

APR 09 2009

PR/187

Honourable Charlene Johnson
Department of Environment and Conservation
P.O. Box 8700
Confederation Building, West Block
St. John's, NL
A1B 4J6

Dear Minister Johnson:

**RE: Environmental Assessment Registration, Proposed Highways Transportation Depot,
South of Crook's Lake, TLH, Phase 3**

In accordance with Section 49 of the Environmental Protection Act, 2002, I am submitting for your review and consideration, an Environmental Assessment Registration for a proposed Highways Transportation Depot south of Crook's Lake on Phase 3 of the Trans Labrador Highway.

The site is indicated on the attached topographic map. It is approximately 146.5 km west of the Cartwright Junction intersection. An area of approximately 10,000 m² will be necessary for this development and its operation. The depot building and its property will be located within an existing road cut therefore most of the site clearing and grubbing has been undertaken through previous highway construction activities.

The building design is very similar to the Cartwright Junction depot, which was registered with your Department in 2008. The design is shown on the attached drawings. It consists of a heavy equipment garage, a staff residence, which includes sleeping and kitchen quarters for 3-4 personnel as well as bathroom/shower facilities. The building will be serviced by a drilled well and a septic tank and wastewater disposal field. Aboveground hydrocarbon storage will be provided for diesel fuel, stove oil and waste oil.

We would like to complete the requirements of the Environmental Protection Act by May 22, 2009. The Department of Transportation and Works needs to call tenders for this project as soon as possible to allow construction to commence early within the 2009 construction season.

If your officials have any questions, they should be directed to contact Mr. Roger Pottle, Senior Environmental Planner with our Highway Design and Construction Division, at 729-5379, or by e-mail at pottler@gov.nl.ca.

Yours sincerely,



ROBERT SMART
Deputy Minister

/rp

Attachments

- c. Mr. Gary Gosse,
Mr. Roger Pottle
Mr. Dion Tee
Mr. Kent Randell
Mr. Dean Osmond
Mr. Clyde Clark
Mr. Ken Hannaford

**REGISTRATION PURSUANT TO SECTION 49
OF THE ENVIRONMENTAL PROTECTION ACT, 2002,
FOR THE CONSTRUCTION OF A
HIGHWAY TRANSPORTATION DEPOT ON THE TRANS
LABRADOR HIGHWAY 146.5 KILOMETERS WEST OF THE
CARTWRIGHT JUNCTION INTERSECTION**

PROPONENT:

(I) Name of Corporate Body

Department of Transportation and Works
Government of Newfoundland Labrador

(ii) Address

Confederation Building (West Block)
St. John's, NL
A1B 4J6

(iii) Chief Executive Officer

Robert Smart
Deputy Minister
729-3676

(iv) Principal Contact Person for the Purpose of Environmental Assessment

Roger Pottle
Senior Environmental Planner
Highway Design and Construction Division
729-5379

THE UNDERTAKING:

(I) Name of the Undertaking

Construction of a highway transportation depot at Station 146+515; South of Crook's Lake, Trans Labrador Highway.

(ii) Nature of the Undertaking

The Department of Transportation and Works (DTW) is planning the construction of a highway transportation depot on the Trans Labrador Highway 146.5 kilometers west of Cartwright Junction towards Happy Valley/Goose Bay. The coordinates are N58226395 E255054.4 This depot will include a garage and an adjacent residence as well as sand and fuel storage facilities.

(iii) Purpose / Rationale / Need for the Undertaking

The Trans Labrador Highway (Cartwright Junction to Happy Valley/Goose Bay) is currently under construction and this section will be maintained from this depot once it is constructed. Due to the distances involved and the extreme Labrador climate using established depots on Trans Labrador Highway (Red Bay to Cartwright) would not be efficient or safe for winter snow clearing and road maintenance. DTW needs to increase the level of service while improving the safety aspect associated with travelling on the Trans Labrador Highway. To bring the service to a desired level, construction of a self sufficient depot approximately midway between the Cartwright Junction Intersection and Happy Valley/Goose Bay is required.

DESCRIPTION OF THE UNDERTAKING

(I) Geographic Location

The project will involve construction of a depot located approximately midway between Cartwright Junction and Happy Valley/Goose Bay. The front of the 6,235.2 square meter lot is 86.6 m long and bounded by the following coordinates:

N58226395 E255054.4
N5826411 E255059.5

The side of the lot is 72 m. A lot layout drawing and site map are located in appendices A and B respectively.

The project site is part of a road cut which was utilized during highway construction. The

site has therefore been previously cleared and grubbed.

(ii) Physical Features.

a) Structures

The proposed depot house measures 13.411 m x 9.144 m (30ft x 44ft) and consists of wood frame construction with steel siding. As per plans enclosed in appendix C, this house will contain an office, living room, kitchen, and four bedrooms.

The proposed garage measures 24.384 m x 18.288 m (60ft x 80ft) and is a Steel Frame Building with a Concrete Slab on Grade Floor. As per plans enclosed in the attached appendices, three (3) equipment bays have been included with a generator room and built in work benches.

There will be two fuel storage tanks. One will be a 22,700 L GEEP tank for diesel and one 22,700 L GEEP tank for stove oil. These tanks will be located adjacent to the generator as per plans enclosed in appendix B. A 2700 L double walled waste oil tank will also be on site.

b) Facilities

The domestic sewage from the depot will be disposed of through a septic tank/disposal field system. The septic tank is designed with a single compartment and will have a 3000 L capacity. The septic tank and disposal field will be located not less than 30m (100ft) from any watercourse or waterbody, or the site well. Final inspection and approval of this sanitary facility will be requested from the Department of Government Services.

Potable water will be obtained from a sealed drilled well which will be located not less than 30m (100ft) upgrade of the disposal field.

The garage will be equipped with a hydrocarbon separation unit to allow oils and greases to be separated from water during equipment cleaning and minor maintenance.

(iii) Construction

Construction will be performed by contract forces and will be carried out in the following manor:

- (a) clearing;
- (b) grubbing;
- (c) grading;
- (d) building, well and septic system construction
- (e) clean-up and rehabilitation

The potential sources of pollution during construction would be limited to the possibility of hydrocarbon spillage from temporary and permanent fuel storage facilities. The contractor will be advised of proper procedures for hydrocarbon spill reporting.

The contractor will be required to follow Section 8 of DTW's Specification Manual entitled "General Environmental Requirements". This section outlines applicable environmental legislation as well as procedures for minimizing environmental disturbance during construction. Section 8 can be found in appendix D or by visiting the Government web page at:

<http://www.tw.gov.nl.ca/hwdesign/specbook/SpecBook2008.pdf> .

(iv) Operation

The depot is a permanent operation. The depot will be used to store and maintain snow clearing and highway maintenance equipment. Due to its remote location, the depot will also be used as a seasonal residence and work area for contractor employees. The only significant potential source of pollution would be from the spillage or leakage of hydrocarbons. Any incidents of hydrocarbon spills from storage systems or during equipment operations will be mitigated by the contractor.

(v) Occupations

The various types of occupations anticipated for this project may include:

i) Design and Construction

- (a) Civil Engineers;
- (b) Structural Engineers;
- (c) Engineering Technicians;
- (d) Surveyors;
- (e) Heavy Equipment Operators;
- (f) Drillers and Blasters;
- (g) Electricians;
- (h) Carpenters;
- (k) Labourers

ii) Operations

- (a) Foremen
- (b) Equipment Operators

APPROVAL OF THE UNDERTAKING

The following is a list of the permits, licenses, approvals which may be necessary for this project:

MAJOR REGULATORY APPROVALS BY TYPE, AGENCY AND CONTACT PERSON

Type of Permit	Agency	Contact Person
1. Wood Cutting	Dept. of Natural Resources	Ford Taylor 896-3405
2. Burning Permit	Dept. of Natural Resources	Ford Taylor 896-3405
3. Fuel storage & handling	Government Service Centre	Ms. Sharon Metcalf 896-2661
4. Solid waste disposal	Government Service Centre	Ms. Sharon Metcalf 896-2661
5. Water supply / sewage disposal	Government Service Centre	Ms. Sharon Metcalf 896-2661

SCHEDULE

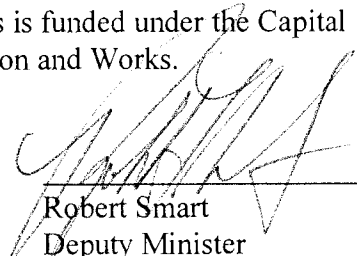
The Department would like to complete the requirements of the Environmental Protection Act and seek approval for the project by May 22, 2009. The detailed design is complete and because of the short construction season in Labrador construction needs to commence at the beginning of the construction season, 2009.

FUNDING

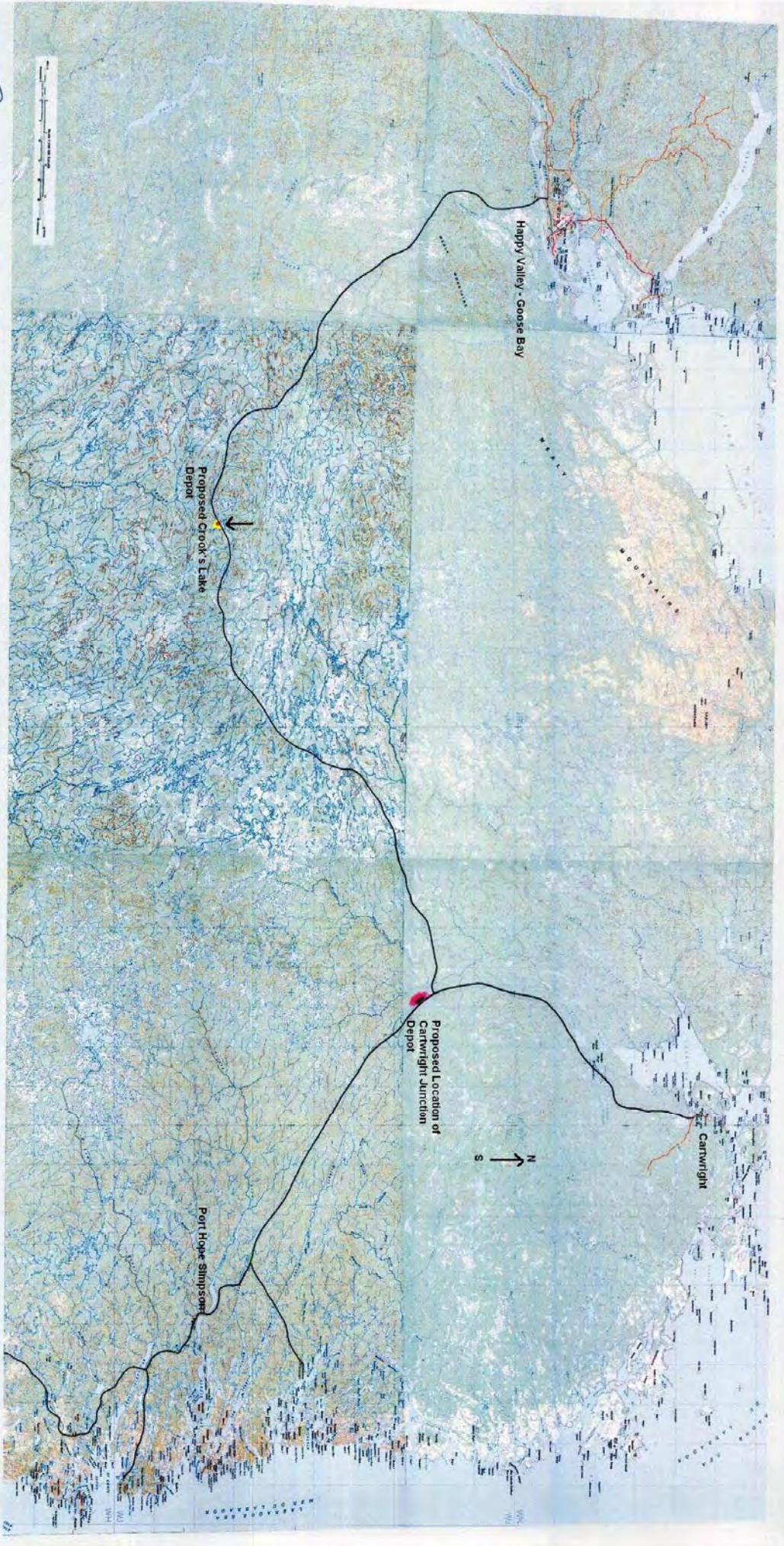
The anticipated cost of construction is \$2, 800, 000. This is funded under the Capital Construction Program of the Department of Transportation and Works.

APR 09 2009

Date


Robert Smart
Deputy Minister

Appendix A
Site Map

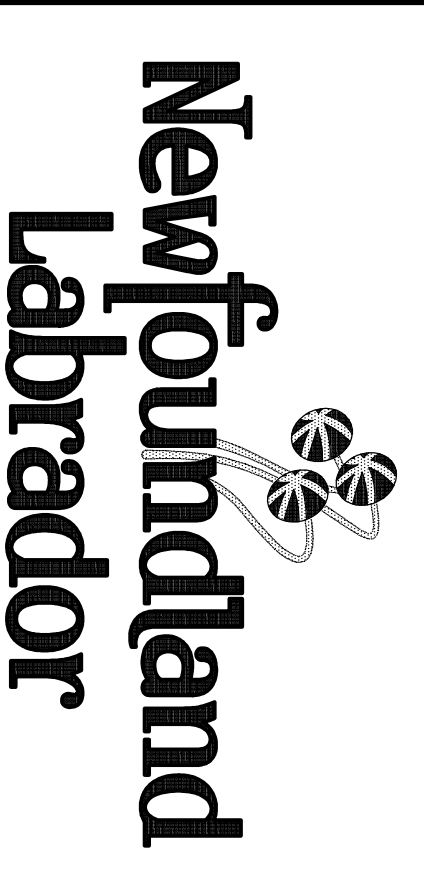


CARTWRIGHT INTERSECTION
DEPOT LOCATION



Positions are in NAD 87
on the road shoulder approx.
2 km south of intersection

Appendix B
Site Plan

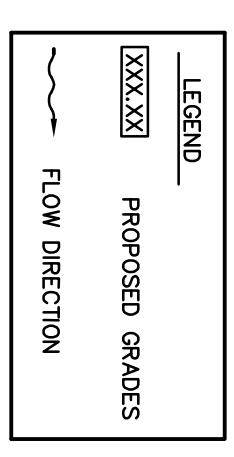
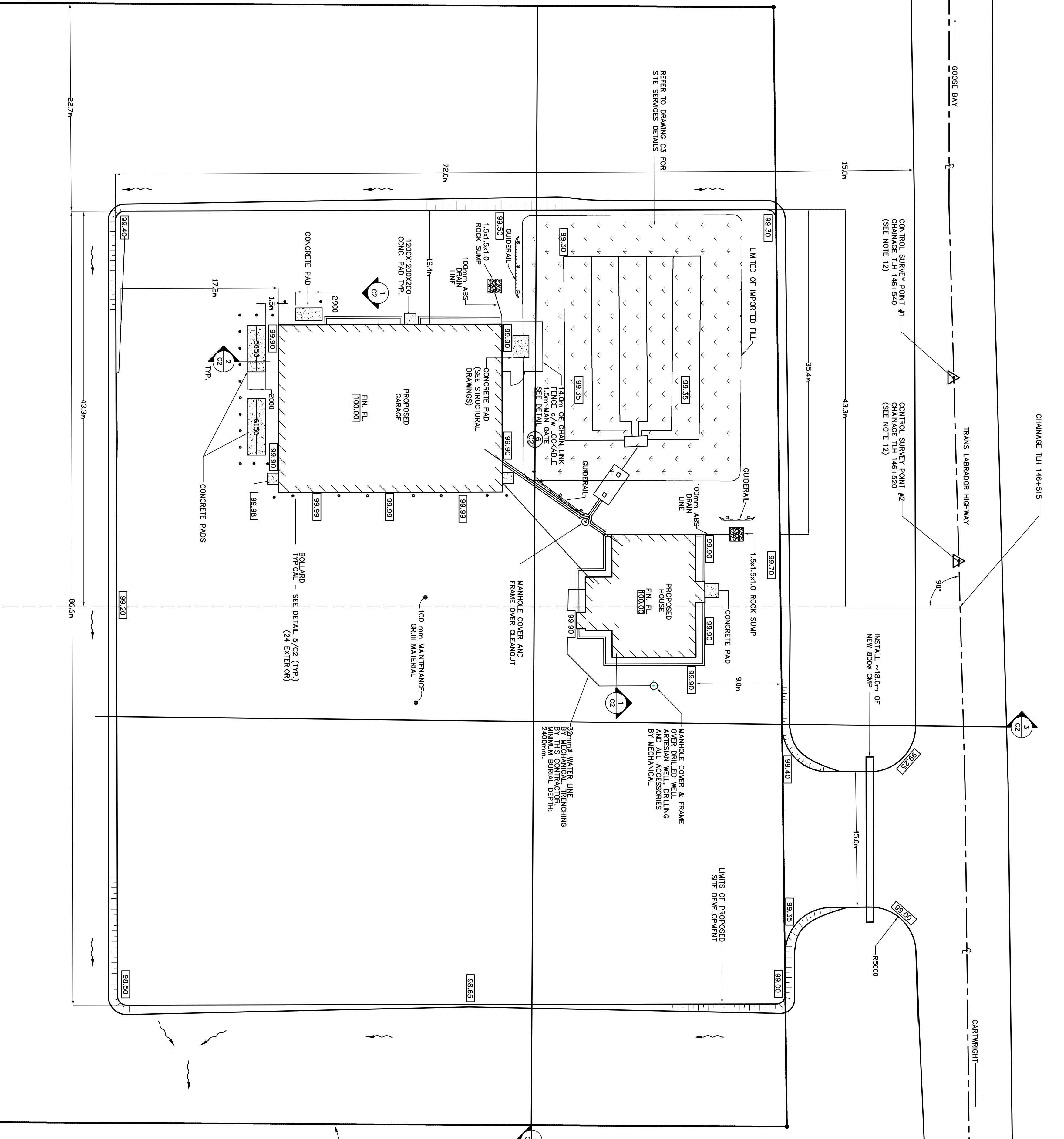


Department of Transportation and Works
Government of Newfoundland and Labrador

NO.	DESCRIPTION	DATE	BY
0	ISSUED FOR TENDER		



- NOTES:
- DO NOT SCALE FROM DWGS.
 - CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
 - ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION AND WORKS SPECIFICATIONS AND THE DEPARTMENT OF GOVERNMENTAL SERVICES AND PRIVATE SEWAGE DISPOSAL AND WATER SUPPLY STANDARDS.
 - CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS TO COMPLETE THE WORK.
 - DRAWINGS C1, C2 AND C3 INDICATE A TYPICAL SITE LAYOUT AND DETAILS ONLY. ACTUAL SITE LOCATION, TOPOGRAPHICAL SURVEYS AND GEOTECHNICAL REPORTS TO BE PROVIDED BY THE DEPARTMENT OF TRANSPORTATION AND WORKS. SITE DESIGN, INCLUDING LAYOUT, GRADING AND THE SEWAGE DISPOSAL SYSTEM TO BE REVERSED BY THE ENGINEER TO SUIT ACTUAL SITE LOCATION AND CONDITIONS.
 - GRUBBING AND ROUGH GRADING OF ENTIRE SITE TO BE PERFORMED BY OTHERS. THIS CONTRACTOR SHALL BRING SITE TO FINISHED GRADES BY SUPPLYING AND PLACING 100mm MAINTENANCE GRADE III MATERIAL EXCEPT IN LOCATION OF SEPTIC FIELD. CONTRACTOR SHALL PLACE 100mm MAINTENANCE GRADE OVER SEPTIC FIELD AREA OF SEPTIC FIELD, EXTENDING 4.5m BEYOND FIELD ON ALL SIDES.
 - FINAL FOUNDATION DESIGN TO BE COMPLETED BASED ON GEOTECHNICAL REPORTS PROVIDED BY THE DEPARTMENT OF TRANSPORTATION AND WORKS. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
 - CONTRACTOR TO COMPLETE PERCOLATION TESTS AS REQUIRED FOR SEWAGE DISPOSAL FIELD. DESIGN SHOWN IS BASED ON A PERCOLATION RATE OF 10-20 MINUTES. DISPOSAL FIELD TO BE RESIZED AS REQUIRED.
 - EMBANKMENTS TO BE MAXIMUM SLOPE 2H:1V TREAT WITH 150mm TOP-SOIL AND NURSERY SOD.
 - CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM ALL PERIMETER LOCATIONS AT LIMITS OF SITE DEVELOPMENT. PROVIDE DRAINAGE SWALES AS AND WHERE REQUIRED.
 - SUPPLY AND INSTALL GUIDERAIL WHERE INDICATED ON DRAWING C1. PROVIDE 200X200 PRESSURE TREATED POSTS WITH 1200mm MIN BURY. PROVIDE TERMINAL SECTIONS AS SHOWN.
 - SURVEY CONTROL POINT:
#1 - NS8226395
E255054,4
#2 - NS8226411
E255059,3

