



Laurent Darveau, ing.
Directeur technique

*La **solution service**
pour vos besoins en **géosynthétiques***

- Présentation de l'entreprise
 - Distributeur avec manufacturiers partenaires.
 - Basé à Lévis.
 - Présent au Québec et dans le reste du Canada depuis 30 ans.
 - Affilié à Hydrosol Construction, spécialiste en installation de géomembranes et murs de soutènement.
 - Division Gabio pour les gabions architecturaux.

Catalogue de produits



Géotextile



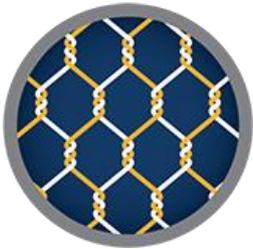
Géogrille



Géomembrane



Contrôle de l'érosion



Gabion



Contrôle des sédiments



Murs et talus



Gestion de l'eau



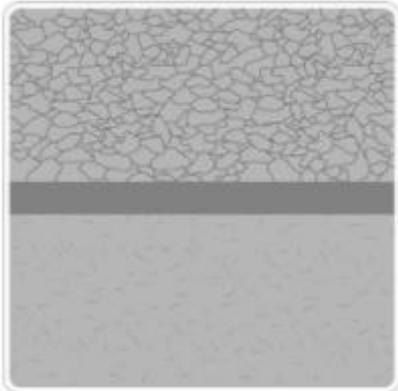
Végétalisation urbaine



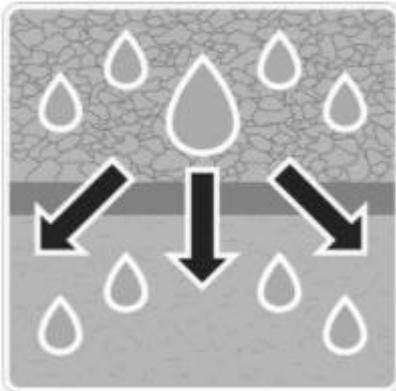
GÉOTEXTILES – NON-TISSÉS



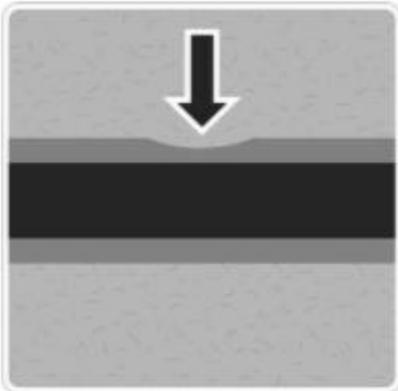
GÉOTEXTILES – NON-TISSÉS



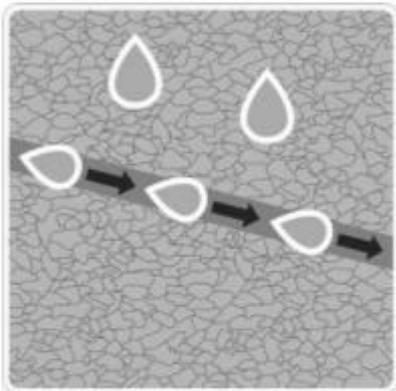
SEPARATION



FILTRATION



PROTECTION



DRAINAGE



GÉOTEXTILES - TISSÉS

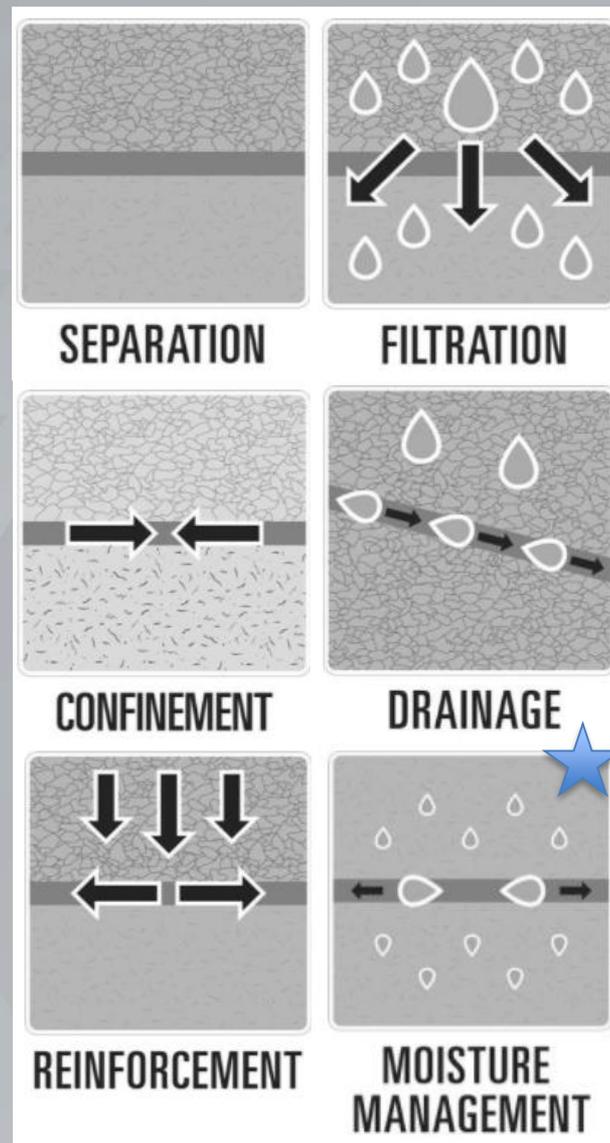
Bandelettes



Monofilaments - Filtration



Monofilaments - Renforcement



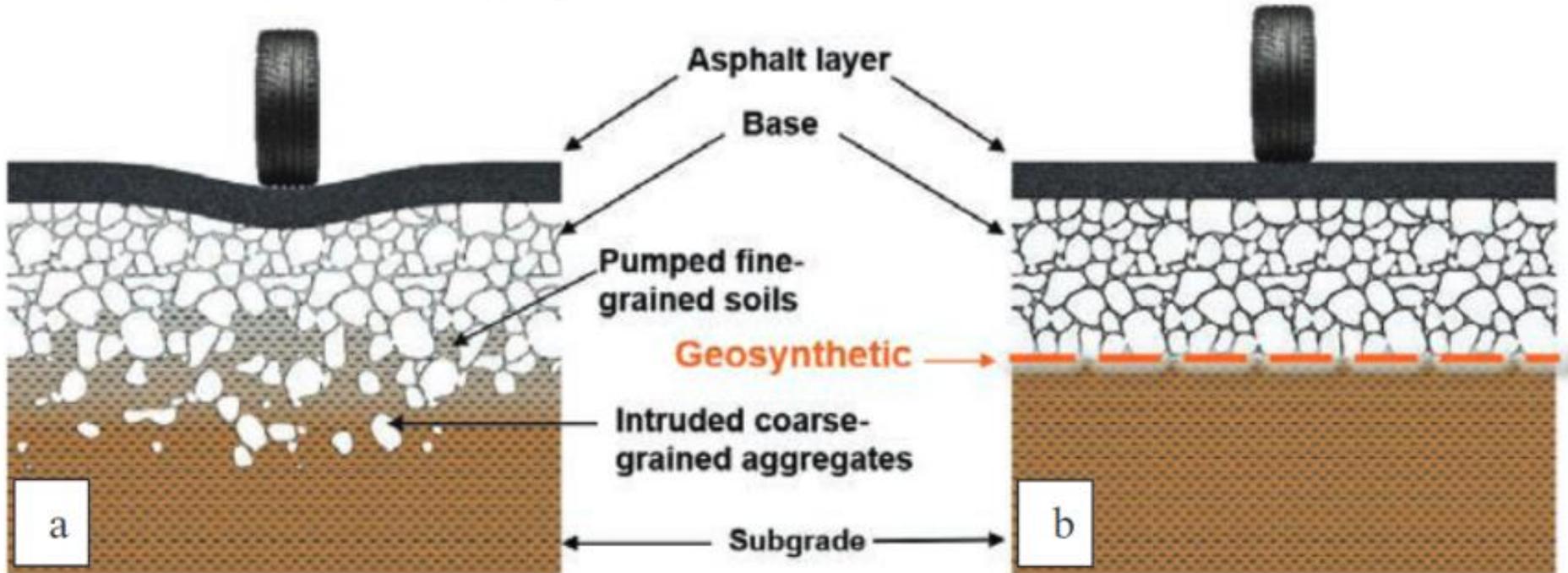
GÉOGRILLES MULTIAXIALES



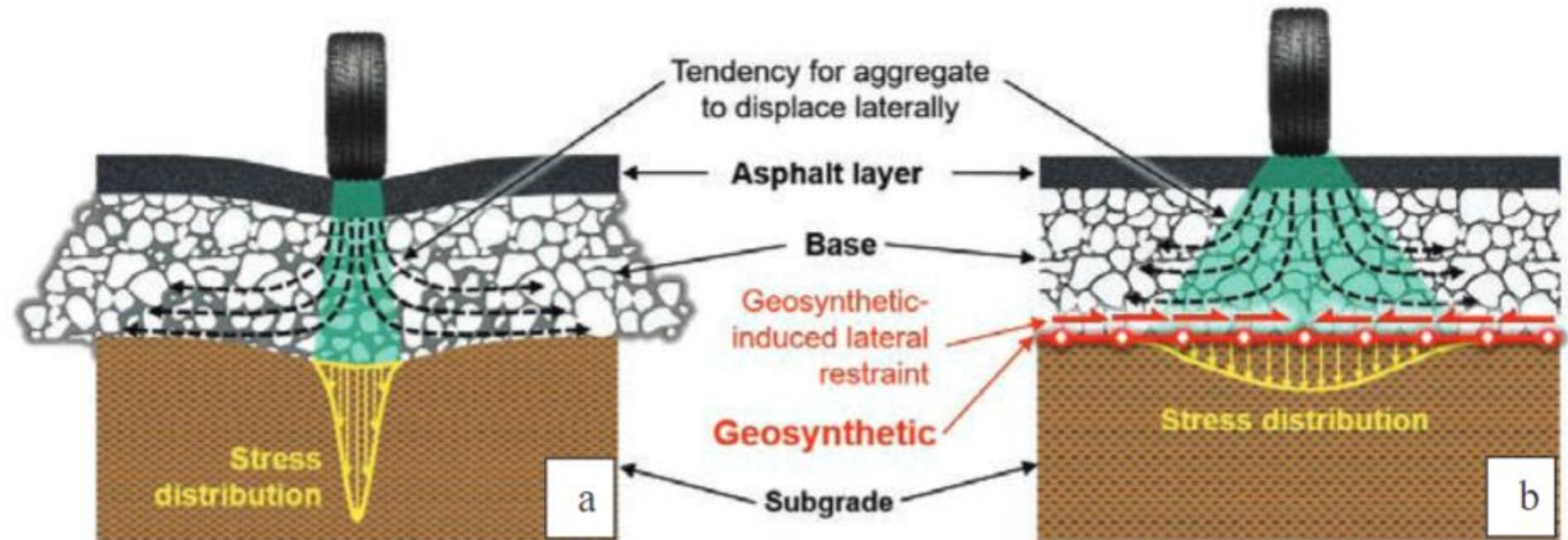
- Stabilisation
- Renforcement
- Augmentation de capacité portante
- Économie de matériau granulaire



Séparation

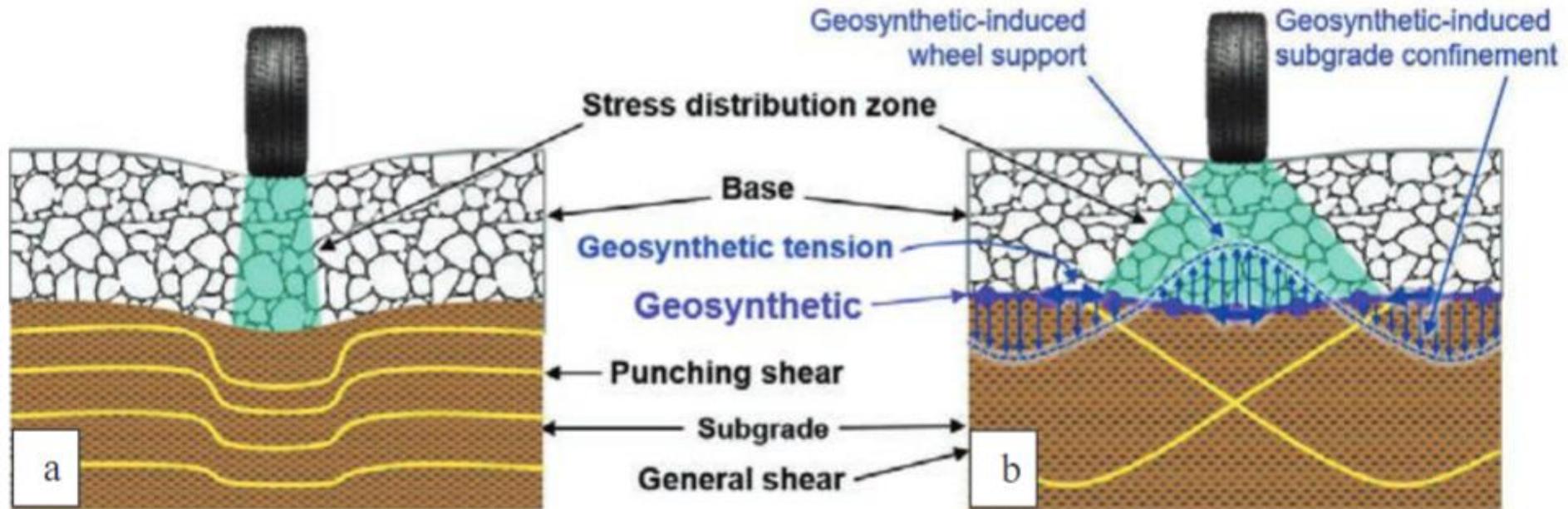


Restriction du mouvement latéral des agrégats



Reprise des contraintes en cisaillement par le géosynthétique

Effet de membrane sous tension



Routes, chemins d'accès et voies ferrées: des incontournables dans le domaine minier.

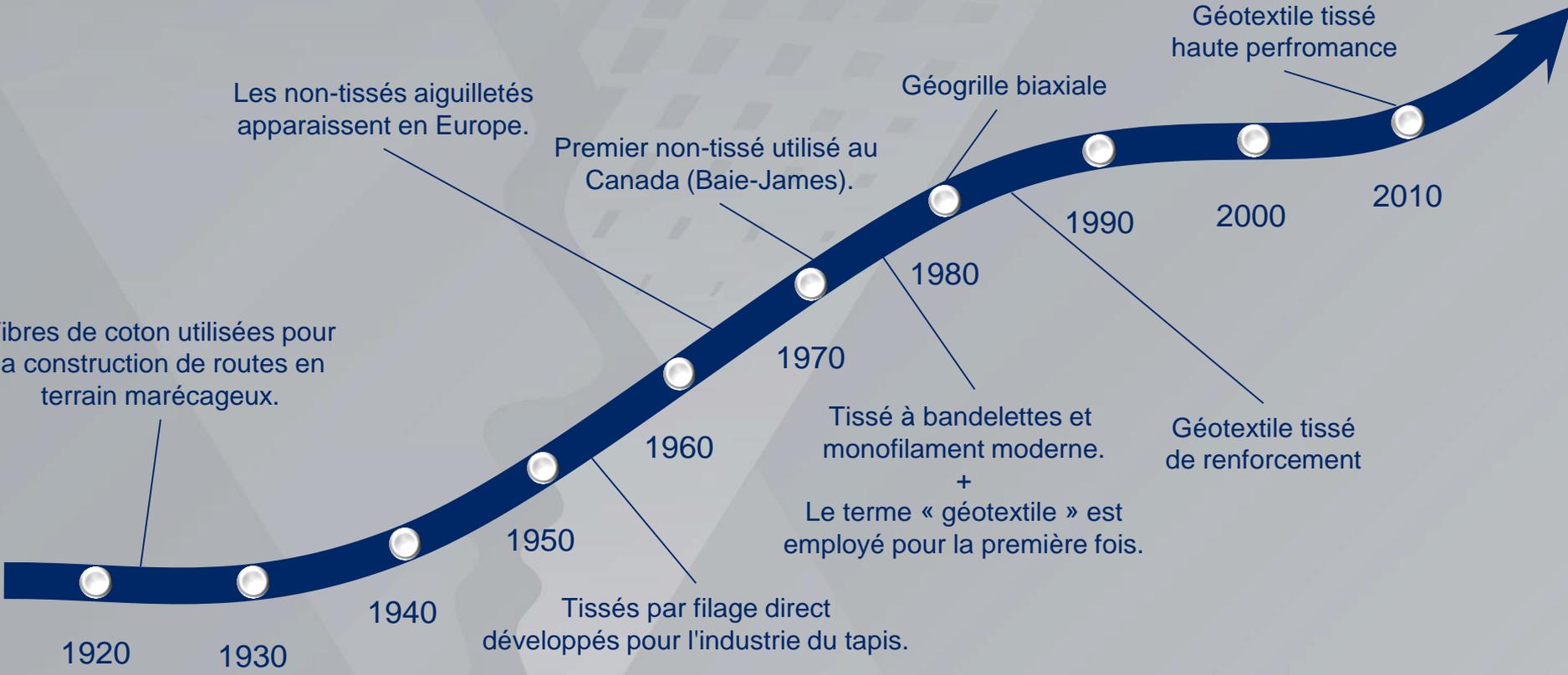
- Coût et disponibilité du granulaire
- Coût de mise en place
- Courte période de construction

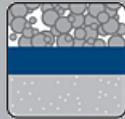


L'utilisation de géosynthétiques de renforcement permet de:

- Diminuer les coûts de construction.
 - Volume de granulaire réduit
 - Excavation réduite
 - Mise en place accélérée
- Diminuer les coûts et la fréquence d'entretien.
- Augmenter la qualité de la surface de roulement
- Augmenter la durée de vie
- Diminuer l'empreinte écologique du projet







