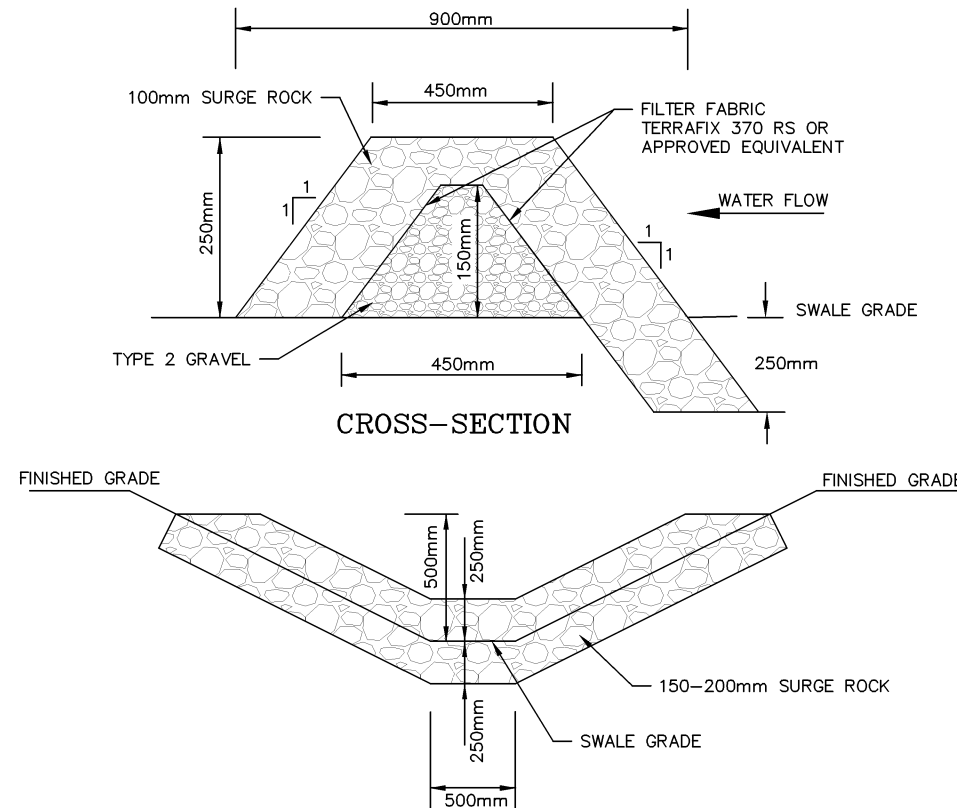
DETAIL #2
PRECAST CONCRETE HEADWALL
NOT TO SCALE

NOTES:
1. BEDDING MATERIAL FOR THE INLET AND OUTLET STRUCTURES IS TO BE 150 THICK TYPE 1 GRAVEL COMPACTED TO 85% MODIFIED PROCTOR DENSITY.
2. PRECAST CONCRETE HEADWALLS BY SHAW PIPE (OR APPROVED EQUIVALENT).
3. CONCRETE SHALL BE 30 MPA WITH 6-8% AIR ENTRAINMENT CONFORMING TO CAN5-A23.1-M77



DETAIL #4
ROCK DISSIPATION BERM
NOT TO SCALE

NOTES:
1. BERM TO RUN ALONG EXISTING GROUND CONTOURS AS MUCH AS POSSIBLE.
2. TOP OF BERM CONSTRUCTED AT CONSISTENT ELEVATION.
3. MINIMUM BERM LENGTH = 5.0m



DETAIL #5
CHECK DAM
NOT TO SCALE

1 IN 10 YEAR - CULVERT SUMMARY TABLE							
CULVERT DESCRIPTION	TOTAL AREA (Ha.)	CN	Tc (Min.)	RAINFALL DEPTH* (mm)	RAINFALL DURATION	PEAK FLOW (L/s)	CONC. PIPE (mmø)
CULVERT #1	±0.58	92 - PAVED ROADS, OPEN DITCHES AND INDUSTRIAL LOTS	10.0	103.7	24 HOUR	127.6	525
CULVERT #2	±0.44	92 - PAVED ROADS AND OPEN DITCHES	10.0	103.7	24 HOUR	97.7	525
LOT 1	±0.26	91 - PAVED ROADS, OPEN DITCHES AND INDUSTRIAL LOTS	6.3	103.7	24 HOUR	61.2	450
LOT 2	±1.50	84 - PAVED ROADS, OPEN DITCHES AND INDUSTRIAL LOTS	25.0	103.7	24 HOUR	185.0	525
LOT 3	±5.92	84 - PAVED ROADS, OPEN DITCHES AND INDUSTRIAL LOTS	28.1	103.7	24 HOUR	693.8	900
LOT 4	±7.19	84 - PAVED ROADS, OPEN DITCHES AND INDUSTRIAL LOTS	28.5	103.7	24 HOUR	836.3	900