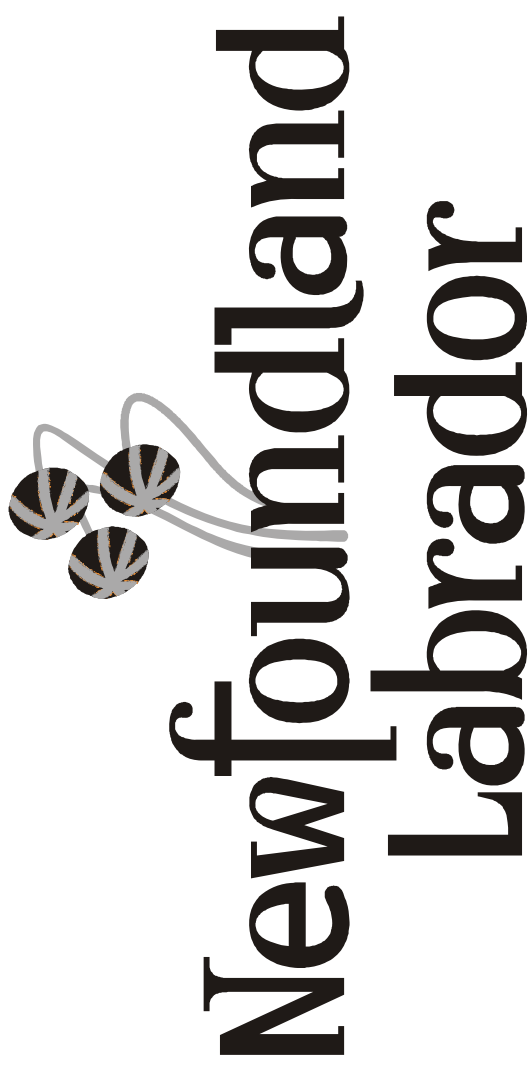


PROJECT
CONSTRUCT NEW TRANSPORTATION DEPOT
CROOKS LAKE
NEWFOUNDLAND LABRADOR

DRAWING
PROPOSED SITE PLAN

DRAWN BY	CHECKED BY	APPROVED BY
PROJECT NO. 500805004	DWG. FILE NO.	FILE NO.
DATE	SCALE 1:250	DRAWING NO. C1
		REV. 0

Appendix C Design Plans

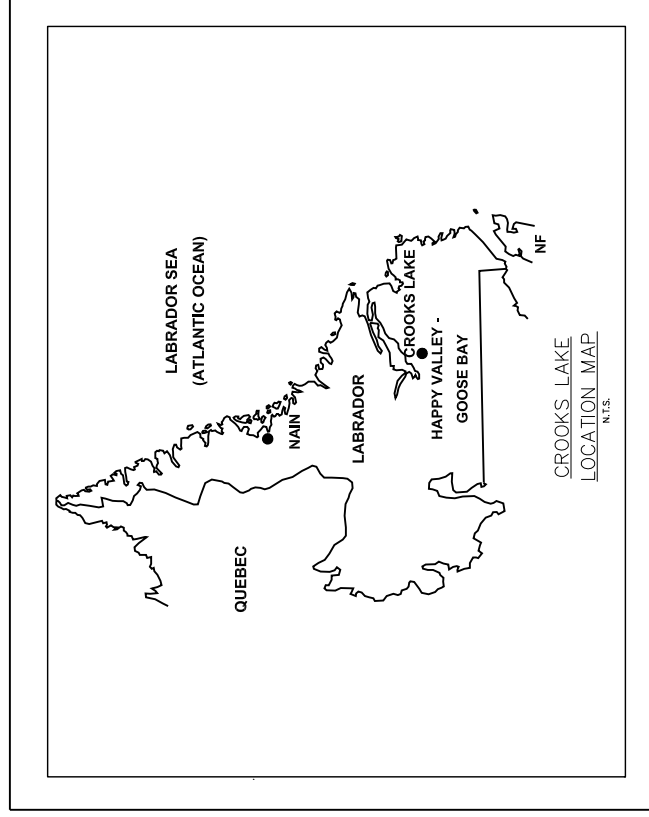


Department of Transportation and Works
 Government of Newfoundland and Labrador

Project

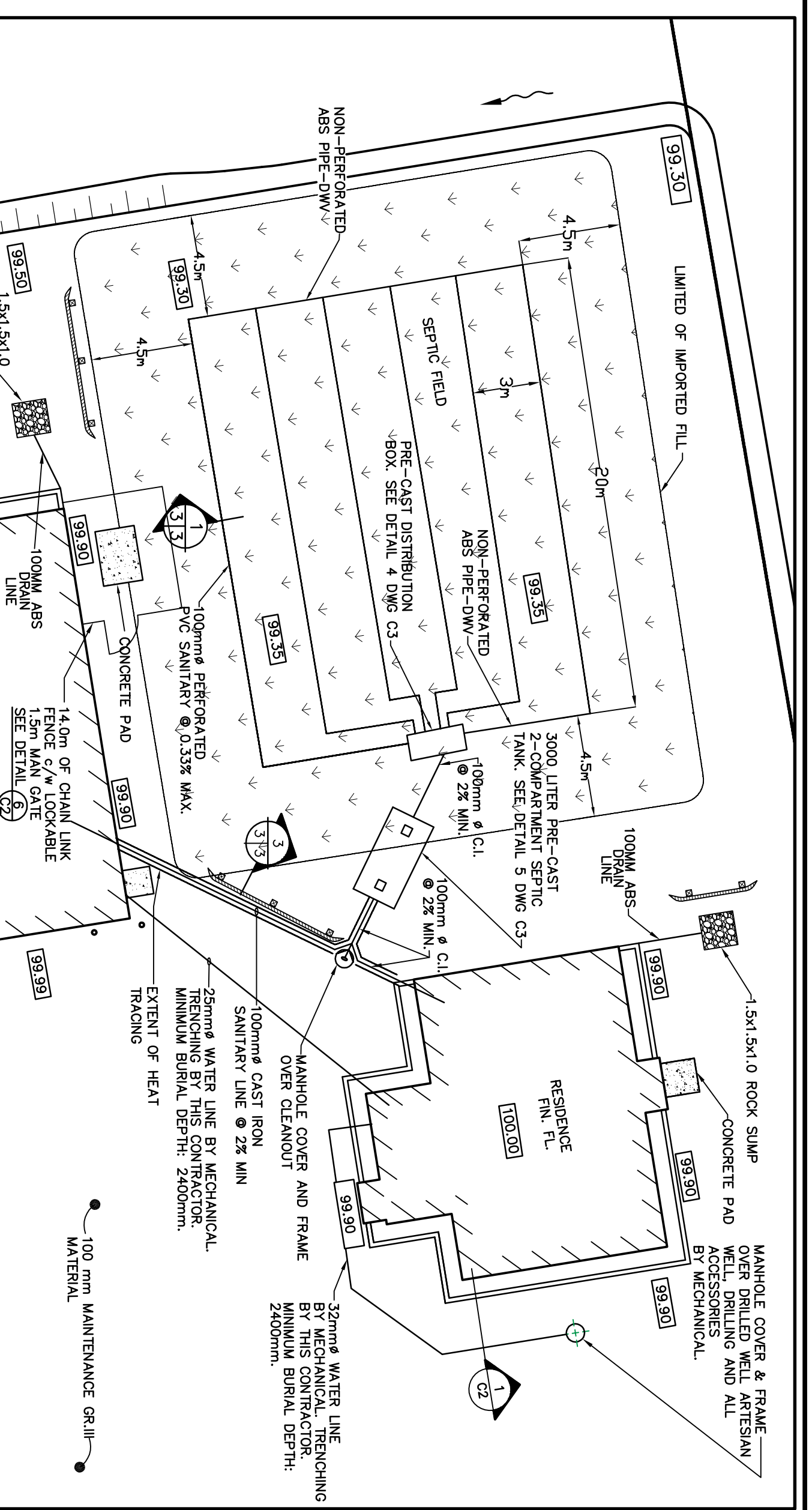
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 DEPOT
 CROOKS LAKE
 PROJECT No. 500805004**

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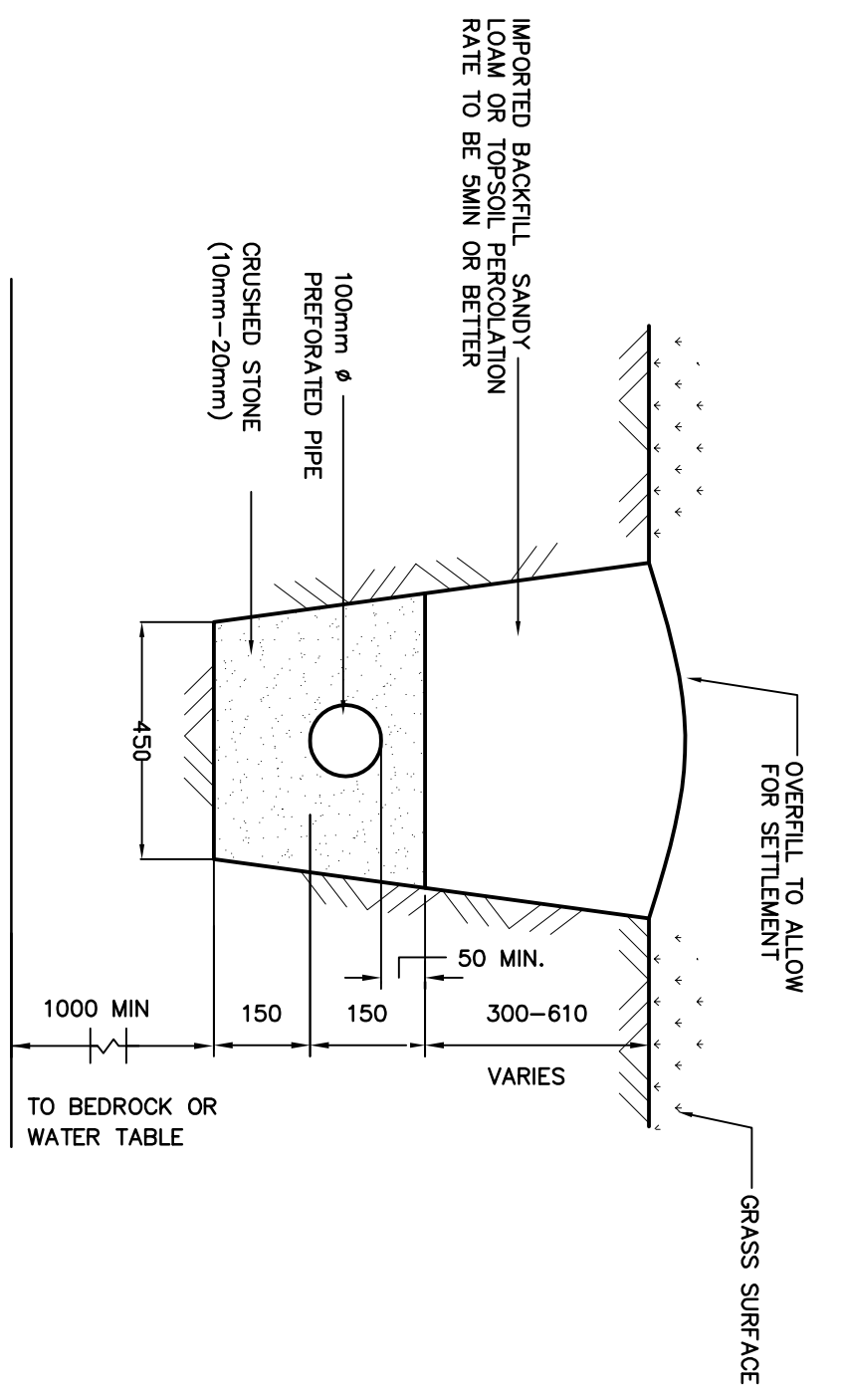
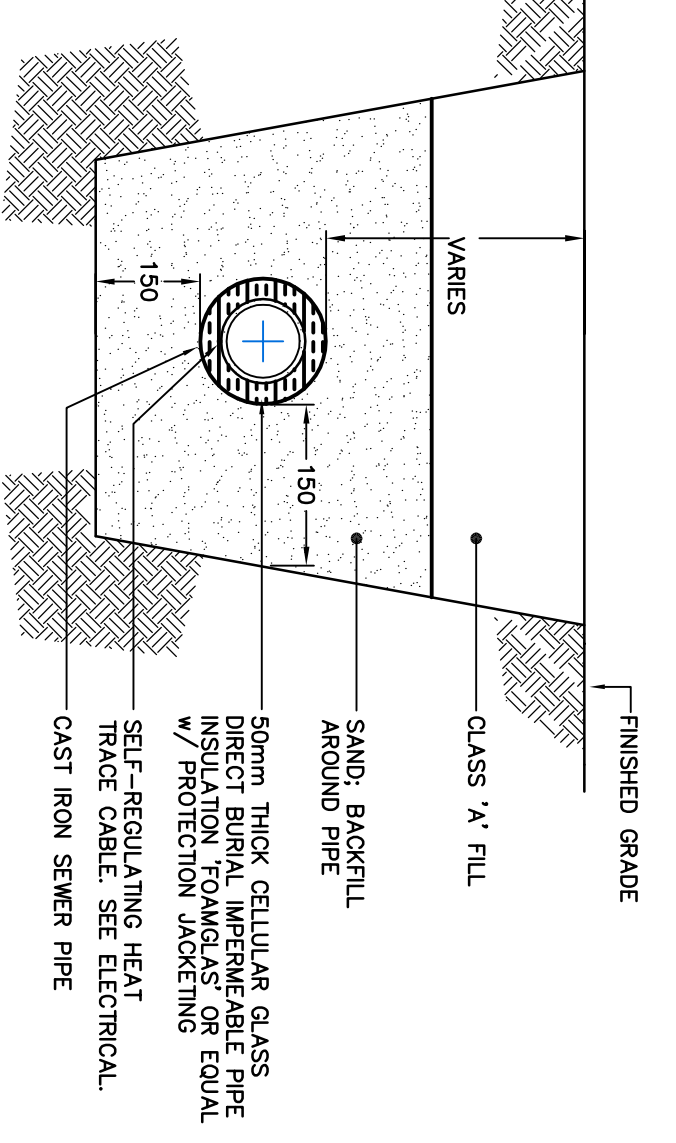
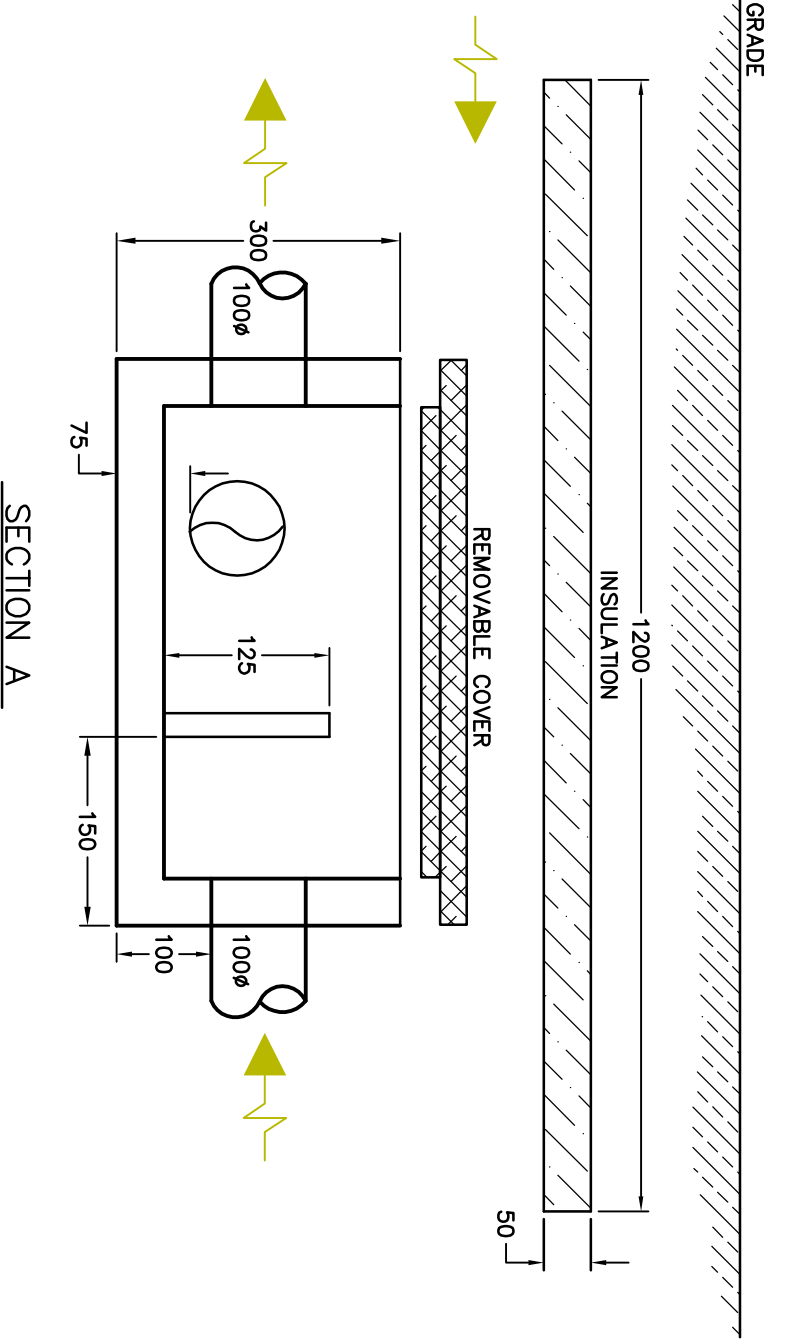
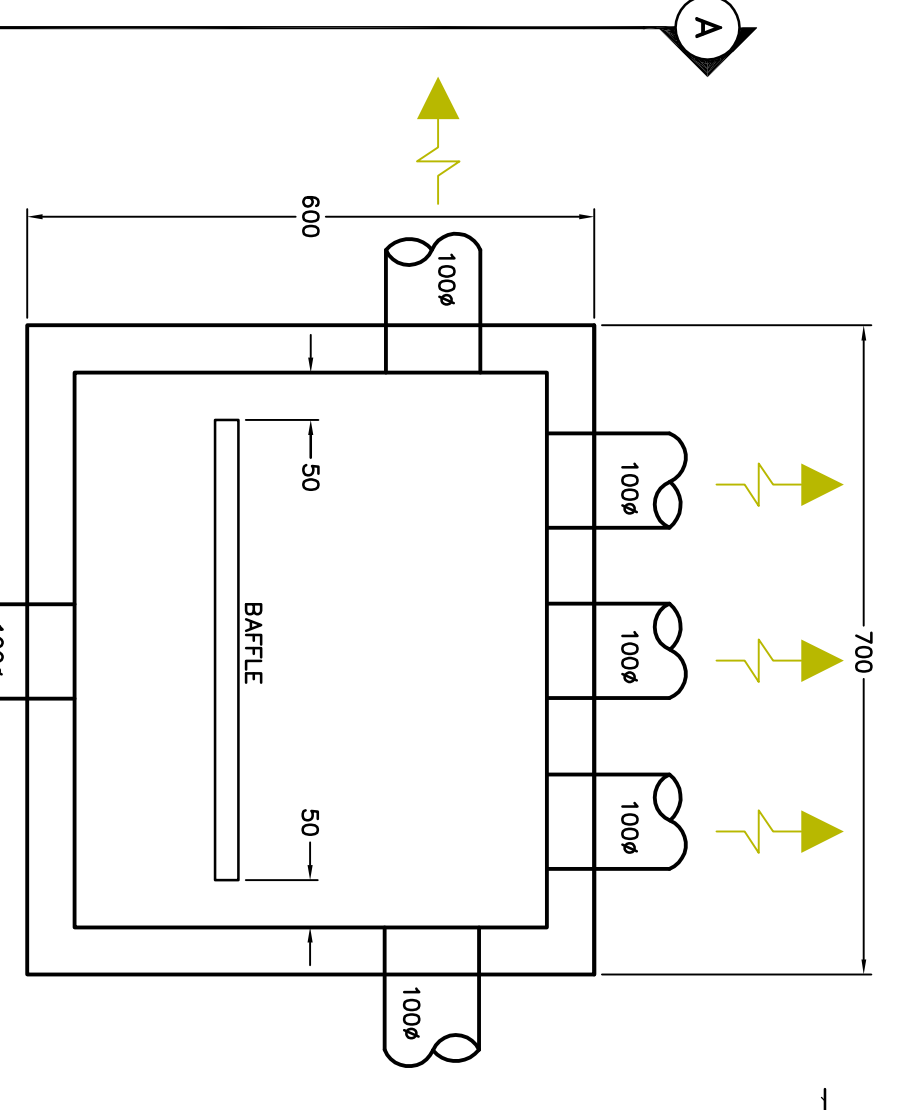