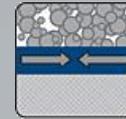
Séparation



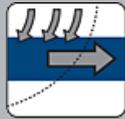
Filtration



Drainage



Confinement



Renforcement

Non-tissé



Tissé à bandelettes



Tissé Monofilament filtration



Géogridde



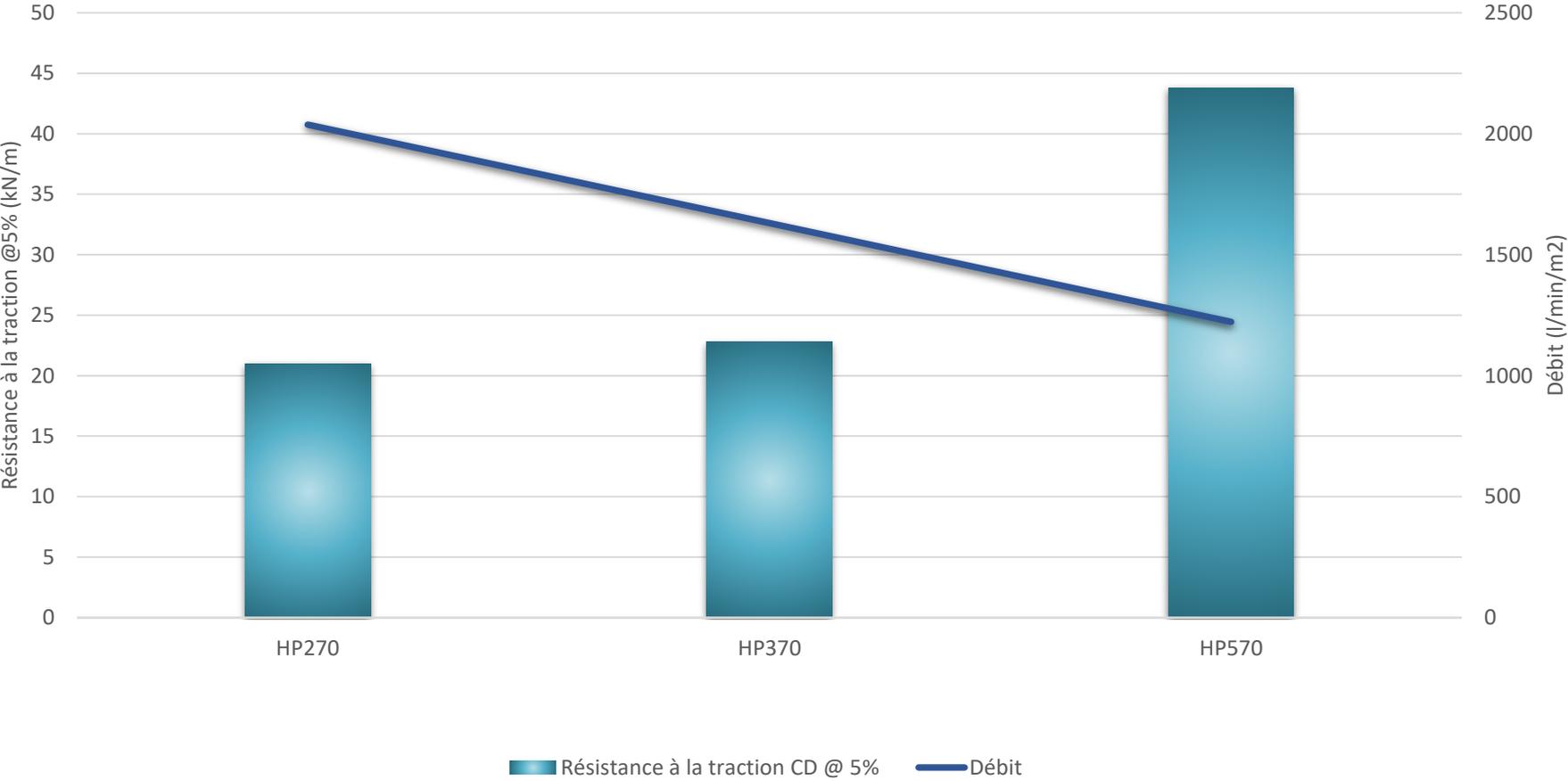
Tissé haute-performance



Variable

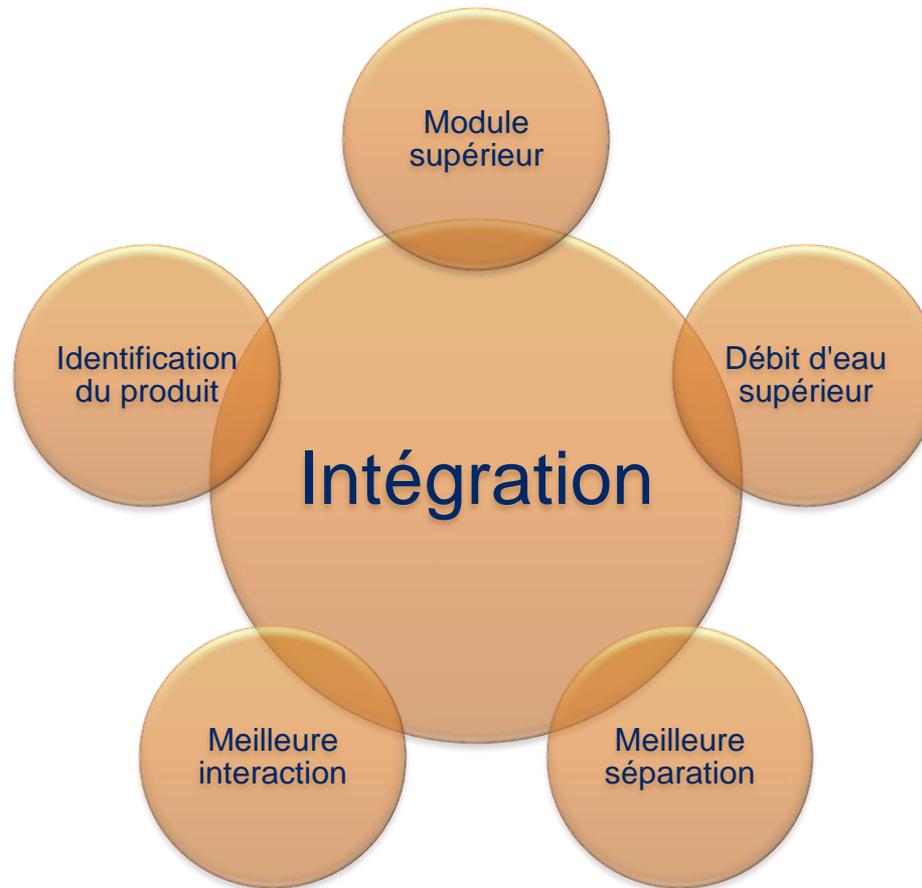


Géotextiles tissés de renforcement



Série Mirafi® RSi





Qu'est-ce qui distingue la série Mirafi® RSi?

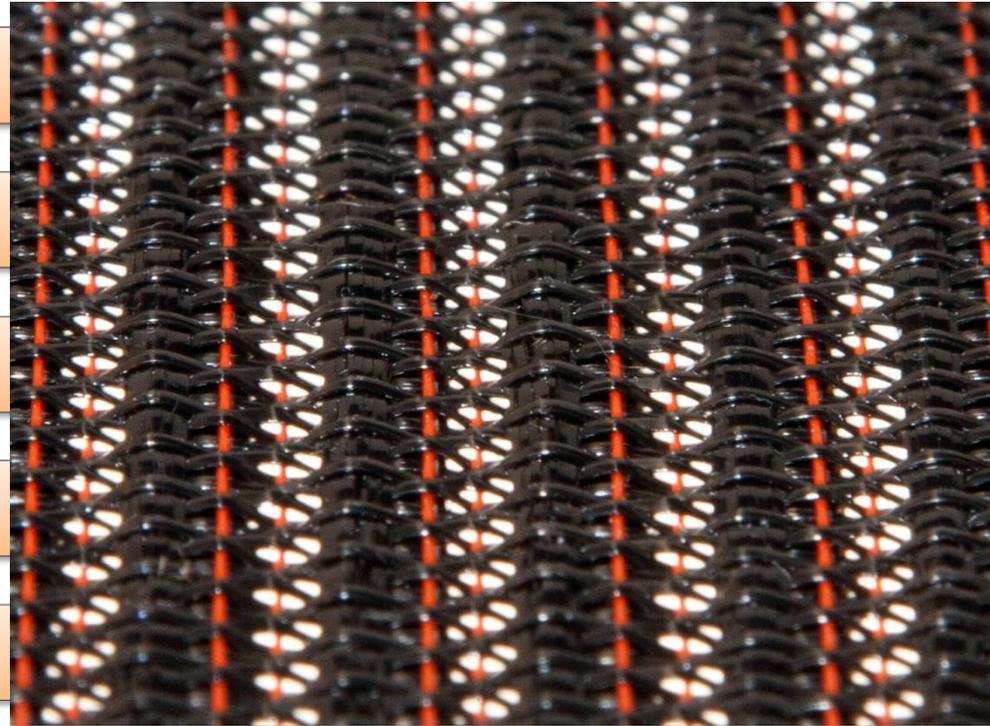
Processus d'extrusion modifié

Diamètre et épaisseur du fil

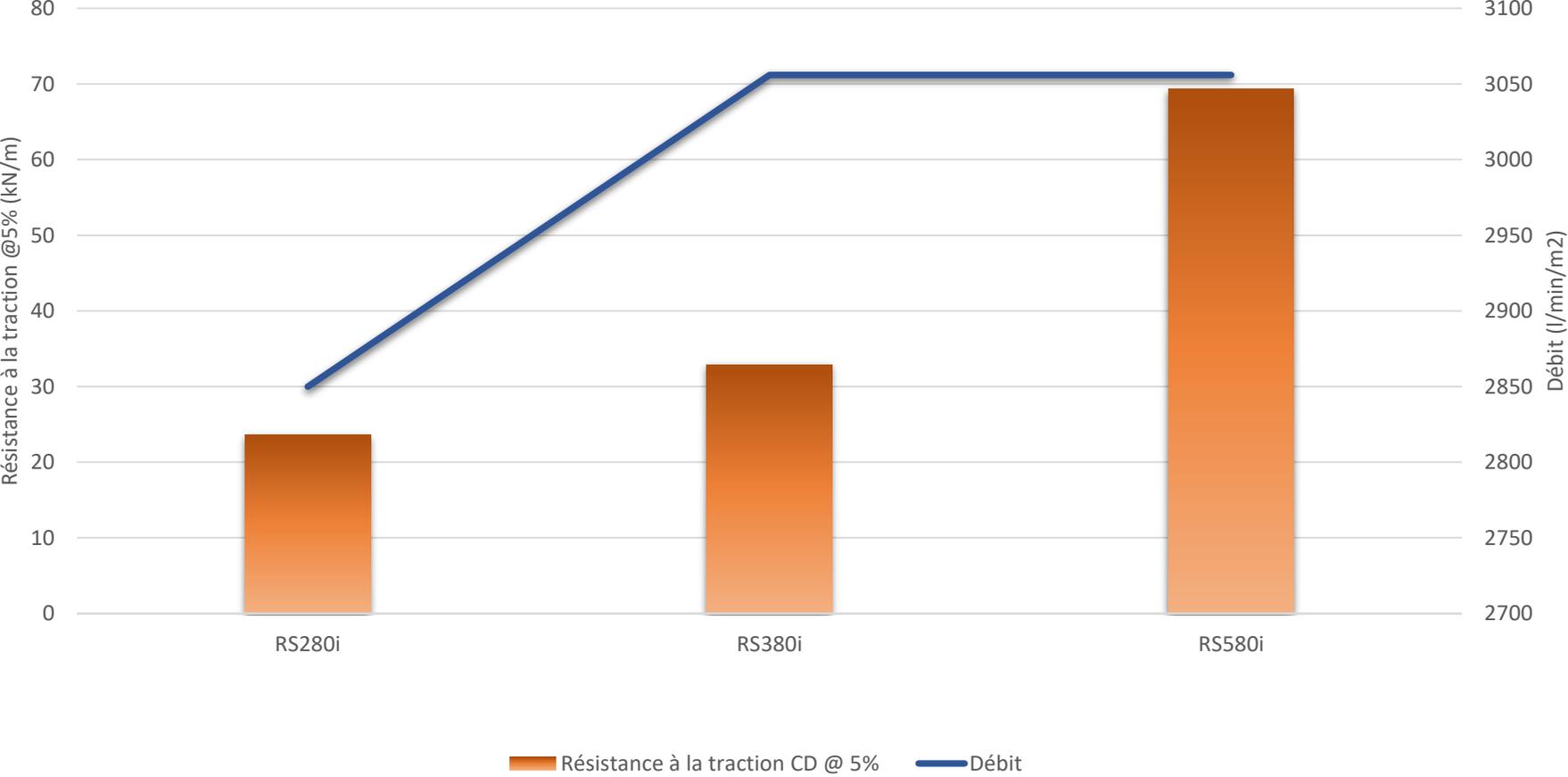
Fils à ténacité très élevée

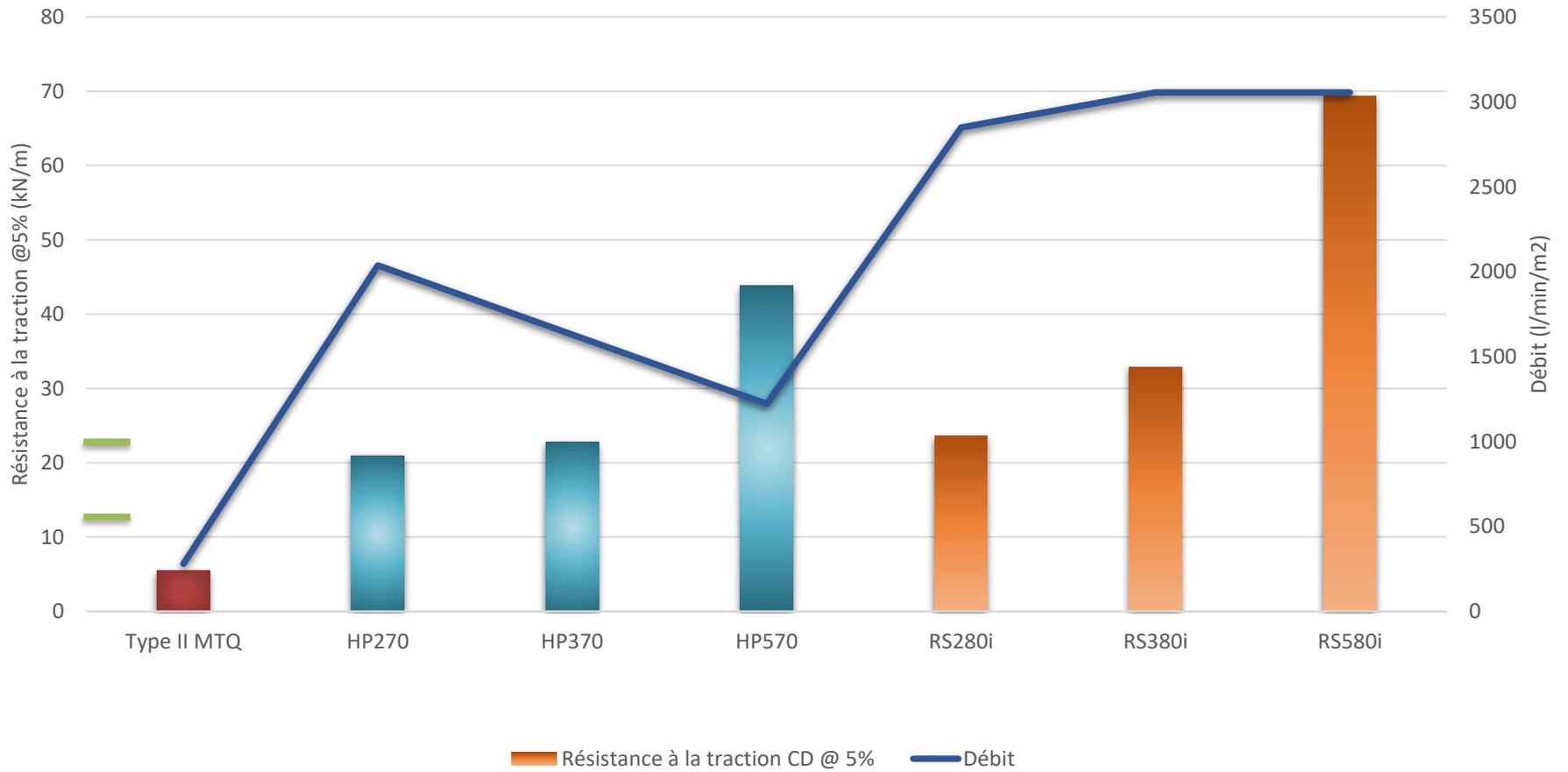
Module supérieur

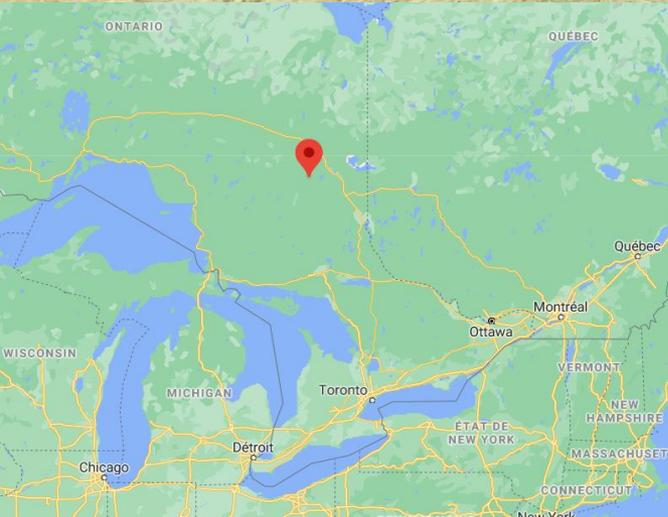
Nouveau procédé de tissage multicouche



Géotextiles de renforcement haute performance









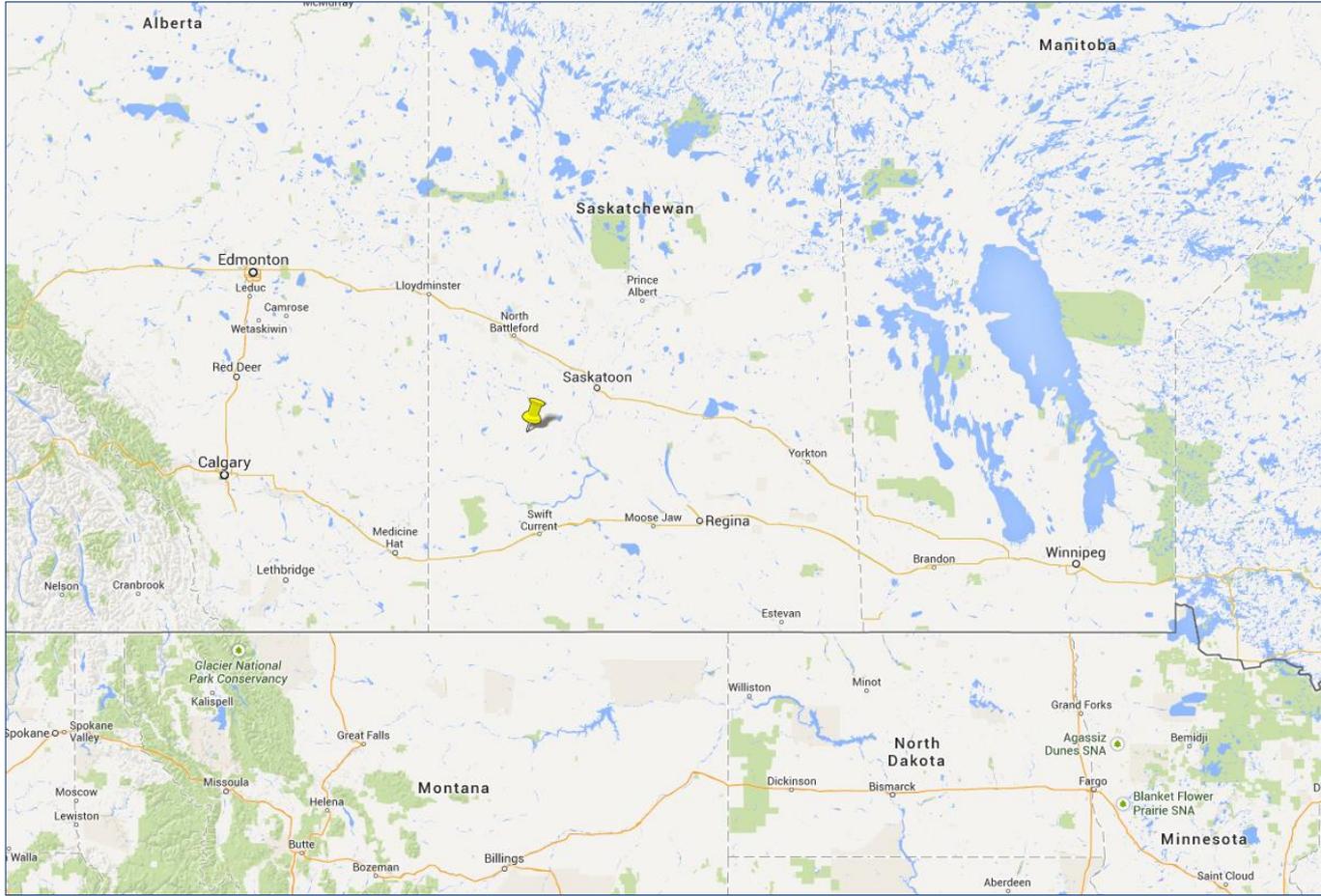






Étude de cas

CN – Rosetown, SK



Track Settlement



Définition du problème

Tassements

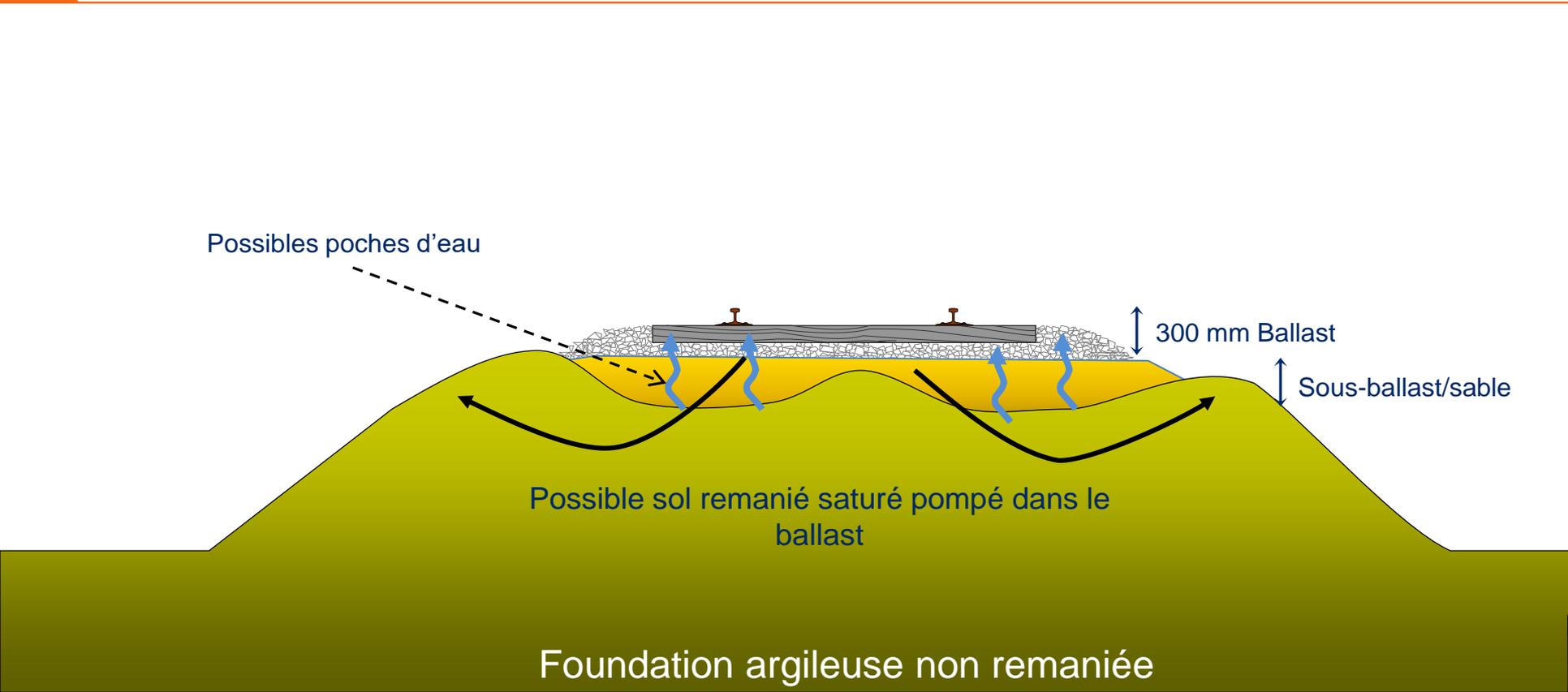


Contamination du ballast



Conditions existantes

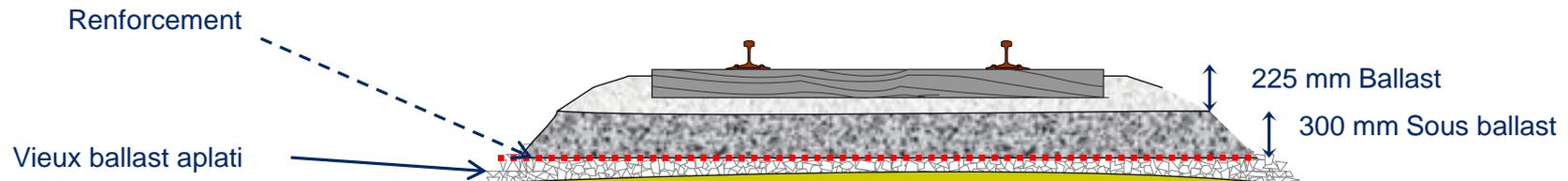
(Assumées)



