

## Mirafi® Orange Delineation Nonwoven Geotextile for Visual Barrier, Soil Separation and Drainage

TenCate™ develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

The Difference Mirafi® Orange Nonwoven Geotextiles Make:

- **Utility Alert.** Mirafi® delineation geotextiles are a visual dig barrier designed to be placed above underground utilities.
- **Contaminated Soils.** Mirafi® delineation geotextiles separate contaminated soils from clean soils.
- **Archeological Sites.** Mirafi® delineation geotextiles assist in the long-term protection of historical sites.

### APPLICATIONS

Mirafi® nonwoven geotextiles are used in a wide variety of applications in the environmental and general civil markets. These include separation, filtration and protection applications.

Mirafi® delineation geotextiles are used in many critical subsurface systems. The use of

this orange delineation fabric allows for safe excavations where utilities or other sensitive structures may be buried. The highly visible orange nonwoven geotextile serves as a warning to construction workers when the excavation reaches a buried structure.

Excavation near all utilities, (gas, electric, water, Cable TV and telephone) is always a sensitive operation. The use of Mirafi® delineation geotextile is a low cost-effective method of protection. In addition, lining trench's with a geotextile keeps the selected and costly backfill material separated from the native subgrade.

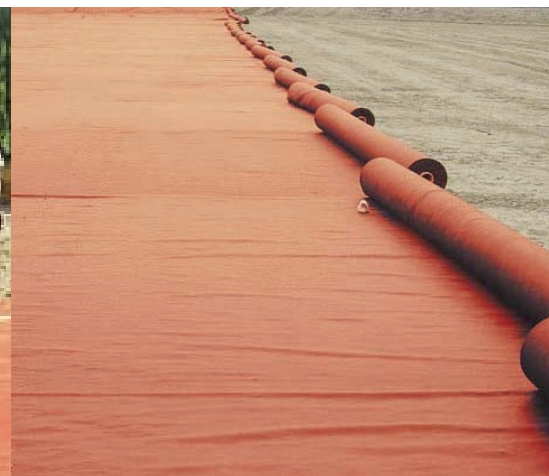
Construction in areas where contaminated soils exist poses risks when trenches or deep footings need to be excavated. These risks are minimized when the Mirafi® delineation geotextile is placed on the contaminated soils before the capping of these areas occurs. The geotextile limits particle movement between the clean new soil and the contaminated substrate. The Mirafi® delineation geotextile offers a visual barrier to future excavations of the contaminated hazard below.



Mirafi® Orange Delineation Geotextiles

Federal and State laws require that archeological sites must be protected from adverse impacts caused by engineering projects. Many archeological sites throughout the world are left in place to protect them. In some cases, after discovery, they are buried. Sites can be protected through burial below an engineered cover, if the engineering project does not require excavation. The installation of Mirafi® delineation geotextile before the new soil is placed will aid in the long term protection of these archeological sites.

\* These guidelines serve as a general basis for installation. Detailed instructions are available from your TenCate™ representative.

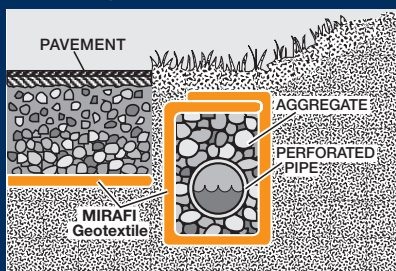


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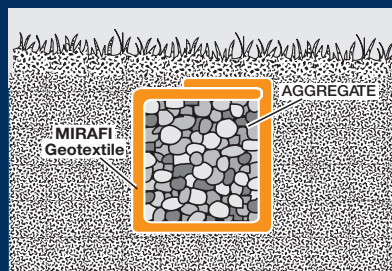
Property / Test Method	Units	140NL	160N	180N
<b>MECHANICAL PROPERTIES</b>				
<b>Grab Tensile Strength</b> ASTM D4632				
Strength @ Ultimate	lbs (N)	100 (445)	175 (779)	240 (1068)
Elongation @ Ultimate	%	75	75	70
<b>Trapezoidal Tear Strength</b> ASTM D4533				
	lbs (N)	50 (223)	85 (378)	90 (400)
<b>CBR Puncture Strength</b> ASTM D6241				
	lbs (N)	310 (1380)	480 (2136)	630 (2802)
<b>UV Resistance after 500 hrs.</b> ASTM D4355				
	% strength	70	80	80
<b>HYDRAULIC PROPERTIES</b>				
<b>Apparent Opening Size (AOS)</b> ASTM D4751				
	US Sieve	70	100	100
<b>Permittivity</b> ASTM D4491				
	mm sec <sup>-1</sup>	0.212	0.15	0.15
		2.4	1.5	1.5
<b>Flow Rate</b> ASTM D4491				
	gal/min/ft <sup>2</sup> (l/min/m <sup>2</sup> )	175 (7130)	105 (4278)	95 (3870)
<b>Packaging</b>				
Roll Width	ft (m)	15.0 (4.5)	15.0 (4.5)	15.0 (4.5)
Roll Length	ft (m)	360 (110)	300 (91)	300 (91)
Est. Gross Weight	lbs (kg)	143 (165)	215 (97)	265 (120)
Area	yd <sup>2</sup> (m <sup>2</sup> )	600 (502)	500 (418)	500 (418)

\*NOTE: Mechanical Properties and Hydraulic Properties shown are Typical Value. Apparent Opening Size (AOS) properties shown are Maximum Average Roll Values. (Values and methods could change without notice)

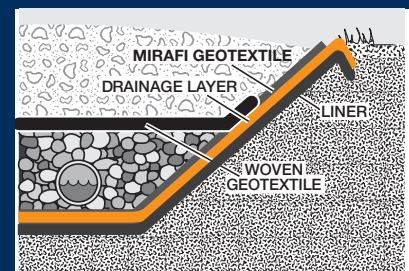
### Mirafi® Orange Delineation Geotextiles



**Cut-off/Inceptor Drain Along a Roadway Or  
Another Critical Structure**



**French Drain Without Pipe**



**Liner Protection Within a Landfill**

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materials that make a difference