LIST OF DRAWINGS:

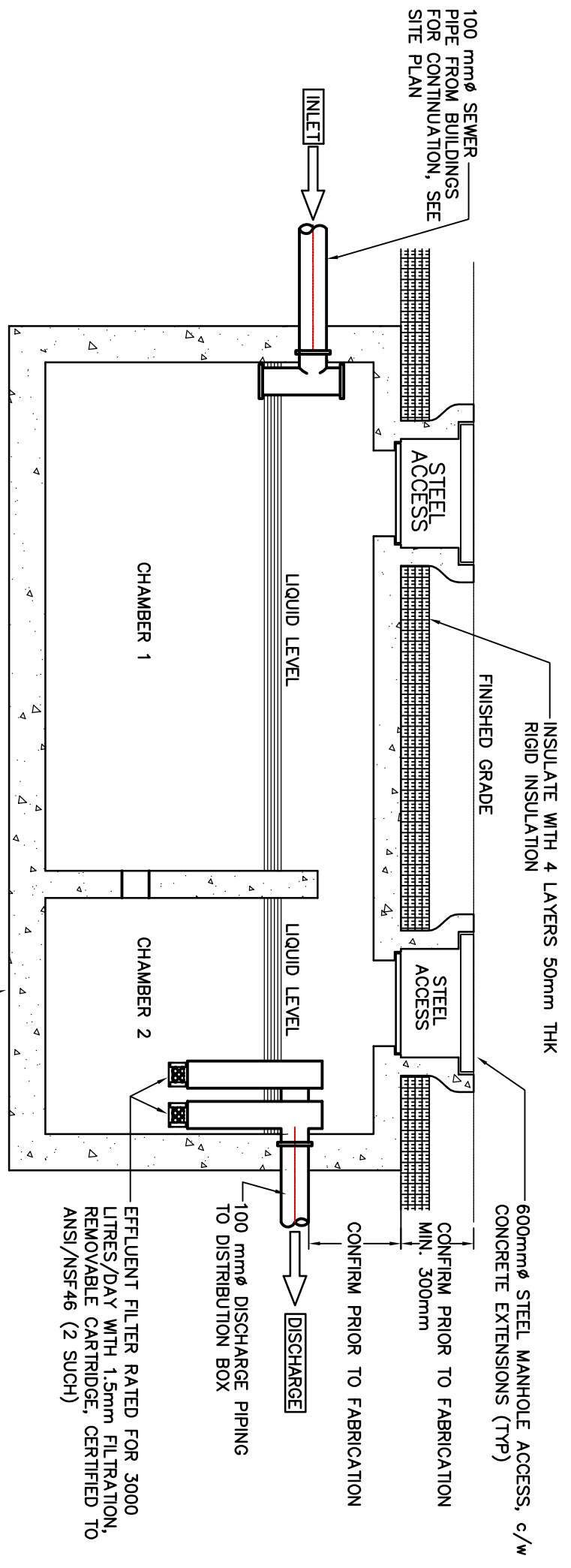
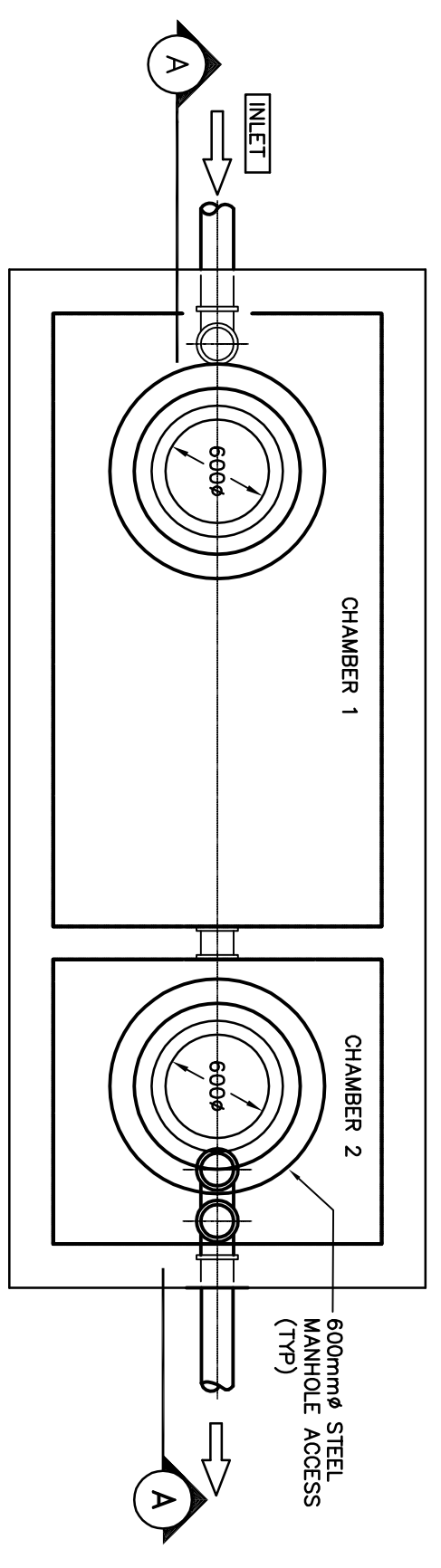
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|------------------------------|--|--|---|
| CIVIL: | ARCHITECTURAL: | STRUCTURAL: | ELECTRICAL: |
| C1 PROPOSED SITE PLAN | A1 FLOOR PLAN, PARTIAL REFLECTED | S1 FOUNDATION PLAN, SLAB-ON GRADE PLAN AND SECTIONS, HOUSE | E1 LEGEND AND DETAILS |
| C2 SITE SECTIONS AND DETAILS | A2 CEILING PLAN, HOUSE | S2 FOUNDATION PLAN, GARAGE | E2 ELECTRICAL FLOOR PLANS, RESIDENCE |
| C3 DETAILS | A3 ELEVATIONS, DOOR SCHEDULE, | S3 SLAB-ON GRADE PLAN, GARAGE | E3 ELECTRICAL FLOOR PLAN, GARAGE |
| | A4 WINDOW ELEVATIONS, HOUSE | S4 SECTIONS AND DETAILS | E4 ELECTRICAL DISTRIBUTION, RISER DIAGRAM AND DETAILS |
| | A5 WALL SECTIONS AND DETAILS, HOUSE | S5 SECTIONS AND DETAILS | E5 PANEL SCHEDULES |
| | A6 MISCELLANEOUS DETAILS, HOUSE | | E6 PANEL SCHEDULES |
| | A7 WASHROOM PLAN, BUILT-IN ELEVATIONS | MECHANICAL: | E7 SITE PLAN AND TRENCH DETAILS |
| | A8 AND MISCELLANEOUS DETAILS, HOUSE | M1 FLOOR PLAN RESIDENCE PLUMBING LAYOUTS | ME1 CONTROLS |
| | A9 FLOOR PLAN, GARAGE | M2 FLOOR PLAN RESIDENCE PLUMBING LAYOUTS | ME2 CONTROLS |
| | A10 ELEVATIONS, GARAGE | M3 GARAGE PLUMBING/HEATING LAYOUT | ME3 CONTROLS AND DIAGRAMS |
| | A11 ELEVATIONS, GARAGE | M4 FUEL OIL PIPING LAYOUT AND DETAILS | |
| | A12 BUILDING SECTION, PARTIAL FLOOR PLAN | M5 RESIDENCE AND GENERATOR ROOM VENTILATION LAYOUTS | |
| | A13 AND DOOR SCHEDULE, GARAGE | M6 GARAGE VENTILATION LAYOUT AND PART PLAN | |
| | A14 WALL SECTION AND DETAILS, GARAGE | M7 MECHANICAL DETAILS | |
| | | M8 MECHANICAL DETAILS | |
| | | M9 VENTILATION DETAILS | |
| | | M10 SCHEDULES AND LEGEND | |
| | | M11 MECHANICAL DETAILS | |



- NOTES:
1. PRE-CAST CONCRETE DISTRIBUTION BOX TO BE DESIGNED TO ASTM C913.
 2. PROVIDE POLY-BLOCK WATERPROOF PIPE SEALS AT ALL INLET AND OUTLET PIPE LOCATIONS.
 3. PROVIDE WATERTIGHT SEAL AT COVER.
 4. BAFFLE TO BE 16mm THICK STEEL WITH CORROSION RESISTANT EPOXY COATING.
 5. PROVIDE 1200mm x 1200mm x 50mm THICK RIGID INSULATION ABOVE DISTRIBUTION BOX.

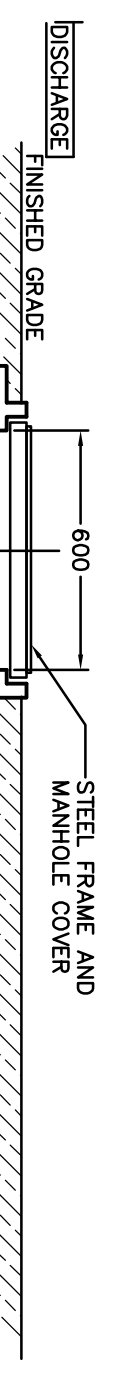


- NOTES:
1. PROPER SURFACE UNGRADED GRANULAR FILL MATERIAL WHICH DEMONSTRATE 15% PERCOLATION TIME @ 5-20 MINUTES AFTER COMPACTION.
 2. UNGRADED FILL SHALL BE COMPACTED IN 100mm LAYERS UP TO FINISHED GRADE PRIOR TO EXCAVATING PERCOLATION RATE TO BE CONFIRMED PRIOR TO STARTING INSTALLATION OF DISPOSAL FIELD.



- NOTES:
1. FIBERGLASS MAY BE SUBSTITUTED FOR PRECAST CONCRETE.
 2. TANK TO BE DESIGNED BY REGISTERED PROFESSIONAL ENGINEER.

SEPTIC TANK DETAIL - 3000 LITRE



DEEP WELL ACCESS DETAIL

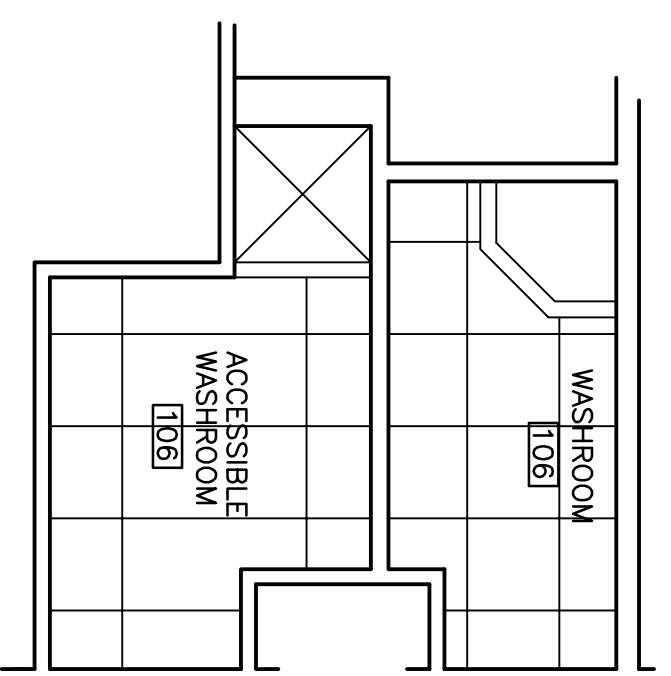
- NOTES:
1. DO NOT SCALE FROM DWGS.
 2. CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
 3. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION AND WORKS SPECIFICATIONS AND THE DEPARTMENT OF GOVERNMENTAL SERVICES PRIVATE SEWAGE DISPOSAL AND WATER SUPPLY STANDARDS.
 4. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS TO COMPLETE THE WORK.
 5. DRAWINGS C1, C2 AND C3 INDICATE A TYPICAL SITE LAYOUT AND DETAILS ONLY. ACTUAL SITE LOCATION, TOPOGRAPHICAL SURVEYS AND GEOTECHNICAL REPORTS TO BE PROVIDED BY THE DEPARTMENT OF TRANSPORTATION AND WORKS. THE ENGINEER IS PROVIDING A PRELIMINARY SITE SERVICE DISPOSAL SYSTEM TO BE REVIEWED BY THE ENGINEER TO SUIT ACTUAL SITE LOCATION AND CONDITIONS.
 6. GRUBBING AND ROUGH GRADING OF ENTIRE SITE TO BE PERFORMED BY OTHERS. THIS CONTRACTOR SHALL BRING SITE TO FINISHED GRADES BY SUPPLYING AND PLACING 100mm MAINTENANCE GRADE III MATERIAL EXCEPT IN LOCATION OF SEPTIC FIELD. CONTRACTOR SHALL PLACE 100mm TOPSOIL AND SEED OVER ENTIRE AREA OF SEPTIC FIELD, EXTENDING 4.5m BEYOND FIELD ON ALL SIDES.
 7. FINAL FOUNDATION DESIGN TO BE COMPLETED BASED ON GEOTECHNICAL REPORTS PROVIDED BY THE DEPARTMENT OF TRANSPORTATION AND WORKS. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
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 9. EMBANKMENTS TO BE MAXIMUM SLOPE 2H:1V. TREAT WITH 150mm TOPSOIL AND NURSERY SOD.
 10. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM ALL PERIMETER LOCATIONS AT LIMITS OF SITE DEVELOPMENT. PROVIDE DRAINAGE SWALES AS AND WHERE REQUIRED.

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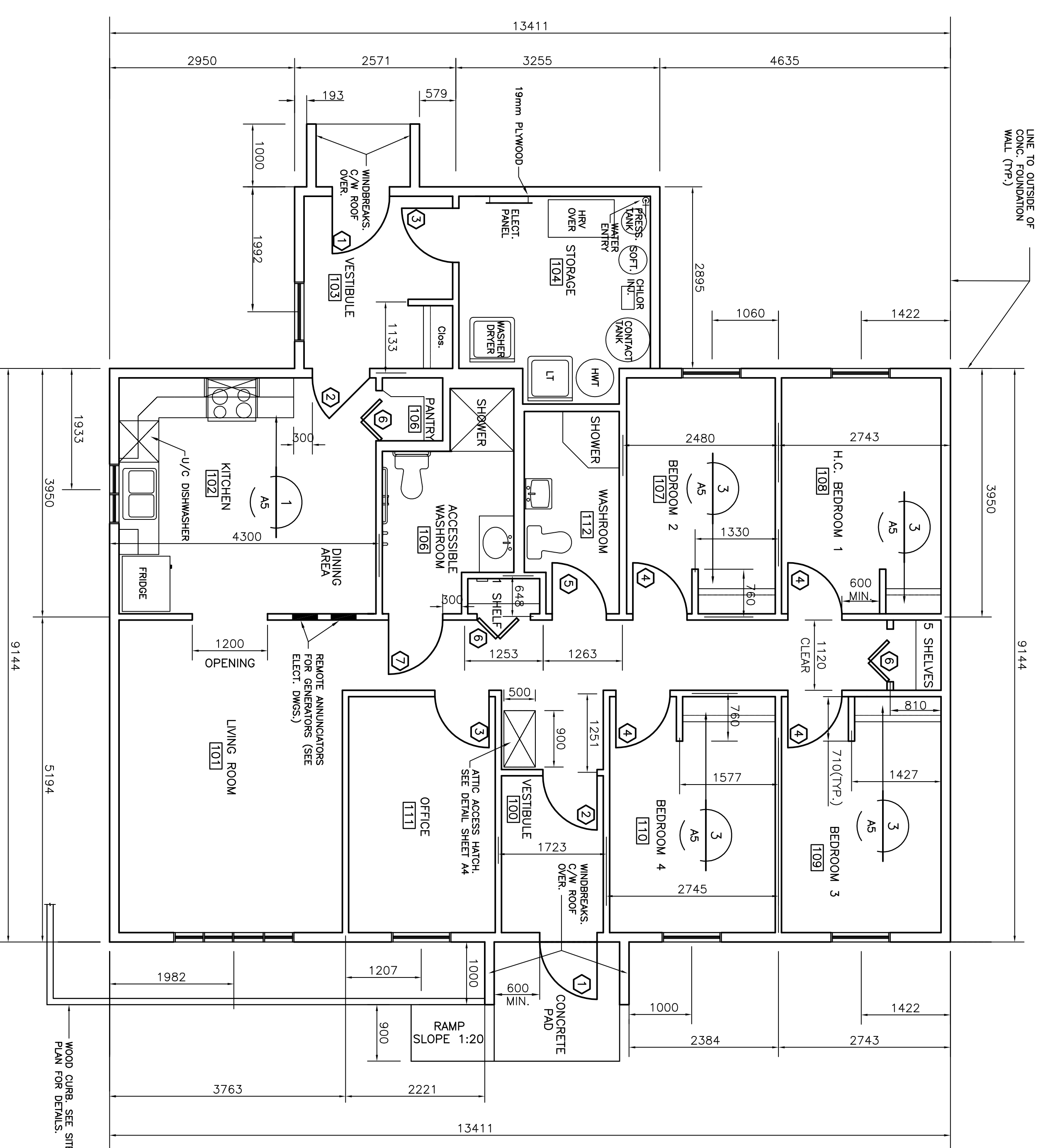
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PROJECT		CONSTRUCT NEW TRANSPORTATION DEPOT CROOKS LAKE	
DRAWING		DETAILS	
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PROJECT NO.		DWG. FILE NO.	
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		DRAWING NO.	
		REV.	
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- NOTES:
1. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE BEFORE ANY PROCEEDING WITH ANY PORTION OF THIS WORK. DO NOT SCALE FROM DRAWINGS.
 2. FOR WASHROOM LAYOUTS AND DETAILS SEE SHEET A5.
 3. FOR KITCHEN BUILT-INS, SEE SHEET A5.
 4. REFER TO ARCH., MECH. & ELECT. DRAWINGS AND SPECIFICATIONS FOR EXTENT OF WORK AND CO-ORDINATE WITH OTHER TRADES PRIOR TO THE COMMENCEMENT OF ANY WORK TO AVOID INTERFERENCE.
 5. PROVIDE ALL CUTTING, FITTING, PATCHING, FINISHING, BLOCKING AND SEALING WORK COMPLETE AND OPERABLE INSTALLATION.
 6. GENERAL CONTRACTOR TO PROVIDE ALL CUTTING, FITTING AND PATCHING FOR ALL TRADES, CO-ORD. EXTENT WITH SUB-TRADES.
 7. PROVIDE WOOD BLOCKING FOR ALL WALL MOUNTED ITEMS ATTACHED TO GYPSUM BOARD WALLS.