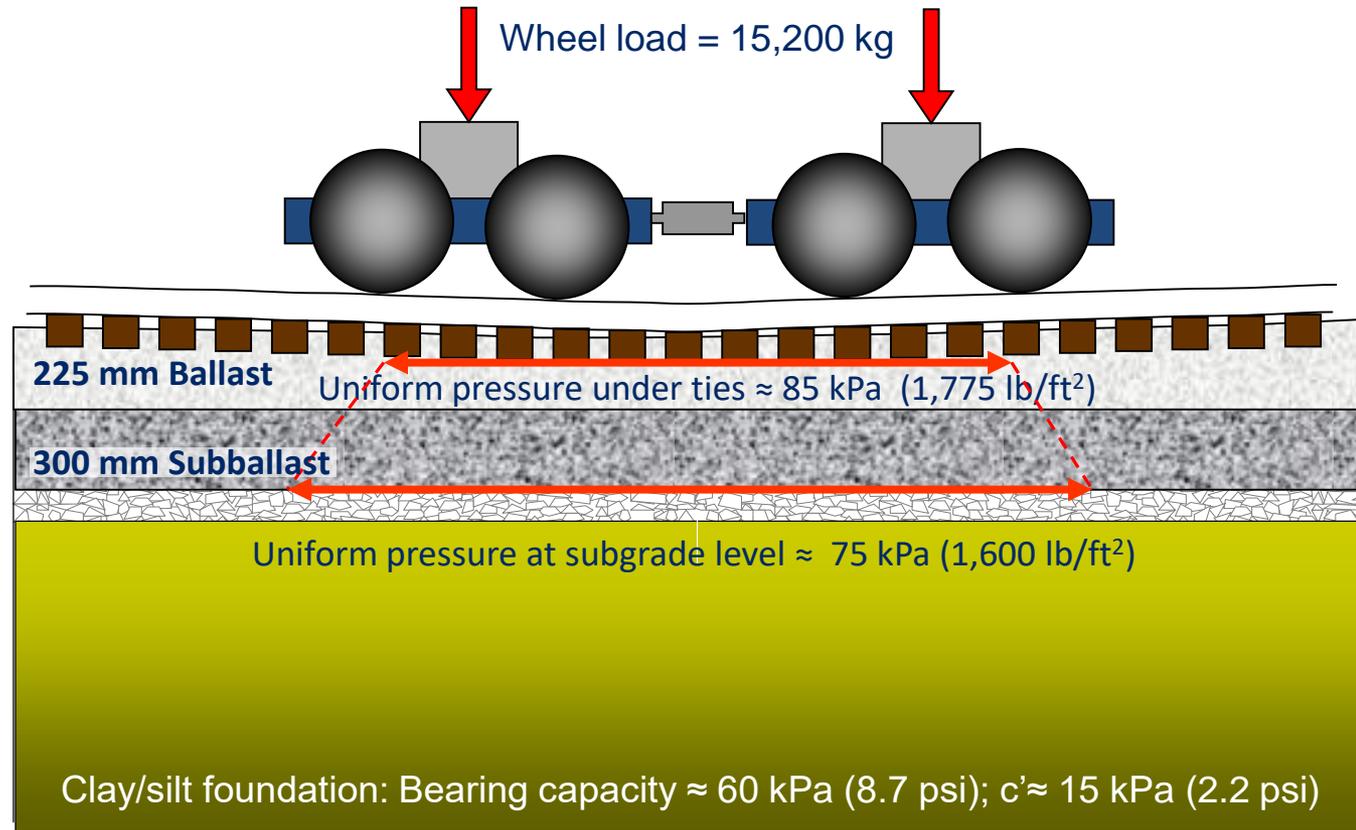
La solution proposée par le CN

Problème: Rien n'empêche le ballast aplati de continuer à se mélanger à la foundation

La solution adoptée a été conçue en se basant sur l'équation de Talbot (1929) en suivant les standards de l'AREMA.



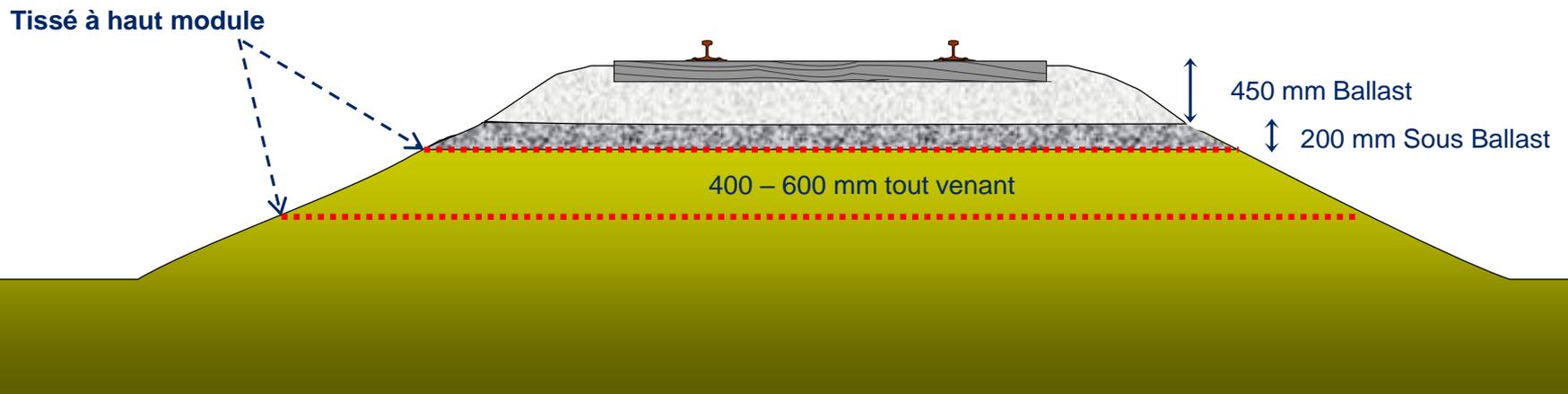
Paramètres connus de dimensionnement



Maximum speed = 65 km/hr
Wheel diameter = 900 mm
Wheel spacing = 5.8 m
Tie size = 200 mm x 2.45 m
Tie spacing = 520 mm

Concept de la section proposée

- Sans renforcement = 1,200 mm
- Avec renforcement = 650 mm





TENCATE GEOSYNTHETICS
Americas

Mirafi® RS580i



Mirafi® RS580i is a revolutionary geosynthetic with orange identification yarns and super high-tenacity polypropylene filaments formed into an innovative weave to provide superior reinforcement strength and soil interaction integrated with high water flow and soil retention capabilities.

TenCate Geosynthetics Americas Laboratories are accredited by Geosynthetic Accreditation Institute – Laboratory Accreditation Program ([GAI-LAP](#)).

Performance Properties	Test Method	Unit	Typical Roll Value	Minimum Average Roll Value
Tensile Strength @ 2% strain (MD)	ASTM D4595	lbs/ft (kN/m)	540 (7.9)	480 (7.0)
Tensile Strength @ 2% strain (CD)	ASTM D4595	lbs/ft (kN/m)	2160 (31.5)	1800 (26.3)
Tensile Strength @ 5% strain (MD)	ASTM D4595	lbs/ft (kN/m)	1560 (22.8)	1440 (21.0)
Tensile Strength @ 5% strain (CD)	ASTM D4595	lbs/ft (kN/m)	4920 (71.8)	4380 (69.3)
Flow Rate	ASTM D4491	gal/min/ft ² (l/min/m ²)	90 (3667)	75 (3056) ¹
Permittivity	ASTM D4491	sec ⁻¹	1.2	1.0 ¹
Typical Roll Value				
Pore Size 0 ₉₅	ASTM D6767	microns	337	
Pore Size 0 ₅₀	ASTM D6767	microns	192	
Index Properties			Maximum Opening Size	
Apparent Opening Size (AOS)	ASTM D4751	U.S Sieve (mm)	50 (0.30)	40 (0.425)
Minimum Test Value				
Interaction Coefficient ²	ASTM D6706	--	0.9	
Factory Seam Strength	ASTM D4884	lbs/ft (kN/m)	3000 (43.8)	
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	90	

¹ Minimum Roll Value

² Interaction Coefficient value is for sand or gravel based on testing conducted by SGI Testing Services.

Démantèlement de la voie



Sous ballast contaminé



Excavation du matériel contaminé



Sous foundation d'argile silteuse



Installation du Mirafi® RS580i



Remblai de tout venant



Défi de construction



Défi de construction



Compaction du tout venant



Bénéfices de l'utilisation de géotextiles à haut module pour le CN

Réduction de l'épaisseur du sous-ballast de 550 mm



Pas de changement du radier



Pas de surexcavation excessive



Ordre de ralentissement permanent retiré



Utilisé pour 2 autres projets locaux



Utilisé dans plusieurs projets au Canada





Mirafi[®] H₂Ri



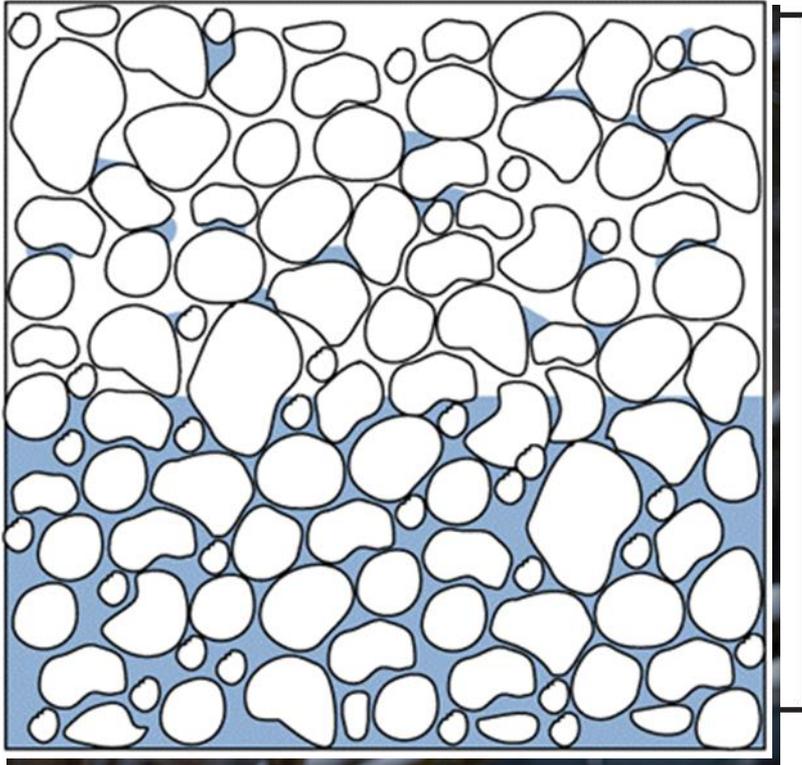


« Aujourd'hui, quel problème ne peut pas être résolu à l'aide des géosynthétiques? »



**FROST
HEAVE**

Pourquoi les sols se soulèvent-ils?

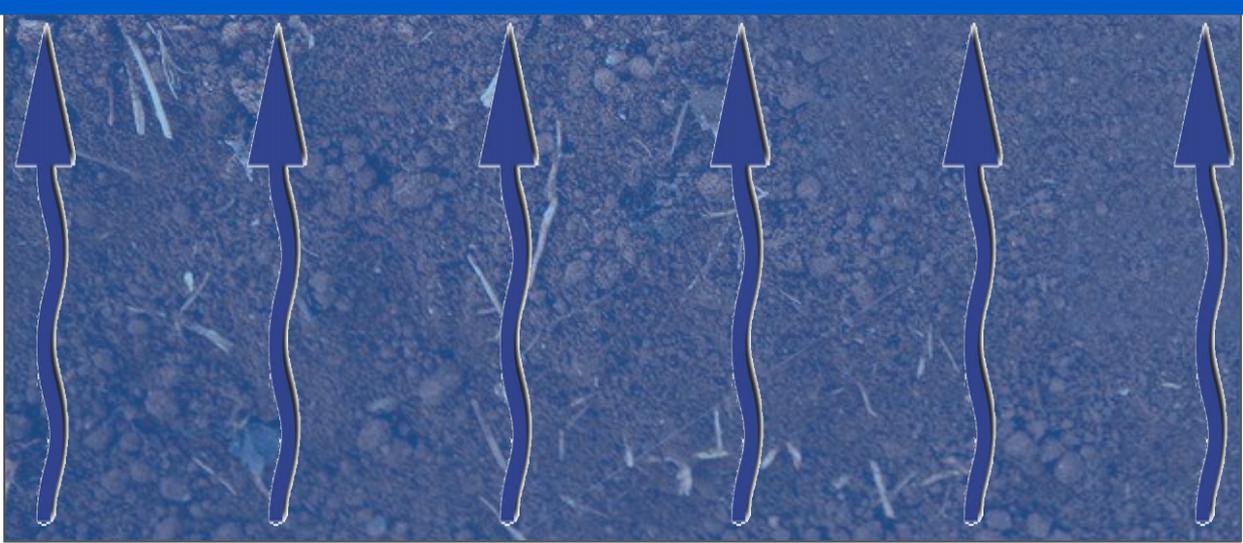


Sensible au gel

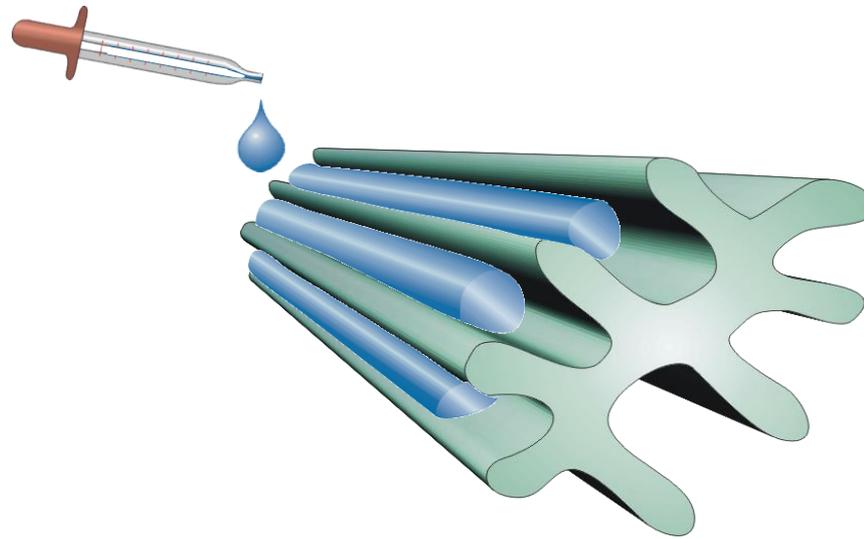
Températures sous le point de congélation

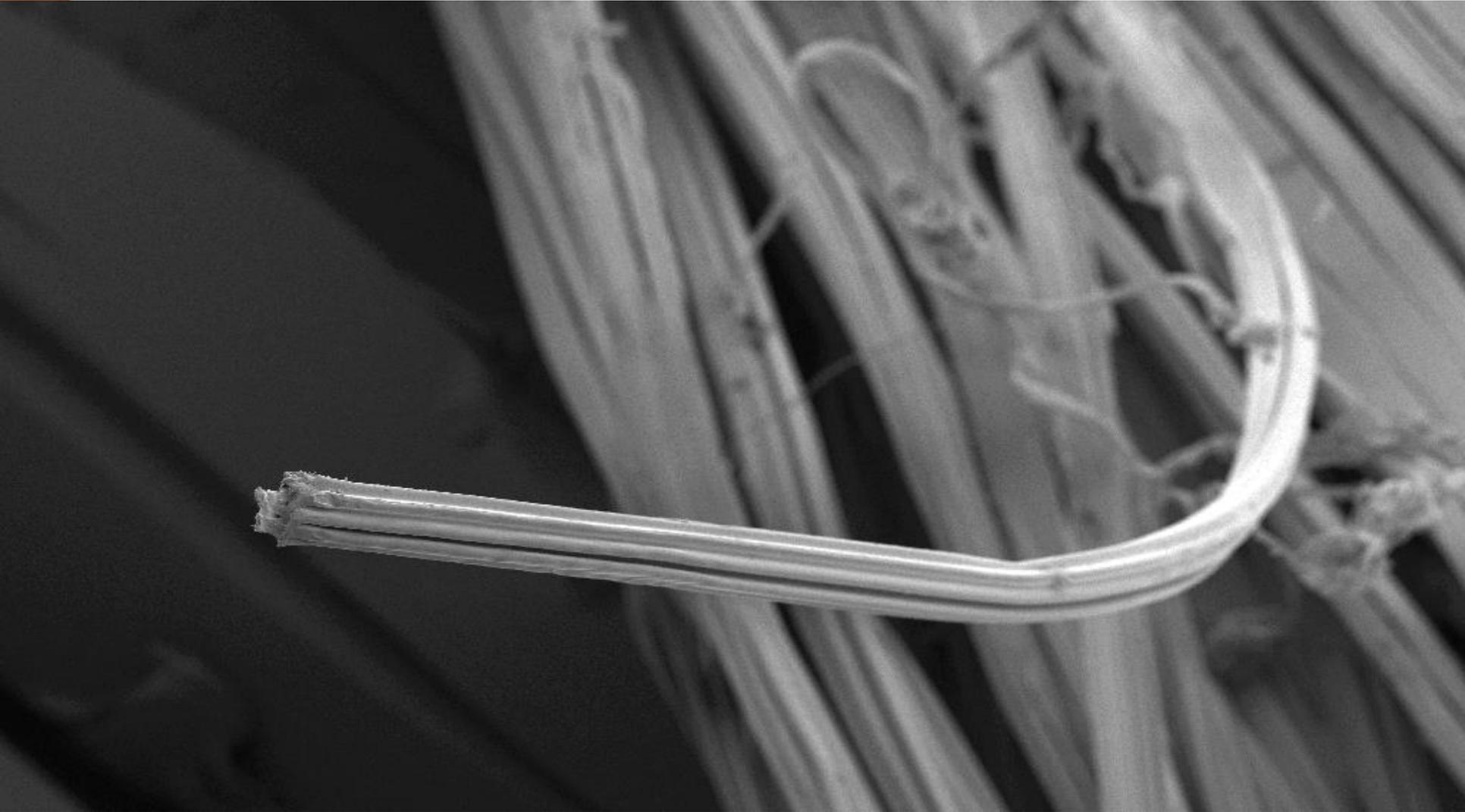
Eau

- Nappe d'eau souterraine
- Infiltration
- Aquifère
- Retenue par des fines

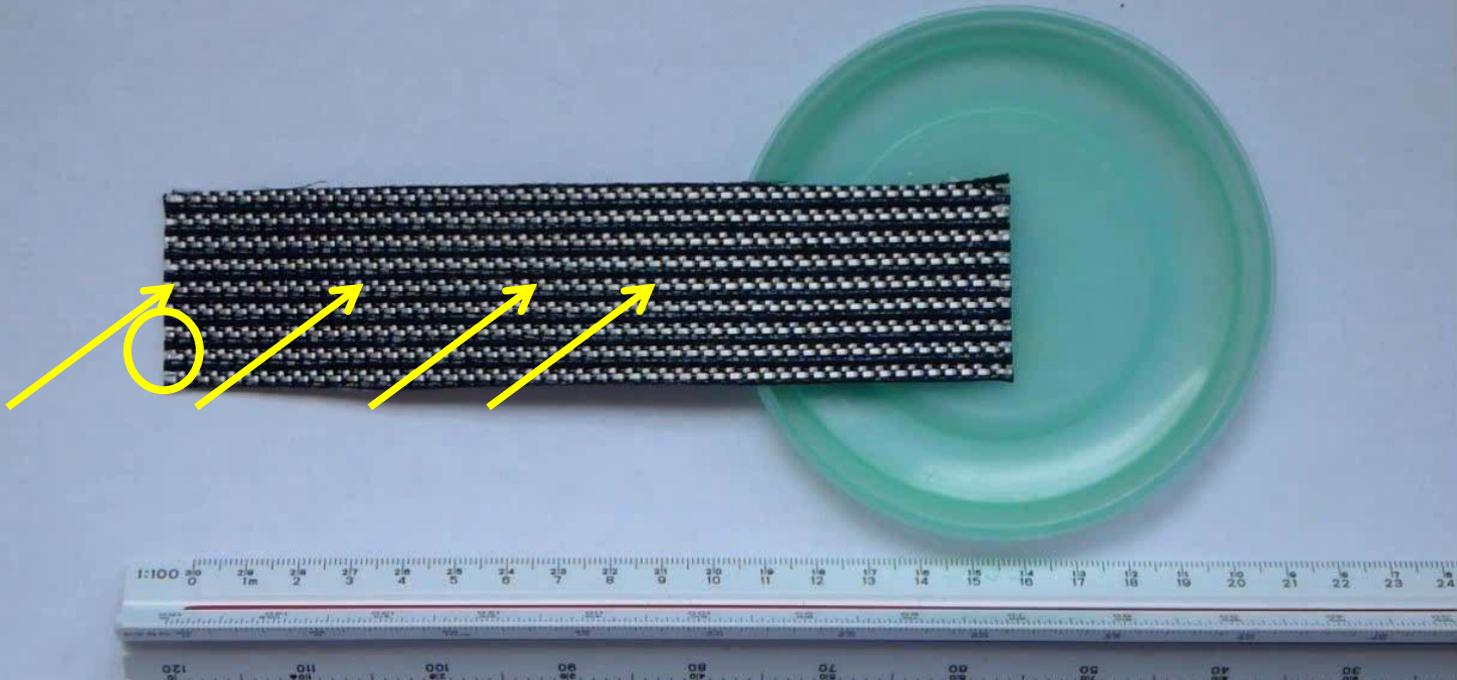


Fils cannelés brevetés





0'00"