*NOTE: STORM WATER MODELED USING HYDROCAD V.10.00 SOFTWARE, USING THE USDA NATURAL RESOURCES CONSERVATION SERVICE METHOD (FORMERLY SCS).
TYPE-III 24 HOUR STORM DISTRIBUTION USED WITH ENVIRONMENT CANADA PUBLISHED RAINFALL DATA FOR HALIFAX STANFIELD INTERNATIONAL AIRPORT (8202251).

SEDIMENTATION & EROSION CONTROL NOTES

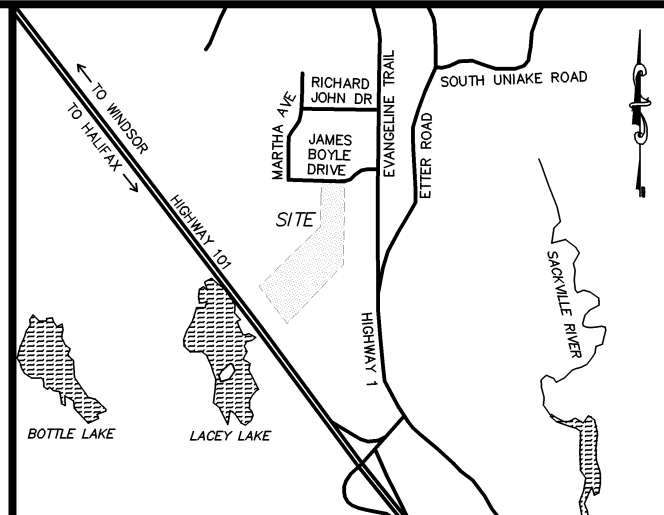
- All work shall be in accordance with the latest revision of the Nova Scotia Department of the Environment's Erosion and Sedimentation Control Handbook for Construction Sites.
- Install a silt fence in areas indicated on this drawing. Filter Fabric shall be Terrafix 370 RS or equivalent, and shall be installed to D.O.E. Standards and Specifications.
- Erosion control measures shown these drawings are suggestions only. The Contractor is responsible to determine which erosion & sediment control measures are required based on construction sequences, maintenance, and alteration measures as required during construction.
- The amount of exposed soil areas in this development must remain at a minimum at all times, using either wood chips or straw on the exposed areas.
- Grubbed material, which is not used for fill, will be disposed offsite in accordance with Nova Scotia Department of Environment legislation and Regional Municipal Bylaws.
- The Contractor shall maintain a stockpile of erosion control material onsite.
- A crushed rock construction entrance shall be established to prevent tracking of mud offsite. The gravel entrance shall be 15.2m long by a minimum of 6m wide and shall consist of a minimum of 200mm layer of "clean pit run or Type 2 gravel".
- All water pumped from ditches, swales or sumps shall be filtered through a sediment trap, 2 m³ of clear stone gravel, filter bag, or undisturbed vegetation to filter out solid material.
- Silt accumulation along silt fences and swales shall be removed regularly.
- With respect to sediment control, all work shall be completed to the satisfaction of the Owner & Engineer.
- The Contractor shall incorporate a routine end-of-day check to ensure the integrity of the protection measures.
- Machinery maintenance shall not be performed in or near a wetland, watercourse, ditch, or storm sewer. Some examples of maintenance include, but are not limited to, washing out cement mixers, changing oil, greasing, spray painting, cleaning of spraying equipment or painting equipment, etc.
- Any hazardous liquid including fuel and lubricants shall be stored in a designated area surrounded by an impervious berm which would contain a spill of the volume of all stored liquid.
- Any spillage of a hazardous material into any watercourse must be reported to the Nova Scotia Department of Environment's Environmental Emergencies 24 Hour Service at 426-6030.
- The effectiveness of the control measures shall be inspected and monitored during rain events and maintained and upgraded as necessary or as directed by the Engineer or Environmental Inspectors.
- Contractor shall monitor meteorological conditions and forecasts as a proactive means to minimize the potential for erosion.
- Before clearing or grubbing commences, clearing limits, easements, setbacks, sensitive/critical areas and their buffers, trees and drainage courses shall be delineated with flagging tape and enviro-fences. This ensures workers can clearly recognize areas to be protected.
- Contractor must have a person on site daily who has successfully completed the Erosion and Sediment Control (ESC) course provided by NSTIR, NS Environment, Fisheries and Oceans Canada (DFO), and Dalhousie University. The person should be able to show their "Green Card" on demand.
- Contractor to ensure copies of all pertinent approvals and permits from NSTIR and NSE are held on site (including this Environmental Control Plan and subsequent revisions to Erosion and Sediment Control (ESC) measures and Water Control Plans). Contractor to comply with all permit requirements and conditions and maintain all ESC measures until ground cover is re-established.
- Contractor must prepare their own ESC plan (including a Contingency Plan for failure of ESC measures) for approval by the Engineer prior to construction (this drawing may be simply revised to indicate the Contractor's specific plans).
- Contractor must continually update the ESC Plan as site conditions change (e.g., new ground elevations [embankments/cuts] and drainage patterns). Provide updates to the Project Engineer and discuss new changes to the ESC Plan.
- Contractor to install and maintain diversion ditches around (and through) the site as necessary to "keep clean water clean".
- Contractor responsible for creation of temporary settling ponds to keep sediment on site, and maintenance throughout the period of use (including drainage of "clean water" and accumulated sediments; water outlets should be protected with 200mm-250mm stone or other protective cover). Take special care prior to storm events to avoid over-filling the pond (flocclants and pumping maybe required to direct to other storage areas or via tanker to an off site location).
- Contractor is responsible for dust control on site. Dust must be prevented through application of water to exposed dry soils to prevent dust from being generated and blown from the site to adjacent areas.
- Temporary sediment and erosion control measures shall remain in place for the duration of the project and removed once approved by the consultant.