REFLECTED CEILING TILE PLAN - WASHROOM
1 : 50



FLOOR PLAN
1 : 50

<p>PROJECT CONSTRUCT NEW TRANSPORTATION DEPOT CROOKS LAKE NEWFOUNDLAND LABRADOR</p>											
<p>SUB-CONSULTANT</p>											
<p>PRIME CONSULTANT</p>											
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<p>PROJECT NO. 500805004</p>	<p>DWG. FILE NO.</p>	<p>FILE NO.</p>	<p>REV. 0</p>								
<p>SCALE 1:50</p>	<p>DRAWING NO. 47</p>	<p>DATE</p>	<p>REV.</p>								

NOTES:

- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE BEFORE PROCEEDING WITH ANY PORTION OF THIS WORK. DO NOT SCALE FROM DRAWINGS.
- PROVIDE SECONDARY FRAMING BEHIND LINER PANEL FOR ATTACHMENT OF 38x140 HARDWOOD HOOK SUPPORT MEMBER c/w SPACERS TO SUIT LINER PANEL PROFILE. MOUNT HOOKS 1800mm AFF AT 400mm c.c.
- COORDINATE LOCATION OF OVERHEAD DOOR, TRACK AND BRACKET LOCATIONS WITH SUSPENDED SERVICES FOR MECHANICAL AND ELECTRICAL.

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REVISIONS			

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B	B - NO. OF DRAWING WHERE ABOVE IS DRAWN

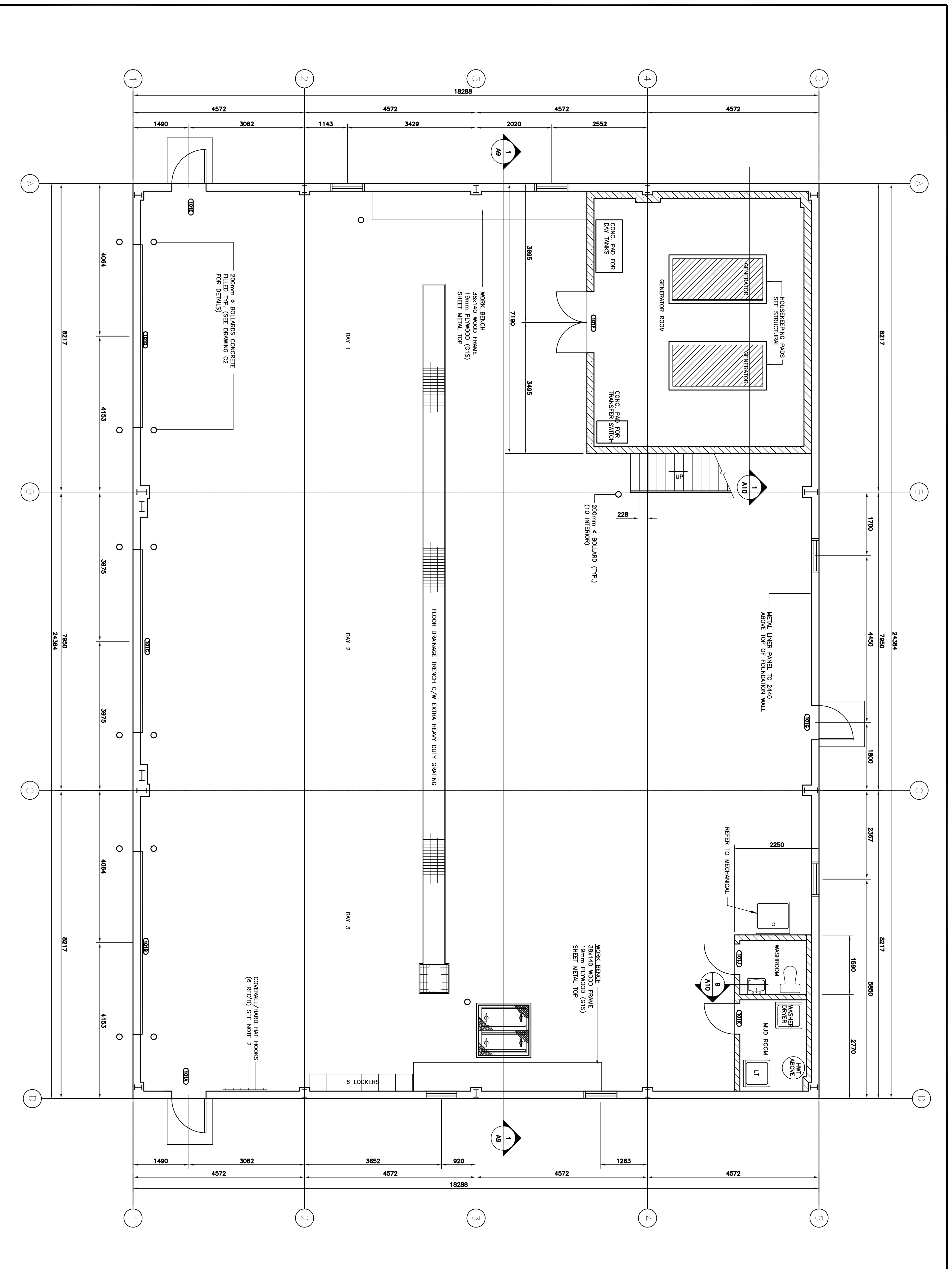
PRIME CONSULTANT

SUB-CONSULTANT

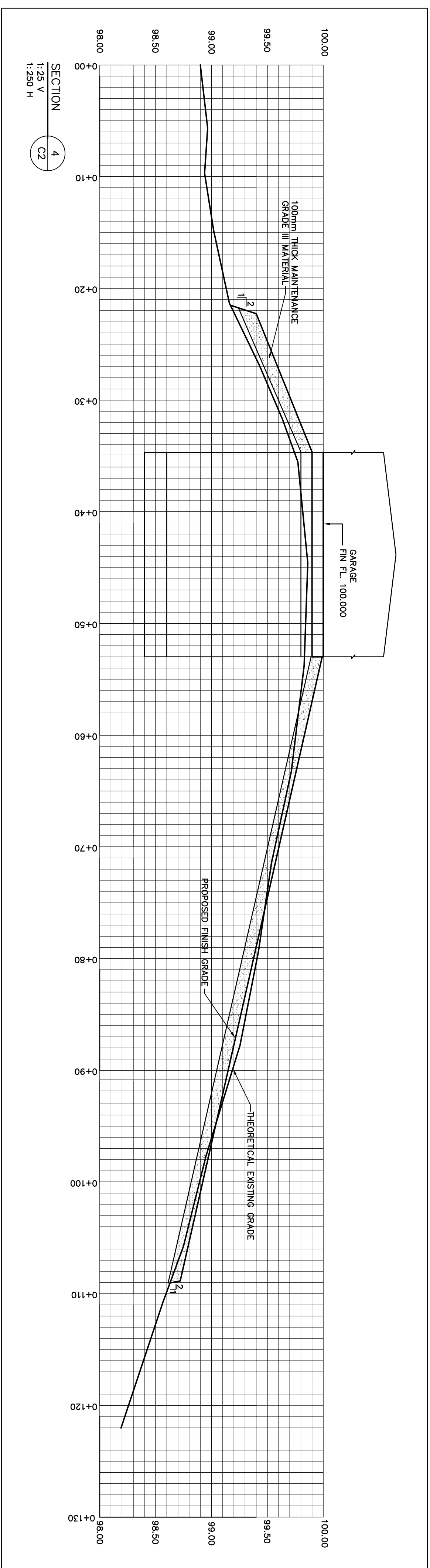
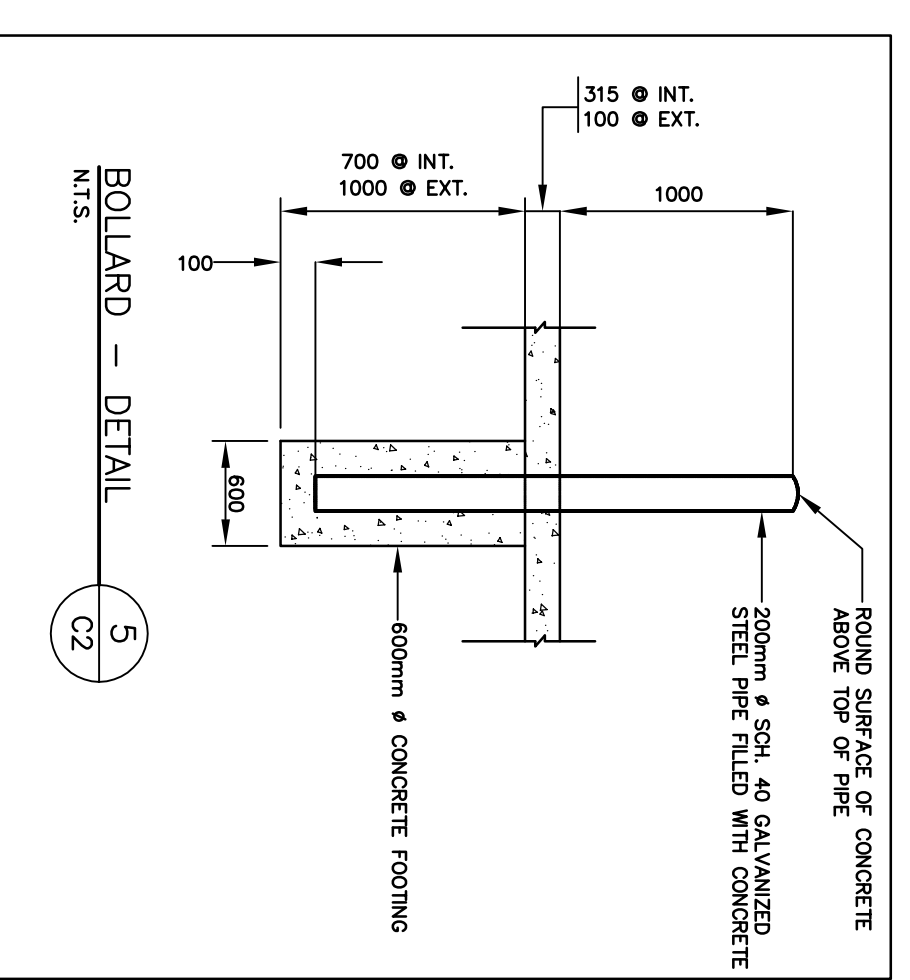
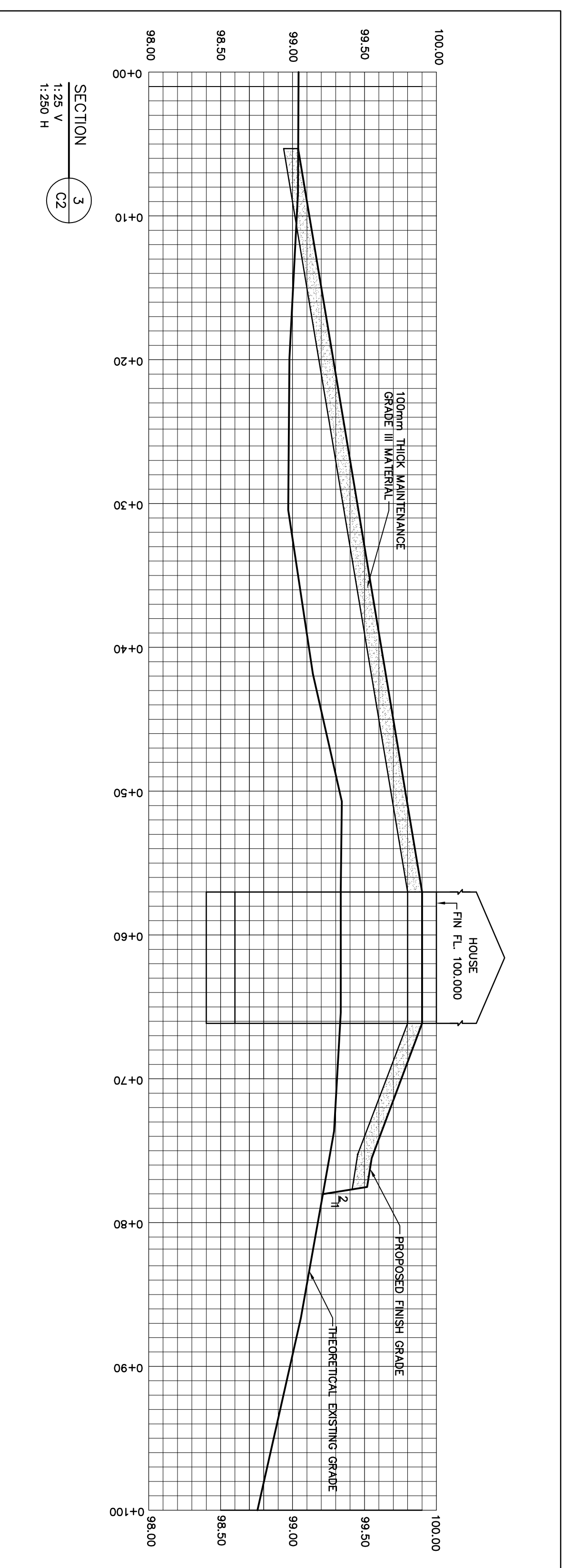
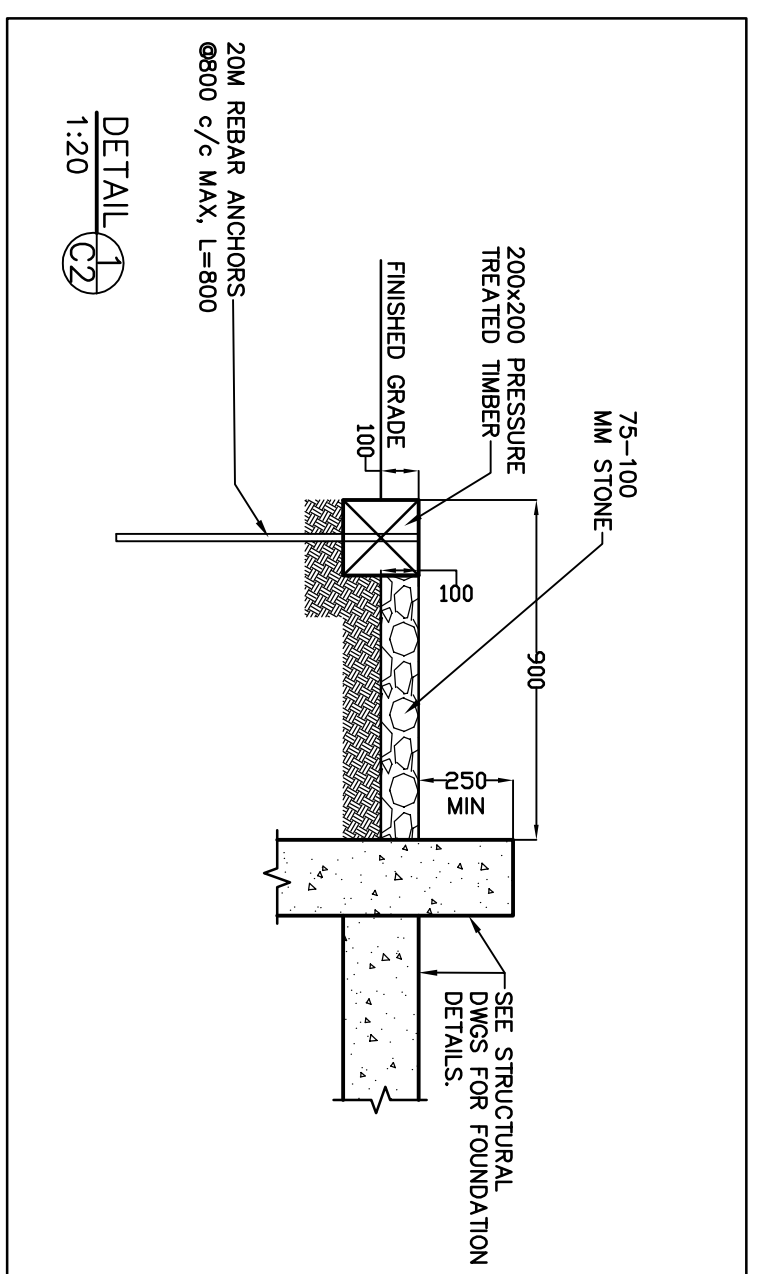
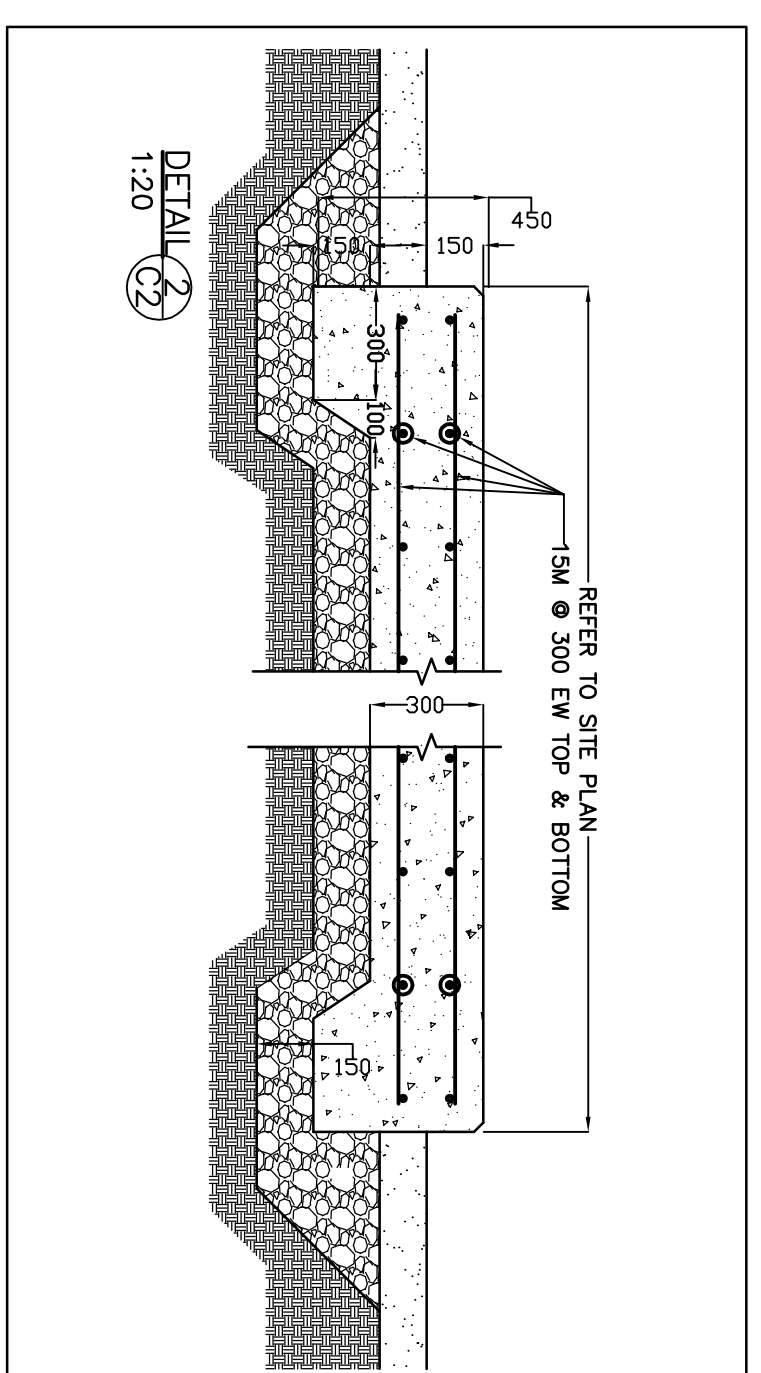
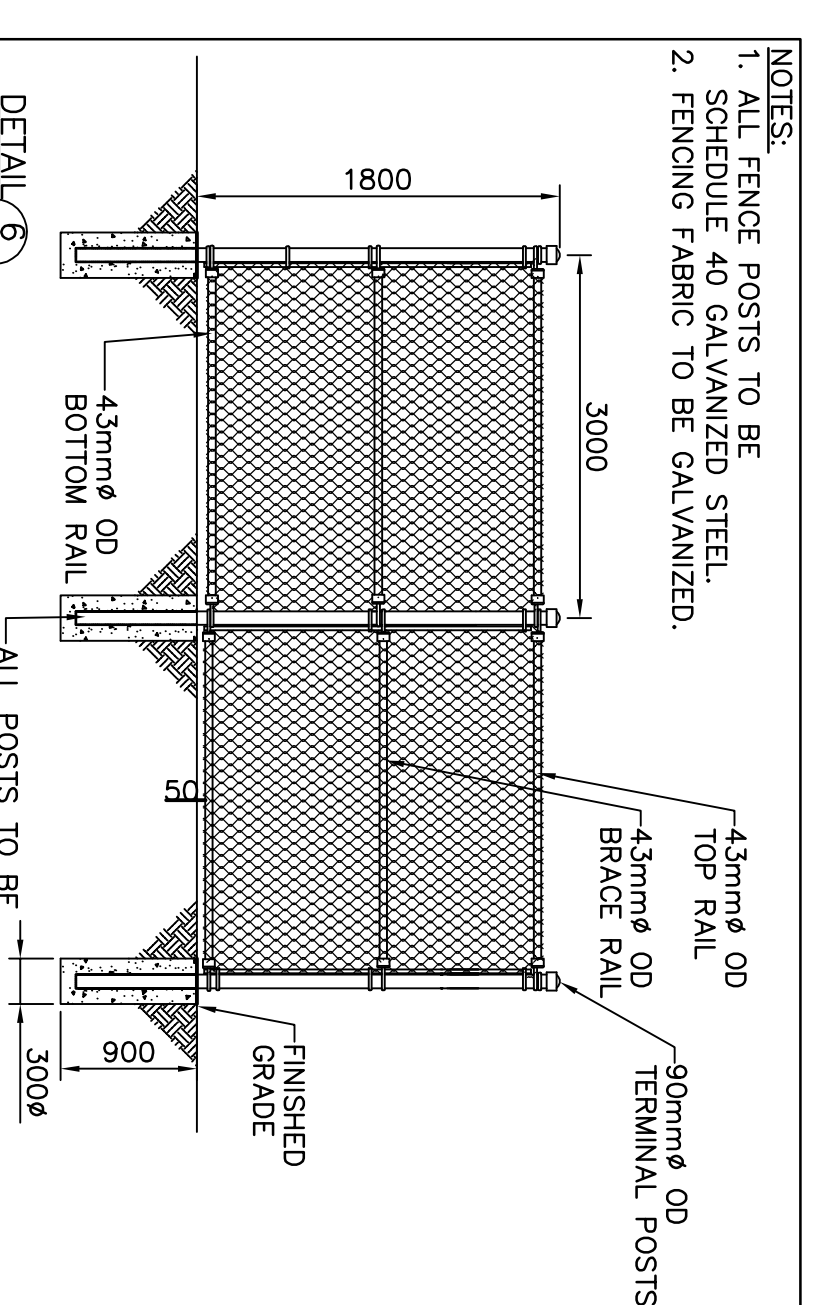
PROJECT
**CONSTRUCT NEW TRANSPORTATION
DEPOT
CROOKS LAKE**