Diffférence de pression peut être causée par une différence d'élévationité

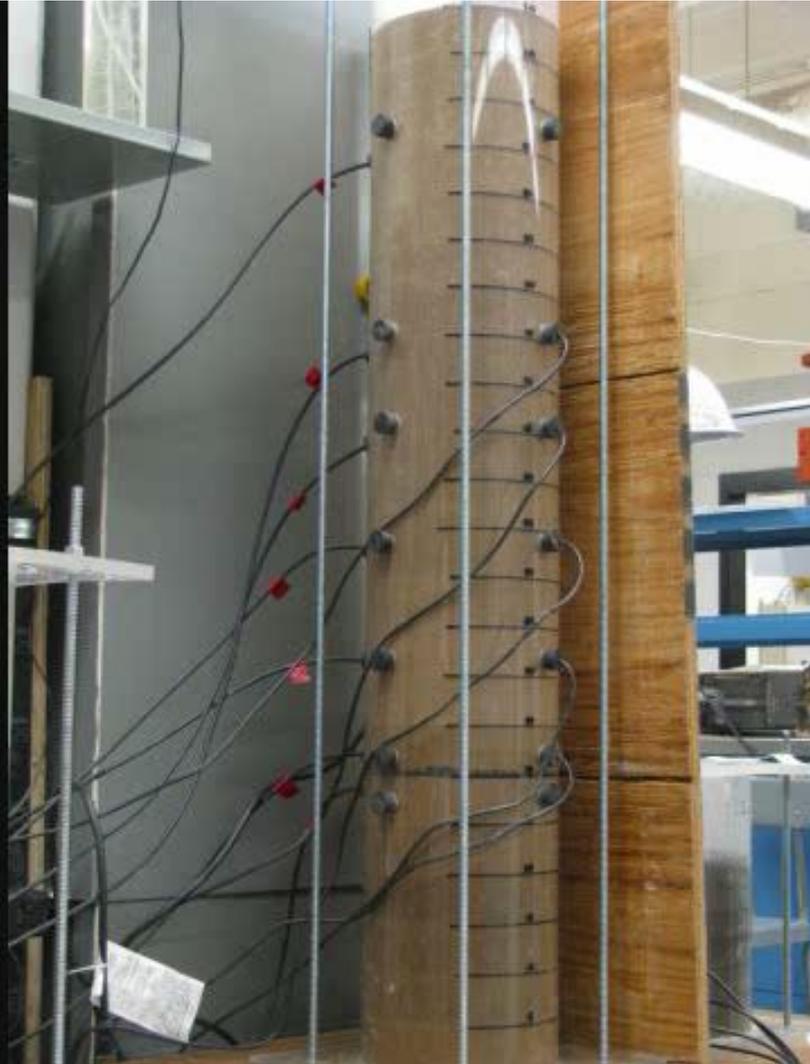
Géosynthétique Mirafi® H₂Ri avec des sols à grains fins



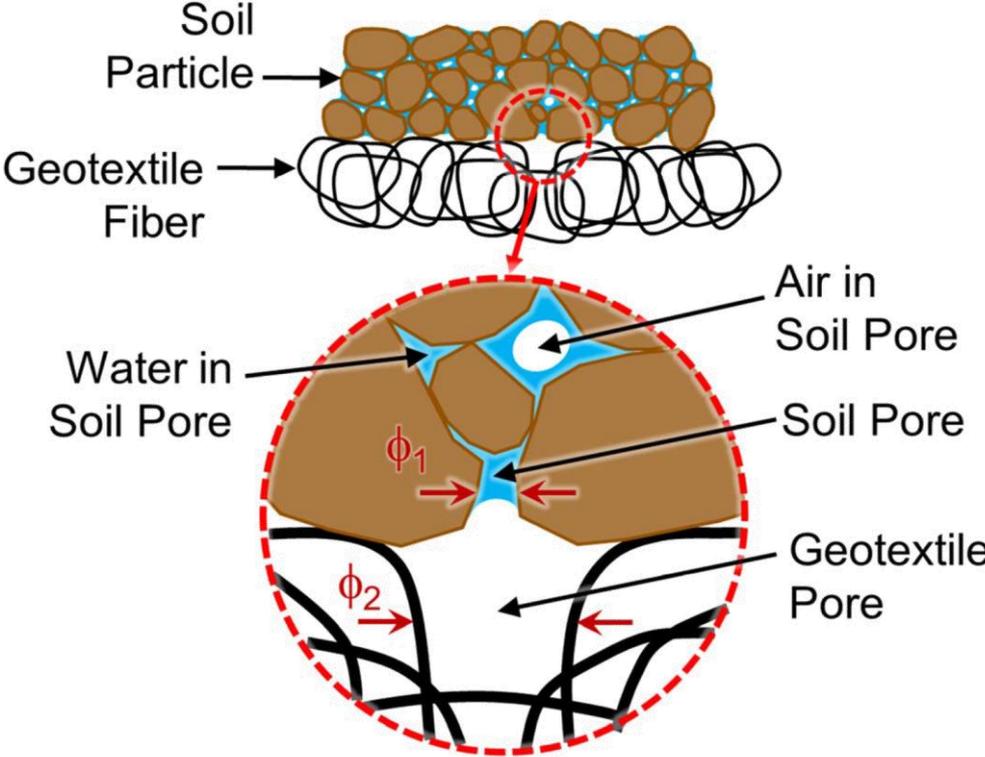
Argile avec Mirafi® H₂Ri

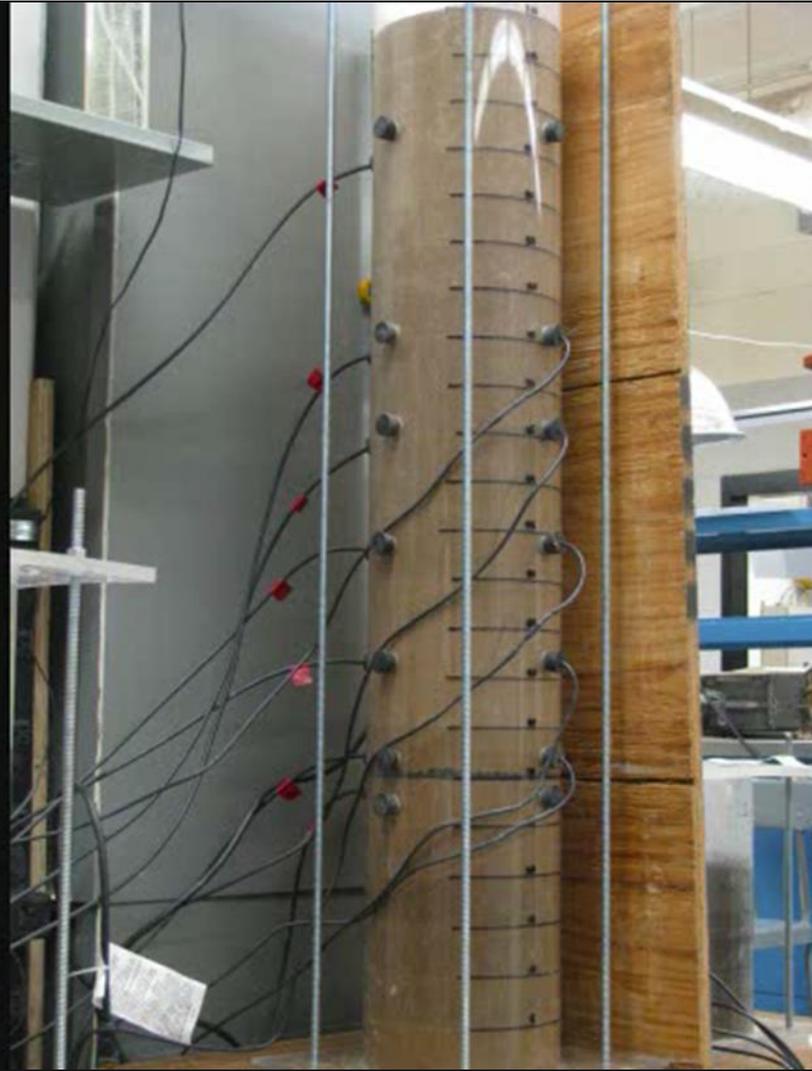


Silt avec Mirafi® H₂Ri



Geosynthetic Capillary Barrier





Polypropylène



Hydrophobe



Pas de drainage capillaire



Siphone lorsque **saturé**



Polypropylène vs. Nylon

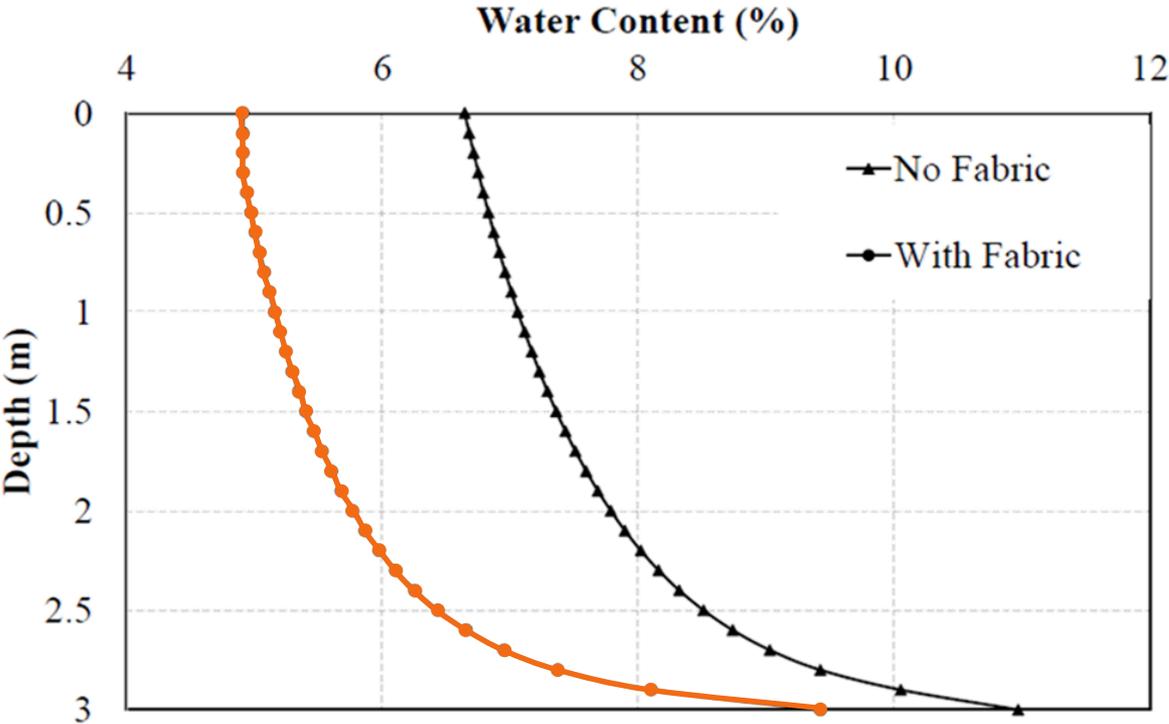
 Hydrophobe	Hygroscopique & hydrophile 
 Pas de drainage capillaire	Drainage capillaire 
 Siphone lorsque saturé	NON-SATURÉ 

University of Kansas & University of Alaska-Fairbanks

Drainage research with Mirafi® H₂Ri

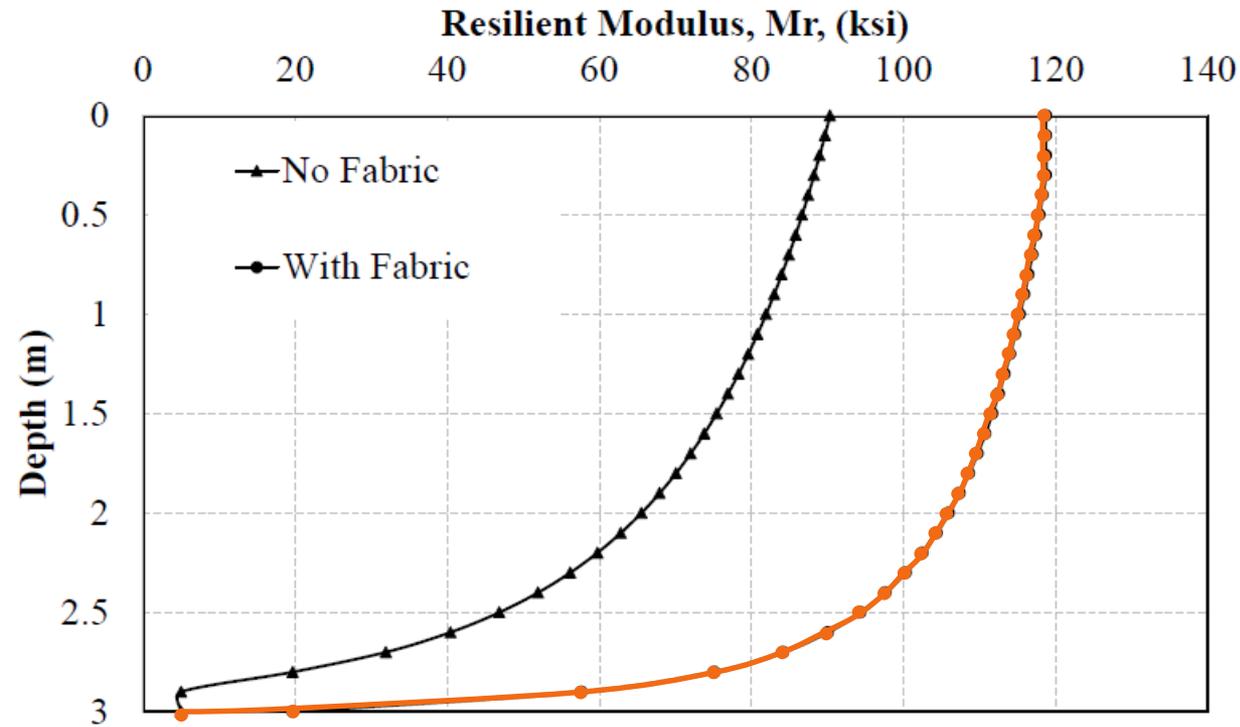
- Fondation granulaire AB-3
- ~ 8.5-10% fines
- Teneur en eau optimale: 8.5%
- Densité sèche maximale: 2.1 t/m³

Réduction de la teneur en eau avec Mirafi® H₂Ri



30% ↓

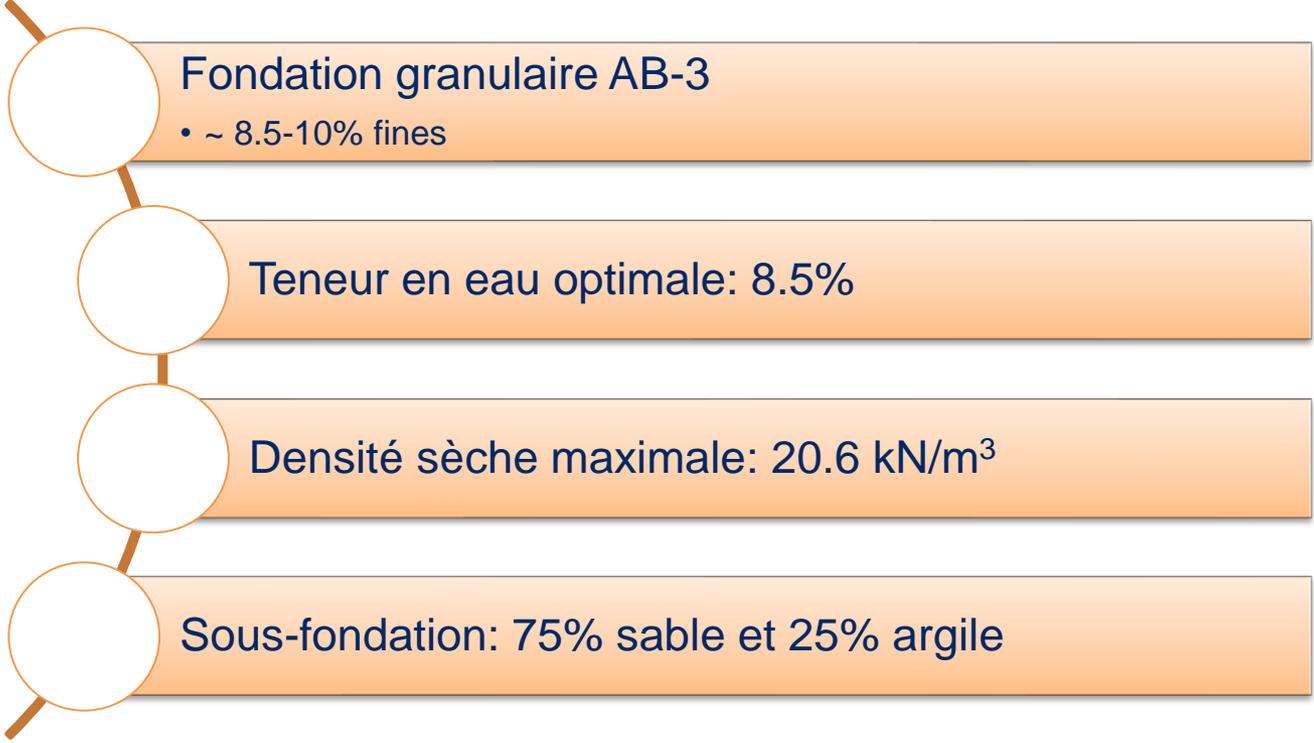
Augmentation du module résilient avec Mirafi® H₂Ri