GENERAL NOTES:

- Elevations are geodetic, and refer to Nova Scotia Co-ordinate Monument System. NSCM #28294 Elev=63.327m.
- All work shall be in accordance with the latest edition of Standard Specification of Municipal Services for Nova Scotia
- Grades are to be checked and approved in the field by the Engineer, notwithstanding grades shown on the drawing. The grades of pavements, where they join onto existing works, are to be confirmed as well, in the field, by the Contractor.
- Information shown as to existing works is approximate only. The Contractor shall be responsible for locating existing underground infrastructure (ie: Telephone, cable, fibre optic, power lines, gas, etc.) before proceeding with work.
- For street and layout control survey markers, the contractor is to check with Strum Consulting. Do not disturb existing survey markers or services in the area. Reinstall and make good any damage or disturbance at contractor's cost.
- Do not encroach on adjacent property. Make good any damage to adjacent properties at Contractor's expense.
- Areas within R.O.W. not concrete, asphalt or gravel surfaced, shall be hydroseeded c/w 100mm topsoil.
- Unless otherwise noted, the Contractor shall obtain and pay for all permits and fees. Copies of the permit(s) shall be supplied to the Owner in advance of the associated work taking place.

SAFETY NOTES

- The Engineer will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures or for safety precautions and programs required for the work, in accordance with the applicable construction safety legislation, other regulations or general construction practice. The Engineer will not be responsible for or have control or charge over the acts or omissions of the construction manager, contractor, subcontractors or their agents, employees or other persons performing any of the work.
- The Contractor shall have complete control of the work and shall effectively direct and supervise the work so as to ensure conformance with the contract documents. He shall be solely responsible for construction means, methods, techniques, sequences and procedures and for coordinating the various parts of the work under the contract.
- The Contractor shall be solely responsible for construction safety at the place of work and for compliance with the rules, regulations, and practices required by the applicable construction safety legislation.
- The Contractor shall indemnify and hold harmless the engineer and the owner in connection with any infractions or alleged infractions of the contractor with respect to any acts, codes, regulations, etc.
- The Contractor shall be the constructor under the Nova Scotia Occupational Health and Safety act. Neither the engineer nor the owner are constructors under the act.
- The Contractor shall exercise extreme caution when working near existing power lines, and comply with all safety regulations with respect to clearance distances.
- The Contractor shall be responsible for any traffic control required for the completion of the work.



Key Plan

NOT TO SCALE

0. Issued For Tender	Aug 29, 2019	CNB
No Description	Date	By

Revision or Issue

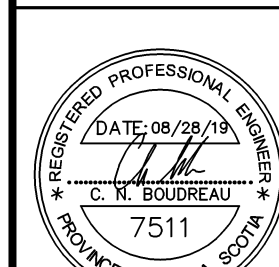
Strum
CONSULTING

Project
UNIACKE BUSINESS PARK
EXPANSION
PHASE 1

Drawing

CONSTRUCTION NOTES
AND DETAILS

Scale N.T.S.



Date	Aug 29, 2019	Drawn	RAW
Design	Check	Approv.	CNB
RAW	CNB	CNB	CNB
Project No.	18-6683	Sheet	5 Of 5
Drawing No.	F05	Rev.	0