CROOKS LAKE
NEWFOUNDLAND LABRADOR
DRAWING
**FLOOR PLAN
GARAGE**

DRAWN BY	CHECKED BY	APPROVED BY
PROJECT NO. 500805004	DWG. FILE NO.	FILE NO.
DATE	SCALE 1:50	DRAWING NO. 4/5
		REV. 0



- NOTES:**
- DO NOT SCALE FROM DWGS.
 - CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
 - ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION AND WORKS SPECIFICATIONS AND THE DEPARTMENT OF GOVERNMENTAL SERVICES PRIVATE SEWAGE DISPOSAL AND WATER SUPPLY STANDARDS.
 - CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS TO COMPLETE THE WORK.
 - DRAWINGS C1, C2 AND C3 INDICATE A TYPICAL SITE LAYOUT AND DETAILS ONLY. ACTUAL SITE LOCATION, TOPOGRAPHICAL SURVEYS AND GEOTECHNICAL REPORTS TO BE PROVIDED BY THE DEPARTMENT OF TRANSPORTATION AND WORKS. SITE DESIGN, INCLUDING LAYOUT, GRADING AND THE SEWAGE DISPOSAL SYSTEM TO BE REVIEWED BY THE ENGINEER TO SUIT ACTUAL SITE LOCATION AND CONDITIONS.
 - GRUBBING AND ROUGH GRADING OF ENTIRE SITE TO BE PERFORMED BY OTHERS. THIS CONTRACTOR SHALL BRING SITE TO FINISHED GRADES BY SUPPLYING AND PLACING 100mm MAINTENANCE GRADE III MATERIAL EXCEPT IN LOCATION OF SEPTIC FIELD. CONTRACTOR SHALL PLACE 100mm TOPSOIL AND SEED OVER ENTIRE AREA OF SEPTIC FIELD, EXTENDING 4.5m BEYOND FIELD ON ALL SIDES.
 - FINAL FOUNDATION DESIGN TO BE COMPLETED BASED ON GEOTECHNICAL REPORTS PROVIDED BY THE DEPARTMENT OF TRANSPORTATION AND WORKS. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
 - EMBANKMENTS TO BE MAXIMUM SLOPE 2H:1V. TREAT WITH 150mm TOPSOIL AND NURSERY SOD.
 - CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM ALL PERIMETER LOCATIONS AT LIMITS OF SITE DEVELOPMENT. PROVIDE DRAINAGE SWALES AS AND WHERE REQUIRED.



NO.	DESCRIPTION	DATE	BY
0	ISSUED FOR TENDER		
REVISIONS			

PRIME CONSULTANT		SUB-CONSULTANT	
PROJECT CONSTRUCT NEW TRANSPORTATION DEPOT CROOKS LAKE NEWFOUNDLAND LABRADOR			
DRAWING SITE SECTIONS AND DETAILS			
DRAWN BY	CHECKED BY	APPROVED BY	
PROJECT NO. 500805004	DWG. FILE NO.	FILE NO.	
DATE	SCALE AS SHOWN	DRAWING NO. C2	REV. 0

Appendix D
General Environmental Specifications

FORM 800



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Transportation and Works
Highway Design Division

DIVISION 8

GENERAL ENVIRONMENTAL REQUIREMENTS

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GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Transportation and Works
Highway Design Division

SECTION 801

OWNER'S POLICY

OWNER'S POLICY

To ensure protection of the environment, the work at all times shall be subject to inspection by the staff of relevant municipal, provincial and federal agencies. Normally, all inspections other than by the Engineer will be arranged in advance through the Engineer. Any specific matters relating to environmental protection will be dealt with between the Contractor and the Engineer.

Any violations of environmental permits or authorizations or any environmental related incidents which are observed by inspectors representing regulatory agencies are to be reported by them prior to leaving the site to the Engineer. Except in emergency situations, environmental protection measures required by other agencies must be approved by the Engineer prior to implementation by the Contractor.



SECTION 805

CONTRACTOR'S RESPONSIBILITIES - REGULATORY AGENCIES

The Contractor shall ensure that its employees, Sub-contractors and their employees, machinery and equipment operators, and truckers comply with the conditions of the contract and with all applicable environmental laws, regulations, permits, and requirements of federal, provincial and municipal authorities, and such other rules and regulations as the Owner may establish.

Contractors, Subcontractors and their personnel shall not harass wildlife or waterfowl or unduly disturb fish. Any contravention of environmental requirements, including employee actions accidental or otherwise, resulting in environmental damage shall be reported to the Engineer without delay.

The Contractor may be required to obtain all or some of the following permits where such are required:

MAJOR REGULATORY APPROVALS BY TYPE AND AGENCY

<u>TYPE OF PERMIT</u>	<u>AGENCY</u>
1. Stream Crossing Authorizations	Fisheries and Oceans Canada Water Resources Division Department of Environment
2. Wood Cutting/Clearing	Forestry Division, Department of Natural Resources
3. Burning Permit	Forestry Division, Department of Natural Resources
4. Fuel Storage/ Handling	Government Services Center, Department of Government Services
5. Water Supply/ Sewage Disposal	Government Services Center, Department of Government Services
6. Asphalt Plants	Government Services Center, Department of Government Services
7. Solid Waste Disposal	Local Municipal Authority
8. Quarry or Pit Operations	Mineral Lands Division, Department of Natural Resources
9. Structures at Navigable Waters	Canadian Coast Guard, Transport Canada
10. Herbicide Application	Pesticide Control Branch Department of Environment
11. Stream Crossings(designed by the Contractor)	Water Resources Division Department Of Environment and Conservation

The Contractor shall obtain all other permits and approvals which may be necessary to comply with government laws and regulations. Prior to the commencement of specific work elements, the Contractor shall immediately provide the Engineer with two copies of all permits.

Contractor's failure to comply with the regulations of any authority having jurisdiction over the works, or part thereof, or any aspect of the performance of the work and the manner of carrying out the work, will entitle and result in the Owner appointing such engineer, engineers, compliance officer or officers as may be necessary to more fully cause compliance by the Contractor with the requirements of the relevant regulatory authority.

The Owner may thereafter, and for so long as the Owner may keep such engineer, engineers, compliance officer or officers, on the site of the works, deduct from the progress payments otherwise due to the Contractor the costs including but not limited to payroll, payroll burdens, accommodations, meals, and transportation costs associated with the work of such engineer, engineers, compliance officer or officers as the case may be. The Contractor shall have no right to dispute the Owner's right to appoint such engineer, engineers, compliance officer or officers,

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the reasonableness of the deduction of such costs or the amount thereof and the Engineer's certificate of the amount of such costs shall be final and binding upon the Contractor and the Owner.

SECTION 810

USE OF HERBICIDES FOR BRUSH CONTROL OPERATIONS

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810.07 BASIS FOR PAYMENT

810.01 SCOPE

This specification covers the supply and application of herbicide to broadleaf brush and trees.

Specific locations to be sprayed, and areas to be omitted, shall be designated by the Engineer.

810.01.01 General

The Contractor and Subcontractor(s) are required to comply with environmental protection measures contained in this section and all applicable environmental protection regulations of Federal, Provincial, and Municipal Authorities.

No pesticides or other products shall be used without prior approval of the owner and the Department of Environment & Conservation. Each pesticide to be used, its application rate, and area of use, shall be subject to regulations under the Environmental Protection Act, 2002 and the Pesticide Control Regulations, 2003. A copy of the Material Safety Data Sheet (MSDS) and Pesticide Label Information shall be supplied to the Resident Engineer 5 days prior to any use by the Contractor. Two copies of any approval issued to the Contractor for chemical usage under these Regulations shall be provided to the Engineer. As part of the Contractors Hazard Assessment prior to the start of contract work an emergency/contingency plan shall be developed in case of a spill and provide a copy of this plan to the Resident Engineer.

810.02 MATERIALS

The herbicide to be used to execute the work of this contract shall be, as specified in the contract documents, and shall be approved on the Pesticide Operator Licence issued to the pesticide operator by the Department of Environment & Conservation.

All herbicide brought onto site for the execution of the contract shall be contained in sealed containers and will be inspected by the owner to ensure that such herbicides are properly registered under the Pesticides Control Act RSN 1990, and approved by the Newfoundland Department of Environment, and are of the type, strength and quality specified therein. Any herbicide not meeting these requirements shall be rejected.

"BLAZON" dye shall be used as colouring agent at the manufacturer's recommended concentration.

810.03 HERBICIDE STORAGE & HANDLING PROCEDURES

Contractor shall ensure that herbicides are handled only by personnel who are licenced, trained and qualified in handling these materials in accordance with manufacturers' instructions and government regulations (**Section 13 of the Pesticides Control Regulations**). The Contractor will be required to verify personnel qualifications as they pertain to this item and provide written confirmation of same to the Engineer. The Contractor shall supply a copy of the product safety data sheet to the Engineer of all herbicides or hazardous substances which will be used during the course of the contract. Tank refilling operations shall be supervised at all times. Under no circumstances shall any tank refilling procedure be left unattended by the operator.

Handling and tank filling/transferring procedures shall be carried out to prevent the contamination of soil or water. Tank filling or servicing of mobile equipment shall not be allowed within **100 m** of a watercourse, water body, or designated wetlands. Herbicides and other chemicals shall be stored at least **100m** (horizontal distance) from any water course, water body, or designated wetland unless otherwise approved by the Engineer and/or the Department of Environment and Conservation.

Any pesticide storage sites must meet the requirements of Section 13 of the Pesticides Control Regulations, 2003 as follows:

- A source of water must be kept in an area in or adjacent to the storage area;
- Approved safety equipment as required which is properly maintained, functional and available at all times for personnel handling and working with pesticides;
- Flooring in a storage area shall not contain a floor drain or catch basin which is directly or indirectly connected to a private or municipal sewage system or public water course;
- Flooring shall be capable of being cleaned and decontaminated of pesticides stored within;
- Adequate ventilation by either natural or mechanical means so as to prevent the accumulation of toxic and/or flammable vapours;
- A "Danger Stored Pesticide" sign posted on all entrances which is printed in block letters 5 centimeters or more in height;
- Cleanup procedures, materials, and equipment available to cleanup spills or leakage;
- Security procedures consistent with the instructions of the Minister or persons designated by the Minister

In addition to these storage requirements each pesticide storage site shall have prominently displayed on all entrances contact telephone numbers for the operator and the Department of Environment & Conservation, Pesticides Control Section, and indicated accordingly.

All entrances to the storage sites must be locked when the owner or an employee of the owner is not present.

Pesticides shall be stored in their original container or a substitute container approved by the manufacturer. Substitute containers shall be labelled appropriately with labels provided by the manufacturer.

Concentrated pesticides transported in a vehicle during spray operations shall be contained in a locked box, secure area or compartment which must be locked while unattended. Pesticides shall not be transported in the passenger compartment of any vehicle.

810.04 EQUIPMENT

Prior to acceptance of the tender, the Contractor shall provide proof that the spray equipment, auxiliary mixing and storage equipment, and associated equipment that is intended to be used meets the requirements of the manufacturer of the herbicide. Equipment shall be in good working condition with tanks secured properly, have hoses of good integrity (not cracked) and all pumps seals and joins tight with no leaks.

All equipment applying liquid herbicide solution shall be capable of ensuring that all active ingredients are contained in the target area.

The Contractor shall provide all material, construction plant and personnel necessary for the continued operation of application equipment. All vehicles used in the application of pesticides shall have a copy of the contingency plan located within the vehicle.

810.05 GENERAL APPLICATION REQUIREMENTS

Herbicides shall be applied by low volume broadcast spray ground application in all areas to be treated utilizing a spray delivery system (such as the Radiarc sprayer or approved equivalent) which offers effective drift control. Aerial spraying from planes and helicopters will not be permitted. The spray system utilized must be acceptable to both the herbicide manufacturer the Resident Engineer assigned to monitoring the herbicide application and Pesticides Control Section of the Department of Environment & Conservation.

The Contractor is required to obtain a Pesticide Operator's License from the Pesticide Control Section, Department of Environment.

Prior to the commencement of specific work elements, the Contractor shall immediately provide the Engineer with two copies of all permits.

Any contravention of environmental requirements, including employee actions accidental or otherwise, resulting in environmental damage shall be reported to the Engineer without delay.

Contractor shall be responsible for clean-up, reclamation and/or restorative measures as may be directed by the Engineer, or by provincial or federal agencies through the Engineer.

810.05.01 Spray Conditions and Restrictions

The Contractor shall provide proof satisfactory to the Engineer that the strength of spray solution and the method of application meets the requirements of the manufacturer supplying the herbicide as specified on the product label. A supervisor from the Department will be appointed to monitor the Contractor at all times when he is working with the herbicide and shall be supervised by Department personnel trained in the application of pesticides.

Contractors are advised that, notwithstanding the stipulations included with the Contractor's Pesticide Operators License issued by the Pesticide Control Section of the Department of Environment, the Contractor will ensure that:

- (a) The herbicide shall be applied only to the highway right-of-way which has been previously cut, and subsequently designated for treatment.
- (b) The Contractor shall be aware that some watercourses may be in close proximity to the designated spray area. Due care and caution shall be taken to ensure that herbicide spraying operations do not impact on any watercourses or water bodies and meet approved buffer zone requirements of the Department of Environment and Conservation and the manufacturer.

- (c) Ground based spraying is permitted only when: wind speeds are between 2 and 15km/h, air temperatures are below 25°C, the relative humidity is above 50%, it is not raining, and rain is not anticipated over the next two hour period.
- (d) The Engineer in consultation with the Contractor and officials of the nearest weather office shall determine daily the suitability of weather conditions to undertake the application of herbicide. The Engineer has the authority to stop the spraying of herbicide at any time based on local conditions and weather measurements. The site supervisor for the Department of Transportation & Works shall be given access to an anemometer on site to determine the wind speed, temperature and humidity at the site.
- (e) There shall be no herbicide application within densely populated areas. Spray areas within commercial or residential developments, house or cottage areas are to be determined in the field by the Engineer. A **50 m** buffer shall be maintained.
- (f) Areas designated by the Engineer, in consultation with the Department of Environment, as areas to be omitted from spraying, shall not be sprayed.
- (g) The Contractor shall take due care and caution when applying herbicide in close proximity to land used for agricultural purposes. Drifting of spray onto land utilized for agricultural purposes shall not be permitted.
- (n) Equipment is not permitted to operate in any watercourse or ditch containing or which may contain water which enters a watercourse.

810.05.02 Daily Logs and Written Report

Contractors are advised that reports and records are required by the provincial Department of Environment. Their use is of the utmost importance to any right-of-way management program and they shall form an important part of this contract. The Contractor shall ensure that all logs, records and reports are completed fully, are legible, and are signed by authorized personnel.

The submission of appropriate documentation as may be required shall be a requirement to the satisfactory completion of this contract.

810.05.03 Safety

The Contractor shall be responsible for the proper handling and safe use of all herbicides.

The Contractor shall be responsible for the safety of its employees in the application of herbicides and for the supply and use of all recognized safety equipment.

The Contractor shall have with each crew, a minimum of one person who is qualified in First Aid. This person(s) shall also be in possession of a valid Standard First Aid Certificate.

In addition to standard First Aid Kits, Contractor shall, at its own expense, have on site with each of its crews adequate first aid supplies that are unique to accidental herbicide exposure.

The Contractor shall rinse empty herbicide containers three times and use the rinse in the spray mixture. If the rinsed containers are not to be returned for refilling with herbicide then the rinsed containers shall be punctured several times to ensure they will not be used for filling with other substances and then disposed of in a manner approved by the Department of Environment.

The Contractor shall ensure the safety of all individuals including pedestrians, residents, vehicular passengers and operators or others as may be encountered during spray operations.

810.05.04 Clean Up

Upon completion of herbicide application, the Contractor shall remove all of their rubbish, debris, surplus materials and equipment from the site.

The Contractor shall place rubbish and refuse in proper containers and shall dispose of same at an approved waste disposal site with permission of the waste disposal site owner/operator.

The Contractor shall not wash equipment or containers, nor dump herbicides in or near any fresh or salt water bodies, or at any location where the herbicide may enter a body of water.

810.05.05 Spills

- (a) The Contractor shall maintain on site with each crew engaged in the mixing and application of the herbicide mixture, an approved supply of absorbent materials as part of the overall spill cleanup kit.

Absorbent materials shall consist of activated charcoal, sawdust, peat moss or other materials in quantities as may be required by appropriate authority and the Engineer.

In the occurrence of spillage or leakage, the Contractor shall undertake prompt action to minimize the extent of damage through the application of absorbent materials or other procedures as may be required.

Any soils or other materials contaminated as a result of spillage, leakage or inappropriate actions taken by applicators shall be removed and the affected areas subsequently rehabilitated at the Contractor's expense.

Disposal of contaminated soils and other materials shall be the responsibility of the Contractor subject to approval by the appropriate authority, the Engineer and the Pesticide Control Section.

- (b) All spills involving greater than 10 litres of mixed formulation or the equivalent of unmixed formulation shall be reported immediately to the Pesticides Control Section as described below. All spills involving mixed or unmixed pesticide in or within 500m of water bodies, wells or areas frequented by people, shall be reported immediately to the Pesticides Control Section, St. John's (Ph: 729-3395) and Environment Canada (EPS) St. John's (Ph: 772-2083).

The Contractor shall submit a corresponding written report within two (2) days of occurrence to the project supervisor who will in turn forward the report to the Director of Design and Construction. The report shall identify cause, actions taken to clean up area, actions taken to prevent a recurrence, actions taken to dispose of contaminated material and any environmental damage.