40% ↑

University of Kansas & University of Alaska-Fairbanks

Recherche sur les propriétés drainantes du Mirafi® H₂Ri



Fondation granulaire AB-3

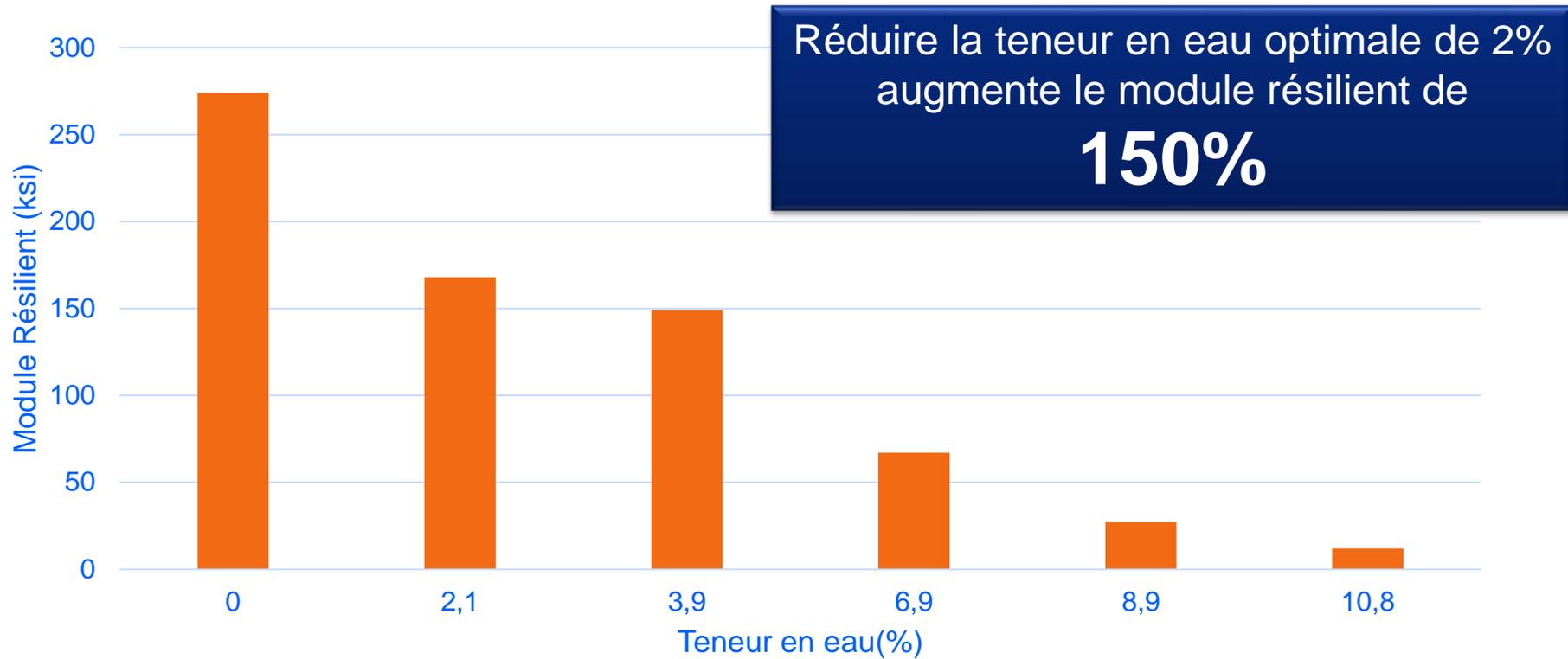
- ~ 8.5-10% fines

Teneur en eau optimale: 8.5%

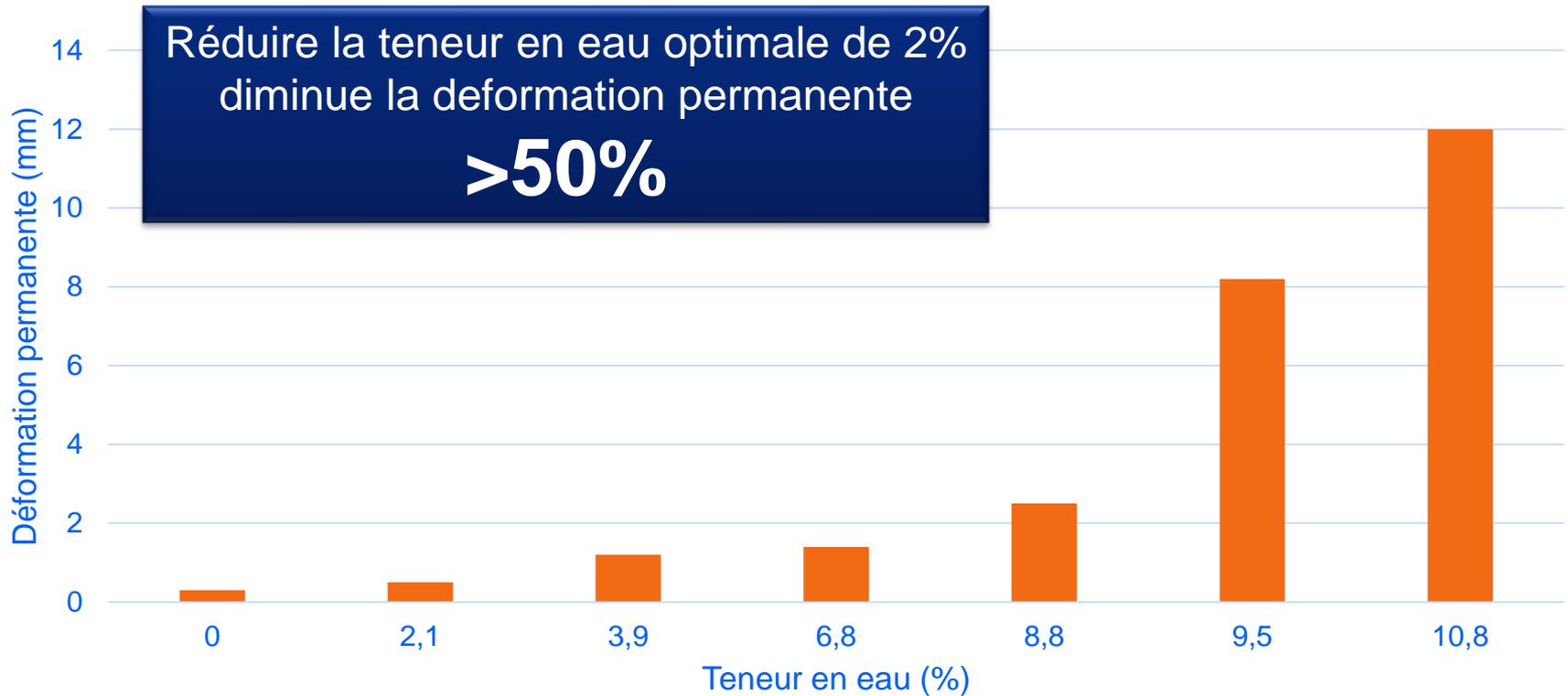
Densité sèche maximale: 20.6 kN/m³

Sous-fondation: 75% sable et 25% argile

Module Réversible



Déformation permanente





Outil de conception pour les routes non revêtues et les chaussées souples



Already have an account?

[Sign In](#)

TenCate MiraSpec Road Design Software

Using TenCate's MiraSpec Design Application, you can estimate the potential savings in cost and materials of geosynthetics and their potential environmental benefits. Log in now to get started.

Don't have a Log in?

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www.miraspec.com

Routes non revêtues / Module de stabilisation du substrat

Méthode Giroud-Han

Halde Canadian Malartic

Analysis Name:

Analysis Status: Last Auto-Saved: A Few Seconds Ago

Use Metric Units

Show/hide tooltip buttons

Geosynthetic:

H₂Ri RS580i

RS380i RS280i

All Products

SG Strength Parameter: CBR, soaked (ASTM D1883) (AASHTO)

SG Strength Value:

Converted SG Strength - CBR(%)

Traffic Options and Gravel/Aggregate Data

Axle Load - P (kN)

Axle Passes - N

Tire Pressure - p (kPa)

Rut Depth - s (mm)

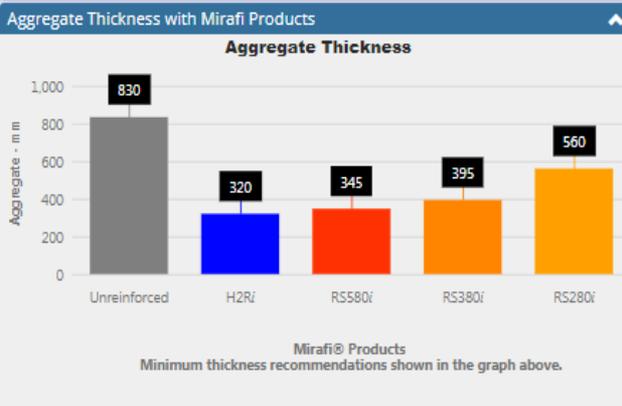
CBR of Roadway Aggregate

Factor of Safety - FS
Recommended: 1.5

Roadway Thickness Analysis Results

Intermediate Calculations

AASHTO Aggregate Coeff _{un}	0.072
Equiv Wheel Radius - r (mm)	166
C _p (kPa)	30.00
CBR _{un}	20.00
Modulus Ratio - R _s	5



Comparative Cost Analysis

Total Estimated Quantity (m²)

	Unit Cost (\$)		Depth of Gravel (mm)	Excavation and Removal Cost (m ²)	Section Cost (m ²)	Project Cost	Project Savings	Cost Savings	
Unreinforced	<input type="text" value="0.00"/>	per tonne	830	<input type="text" value="10.00"/>	\$8.12	\$0.00	\$135,794		
H ₂ Ri	<input type="text" value="9.00"/>	per m ²	320	\$10.00	\$3.12	\$9.00 *	\$202,687	(\$66,894)	-49 % Green Savings
RS580i	<input type="text" value="6.50"/>	per m ²	345	\$10.00	\$3.38	\$6.50 *	\$165,227	(\$29,433)	-22 % Green Savings
RS380i	<input type="text" value="5.75"/>	per m ²	395	\$10.00	\$3.88	\$5.75 *	\$161,046	(\$25,252)	-19 % Green Savings
RS280i	<input type="text" value="3.50"/>	per m ²	560	\$10.00	\$5.50	\$3.50 *	\$150,510	(\$14,717)	-11 % Green Savings

*RSi-Series & H₂Ri anticipated cost estimate includes aggregate costs, purchase price, installation, overlap, and waste

Module de conception de chaussées souples

Méthode AASHTO 93

TenCate Flexible Pavement Design (Version 2.0.3.14)

Home User Guides Log Out

Rang St-Georges

Analysis Name: Rang St-George_RS580i_base_CBR 1.5

Use Metric Units

Show/hide tooltip buttons

Soil Information

Strength Parameter: CBR, soaked (ASTM D1883) (AASHTO93)

Subgrade Strength: 1.50

CBR Value %: 1.50

Serviceability

Initial Serviceability (p_o): 4.2

Terminal Serviceability (p_t): 2.5

Serviceability Loss (ΔPSI): 1.7

Reliability

Reliability % (R): 75.00

Standard Deviation (S_o): 0.45

Standard Normal Deviate (Z_R): -0.674

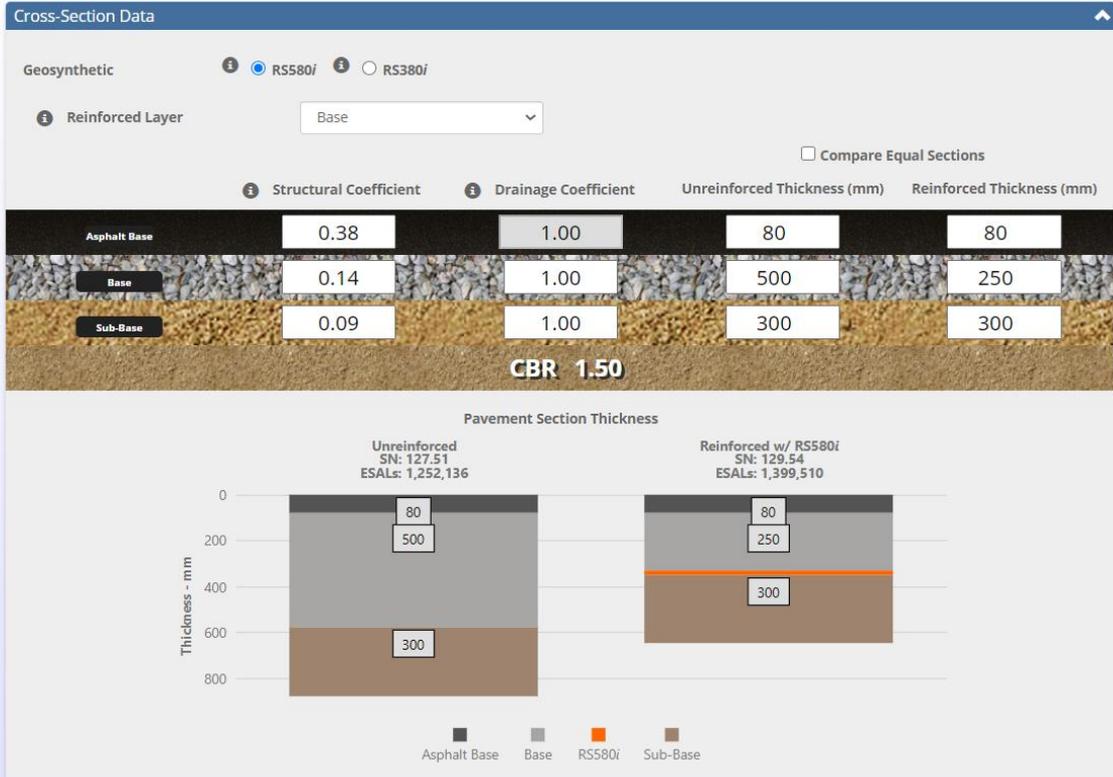
Choose your cross section.

Paver Option

No Paver Option

Include Paver Surface (includes 1 inch of sand under pavers)

Include Permeable Pavement

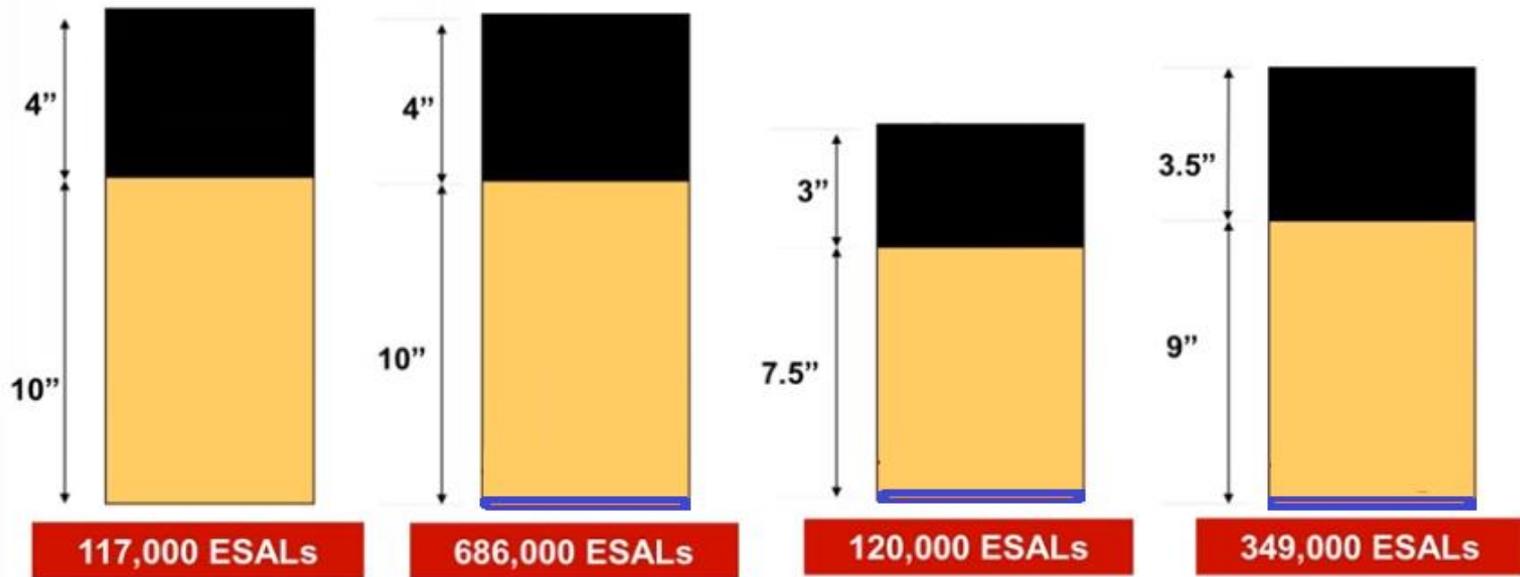


Non renforcé

Renforcement
Option 1

Renforcement
Option 2

Renforcement
Option 3



Conventionnel

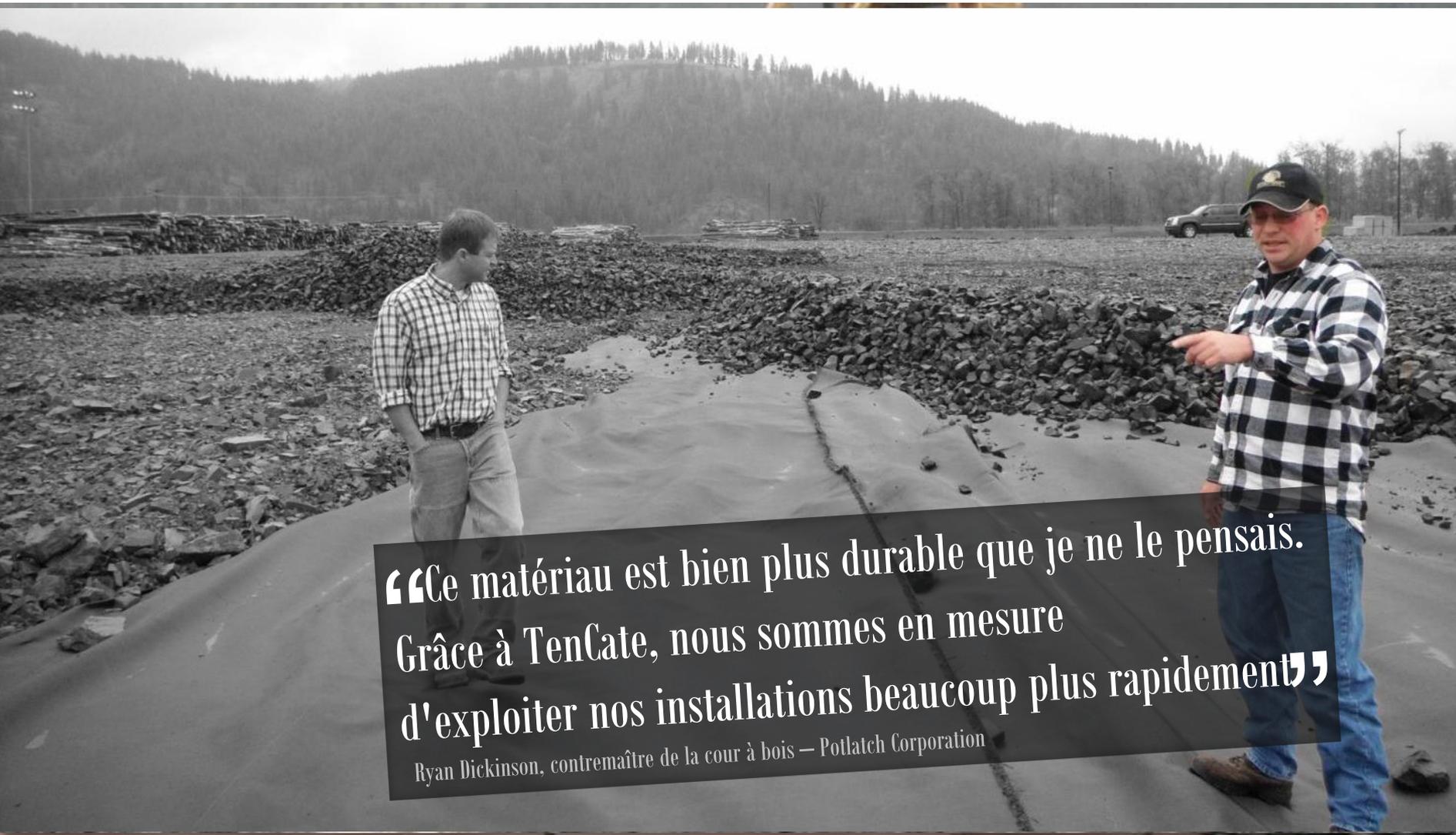
Durée de vie
maximale

Coût minimal

Coût équivalent

Stabilisation du substrat

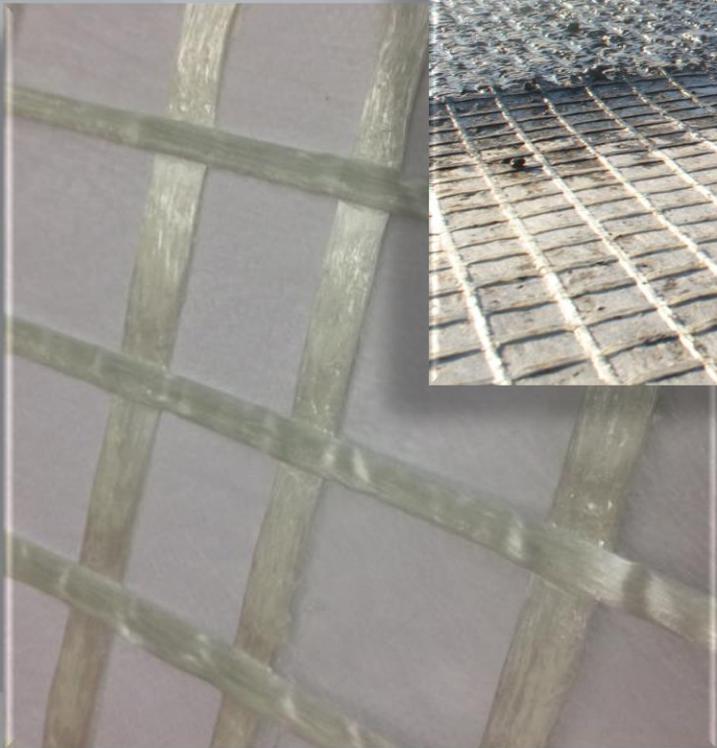
Potlatch Corporation – St. Maries, ID



“Ce matériau est bien plus durable que je ne le pensais.
Grâce à TenCate, nous sommes en mesure
d'exploiter nos installations beaucoup plus rapidement”

Ryan Dickinson, contremaître de la cour à bois – Potlatch Corporation

Géogrigille Cidex pour pavage



GÉOMEMBRANES

- Bentonitique
- Bitumineuse
- Polyéthylène
- Polypropylène
- Polyoléfine
- PVC
- Composites
- Autres





Geosynthetic Institute

GEI – Geosynthetic Education Institute
GRI – Geosynthetic Research Institute
GII – Geosynthetic Information Institute
GCI – Geosynthetic Certification Institute
GAI – Geosynthetic Accreditation Institute

Consortium d'agences gouvernementales, concepteurs, propriétaires d'établissements, consultants, organisations de CQ, manufacturiers, producteurs de résine, contracteurs, etc.