810.05.06 Newspaper Notice

The Contractor shall advise the public of the purpose and scope of the project by means of newspaper notices. The Contractor shall place the notices in at least one newspaper with circulation in the municipalities whose boundaries encompass treatment areas. The newspaper ad will appear in any issue at least one week prior to commencing the program. The ad will state the area that is proposed for treatment over the next 21 calendar days at the end of which another ad is to be placed until the program is completed. The ad will contain a phone number at which the Contractor may be contacted for information regarding the spraying operation and the Department of Environment Pesticides Control Section 729-3395.

810.05.07 Signs

The Contractor shall provide and erect signs indicating that the right-of-way has been treated with herbicide. These signs shall be posted at the time of treatment and indicate the type of herbicide(name of formulation) used, PCP Act Registration Number, Date of Application, Company Name carrying out the application of herbicide and phone number for additional information, Department of Environment and Conservation phone number 1-800-563-6181 and the locations treated as stipulated in the Pesticide Operator's Licence Terms and Conditions issued by the Department of Environment and Conservation.

810.05.08 Notices to Adjacent Property Owners

The Contractor shall make every reasonable attempt to verbally notify adjacent property owners, prior to the spray program. In the event this cannot be done, the Contractor shall use written notification to all

dwellings to the satisfaction of the Resident Engineer and the Pesticides Control Section of the Department of Environment & Conservation.

810.05.09 Guarantee

The Contractor shall achieve a 95% brush kill in the target area. If spot checks, after the herbicide treatment is completed, reveals that the 95% brush kill was not achieved, then the Contractor will be required, at his own expense, to retreat these areas to obtain the 95% brush kill in the target area.

810.06 MEASUREMENT FOR PAYMENT

Measurement will be made of the horizontal area actually sprayed with herbicide within the area indicated to be sprayed or as staked out by the Engineer. These measurements shall be computed to obtain the area in hectares, measured to three decimal places.

Spraying of areas beyond the limits as designated by Engineer will not be measured for payment.

810.07 BASIS OF PAYMENT

Payment at the contract price for supply and application of herbicide shall be compensation in full for all labour, materials and equipment use to carry out the work indicated in these specifications, and shall include all costs involved in: placing newspaper notices, providing signs, and obtaining and conforming to the conditions of required permits, together with the removal of any debris (containers, absorbent, etc.) including obtaining an approved waste disposal area and hauling away and disposing of the debris in the waste disposal area, if required.

SECTION 815 PROTECTION OF WATERCOURSES AND WATER BODIES

INDEX

815.01	SCOPE
815.02	LEGISLATIVE REQUIREMENTS
815.03	FORDING OF WATERCOURSES
815.04	CLEARING AND/OR GRUBBING ADJACENT TO WATERCOURSES
815.05	GENERAL PROCEDURES FOR INSTALLING WATERCOURSE CROSSINGS
815.06	USE OF FRESH CONCRETE IN OR NEAR BODIES OF WATER
815.07	CONTROL AND TREATMENT OF SILTED WATER
815.08	FILL PLACEMENT AT WATER BODIES

815.01 SCOPE

This specification covers the environmental requirements for work being carried out at watercourses and water bodies. It includes references to Federal and Provincial Legislation and prescribed methods and procedures to employ when carrying out such work as culvert or bridge installations, stream diversions, fording, fill placement at water bodies, and any other work which may alter or impact any watercourse or water body, or the quality of the water therein.

815.02 LEGISLATIVE REQUIREMENTS

The Contractor shall be aware of all Federal and Provincial Legislation governing the protection of watercourses and water bodies and all revisions and amendments to this legislation.

815.02.01 PROTECTION OF INLAND FISHERIES ENVIRONMENT

All permanent or temporary works or undertakings which are proposed for watercourses or water bodies constituting fish habitat require authorization from the Fish Habitat Management Branch of the Department of Fisheries and Oceans Canada at least two weeks prior to the commencement of any work. The Contractor is required to obtain approval for all temporary stream crossings and provide the Engineer with two copies prior to any work.

Application forms for authorization for works or undertakings affecting fish habitat are available at Department of Fisheries and Oceans Canada offices located at St. John's, Grand Bank, Grand Falls, Goose Bay, and Corner Brook.

Contractors are referred to the Department of Fisheries and Oceans Canada publication entitled "Resource Road Construction - Environmental Guidelines and Design Criteria", latest edition, (and to other technical information). The DFO "Fact sheets" contain recommended guidelines for culvert installations, road and bridge construction, and other works. They include mitigative measures and procedures intended to assist Contractors in minimizing impacts on fish and fish habitat.

Contractors are advised that Environmental and Fisheries regulations require that any work done in or near a watercourse, deemed to be viable fish habitat, must be restricted to the minimum of disturbance. The establishment of temporary and permanent buffer zones are required. (Reference, Standard Drawing No.1237). Great care must be taken during construction not to harmfully alter, disrupt, or destroy fish habitat or to deposit any substance which may be harmful to fish habitat in or near any watercourse where it may enter the watercourse. Culvert pipes must be constructed, according to the requirements of the applicable permits, to allow free movement of fish.

Contractors are advised to refer to the Fisheries Act with particular attention to:

- Section 35 - Outlines required authorization for work or undertaking which may affect fish habitat.
- Section 36 - Prohibits the deposit of a harmful substance of any type into water frequented by fish.
- Section 37 - Powers of the Minister for the provision of information such as plans, specifications, studies, etc., and to require any modifications to such plans and/or related information.
- Section 38 - Powers of a Ministerial Inspection.
- Sections 40-42 - Enforcement and Penalties.

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815.02.02 THE ENVIRONMENTAL CONTROL (WATER AND SEWAGE) REGULATIONS

Contractors shall maintain compliance with the Environmental Control (Water and Sewage) Regulations, 2003 or latest edition. This legislation is administered by the Water Resources Division of the NL Department of Environment.

No person shall discharge into a body of water any sewage or effluent.

815.02.03 THE WATER RESOURCES ACT DEPARTMENT OF ENVIRONMENT

Where the Contractor must carry out any alteration of a body of water **which is not required specifically as part of the contractual work with the Department of Transportation and Works**, the Contractor must obtain a Permit from the Department of Environment and Conservation before carrying out the work. Alterations to watercourses and water bodies such as culvert installations, bridges, stream diversions, rock fill placement in water bodies, etc., which are typically required as part of the contractual work are authorized and administered by DT&W and do not require separate approval from the Department of Environment and Conservation. All such alterations to bodies of water must be carried out according to established procedures of the regulatory agencies so as to prevent pollution or damage to the environment.

The Contractor is referred to the following **Environmental Guidelines** of the NL Department of Environment and Conservation, Water Resources Division, regarding construction procedures at watercourses:

Chapter	Title	Chapter	Title
3	WATERCOURSE CROSSINGS	7	DIVERSIONS, NEW CHANNELS, AND MAJOR ALTERATIONS
4	BRIDGES	9	PIPE CROSSINGS
5	CULVERTS	13	GENERAL CONSTRUCTION PRACTICES
6	FORDING		

815.03 FORDING OF WATERCOURSES

The use of equipment or machinery in a watercourse or water body is generally not permitted. Should it be necessary for equipment to ford a watercourse, then the approval of the Resident Engineer is required for the specified equipment only and at a designated location. The same crossing point shall be used each time that a fording is required. When extensive or frequent crossing of a watercourse is necessary, a temporary culvert or bridge installation may be required instead of fording. The Contractor is referred to the NL Environmental Guidelines Chapter 6, "Fording" of the Dept. of Environment and Conservation, regarding the selection, site preparation, and use of fording sites. The Contractor shall discuss all proposed fording sites with DT&W a minimum of 5 working days before any fording activity. Site selection require the written approval of the Engineer.

815.04 CLEARING AND/OR GRUBBING ADJACENT TO WATERCOURSES

The Engineer shall mark limits for clearing and grubbing adjacent to watercourses. Buffer zones of undisturbed vegetation shall be maintained at watercourse crossings as marked in the field. (Reference, Standard Drawing No.1237, Typical Temporary and Permanent Buffer Zones At Stream Crossings.) A permanent buffer zone shall be maintained both sides of the construction zone at watercourse crossings, wherein, no disturbance or cutting of vegetation is to take place. A temporary ungrubbed buffer zone shall be maintained on both sides of the watercourse, unless otherwise directed by the Engineer, within the construction zone at watercourse crossings until such time as the installation of the crossing is to be carried out. The Contractor shall use appropriate mitigative measures such as the use of silt fencing, sedimentation basins and take-off ditches to control sediment laden runoff from entering watercourses.

815.05 GENERAL PROCEDURES FOR INSTALLING WATERCOURSE CROSSINGS

The Contractor shall present to the Engineer for approval, a plan for the construction of unwatering systems including diversion systems, pumping systems, settling and/or filtration systems, a minimum of **3 working days** prior to the start of any work at the site.

A pre-construction meeting shall be convened on-site between the Contractor and the Engineer to review environmental protection measures and associated contract details pertaining to the watercourse crossing, prior to any work being carried out at the proposed crossing site.

All work carried out at watercourses shall be performed in the dry and with due care and caution so as to prevent unnecessary disturbance or impact on adjacent land or downstream areas. Where watercourses are deemed fish habitat, work within the channel is generally prohibited between September 15 and June 1, on the island portion of the province, and between September 1 and June 30 for Labrador, unless otherwise approved by DFO and the Resident Engineer. The Contractor shall carry out all work in and around watercourses in accordance with all Federal and Provincial permits and requirements, the relevant sections of the DT&W Specifications Book, and the contract drawings.

The Contractor shall give **3 working days** notice prior to any in stream or near stream grubbing or excavation.

Buffer zones shall be established and maintained as described in section 815.04.

An approved cofferdam shall be installed at the low end of the construction zone to collect all site water which is to be disposed of in an approved manner. (See Section 815.07 Treatment of Silted Water).

The operation of heavy equipment shall be confined to dry stable areas in order to prevent the generation of mud and silted water. All flow shall be diverted or pumped around or through the work area, by a means acceptable to the Engineer, so as to maintain flow in the watercourse immediately below the site, prevent erosion, and maintain acceptable water quality. The flow diversion system shall have sufficient freeboard to be capable of accommodating rain events or provision shall be made to safely discharge elevated flows without causing washouts of constructed works, erosion, or siltation in downstream areas. The discharge location of the pumping or diversion system shall be stabilized to prevent erosion. All unwatering operations shall be constantly monitored by the Contractor.

Work should be carried out from the downstream section of the work area and progress to the upstream .

The Contractor shall ensure that fish are not left stranded in the work area at the time the diversion system is made operational. All stranded fish shall be removed by appropriate means and quickly returned to the watercourse below the construction area to prevent mortalities. An impermeable cofferdam of non-erodible material, such as sandbags and sheet plastic, shall be constructed at the outlet area of the construction zone to prevent any silted water from entering downstream areas and to assist in unwatering operations.

The location, size, construction, and operation of sedimentation basins shall be carried out according to Department specifications or as directed by the Engineer and so as to achieve adequate settling parameters within the basins and ensure that discharged water from the basins, which is entering any watercourse, meets the water quality standards set forth in the Environmental Control (Water and Sewage) Regulations, (See Section 815.02.02).

Operation of the sedimentation basins shall be continuously monitored by the Contractor to ensure proper functioning and maintenance.

Excavation shall be carried out to the limits marked in the field by the Engineer. All excavations shall be carried out using a tracked excavator which will operate within the limits of the work area or as directed by the Engineer.

Excavated material shall be removed from the site and stockpiled at an approved location where it will not enter any watercourse.

When corrugated steel pipes are installed, impervious material shall be placed under the invert of the pipe and around the haunches of the pipe at the inlet area so as to ensure that all flow is confined within the pipe, particularly during low flow conditions, and not lost into the porous fill zones outside the pipe.

All sections of newly constructed channel and pipe inlet and outlet areas shall be adequately stabilized so as to prevent destabilization, erosion, or scouring of the channel and fill embankments. Rip-rap on road slopes shall be placed concurrently with backfilling operations on the pipe so that inlet and outlet areas are protected immediately from erosion.

Any disturbed areas or exposed soils within the high water zone of the watercourse shall be stabilized by such means as placing rip-rap or well staked sodding within 48 hours of completion of backfilling operations. Other adjacent disturbed areas shall be rehabilitated by sodding or seeding, or as directed by the Resident Engineer.

Upon completion of the work, flow shall be introduced slowly into the new channel or watercourse crossing. Any silted water generated as a result shall be prevented from entering downstream areas of the watercourse, and pumped or treated as required.

Where baffles are required as part of a culvert installation all activities associated with the baffle pipe installation including the diversion of all water flow from the natural watercourse into the baffled pipe, abandonment of any temporary stream diversion system and rehabilitation of the surrounding disturbed area shall be carried out efficiently without delay so as to not interfere with fish migration.

All construction related waste materials shall be removed from the work site(s).

Sedimentation basins shall be pumped dry and backfilled with the original excavated material and compacted. Hand seeding, hydroseeding, and /or sodding of disturbed areas shall be carried out as directed by the Resident Engineer. Additional rehabilitation may be required by the Engineer.

815.06 USE OF FRESH CONCRETE IN OR NEAR BODIES OF WATER

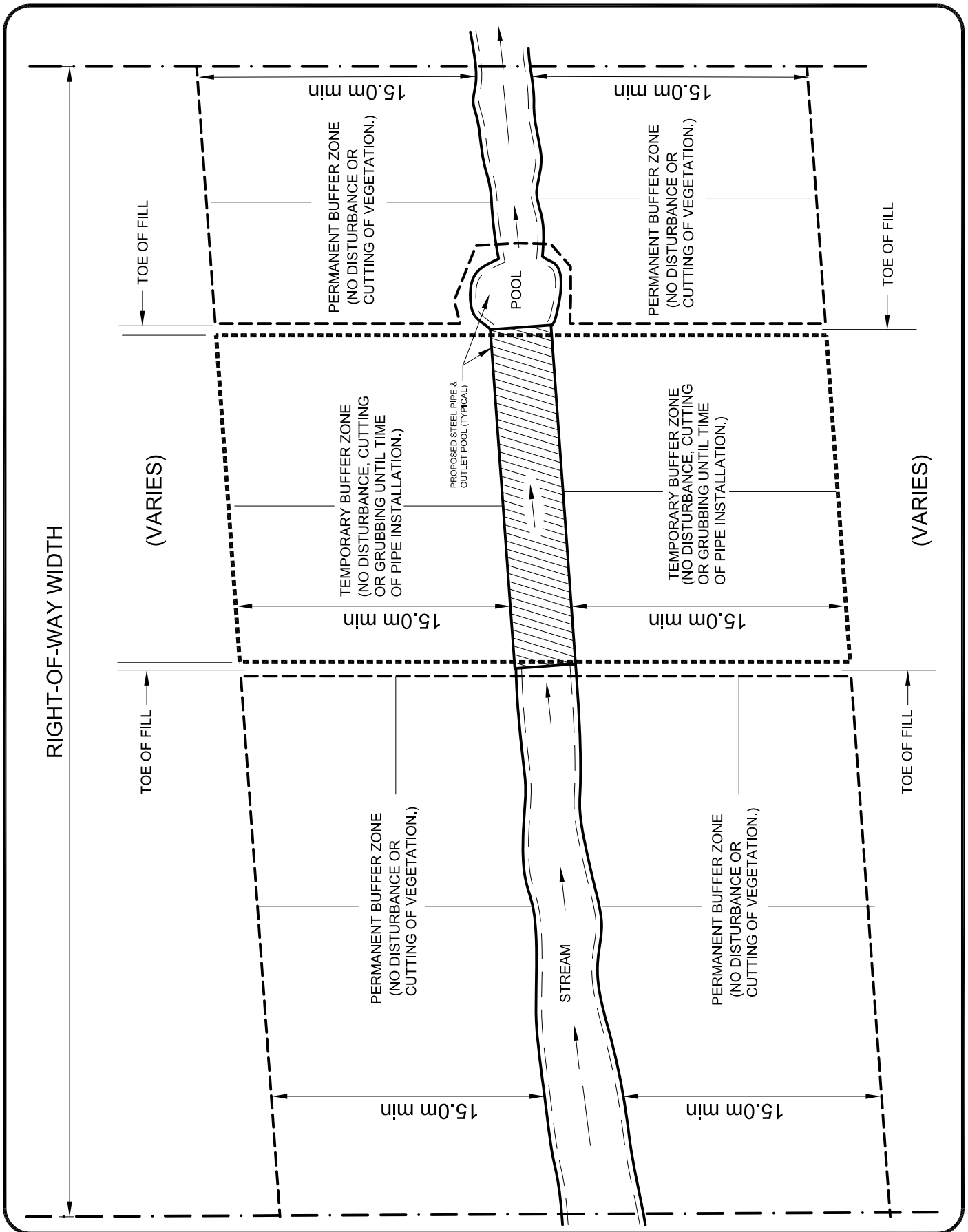
When concrete is placed in or adjacent to a watercourse or water body, all necessary precautions shall be taken to prevent the concrete from adversely affecting water quality. Whenever possible, fresh concrete shall not come in contact directly with the waters of a watercourse. Standing water zones shall be drawn down prior to placing fresh concrete. All form work shall be well secured and made tight to prevent leakage of fresh concrete into any adjacent waters. Where tremmie concrete is required, the work shall be carried out under the specific directions of the Engineer. The washing of concrete delivery trucks or chutes is not permitted within 100 m of any watercourse or water body. All necessary precautions shall be taken when handling related substances such as form coatings and concrete admixtures to prevent any spill or leakage of these substances.

815.07 CONTROL AND TREATMENT OF SILTED WATER

Silted or muddy water is not permitted to be released into any watercourse or water body or into any ditch or area that leads directly to a watercourse or water body. Runoff from adjacent areas shall be channeled, piped, diverted, or confined to prevent the water from entering construction zones and becoming polluted. Where due to rain events, runoff from construction zones and areas of exposed soils contains mud or silt, appropriate measures shall be taken by the Contractor to confine, settle, or channel such water so that adjacent watercourses or water bodies are not adversely affected. Such measures may include the provision of mud basins, settling basins, ditch blocks, silt fencing, temporary ditching, or other means necessary to prevent pollution. Silted runoff water or water released or pumped from construction zones may be discharged to an approved vegetated area where ground absorption will occur or to an approved settling area or to a settling basin constructed in accordance with contract drawings or as directed by the Engineer.

815.08 FILL PLACEMENT AT WATER BODIES

Fill material placed in or at water bodies shall be clean blasted rock. Where in the opinion of the Engineer, significant silty bottom sediments will disperse with potential of creating water quality problems, the fill zone shall be isolated from the remainder of the water body by such means as a silt curtain as approved by the Engineer. Rock shall be placed into the water zone so as to create the least amount of disturbance of bottom sediments. Rock shall be placed along the outer edge of the fill zone to close off and isolate the fill zone from the rest of the water body. Fill placement shall proceed with runs of rock along the inside of the first outer run of fill. Successive runs of rock fill shall be placed in this manner until the zone is filled back to the inner fill limits. Height of the placed rock fill shall be maintained a minimum of 300 mm above water level during fill operations. Equipment shall not operate in standing water zones. Removal of displaced sediments and/or bog shall be carried out as directed by the Owner. Pumping of water from the fill zone to a designated area may be required by the Owner to reduce water levels in the fill zone and prevent movement of silted water through the rock fill back into the water body.



TRANSPORTATION AND WORKS
HIGHWAY DESIGN DIVISION

TYPICAL TEMPORARY & PERMANENT
BUFFER ZONES AT STREAM CROSSINGS

DRAWN BY:

DATE:

REV 02-01-10

NOT TO SCALE



**SECTION 816
 SILT FENCE**

INDEX

- 816.01 SCOPE**
- 816.02 MATERIALS**
- 816.03 CONSTRUCTION**
- 816.04 MAINTENANCE AND CLEAN OUT**
- 816.05 REMOVAL**
- 816.06 MEASUREMENT FOR PAYMENT**
- 816.07 BASIS OF PAYMENT**

816.01 SCOPE

This specification deals with the requirements for the provision, maintenance, and eventual removal of silt fence. Silt Fences are intended for reducing the amount of silt present in run off from highway projects during the construction process.