Le but:

Développer et transférer la connaissance sur les géosynthétiques aux membres de l'industrie.



Geosynthetic Institute

GEI – Geosynthetic Education Institute
GRI – Geosynthetic Research Institute
GII – Geosynthetic Information Institute
GCI – Geosynthetic Certification Institute
GAI – Geosynthetic Accreditation Institute

<https://geosynthetic-institute.org/specs.htm>

Spécifications (21), guides (11) et pratiques (8).

<https://geosynthetic-institute.org/whitepapers.htm>

Livres blancs, *white papers* (44)

TABLE OF CONTENTS

Part 1 – General

1.01	Guideline Scope	4
1.02	References	4
1.03	Submittals	6
1.04	Quality Control	8
1.05	Delivery, Storage and Handling	9
1.06	Project Conditions	10
1.07	Material Warranty	10
1.08	Geomembrane Installation Warranty	10
1.09	Geomembrane Pre-Construction meeting	11

Part 2 – Products

2.01	Source Quality Control	12
2.02	Geomembrane	12

Part 3 – Execution

3.01	Subgrade Preparation	14
3.02	Geomembrane Placement	14
3.03	Seaming Procedures	16
3.04	Pipe and Structure Penetration Sealing System	17
3.05	Field Quality Control	18
3.06	Liner Acceptance	26
3.07	Anchor Trench	26
3.08	Disposal of Scrap Materials	27

Part 4 – Measurement and Payment

4.01	Measurement & Payment	27
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	Part 5 – GSI GM 13 Specification	27
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	Attachment A	29
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Guidelines for Installation of:

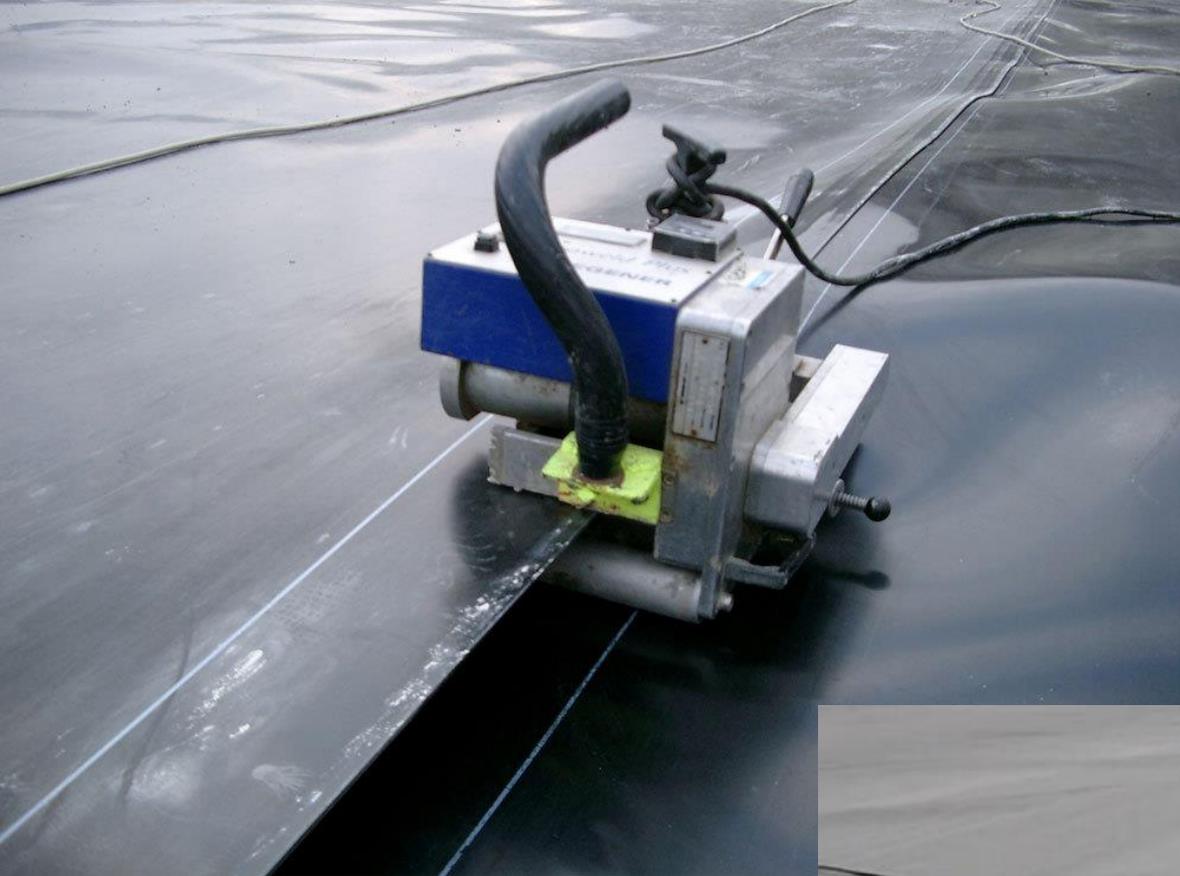
HDPE and LLDPE Geomembrane Installation Specification

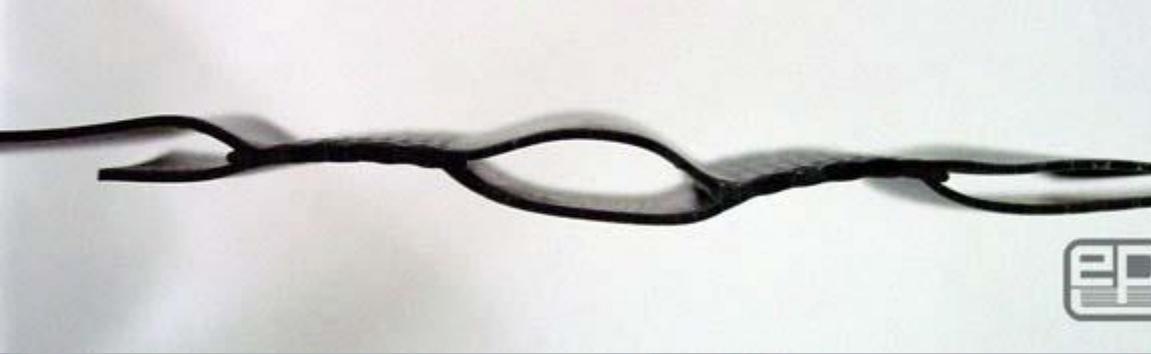


International Association of
Geosynthetic Installers

www.iagi.org

Revised November 1, 2015





Innovex possède sa propre équipe d'installation de géomembranes, murs de soutènement et autres : Hydrosol Construction inc.



Pour la majorité des projets de géomembrane en polyéthylène, elles doivent être déployées, soudées et testées par une équipe spécialisée.

CONCRETE CANVAS®

Concrete Impregnated Fabric

1804.01.FR



MADE IN UK



CONCRETE CANVAS®

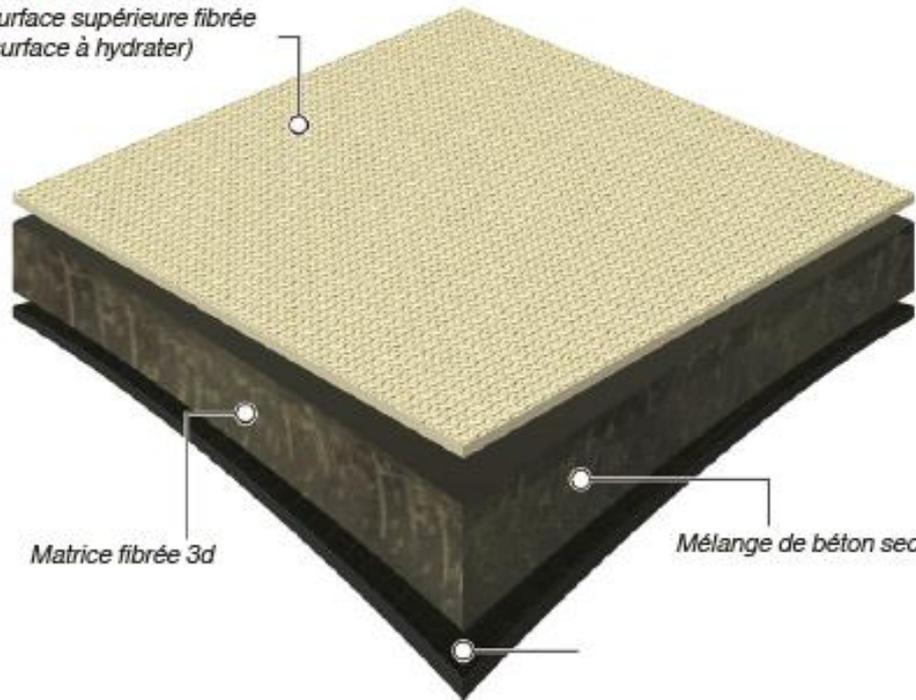
Concrete Impregnated Fabric

Concrete Canvas® GCCM



Coupe du Concrete Canvas® MCGG

Surface supérieure fibrée
(surface à hydrater)



Petit Rouleau



Gros rouleaux





The main spillway is approximately 500m in length with profile sections of 5-8m at 7-15%. The second emergency spillway is approximately 140m in length of varying width at 50% gradient.

CONTRÔLE DE L'ÉROSION

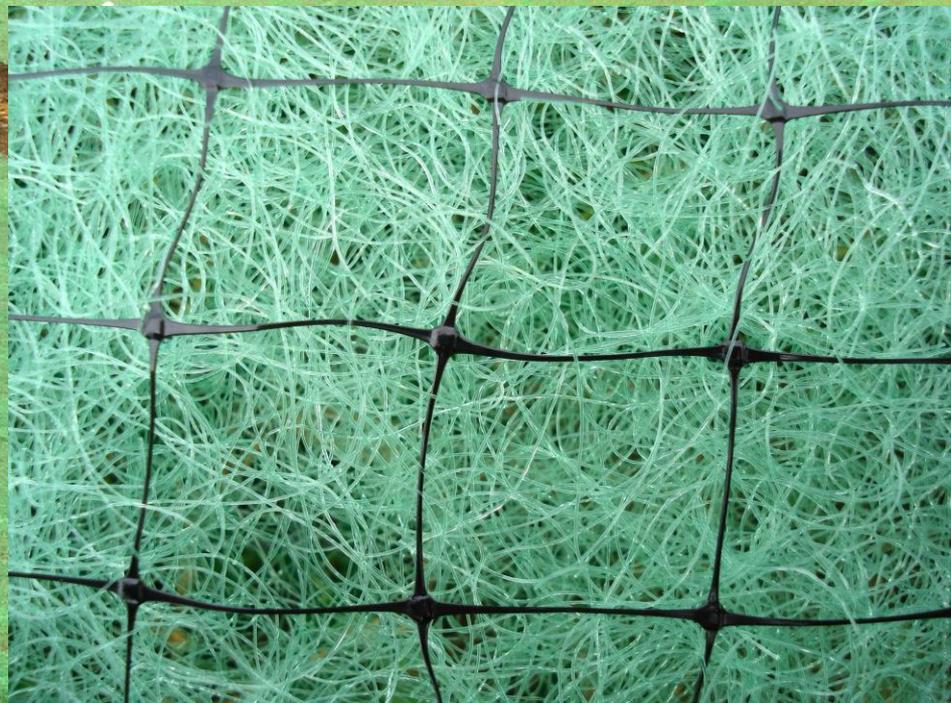
- Matelas de stabilisation biodégradables
- Matelas de stabilisation non-biodégradables
- Cellules alvéolaires
- Cellules d'engazonnement
- Tapis de béton flexible
- Coffrage géosynthétique
- Treillis métallique de retenue

- Matelas de stabilisation biodégradables/non-biodégradables

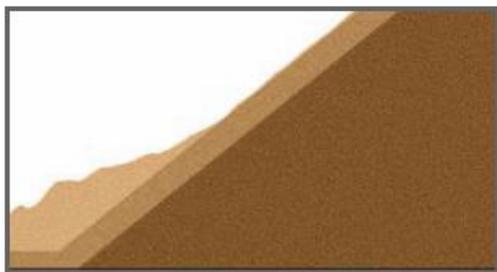
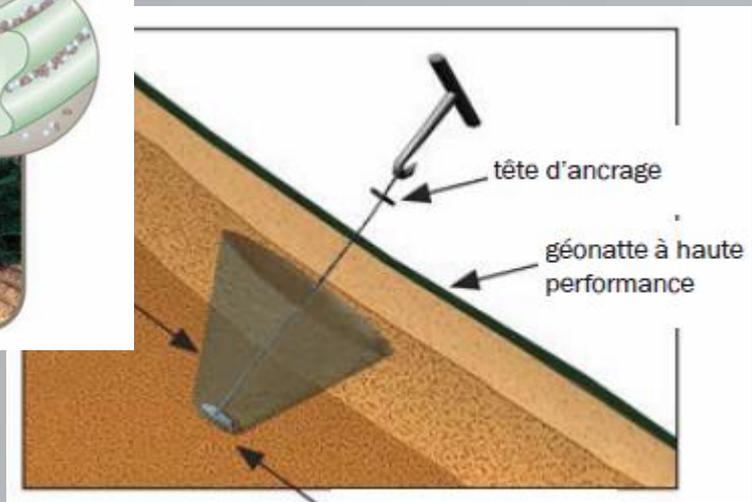
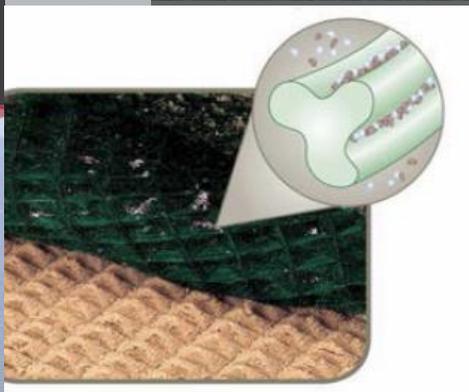




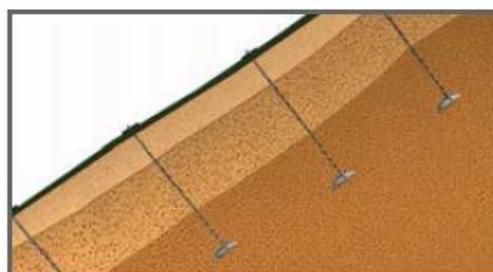




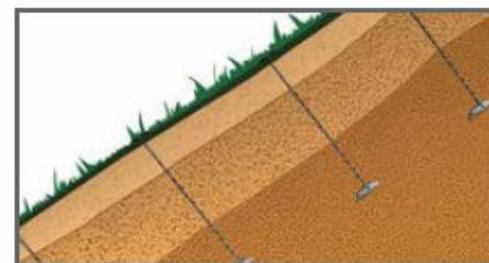
ARMORMAX[®]
SOLUTIONS DE LUTTE
CONTRE L'EROSION
HYDRAULIQUE ET DE
STABILISATION
DE PENTES



Glissement de terrain superficiel



Mise en place du système ARMORMAX



Croissance de la végétation

EC Design: Design Report



10/9/2017
 Martin Smith
 Business Development Manager
 Global Synthetic Pty Ltd
RE: GS TEST

Dear Martin Smith,

We want to thank you for considering the use of Propex products and solutions for stabilization and erosion control on the above referenced project. We would like to submit the following information in order to utilize our Erosion Control Solutions.

CHANNEL EROSION CONTROL ANALYSIS
 Propex's erosion potential analysis was completed using Administration (FEMA) Hydraulic Engineering CE potential for the given project conditions. The parameters were provided by User/Est. Achieving a minimum potential for possible variability in vegetation and if additional information becomes available, we accordingly. An analysis summary can be seen below.

CHANNEL 1 ANALYSIS SUMMARY

In addition to hydraulic performance it is critical the over the project design life. The Non-Hydraulic Stress:

- Anticipated Maintenance - No Maintenance
- Anticipated Wildlife Impact - None
- Anticipated Debris Loading - None
- Required Design Life - 10 to 10 Years

Living Type	Flow
Bare Soil	0
Unreinforced Vegetation	0
LANDLOK® 450	0
PYRAMAT® 25	0
PYRAMAT® 75	0
ARMORMAX® 75	0

Notes:
 1. Soil assumed to be Clay Loam.
 2. Vegetation assumed to be Resistance Class C.

Based on the above channel analysis and the 0.9 m long Engineered Earth Anchors at a 1.2 m horizontal by 0.76 m vertical spacing on the slope.

Propex Geosolving Company, LLC - 4010 Industry Drive, Chattanooga, TN 37416 - p 800 621 1273 - www.propexglobal.com



SLOPE EROSION CONTROL ANALYSIS
 Propex's erosion potential analysis was completed on the slope using EC Design® software which utilizes the United States Department of Agriculture (USDA) Agricultural Research Service (ARS) Revised Universal Soil-Loss Equation 2 (RUSLE2) for slope analysis and design to determine the erosion potential for the given project conditions. The parameters used for the analysis, such as geometry and soil type were provided by User/Est. When using the USDA's RUSLE2 analysis, a literature soil loss of less than 11.2 t/ha/yr is suggested by the Natural Resources Conservation Service (NRCS) as this first significantly reduces the likelihood of off erosion to occur. Should any of the assumptions used in this analysis be inaccurate or additional information becomes available, please notify Propex immediately so that the design and report can be amended accordingly. An analysis summary can be seen below.

SLOPE 1 ANALYSIS SUMMARY

In addition to hydraulic performance it is critical that the lining type selected be able to withstand the anticipated non-hydraulic stresses over the project design life. Non-Hydraulic Stresses selected for evaluation are:

- Anticipated Maintenance - No Maintenance
- Anticipated Wildlife Impact - None
- Anticipated Debris Loading - None
- Required Design Life - 10 to 10 Years

Living Type	Calculated Soil Loss		Tolerable Soil Loss	Factor of Safety
	t/ha/yr	in/yr		
Bare Soil	234.25	9	0	0.04
Unreinforced Vegetation	3.34	9	0	0.15
LANDLOK® 450	3.34	9	0	>1.0
PYRAMAT® 25	3.14	9	0	>1.0
PYRAMAT® 75	2.43	9	0	>1.0
ARMORMAX® 75	2.06	9	0	>1.0

Notes:
 1. Soil assumed to be Clay Loam.
 2. Vegetation assumed to be Resistance Class C with 25% Coverage.

Based on the above slope analysis and the anticipated non-hydraulic stresses, we suggest that our PYRAMAT® 25 be used with 45.7 cm long securing pins at a 1.0 m horizontal by 0.76 m vertical spacing as the solution provides an adequate factor of safety.

VEGETATION ESTABLISHMENT
 In order to establish an adequate stand of vegetation we suggest the existing subgrade be scarified and amended as needed prior to the placement of the Erosion Control Solution. A site specific soil test should be performed to help determine what soil amendments, such as lime and fertilizer, need to be incorporated into the soil to promote healthy vegetation. Irrigation as necessary to establish and maintain vegetation until the vegetation has established. Frequent, light irrigation will need to be applied if natural rain events have not occurred. When watering, use a fine spray to prevent erosion of seeds or soil. Do not over irrigate.

Enclosed please find product information for our Erosion Control Solutions. Should you have any questions or concerns regarding the contents herein, please do not hesitate to contact Engineering Services at (423) 553-2465 or by email at GeoEngineering@propexglobal.com.