816.02 MATERIALS

The silt fence shall consist of a filter fabric fence held in place by posts. The filter fabric shall be of a weight of at least 200g/m². The fabric shall be at least 900mm wide. The fence posts shall be of sufficient length to support the fabric, be sturdy and be of dimensions of at least 50mm square. The staples shall be sufficiently sturdy to support the fabric for the required life of the fence.

816.03 CONSTRUCTION

The silt fence shall be constructed as shown on Form 1238 "Typical Silt Fence", and placed at the location, or locations, as required by the Engineer.

At the location required by the Engineer, the Contractor shall excavate a trench in a crescent shape across the projected flow path with ends pointing up slope. The trench shall have a width of approximately 100mm, and a depth of approximately 100mm.

The posts shall be secured at 3m intervals on the immediate down slope side of the trench.

The filter fabric shall be taken from a continuous roll, and cut to the required length. The filter fabric shall be stapled to the upstream side of the stakes, with 200mm of fabric extending into the trench and spread over the trench bottom.

The trench shall be backfilled and compacted to secure the fabric in the ground. The silt fence shall be properly constructed to ensure continuous protection along its perimeter. Under no circumstances are silt fences to be installed in a watercourse or waterbody.

816.04 MAINTENANCE AND CLEAN OUT

The Contractor shall maintain the silt fence, until such times as the Engineer requires that the silt fence be removed.

The Contractor shall carry out such silt and debris clean out, as required, in order that the silt fence continues to perform its function of reducing the amount of silt present in the run-off. Should the fabric become clogged, and rendered useless, then the Contractor shall replace the fabric with new fabric at his own expense.

816.05 REMOVAL

The Contractor shall remove the silt fence, when required to do so by the Engineer. The posts shall be taken out of the ground and the site cleaned up. Waste materials shall be disposed of in an approved waste disposal area, provided by the Contractor.

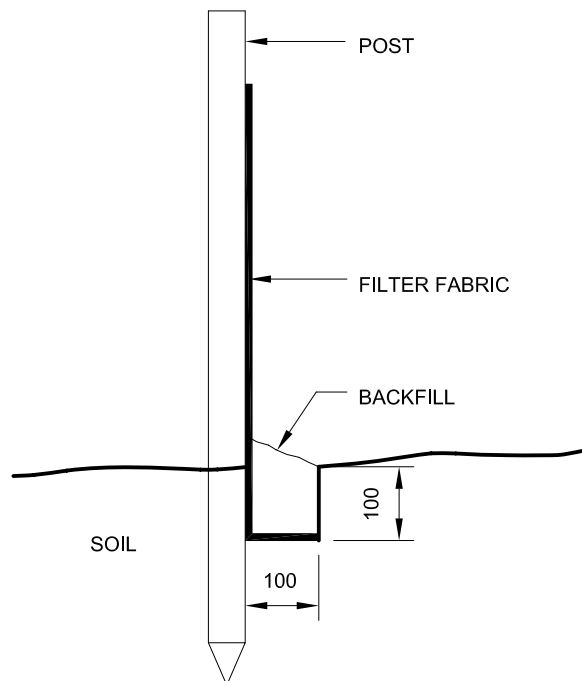
816.06 MEASUREMENT FOR PAYMENT

Measurement for payment will be made on the basis of the required length of fence installed, computed in metres rounded to one decimal place.

816.07 BASIS OF PAYMENT

FORM 816

Payment at the contract unit price for silt fence shall be compensation in full for all materials, labour and use of equipment: to supply the filter fabric, posts and staples, to excavate the trench, to install the posts, to secure the fabric to the posts, to backfill and compact the trench, to maintain and clean out the fence, to replace any worn out filter fabric with new fabric provided by the Contractor at his own expense, to remove the silt fence and posts, dispose of waste materials and clean up the site.



INSTALLATION OF GEOTEXTILE SILT FENCE

1. EXCAVATE A 100 x 100 TRENCH IN A CRESENT SHAPE ACROSS THE FLOW PATH WITH ENDS POINTING UPSLOPE.
2. DRIVE STURDY STAKES, SPACED 3000 APART, INTO THE GROUND ALONG THE DOWNSLOPE SIDE OF THE TRENCH.
3. INSTALL THE FILTER FABRIC FROM A CONTINUOUS ROLL AND CUT TO REQUIRED LENGTH. THE FILTER FABRIC SHOULD BE STAPLED TO THE UPSTREAM SIDE OF THE STAKES, EXTENDING THE BOTTOM 200 INTO THE TRENCH.
4. BACKFILL AND COMPACT THE SOIL IN THE TRENCH OVER THE FILTER FABRIC.



TRANSPORTATION AND WORKS
HIGHWAY DESIGN DIVISION

TYPICAL SILT FENCE

DRAWN BY: J. ROBERTS

DATE:

REV 02-01-10

NOT TO SCALE



SECTION 817
CHECK DAM SEDIMENT TRAP

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- 817.01 SCOPE**
- 817.02 MATERIALS**
- 817.03 CONSTRUCTION**
- 817.04 MAINTENANCE AND CLEAN OUT**
- 817.05 DISPOSAL**
- 817.06 MEASUREMENT FOR PAYMENT**
- 817.07 BASIS OF PAYMENT**

817.01 SCOPE

This specification deals with the requirements for the provision, maintenance, and eventual disposal of a check dam sediment trap. Check dam sediment traps are intended for reducing the amount of silt present in run off from highway cuts during the construction process.

817.02 MATERIALS

The check dam sediment trap shall consist of rock fill with filter fabric on the upstream face held in place with small shot rock.

The filter fabric, and shall be of a weight of at least 200g/m².

The rock fill shall be clean rock, with rock fragments sized between 100 and 150mm.

The small shot rock shall be clean rock, with fragments no larger than 120mm.

817.03 CONSTRUCTION

The check dam sediment trap shall be constructed as shown on Form 1239 "Typical Check Dam Sediment Trap". The silty water storage area shall be excavated, and the check dam constructed, at the location as required by the Engineer.

817.04 MAINTENANCE AND CLEAN OUT

The Contractor shall maintain the checkdam, until such time as the Engineer requires that the check dam be removed.

The Contractor shall carry out such silt and debris clean outs as are required, in order that the check dam continue to perform its function of reducing the amount of silt present in the run-off.

817.05 DISPOSAL

The Contractor shall remove the check dam sediment trap, when required to do so by the Engineer.

On removal of the check dam, the fabric shall be disposed of in an approved waste disposal area provided by the Contractor. The ditch shall be cleaned up and graded to the required ditch cross section.

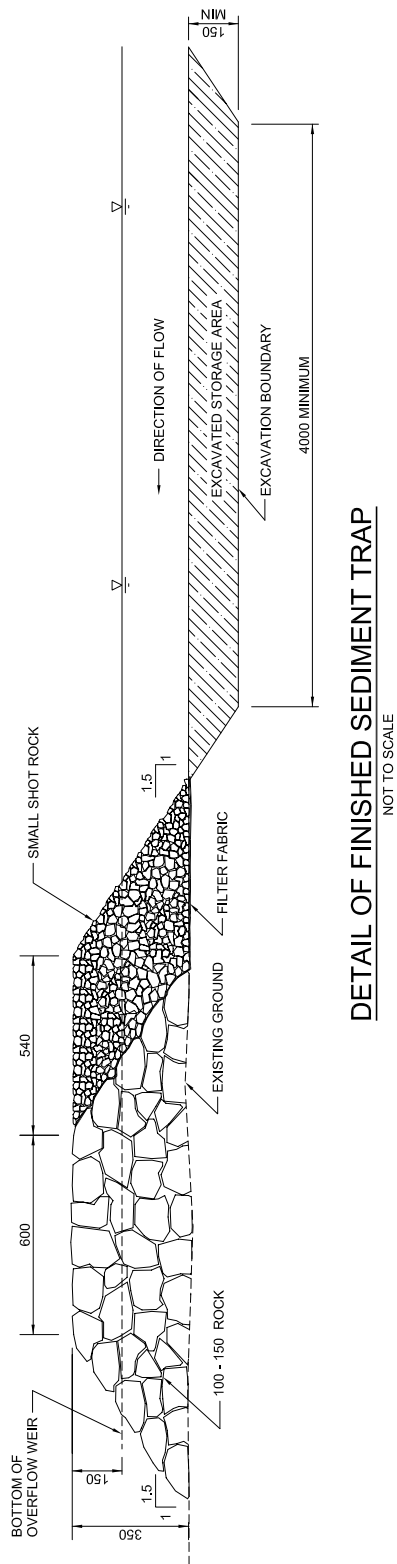
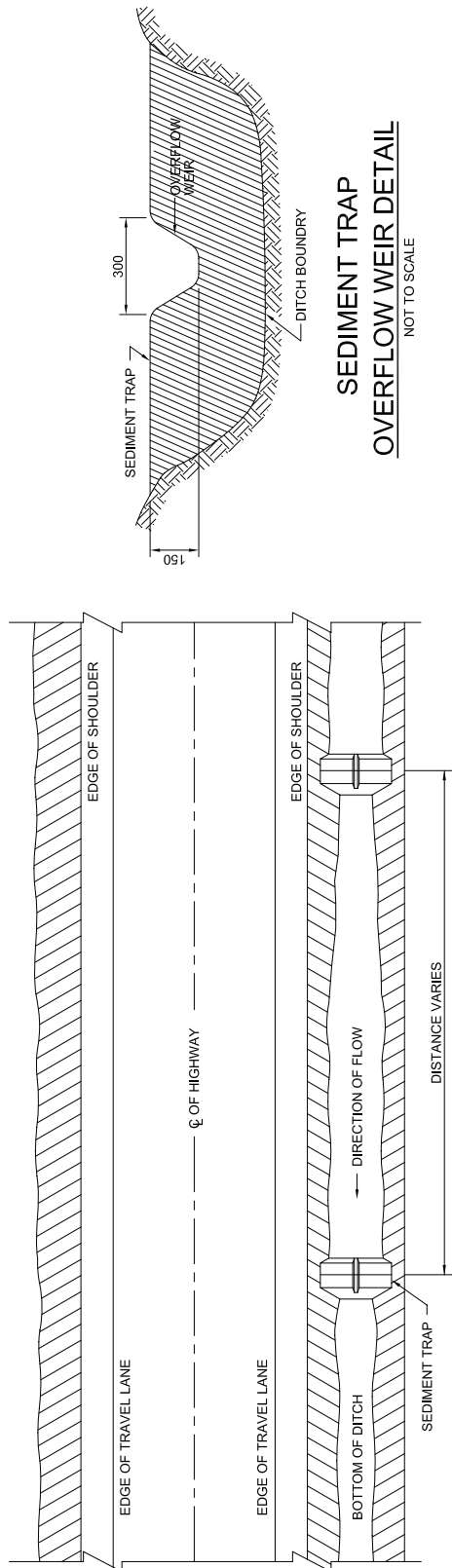
817.06 MEASUREMENT FOR PAYMENT

Measurement for payment will be based on the number of required check dam sediment traps constructed.

817.07 BASIS OF PAYMENT

Payment at the contract unit price for each check dam sediment trap shall be compensation in full for all labour, materials and use of equipment to: excavate the silty water storage area, load the rock fill and small shot rock at the source and haul to the check dam site, supply the filter fabric, construct the check dam as required, maintain and clean out the check dam sediment trap as required, and finally remove the check dam, dispose of the waste materials, clean up and grade the site.

The rock fill and small shot rock shall be paid for under: "Excavation hauled 1km or under - Solid Rock", Excavation hauled 1km or under - Ditching Solid Rock", or "Excavation hauled 1km or under - Quarried Rock", as applicable. However, any additional hand work required to sort the rock fill and the small shot rock to obtain the required size of fragments, and to grade the rock to the required check dam dimensions, shall be included in the payment for the check dam sediment trap.



FORM 818



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Transportation and Works
Highway Design Division

SECTION 818

FLOATING SILT CURTAIN/TURBIDITY BARRIER

INDEX

818.01 SCOPE

818.01.01 General

818.02 MEASUREMENT FOR PAYMENT

818.03 BASIS FOR PAYMENT

818.01 SCOPE

This specification covers the supply, installation, and operation of a floating silt curtain or turbidity barrier.

Specific locations the Silt Curtain is to be used shall be designated by the Engineer.

818.01.01 General

The Contractor and Subcontractor(s) are required to comply with environmental protection measures contained in this section and all applicable environmental protection regulations of Federal, Provincial, and Municipal Authorities.

This specification is to be used in applications where a floating silt curtain/turbidity barrier is specified to be used around the leading edge of the advancing fill for construction operations to control any silt that may be generated from the bottom of the fill or other materials that may be used in construction of the road or other structure in a submerged portion of a water body. The turbidity barrier is to be a floating silt curtain (such as Brockton Equipment/Spilldam, Inc. Silt-dam Type I) meeting the requirements of the Federal Department of Fisheries and Oceans. This item may be designed locally but must adequately control and prevent the migration of silt or other deleterious substances from the work area to the main water body. The turbidity barrier system must be approved with shop drawings/literature stamped by a professional engineer registered in the province of Newfoundland and Labrador submitted prior to its use.

The turbidity curtain is to consist of the following elements or approved equivalents: 304mm diameter flotation, 22oz polyvinylchloride (PVC) float cover, 8mm PVC coated top tension cable, silt film skirt to required depth to reach from water surface to the water body bottom, 9.5mm galvanized ballast chain, polyplate/lacing grommets (ends).

The turbidity barrier is to be anchored at 15m intervals. The anchoring system will consist of Mushroom style anchors or other suitable type anchors for the bottom condition present, yellow inflatable cautionary mooring buoys, and nylon mooring line or approved equivalents. Where navigation conditions are present in the area of the turbidity curtain the cautionary buoys shall be lighted and a plan will be required to be submitted for approval showing where the buoys are to be located.

The turbidity barrier shall be a minimum of 100m in length but may be otherwise specified in the Unit Price Table. The barrier will form a long arc extending from the shoreline approximately 35m, across the work zone (parallel to the shore) approximately 30m, and back to the shoreline for approximately 35m. The barrier is to be installed to reach the bottom of the water body from the water surface. Installation plan can be seen on the drawing titled "Silt and Bubble Curtain", as shown on Form 1223 of the Specifications.

As the leading edge of the fill advances, and the work site changes, the turbidity barrier will have to be moved and reinstalled. Movement of the turbidity barrier shall be considered incidental to the work and should be included in the price for the turbidity barrier.

FORM 818

In addition to these requirements for use of the turbidity curtain for permanent works in the contract the contractor will be required to use a turbidity barrier for any temporary works requiring installation or removal of fill in the construction in the water body. The contractor may reuse the turbidity barrier required for use for the permanent works installation in the water body for a contract, but at all times during installation or removal of fill in the water a turbidity barrier may be required to be used.

818.02 MEASUREMENT FOR PAYMENT

Measurement will be based on a per contract basis for the Floating Silt Curtain/Turbidity Barrier by the Engineer. Fifty percent of the total of the item will be paid on the progress estimate after which the silt curtain has been deployed for its intended use, and fifty percent will be paid on the last progress estimate where the in water body construction operation has been completed.

818.03 BASIS OF PAYMENT

Payment for the turbidity barrier will be lump sum. Payment shall be for compensation in full for engineering, design, transportation to site, installation, removal, reinstallation, equipment, labour, and all other materials necessary to complete the above, at the locations indicated to be used on the contract.



SECTION 820

STORAGE AND HANDLING OF FUELS AND OTHER HAZARDOUS, TOXIC, OR DANGEROUS MATERIAL

INDEX

- 820.01 STORAGE TANK REGISTRATION, INSPECTION, AND REMOVAL
- 820.02 SPILL REPORTING AND CLEANUP PROCEDURES
- 820.03 FUEL STORAGE AND HANDLING PROCEDURES
- 820.04 EQUIPMENT SERVICING PROCEDURES
- 820.05 USE OF HAZARDOUS, TOXIC OR DANGEROUS MATERIAL

820.01 STORAGE TANK REGISTRATION, INSPECTION, AND REMOVAL

All storage tank systems must be registered under and in compliance with Newfoundland Regulation 58/03, The Storage and Handling of Gasoline and Associated Products Regulations, 2003 before commencing operation. Registration does not apply to storage tank systems of a capacity less than 2500 litres that are connected to a heating appliance. Contractors shall supply verification of storage tank registration to the Engineer prior to the commencement of work.

Storage tank systems shall be operated as per Section 18 of Newfoundland Regulation 58/03 Storage and Handling of Gasoline and Associated Products. This involves, but is not limited to, gauging or dipping, reconciliation of records, and the proper maintenance of reconciliation records for a period of two years. Records shall be maintained for inspection by the Engineer, ESO and/or Government Service Centre Inspectors.

The operator of a storage tank system shall, within 30 days of known abandonment, empty the system of all products, remove the tank and associated piping from the ground, remove any contaminated soil, clean the area and restore the site to the satisfaction of the Engineer and in accordance with the criteria of the Government Services Centre.

820.02 SPILL REPORTING & CLEANUP PROCEDURES

The Contractor, Subcontractors, and their personnel shall take all necessary precautions to prevent the spillage, misplacement, or loss of fuels and other hazardous material.

The Contractor and Subcontractors shall abide by the following measures in the event of the detection of a fuel or hazardous material spill of 70 litres or more:

- (i) make every effort to stop leakage and contain contaminant flow;
- (ii) **immediately** upon detection, report spill location and size to the Canadian Coast Guard spill report number **772-2083**, Pesticides Control Section 729-3395 and to the Owner; follow up with a full written report containing information on the cause of the spill, remedial action taken, damage or contamination estimate, and any further action to be taken;
- (iii) remove contaminant from spill site by absorbent, pumping, burning, or whatever method is appropriate and acceptable to Owner. Clean-up the affected area in accordance with the requirements of the Government Services Centre and then dispose of contaminated debris at an approved waste disposal site.
- (iv) take all necessary action to ensure the incident does not recur.

The Contractor shall apply the following criteria in reaching decisions on contaminant and clean-up procedures:

- (i) minimize danger to persons;
- (ii) minimize pollution to watercourses and wetlands;
- (iii) minimize the size of the area affected by a spill; and
- (iv) minimize the degree of disturbance to the area and watercourses during clean-up. Any spillage of hydrocarbons less than 70 litres shall be immediately cleaned up by the Contractor and reported promptly to the Engineer.

The Contractor shall dispose of any soil contaminated by small leaks of oil or lubricating fluids from equipment in a manner approved by the

Engineer and in accordance with the criteria of the Government Services Centre. The Contractor shall have on site a suitable quantity of absorbent material such as "Oclansorb" or similar product which can be accessed quickly and effectively in the event of **any** hydrocarbon spill. The contractor shall advise fuel handling staff of its location and application.

820.03 FUEL STORAGE & HANDLING PROCEDURES

Contractor shall ensure that fuels and hazardous materials are handled only by personnel who are trained and qualified in handling these materials in accordance with manufacturers' instructions and government regulations. The Contractor will be required to verify personnel qualifications as they pertain to this item and provide written confirmation of same to the Engineer. The Contractor shall supply a copy of the product safety data sheet to the Engineer of all hazardous, toxic or dangerous materials or substances which will be used during the course of the contract. Refuelling operations shall be supervised at all times. Under no circumstances shall any refuelling procedure be left unattended by the operator.

Handling and fueling procedures shall be carried out to prevent the contamination of soil or water. Smoking shall be prohibited within **10 m** of a fuel storage area or during refuelling operations. Fuelling or servicing of mobile equipment shall not be allowed within **100 m** of a watercourse, water body, or designated wetlands. Oils, greases, gasoline, diesel, hydraulic and transmission fluids or other fuels shall be stored at least **100m** (horizontal distance) from any water course, water body, or designated wetland unless otherwise approved by the Engineer.

Any above ground fuel containers, with the exception of those exempted under Newfoundland Regulation 58/03, shall be self dyked units that are in compliance with the terms and conditions of the approval of the Government Services Center. Fuel storage areas and non-portable transfer lines shall be clearly marked or barricaded to ensure that they are not damaged by moving vehicles. The markers shall be visible under all weather conditions. The storage, handling and disposal of **used oils** shall be in accordance with the Used Oil Control Regulations (82-02) under the NL Environmental Protection Act..