Sincerely,
 Engineering Services, GeoSolutions
 Propex Geosolving Company, LLC

Propex Geosolving Company, LLC - 4010 Industry Drive, Chattanooga, TN 37416 - p 800 621 1273 - www.propexglobal.com



Channel Analysis

Project Information

Project Name: GS TEST
 Location: Sydney, NSW
 Units: Metric

Channel Name: Channel 1

B_s = 2 m
 R_s = 2H:1V
 L_s = 2H:1V
 D = 4 m
 T_s = 18 m
 L = 100 m
 S₀ = 0.0125 m/m
 Q = 6 m³/s
 Radius of Curvature = NA
 Channel Bend Ratio = NA
 Required FS = 1.3

Channel Name: Channel 1
 Anticipated Maintenance: None
 Anticipated Wildlife Impact: None
 Anticipated Debris Loading: None
 Required Design Life: 10 Years

Living Type	Flow Dep
Bare Soil	0
Unreinforced Vegetation	0.84
LANDLOK® 450	0.84
PYRAMAT® 25	0.84
PYRAMAT® 75	0.84
ARMORMAX® 75	0.84

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EC Design® Slope Analysis

Project Information

Project Name: GS TEST Designer: User/Est
 Location: Sydney, NSW, AUSTRALIA Company: User/Est
 Units: Metric Project Date: 10/9/2017

Slope Design Inputs

Slope Name: Slope 1 Input Criteria: Tolerable Soil Loss

W_s = 50 m
 L_s = 10 m
 C_s = 3 H:1V
 L_s = 10 m
 Allowable Soil Loss = 9 t/ha/yr
 Required FS = 1.0

K = 0.223
 L = 0.560
 S = 0.013
 P = 1

Slope Lining Analysis

Slope Name: Slope 1 Soil Type: Clay Loam
 Anticipated Maintenance: None Vegetation Class: Class C
 Anticipated Wildlife Impact: None Anticipated Construction Practice: Loose as a desired slow layer
 Anticipated Debris Loading: None
 Required Design Life: 10 to 10 Years

Slope Lining Result

Living Type	Calculated Soil Loss		Tolerable Soil Loss	Factor of Safety
	t/ha/yr	in/yr		
Bare Soil	234.25	9	0	0.04
Unreinforced Vegetation	58.56	9	0	0.15
LANDLOK® 450	3.34	9	0	>1.0
PYRAMAT® 25	3.14	9	0	>1.0
PYRAMAT® 75	2.43	9	0	>1.0
ARMORMAX® 75	2.06	9	0	>1.0

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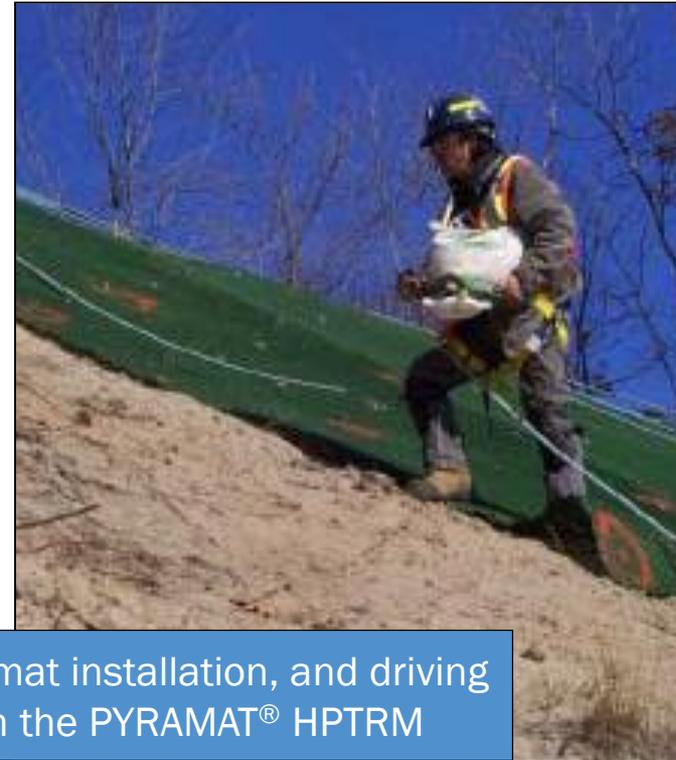
St. Maurice River Pipeline Cap de la Madeleine, QC



- **Application:** Structural Slope Reinforcement
- **Client:** TransCanada Pipeline
- **Designer:** Golder Assoc. (Calgary)
- **Contractor:** Louisburg Pipelines
- **Installed:** October 2008
- **Product:** ARMORMAX® with 6' long Type B2 Anchors
- **Quantity:** 5,500 SY
- **Design Considerations:**
 - Oversteepened slopes with sandy soil left after pipeline river crossing construction
 - Remote location with very difficult access rendered conventional slope reinforcement solutions unfeasible
 - High visibility to surrounding property owners dictated a natural, aesthetic solution

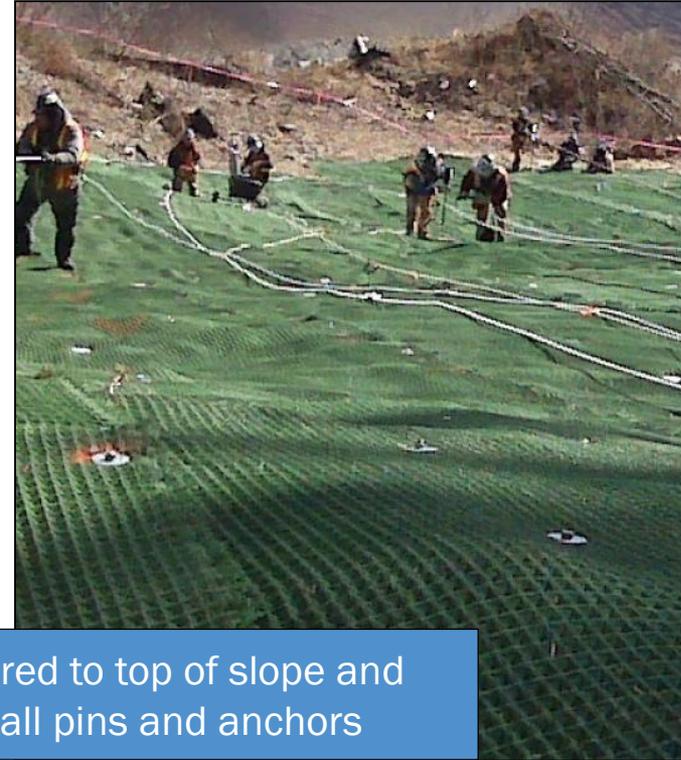


St. Maurice River Pipeline
Cap de la Madeleine, QC



Seeding of slope prior to mat installation, and driving of B2 anchors through the PYRAMAT® HPTRM

St. Maurice River Pipeline Cap de la Madeleine, QC



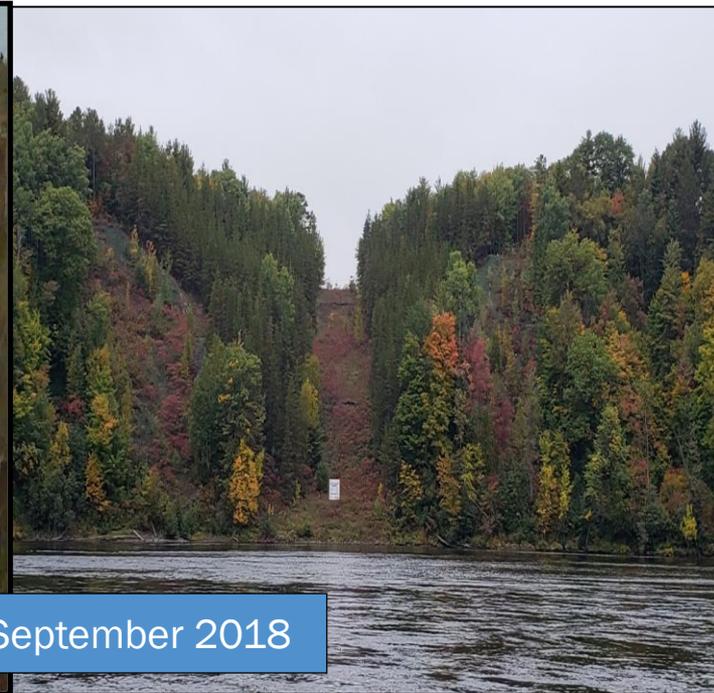
Installation crews tethered to top of slope and repelled down to install pins and anchors

St. Maurice River Pipeline
Cap de la Madeleine, QC



Woody vegetation incorporated through
PYRAMAT® HPTRM after securing of mat

St. Maurice River Pipeline
Cap de la Madeleine, QC



10 Years Later – September 2018

St. Maurice River Pipeline
Cap de la Madeleine, QC



10 Years Later – September 2018

CONTRÔLE DE L'ÉROSION

- Cellules alvéolaires





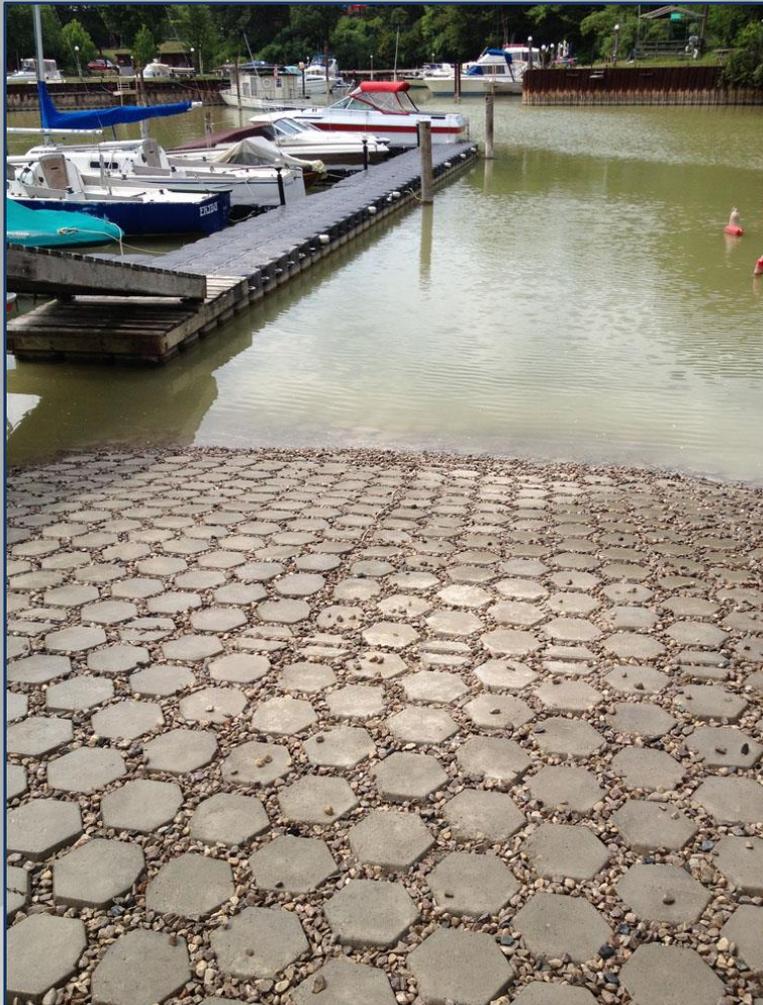






CONTRÔLE DE L'ÉROSION

- Tapis de béton flexible



- Protection de berges
- Affouillement de quais
- Rampes de mise à l'eau
- Protection de piles de pont
- Chemins d'accès





Flexamat®

Blocs:

- 35 mPa
- 6.5" x 6.5" x 2.25"
- 1.5" espacement
- Forme pyramidale



Géogridle de support:

- Fornit 30-30 kN/m
- Brins de polypropylène avec enduit de PVC
- Résistante aux écarts de temperature, composés chimiques et exposition UV.
- Stable pour des pH de 4 à 11.5.

Modèles de Flexamat®



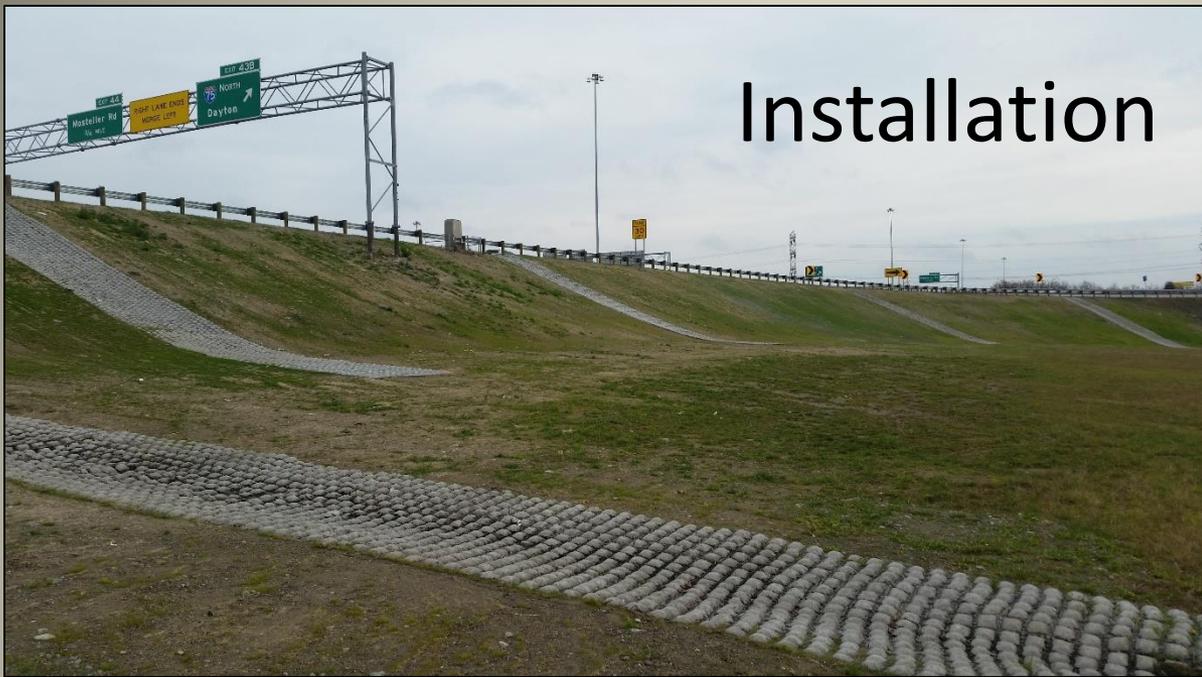
Curlex II® (dégradable)



Recyclex® TRM-V + Curlex II
(permanent)



Géotextile non-tissé
(non-végétalisé)



Installation

Longueurs sur
mesure pour
chaque
location.
Rouleaux
identifiés.



6 mois



Flexamat pour réfections de chaussées





COUNTY
GG



DEPT. OF
NATURAL
RESOURCES
WATER
PROTECTION
DIVISION



Nettoyage – Profilage - Ensemencement





2 semaines



3 mois





10 mois



Avant



Après (15 jours)



TXDOT - BROWNWOOD



Protection entrée/sortie ponceaux



Protection de bandes riveraines



Restauration minière



Sun Valley, CA - WM



1 an

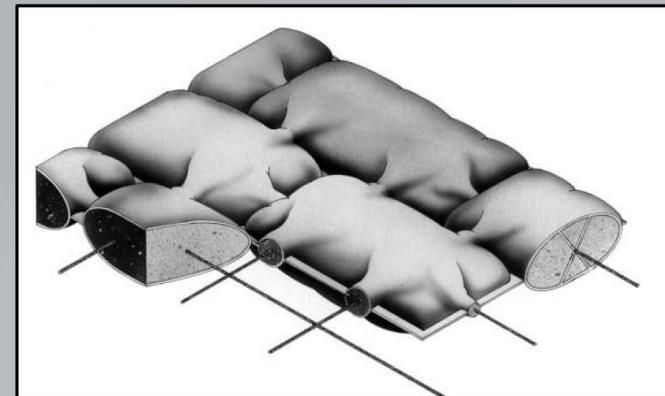
Chemins d'accès



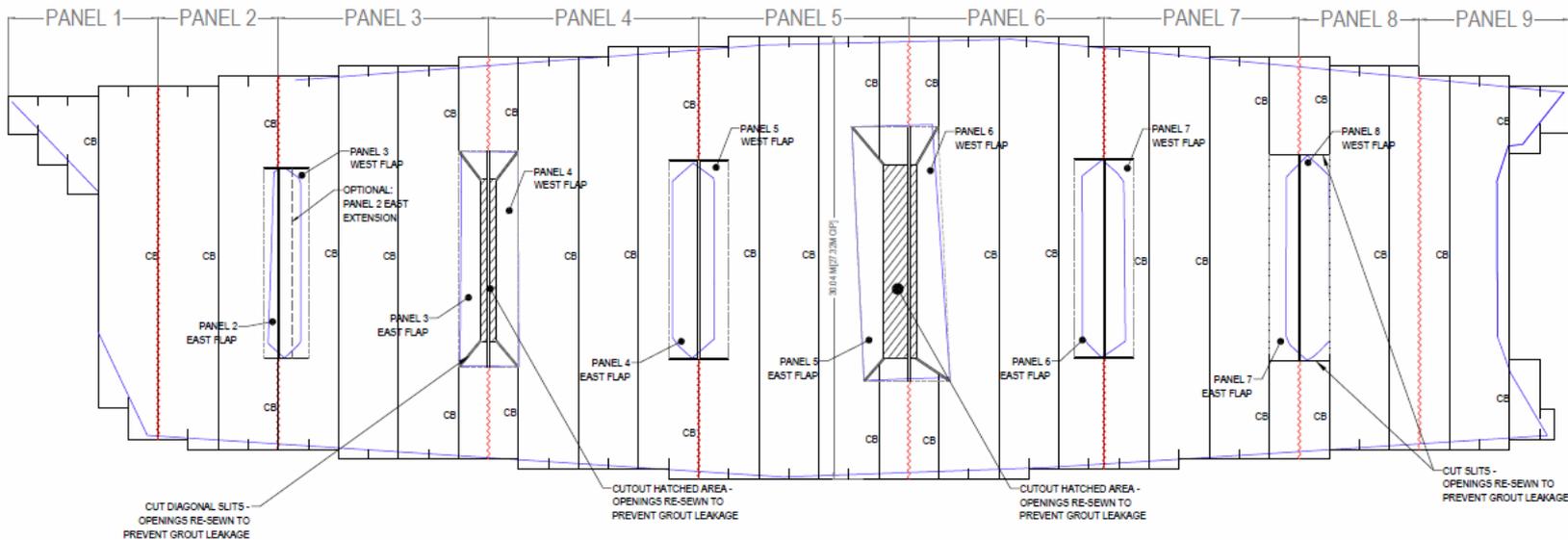
CONTRÔLE DE L'ÉROSION

- Coffrage géosynthétique

- Protection de berges
- Affouillement de quais
- Protection de piles de pont







PANEL LAYOUT - M.73.9
 HYDROTEX AB600 CABLED
 BOTH DIRECTIONS WITH 30 MM PET
 BILLED AREA = 2,822 SQ M
 EST. CIP AREA = 2,202 SQ M
 ZIPPER = 265 M

NOTES:
 MW - MILL WIDTH
 CB - CONCRETE BAFFLE
 CIP - CAST IN PLACE

NO.	DATE	REVISION / ISSUE
1	11/11/2014	ISSUE FOR PERMITTING
2	11/11/2014	ISSUE FOR PERMITTING
3	11/11/2014	ISSUE FOR PERMITTING
4	11/11/2014	ISSUE FOR PERMITTING
5	11/11/2014	ISSUE FOR PERMITTING
6	11/11/2014	ISSUE FOR PERMITTING
7	11/11/2014	ISSUE FOR PERMITTING
8	11/11/2014	ISSUE FOR PERMITTING
9	11/11/2014	ISSUE FOR PERMITTING
10	11/11/2014	ISSUE FOR PERMITTING
11	11/11/2014	ISSUE FOR PERMITTING
12	11/11/2014	ISSUE FOR PERMITTING
13	11/11/2014	ISSUE FOR PERMITTING
14	11/11/2014	ISSUE FOR PERMITTING
15	11/11/2014	ISSUE FOR PERMITTING
16	11/11/2014	ISSUE FOR PERMITTING
17	11/11/2014	ISSUE FOR PERMITTING
18	11/11/2014	ISSUE FOR PERMITTING
19	11/11/2014	ISSUE FOR PERMITTING
20	11/11/2014	ISSUE FOR PERMITTING

SYNTHETEX LLC
 554 INDUSTRIAL PARK WAY
 COMMERCE, CA 92329
 OFFICE (714) 399-9051
 FAX (714) 399-9069
 EMAIL: INFO@SYNTHETEX.COM

SYNTHETEX

CHATHAM SUBDIVISION OVER BAPTISTE CREEK
 RIPRAP COUNTERMEASURES

DRAWN BY: JML
 SCALE: NTS

INNOVEX

CONTRÔLE DES SÉDIMENTS

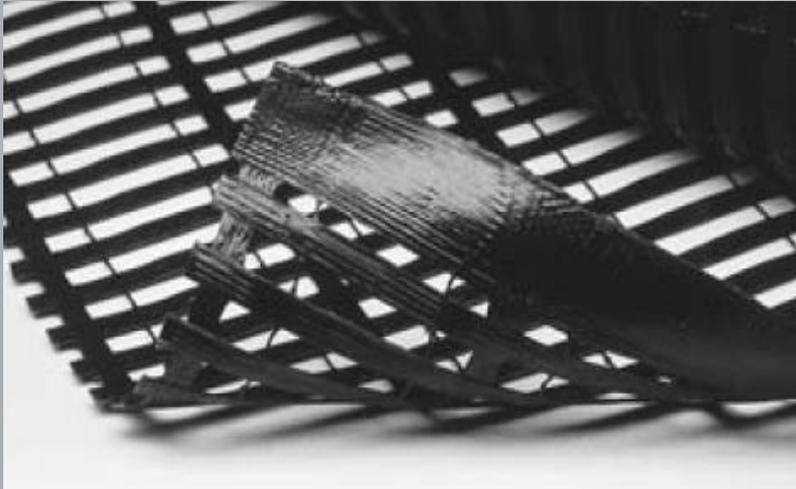
- Barrières terrestres
- Barrières flottantes
- Sacs de filtration
- Boudins filtrants



MURS DE SOUTÈNEMENT



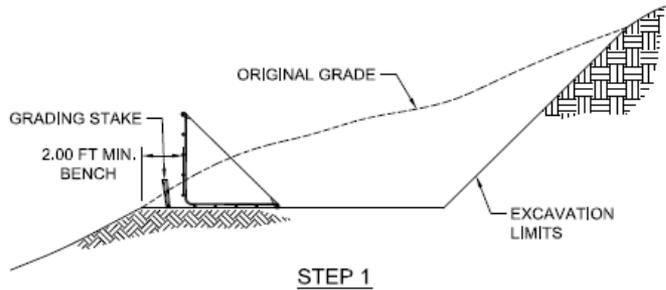
GÉOGRILLES - UNIAXIALES



- Résistance en tension dans une direction.
- Résistance au fluage
- Résistance aux dommages lors de l'installation
- Facteurs de sécurité du fabricant

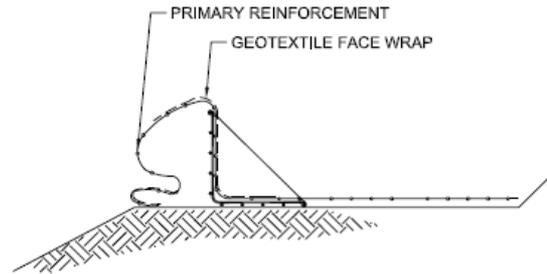


- EXCAVATE FOR LEVEL BASE TO A LENGTH ADEQUATE FOR REINFORCEMENT EMBEDMENT.
- SET GRADING STAKES AT A 0,50 FT OFFSET TO FACILITATE PROPER BASKET ALIGNMENT.
- EMBED BOTTOM BASKET AT FACE OF WALL AS SHOWN ON WALL PROFILE.



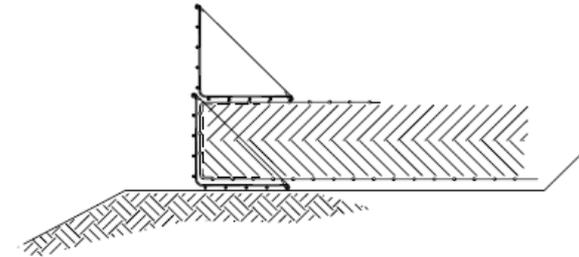
STEP 1

- PLACE PRIMARY SOIL REINFORCEMENT AT ELEVATIONS AS SHOWN IN PROFILE DRAWING.
- DRAPE REINFORCEMENT OVER BASKET ALLOWING FOR THE REQUIRED WRAP EMBEDMENT (4,00 FT MIN.).
- PLACE GEOTEXTILE (MIRAFI 140N) FACING WRAP.
- DRAPE GEOTEXTILE OVER BASKET ALLOWING FOR THE REQUIRED WRAP EMBEDMENT (1,00 FT MIN.).
- INSTALL STRUTS AT REQUIRED SPACING (2-FT MAX).



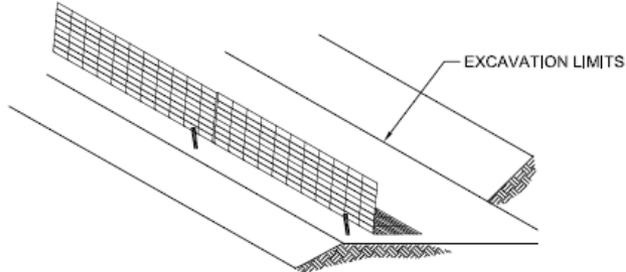
STEP 3

- PULL GEOTEXTILE WRAP AND SOIL REINFORCEMENT OVER COMPACTED FILL AND ANCHOR WITH SOIL.
- SLIDE THE NEXT BASKET BACK AGAINST THE PRONGS OF THE LOWER BASKET USING RUNNING BOND INSTALLATION (STAGGERED).
- INSTALL SECOND COURSE OF WELDED WIRE FORM.



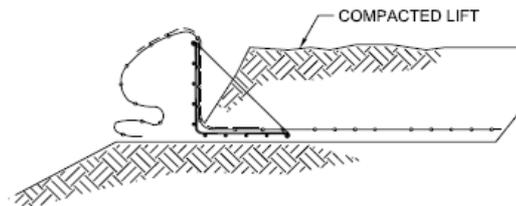
STEP 5

- FOR THE FIRST COURSE OF THE WALL, ALIGN BASKETS WITHOUT SPACES.
- INSTALL STRUTS AT ABOUT 2.00 FT SPACING.



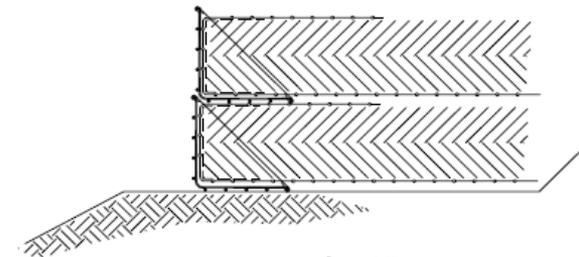
STEP 2

- BACKFILL CAREFULLY TO ABOUT 1" - 2" ABOVE THE TOP HORIZONTAL BASKET WIRE OR AS REQUIRED BY SPECIFICATION.
- COMPACT TO REQUIRED DENSITY.



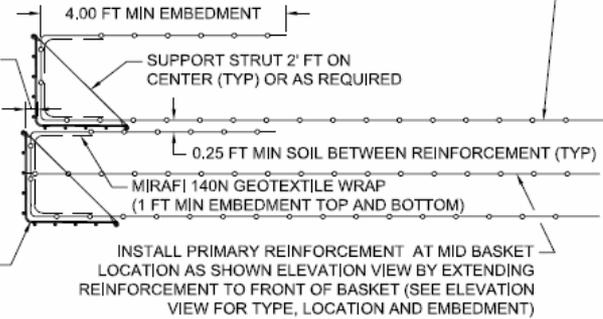
STEP 4

- REPEAT STEPS 2 THRU 5 UNTIL DESIRED HEIGHT OF WALL IS REACHED.

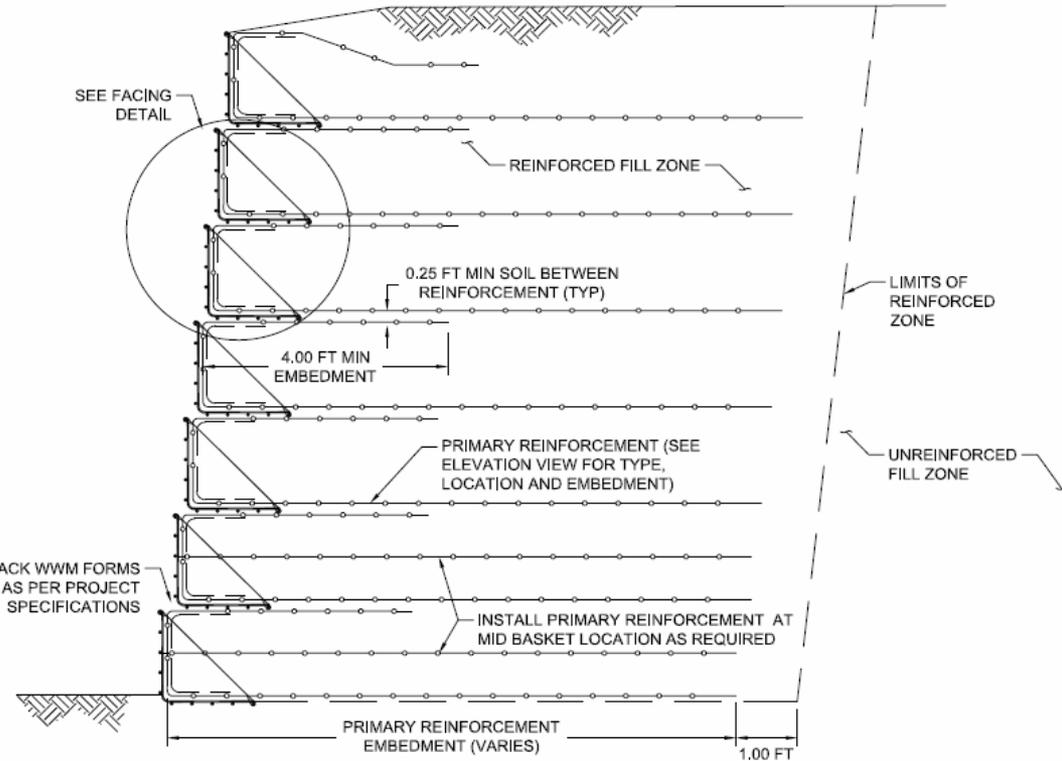


STEP 6

INSTALL PRIMARY REINFORCEMENT FULL EMBEDMENT LENGTH. WRAP UP BASKET AND EXTEND BACK 4'-0" (MIN.). PRIMARY REINFORCEMENT TO BE MIRAFI GEOLON HP REINFORCEMENT. SEE ELEVATION VIEW FOR SPECIFIC TYPE, LOCATION AND EMBEDMENT



FACING DETAIL - TYPE A
(SCALE: 1" = 2'-0")



NOTE: FOUNDATION REMEDIATION AS REQUIRED BY ON-SITE GEOTECHNICAL ENGINEER TO OBTAIN STABLE WORKING PLATFORM MEETING THE PARAMETERS IN NOTE 5,0 ON RW1. VERIFICATION OF BEARING CAPACITY (SEE ELEVATION VIEW) MUST BE SUBMITTED BY THE ON-SITE GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

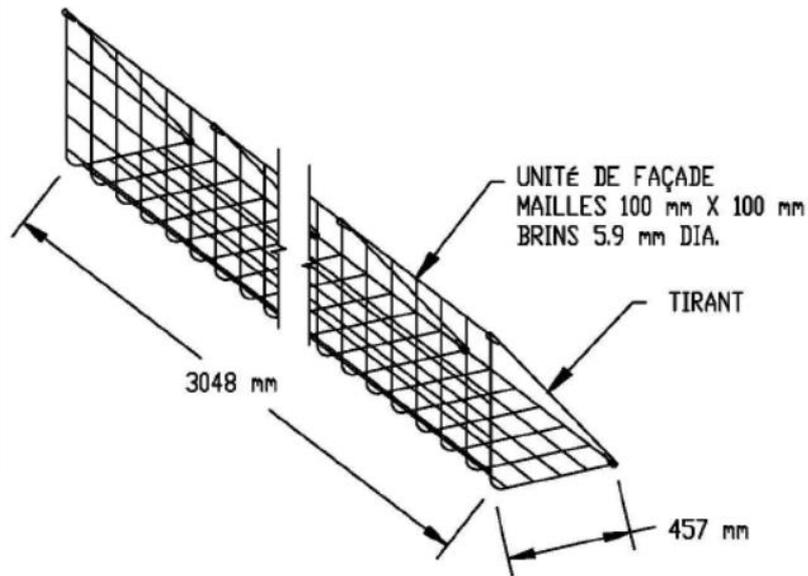
TYPICAL WWM MSE WALL CROSS SECTION - TYPE A
(SCALE: 1" = 2'-0")

PROPRIÉTÉS - UNITÉS DE FAÇADE - ASTM A82 ET A1064

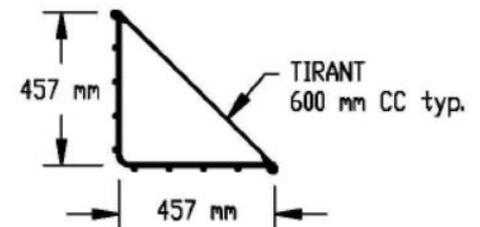
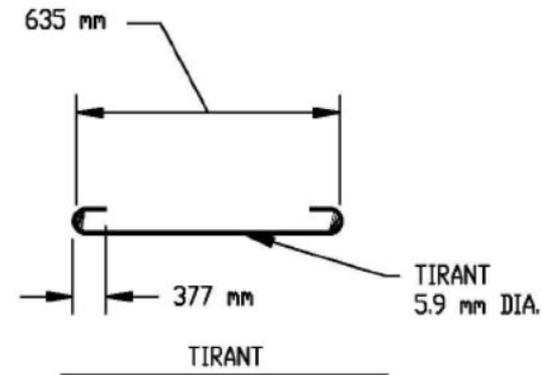
Composition	Treillis d'acier galvanisé
Longueur	3048 mm (10')
Hauteur	457 mm (18")
Profondeur	457 mm (18")
Diamètre du fil d'acier	5.9 mm (4 Ga)
Dimension des mailles	100 mm x 100 mm (4" x 4")
Longueur des tirants	635 mm (25")

PROPRIÉTÉS - GÉOSYNTHÉTIQUES

Géogrille	Miragrid série XT
Géotextile (façade enrochement)	Novatex 120
Géosynthétique de végétalisation (façade végétalisée)	Miramesh GR



UNITÉ DE FAÇADE - VUE ISOMÉTRIQUE



UNITÉ DE FAÇADE - VUE DE PROFIL



Miragrid® Géogridde pour le renforcement des sols

TenCate™ développe et produit des géosynthétiques qui ont pour fonctions d'augmenter les performances, réduire les coûts et de démontrer des résultats mesurable en travaillant avec nos clients afin de fournir des solutions avancées.

Les avantages de la géogridde Miragrid® sont :

- Haute résistance à long terme (LTDS)
- La géogridde Miragrid® a plus de 100,000 heures d'essais en fluage sous traction effectuées par un laboratoire indépendant.
- Rentable. Les fibres de polyester résistantes au fluage procure une traction admissible plus élevée, minimisant le nombre de couches de géogridde requise. Des rouleaux de grande largeur réduisent significativement le temps requis pour l'installation. Ceci réduit par le fait même les coûts du projet.
- Léger, facile à transporter. Pas de rebord coupant.
- Flexible, résistant. Minimise les mouvements de la fondation.
- Fabrication sur mesure. Les rouleaux sont fabriqués pour rencontrer les exigences de votre projet.
- La géogridde Miragrid® fournit la gamme de résistance la plus large sur le marché.



UTILISATIONS
La géogridde Miragrid® peut être utilisée pour la plupart des applications de renforcement des sols incluant le renforcement interne du sol, murs de soutènement composés, talus à forte pente et renforcement pour différentes applications pour les sites d'enfouissement incluant le pontage de vides. Lorsque les spécifications techniques d'un projet nécessite la résistance à long terme pour la assurer la stabilité d'une structure, utiliser la géogridde Miragrid®.

DIRECTIVE D'INSTALLATION
Avant d'installer la géogridde Miragrid®, les surfaces doivent être nettoyées de tout débris et la fondation préférablement lissée au rouleau compacteur. La géogridde doit être déroulée, coupée à la longueur désirée,et installé à l'élevation, endroit et orientation demandé. Puisque les géogriddes varient en résistance en fonction de la direction du rouleau, les géogriddes Miragrid® doivent être déployées dans la direction du renforcement principal.

Après déroulement, la géogridde doit être tendu à main jusqu'à ce qu'elle soit déployé entièrement et libre de vagues. Les géogriddes adjacentes doivent être déployés côte-à-côte sans chevauchement. Les discontinuités dans le sens du renforcement principale sont interdites

Certaines procédures de remblaiement nécessite que la géogridde soit temporairement maintenu en place par des agrafes, des sacs de sable ou remblayé selon les directive d'un ingénieur. Un couteau à lame ou des ciseaux doivent être utilisés pour couper la géogridde. Le remblaiement doit être effectué selon les règles de l'art, les prescription du devis technique ou selon les recommandations de l'ingénieur. Un soin particulier doit être pris afin d'éviter la création de vagues et/ou le déplacement de la géogridde durant les opérations de remblaiement et d'épandage.

Ces lignes directrices sont utilisées comme base général d'installation. Des instructions détaillées sont disponible de votre représentant.



Géotextile de protection
Matériaux composites pour l'aérospace
Matériaux composites pour armature

Géosynthétiques
Géotextile Industriel
Geom synthétique

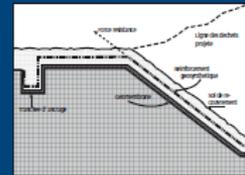
Miragrid® Géogridde pour le renforcement des sols

Propriétés*	Méthode d'essai	Unités	2XT*	3XT	5XT	7XT	8XT	10XT	18XT	20XT	22XT	24XT
Polymère (recouvrement)	-	-	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)	PET (PVC)				
Essai de traction à de large	ASTM D 6637	kN/m (lbs/ft)	29.2 (2000)	51.1 (3500)	68.6 (4700)	86.1 (5800)	108.0 (7400)	138.6 (9500)	136.6 (9360)	181.2 (12,420)	259.1 (17,760)	370.3 (25,380)
Résistance au fluage	ASTM D 5262	kN/m (lbs/ft)	18.5 (1266)	32.3 (2215)	43.4 (2975)	54.5 (3734)	68.3 (4684)	87.7 (6013)	81.8 (5605)	105.4 (7221)	150.7 (10,326)	215.3 (14,756)
Résistance à long terme (In Type 3 Backfill) (sand, silt, clay)	GRI-GG4	kN/m (lbs/ft)	16.0 (1096)	28.0 (1918)	37.6 (2575)	47.2 (3233)	59.2 (4055)	76.0 (5206)	70.8 (4853)	91.2 (6252)	130.4 (8940)	186.4 (12,776)

Emballage	Unités	2XT	3XT**	5XT**	7XT	8XT**	10XT	18XT	20XT	22XT	24XT
Largeur du rouleau	m	1.8	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
	(ft)	(6.0)	(12)	(12)	(12)	(12)	(12)	(12)	(12)	(12)	(12)
Longueur du rouleau	m	45.7	45.7	45.7	61	61	61	61	61	61	61
	(ft)	(150)	(150)	(150)	(200)	(200)	(200)	(200)	(200)	(200)	(200)
Poids approximatif	kg	21	59	63	89	98	120	107	126	174	250
	(lbs)	(47)	(130)	(140)	(197)	(217)	(266)	(235)	(280)	(384)	(551)
Superficie	m ²	82.3	164.5	164.5	220	220	220	220	220	220	220
	(yd ²)	(100)	(200)	(200)	(267)	(267)	(267)	(267)	(267)	(267)	(267)

*Note: Values shown for 2XT are both machine and cross-machine direction. Values for other Mirafi® products are machine direction only.
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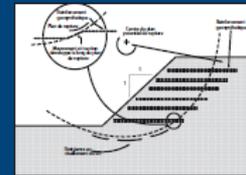
Applications typiques des géogriddes



Renforcement de l'ensemble



Mur de soutènement



Talus à forte pente

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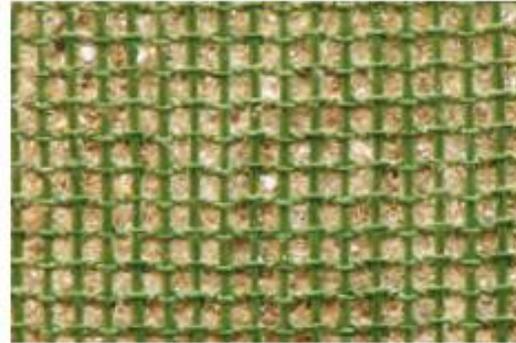
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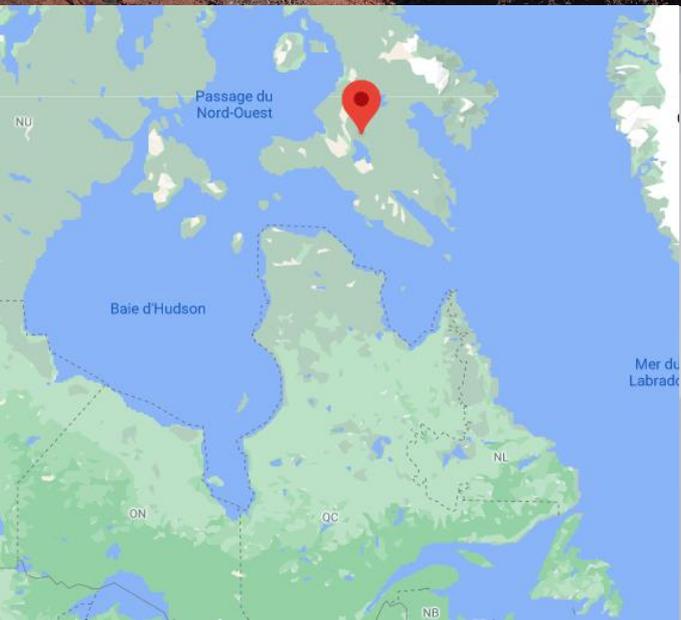






GABIONS









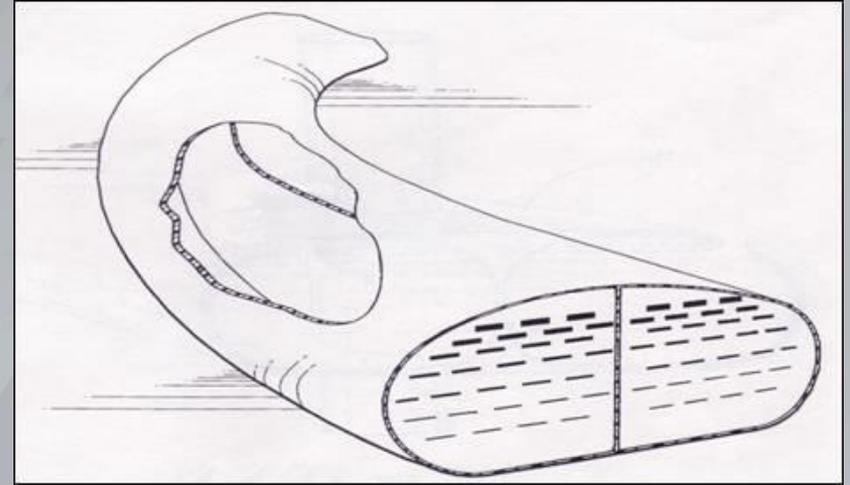




GESTION DE L'EAU – GÉODRAINS



GESTION DE L'EAU – BATARDEAU AQUADAM





















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- AQUADAM



Merci de votre attention!

INNOVEX PRODUITS TECHNIQUES INC.

1201, chemin industriel
Lévis (Québec) G7A 1A8

Tél: 418.836.1333 / 1.877.836.1333

Laurent Darveau, ing.
Directeur technique
ldarveau@innovex.ca
418-953-2375