820.04 EQUIPMENT SERVICING PROCEDURES

All heavy equipment maintenance shall be carried out by using suitable fluid collection equipment and in a manner which ensures all waste material is collected and suitably disposed of. The Contractor shall ensure that all equipment is mechanically sound to avoid leaks of grease, oil, diesel, gasoline, and hydraulic and transmission fluids. The Contractor shall ensure that no servicing or washing of heavy equipment occurs adjacent to watercourses and designated wetlands. Fueling, servicing or washing of equipment shall not be allowed within **100 m** of a watercourse except within a refueling site approved by the Engineer where conditions allow for containment of accidentally spilled fuels. The Contractor shall remove from the work area and properly dispose of all waste oil, filters, containers or other such debris at an approved waste disposal site.

820.05 USE OF HAZARDOUS TOXIC OR DANGEROUS MATERIAL

Toxic construction material e.g., creosote treated timber, shall be stored at least **100 m** away from all areas where drainage is directed into any watercourse or wetlands.

Toxic or dangerous substances such as form release agents, fuels, concrete additives (including superplasticisers), and other such substances, shall be transported, stored, and handled with all necessary precautions so as to prevent any spillage from occurring. Drip pans shall be used at locations where such liquids are being drawn off in order to contain any minor spills, and as a safety measure for containment of a significant spillage.



SECTION 825

WASTE MANAGEMENT

INDEX

825.01 SOLID WASTE DISPOSAL

825.02 SANITARY FACILITIES/SEWAGE DISPOSAL

825.01 SOLID WASTE DISPOSAL

The Contractor shall collect and dispose of all waste produced by its employees and those of its Subcontractors in a manner approved by the Engineer, and in accordance with the Newfoundland and Labrador Environmental Protection Act, 2002. Through the placement of suitable containers at the site, the Contractor shall collect and dispose of rubbish and domestic garbage generated by employees. During the progress of the work, the Contractor shall keep the areas occupied by it and access to such areas in a neat, clean, and safe condition, and free from the accumulation of all waste materials including crating materials, rubbish, drink containers, cigarette cartons, and all other waste. All solid waste shall be removed from the job site and recycled or disposed of at an Approved Waste Disposal Site, with the permission of the municipal authority. No waste material shall be deposited in any watercourse or wetland.

Upon completion of the work the Contractor shall, at its own expense, and to the satisfaction of the Engineer, dispose of or remove from the job site all construction plant, rubbish, unused material, including concrete forms, filter fabric material, sediment fencing, sand bags, and other equipment and materials belonging to it or used under its direction during the performance of the work. The site shall be left in a neat and clean condition.

In the event of the Contractor's failure to comply with any of the foregoing, the same may be accomplished by the owner within **30 days** of the completion of the work and the cost of same may be deducted from any money due or owing to the Contractor whether under this or any other contract.

825.02 SANITARY FACILITIES / SEWAGE DISPOSAL

The Contractor shall maintain portable latrines on site or systems approved by the Government Services Center. The sanitary facilities shall be used by all Contractor employees and those of subcontractors. The Contractor shall transport the waste from these units, using a collection company (whenever possible) licensed by Government Services Center. Otherwise, transportation and disposal shall be by a means and at a facility or location as approved by the Government Services Center.



SECTION 830
MARSHALING YARDS & TEMPORARY WORK CAMPS

MARSHALING YARDS & TEMPORARY WORK CAMPS

Equipment or material storage yards and temporary work camps shall be located at least **100 m** from any watercourse or designated wetland.

The Contractor is responsible for obtaining **all** appropriate permits from government agencies with legislation and regulations relevant to camp facilities. These permits include, but are not necessarily limited to, those related to: solid and liquid waste disposal, water supply, sewage treatment, development control, Crown Lands, and any Municipal Authority having jurisdiction over the area.

Any site proposed for a marshaling yard or work camp should be of low value with respect to its potential for other uses when compared to other lands in the area. Abandoned gravel pits, abandoned commercial enterprises, or other previously disturbed areas are preferred locations. Any site must be located so as to minimize potential traffic hazards. Incoming and outgoing vehicles should be able to merge safely with other traffic. Prior to the commencement of construction the Contractor will submit a list of candidate sites, which will be reviewed and approved by the Engineer and any other relevant agency.



SECTION 835
FOREST FIRE PREVENTION

FOREST FIRE PREVENTION

The Contractor shall obtain a burning permit as may be required by the Forestry Division of the Department of Natural Resources, where burning is to be conducted, and shall abide by the terms and conditions of the permit.

The Contractor shall take all precautions necessary to prevent fire hazards when working at the job site and shall keep the job site free of all flammable waste.

Fires shall be located a minimum of **10m** from the existing tree line or adjacent piles of slash. Fires and slash piles will be kept to small manageable sizes to prevent igniting or scorching of adjacent vegetation.

The Contractor shall have available, in proper operating condition, sufficient fire fighting equipment, as recommended by the Forestry Division of the Department of Natural Resources, to suit its location, labour force, and construction plant. Such equipment shall comply with the standards of, and have approvals of, Underwriters Laboratories of Canada Limited and shall be maintained in accordance with National Fire Prevention Association Codes.

The Contractor shall ensure that specific employees are assigned to and trained in the use of fire fighting equipment. A list of these personnel shall be available on request by the Owner.

Rubber tires, waste oil, or similar material shall not be used to ignite slash or used to maintain the burning operation.

FORM 840



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Transportation and works
Highway Design Division

SECTION 840 DUST CONTROL

DUST CONTROL

The Contractor shall ensure that dust does not become a problem for adjacent property owners or construction site personnel or a hazard to vehicular traffic. When required, or as directed by the Engineer, water or an acceptable dust suppressant such as calcium chloride shall be used by the Contractor on haul routes or other locations on the project to control dust.



SECTION 845

EQUIPMENT OPERATION AND PREVENTION OF EROSION AND SILTATION

INDEX

845.01 STORM WATER MANAGEMENT

845.02 TEMPORARY TRAVEL ROUTES

845.03 EROSION CONTROL MEASURES

845.04 LIMITATION OF OPERATIONS

845.01 STORM WATER MANAGEMENT

The Contractor is responsible for storm water and drainage management during the period of the contract. This includes the collection, channeling, containment, settling, discharge and any other operation to effectively control storm runoff and prevent problems of erosion or siltation of adjacent or downstream areas. (See Section 815.07 Control and Treatment of Silted Water).

845.02 TEMPORARY TRAVEL ROUTES

Linear travel along the right of way by vehicles and equipment shall be restricted to one track or travel route, particularly during the early stages of opening access along the route, unless otherwise approved by the Engineer. The route shall be maintained by the Contractor free of standing water. Surface drainage will not be permitted to run along the route which can generate extensive mud and silt, and adversely affect materials to be excavated such as grubbing, unsuitable material, and overburden. Surface drainage shall be vented off the route at frequent intervals. Where drainage courses are encountered, and frequent crossings are required, temporary pipes (CSP or iron) shall be installed to permit passage of equipment and vehicles in the dry, without causing erosion and siltation. At certain locations fording may be permitted by the Engineer. (See Section 815.03 Fording of Watercourses).

845.03 EROSION & SILT CONTROL MEASURES

845.03.01 GENERAL PROTECTION MEASURES

The Contractor shall minimize terrain disturbance and erosion resulting from its activities. The Contractor shall, as part of its work, implement erosion and silt control measures where its activities result in a blockage of natural drainage, the diversion of natural drainage, or the exposure of soil or subsoil to potential erosion. Particular measures which may be required include:

- (i) using an erosion control blanket;
- (ii) using an appropriate hydraulic mulch;
- (iii) spreading hay over exposed soils;
- (iv) spreading a thin layer of brush or slash over disturbed areas;
- (v) the installation of baffles or sediment traps at appropriate intervals within the area of disturbance;
- (vi) the installation of drainage collectors across the disturbed area to channel drainage into vegetated areas;
- (vii) the re-routing of disturbed drainage courses back into the natural course;
- (viii) the stabilization of exposed soils at drainage locations with appropriate rip-rap;
- (ix) where so directed by the Engineer, to construct check dams to confine mud or slurry at such locations as unsodded ditch lines, catch-basins and culvert inlets.
- (x) the pumping of silted water to settling or designated vegetated areas;
- (xi) the installation of sedimentation basins of adequate size at run-off locations from exposed areas to contain heavy silt and mud as directed by the Engineer.

845.04 LIMITATION OF OPERATION

During periods of heavy rain, where in the opinion of the Engineer, the movement of excavated material and equipment may give rise to extensive mud conditions, or the potential to seriously impact watercourses, or adjacent land, the Contractor may be required to suspend operations until such time as site conditions allow operations to resume. The Contractor shall not be paid for such downtime.



SECTION 850

PROTECTION OF VEGETATION AND WETLANDS

INDEX

850.01 MAINTAIN NATURAL DRAINAGE PATTERN

850.02 PROTECTION OF TREES AND SHRUBS

850.03 OFF RIGHT OF WAY TRAVEL

850.04 BOGS AND WETLANDS

850.01 MAINTAIN NATURAL DRAINAGE PATTERN

Drainage is to be maintained in its natural state wherever possible, with provision being made for spring flooding. Where existing drainage patterns cannot be maintained, alternate drainage will be installed to approximate normal conditions with the approval of the Engineer.

850.02 PROTECTION OF TREES & SHRUBS

Some trees, shrubs and plants within the clearing limits may be required for use by the Owner or other groups. Where necessary, and as directed by the Engineer, such trees, shrubs and plants shall be flagged for removal. Also see Section 855.02 (Planting Of Trees and Shrubs).

Where branches of trees are to be removed as a result of damage or where roots **2.5 cm** in diameter or larger are exposed as a result of contractors excavation work, the stumps shall be cut cleanly using a saw or lopping tool. The roots shall be cut back level to the surface of the cut slope within 24 hours following their exposure.

The Contractor shall adhere to the following protection measures:

- (i) No unnecessary cutting of trees is to be conducted. Care will be taken during construction to prevent damage to trees and shrubs adjacent to the flagged clearing limits which are to remain after construction.
- (ii) Care shall be taken when sloping embankments not to expose roots of trees, or put the soil at the base of such trees in danger of future erosion or extensive downslope drainage.
- (iii) The Contractor shall not use living trees as survey marks and shall not cut blazes or otherwise mark live trees except with removable surveyor's tape and/or tags.
- (iv) Where cutting is necessitated, the Contractor shall stockpile and remove all merchantable timber not required by the Owner. Other wood waste and slash remaining near the uncut zone shall be disposed of by chipping, burning, or removal, as acceptable to the Engineer.

850.03 OFF RIGHT OF WAY TRAVEL

The Contractor shall limit equipment travel to the surveyed right-of-way and existing municipal and provincial roads. Use of equipment of any type is not permitted outside the clearing limits of the right of way without prior approval. To obtain approval for additional or new travel routes, the Contractor shall notify the Engineer a minimum of five working days in advance of such requirements and not commence work until written approval is given by the Engineer.

850.04 BOGS AND WETLANDS

Bogs and wetlands are considered sensitive terrain because of their high disturbance potential. Travel by machinery across bogs and wetlands shall be avoided whenever possible. When such travel is necessary, it shall be carried out as directed by the Engineer. Bog excavation shall conform with good construction practices and be carried out in accordance with other relevant sections of these specifications.



**SECTION 855
 REVEGETATION**

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855.01 REVEGETATION FOR SURFACE STABILIZATION

Immediately following and during some construction activities, the Engineer will identify areas requiring seeding/sodding or stabilization by a method to prevent erosion. These will include:

- (i) Extensive cuts in overburden material. These areas shall be hydro seeded within **three** calendar days of a cut being prepared and the work shall be carried out as directed by the Engineer;
- (ii) Stream crossing sites. Topsoil placement, sodding, and shrub or tree plantings may be required as directed by the Resident Engineer.
- (iii) All remaining disturbed areas, designated, will be hydro seeded or sodded as soon as possible in accordance with the DWST Specification Book - Section 632- Hydroseeding, Section 634 - Soil for Hydroseeding, Section 635- Lime for Hydroseeding, and Section 633- Sodding.

Where the potential for erosion exists, as on steep slopes, long slopes, or soft erodible type material, an appropriate erosion control material shall be applied to the surface. This can be in the form of an erosion control fabric or a sprayed on erosion control product which is approved by the Engineer and which will be in addition to hydroseeding as indicated in the contract documents or as directed by the Resident Engineer. Also see Section 845.03 (Erosion and Silt Control Measures).

The Engineer will inspect all revegetated areas periodically to ensure that adequate results have been achieved. During adverse dry conditions watering of revegetated areas shall be carried out as directed by the Engineer. Additional REVEGATATION work will be undertaken upon direction from the Engineer if the desired results are not achieved.

855.02 PLANTING OF TREES AND SHRUBS

855.02.01 GENERAL INSTRUCTIONS

The planting of trees will be carried out in those areas identified in the contract documents. The types of species, quantity, size, and exact location will be specified in the contract documents or otherwise the Contractor will be advised by the Engineer. **Nursery stock**, (purchased trees and shrubs in pots), or **site stock**, (trees and shrubs removed from a site and held over or planted out directly), may be used as specified in the contract documents or as directed by the Engineer.

Native species of trees and shrubs are generally preferred, however, non-native species may be specified where, for example, a faster growing species or a disease resistant species or variety is needed.

FORM 855

The following species of trees are recommended:

SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME	COMMON NAME
PICEA	SPRUCE	ACER SPICATUM	MOUNTAIN MAPLE
ABIES BALSAMEA	FIR	ACER RUBRUM	RED MAPLE
BETULA PAPYRIFERA	BIRCH	ACER PLATANOIDES	NORWEGIAN MAPLE
SORBUS	DOG BERRY	SALIX DISCOLOR	WILLOW
LARIX LARICINA	LARCH, JUNIPER	SALIX BEBBIANA	WILLOW
LARIX KAEMPFERI	JAPANESE LARCH	POPULUS TREMULOIDES	TREMBLING ASPEN, POPLAR, APS
PRUNUS PENNSYLVANICA	PIN CHERRY	POPULUS BALSAMEA	COTTONWOOD, BALSAM POPLAR

The following species of large shrubs are recommended:

SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME	COMMON NAME
AMELANCHIER	CHUCKLEY PEAR	CORYLUS CORNUTA	HAZELNUT
VIBURNUM CASSINOIDES	NORTHERN WILD RAISON	ARONIA MELANOCARPA	EASTERN CHOKEBERRY, CHOKECHERRY
ALNUS CRISPA	ALDER	ARONIA PRUNIFOLIA	EASTERN CHOKEBERRY, CHOKECHERRY
CORNUS STOLONIFERA	RED OSIER DOGWOOD		

The following species of small shrubs are recommended:

SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME	COMMON NAME
MYRICA GALE	SWEET GALE, BOG MYRTLE	SAMBUCUS PATENS	RED ELDERBERRY
RHODODENDRON CANADENSE	RODORA	ROSA NITIDA	WILD ROSE
NEMOPANTHUS MUCRONATA	MOUNTAIN HOLLY	ROSA VIRGINIANA	WILD ROSE
VIBERNUM EDULE	SQUASHBERRY	RUBUS IDAEUS	RED RASPBERRY
CHAMAEDAPHNE CALICULATA	LEATHERLEAF	SPIRAEA LATIFOLIA	MEADOWSWEET

855.02.02 PLANTING METHODS AND MAINTENANCE

The Contractor is referred to the **Manual for Native Plant Material Recovery**, available from the Department of Transportation and Works, for general information and recommended practices for the removal of trees and shrubs for either planting out directly or holding over for subsequent planting, and other aspects of care and maintenance.

All trees and shrubs do best when planted in early spring prior to the buds opening, but may also be successfully planted in late fall during their dormancy period. While it is possible to plant trees and shrubs at any time of the year, a regular watering program prepared by the Contractor and approved by the Resident Engineer to reduce or prevent mortalities is required during the active growing period. A watering program is required for all planted stock (nursery stock or site stock) in the first year. This should commence as soon as active growth begins, and as determined by the prevailing weather conditions and dryness of the soil throughout the growth season. Watering and other necessary maintenance such as the provision of staking or supports, pruning, mulching, etc. is the responsibility of the Contractor and no extra compensation will be paid for these items.

855.02.03 PAYMENT AND WARRANTY

Measurement for payment shall be by the number of individual trees of the specified species and size planted. The Contractor is responsible for preventing mortalities in planted stock. Trees and shrubs which die within 18 months of being planted shall be replaced by the Contractor at no additional cost to the Owner.



SECTION 860
PROTECTION OF HISTORIC RESOURCES

PROTECTION OF HISTORIC RESOURCES

The Contractor shall be aware that the Historic Resources Act (1985) requires the protection of archaeological sites and artifacts, and sets forth procedures to be followed in the event that either are found. The Contractor shall be aware of the following sections of the Act:

- Section 10(1) - A person who discovers an archaeological object in, on, or forming part of the land within the province shall report the discovery forthwith to the Minister stating the nature of the object, the location where it was discovered and the date of the discovery.
- Section 10(2) - No person, other than the one to whom a permit has been issued under this Act, who discovers an archaeological object shall move, destroy, damage, deface or obliterate, alter, add to, mark or in any other way interfere with, remove or cause to be removed from the province that object.
- Section 11(1) - The property in all archaeological objects found in, on or taken from the land within the province, whether or not these objects are in the possession of Her Majesty is vested in Her Majesty.

Should any archaeological remains be encountered, such as stone, bone or iron tools, concentrations of bone, fireplaces, house pits and/or foundations, work in the area of the find shall cease immediately. The Contractor shall immediately notify the Owner through the Engineer, or the Senior Environmental Planner, or the Environmental Surveillance Officer immediately upon discovery of any historic resources. The Owner shall immediately notify the Historic Resources Division.



SECTION 865

OTHER ENVIRONMENTAL REQUIREMENTS

The Contractor shall be aware that other environmental requirements are contained in other sections. The attention of the Contractor is directed to:

- SECTION 180 UNWATERING INCIDENTAL TO WORK**
- SECTION 201 CLEARING AND GRUBBING**
- SECTION 202 CLEARING**
- SECTION 203 GRUBBING**
- SECTION 204 GRADING OF FILL**
- SECTION 207 BORROW**
- SECTION 208 EXCAVATION OF DITCHES**
- SECTION 305 APPLICATION OF CALCIUM CHLORIDE**
- SECTION 310 USE OF PITS, QUARRIES, AND STOCKPILES FOR PRODUCTION OF MATERIALS SUPPLIED BY CONTRACTOR**
- SECTION 317 WINTER SAND**
- SECTION 320 TACK COAT**
- SECTION 330 HOT MIX ASPHALTIC CONCRETE**
- SECTION 401 DITCHING FOR OF STREAMS**
- SECTION 402 PERMANENT DIVERSION OF STREAMS**
- SECTION 403 EXCAVATION FOR FOUNDATIONS**
- SECTION 405 TEMPORARY DIVERSION OF STREAMS**
- SECTION 421 INSTALLATION OF PIPE CULVERTS**
- SECTION 423 SUPPLY AND INSTALLATION OF STRUCTURAL PLATE PIPE**
- SECTION 424 SUPPLY AND INSTALLATION OF STRUCTURAL PLATE ARCH**
- SECTION 426 DESIGN, SUPPLY, AND INSTALLATION OF LONG SPAN STRUCTURAL PLATE ARCH**
- SECTION 520 STORAGE OR DISPOSAL OF OLD ASPHALTIC PAVEMENT**
- SECTION 521 DEMOLITION AND REMOVAL OF SIDEWALKS, CURB AND GUTTER, MANHOLES, CATCH BASINS, DITCH INLETS, FENCES, GUIDE RAIL AND GUIDE POSTS**
- SECTION 522 DISPOSAL OR SALVAGE OF CULVERT OR PIPE**
- SECTION 634 SOIL FOR HYDROSEEDING**
- SECTION 635 LIME FOR HYDROSEEDING**
- SECTION 632 HYDROSEEDING**
- SECTION 902 EXCAVATION FOR FOUNDATION, UNWATERING AND EXTRA BACKFILL FOR STRUCTURES**
- SECTION 914 BRIDGE DECK WATERPROOFING**