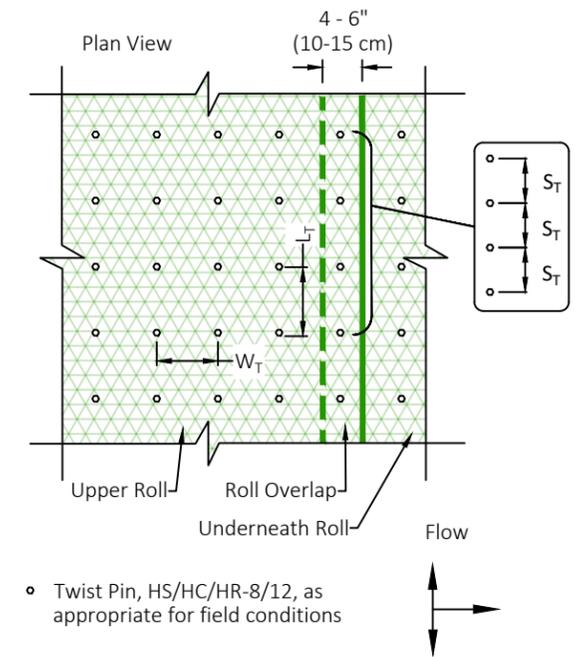


## Instructions

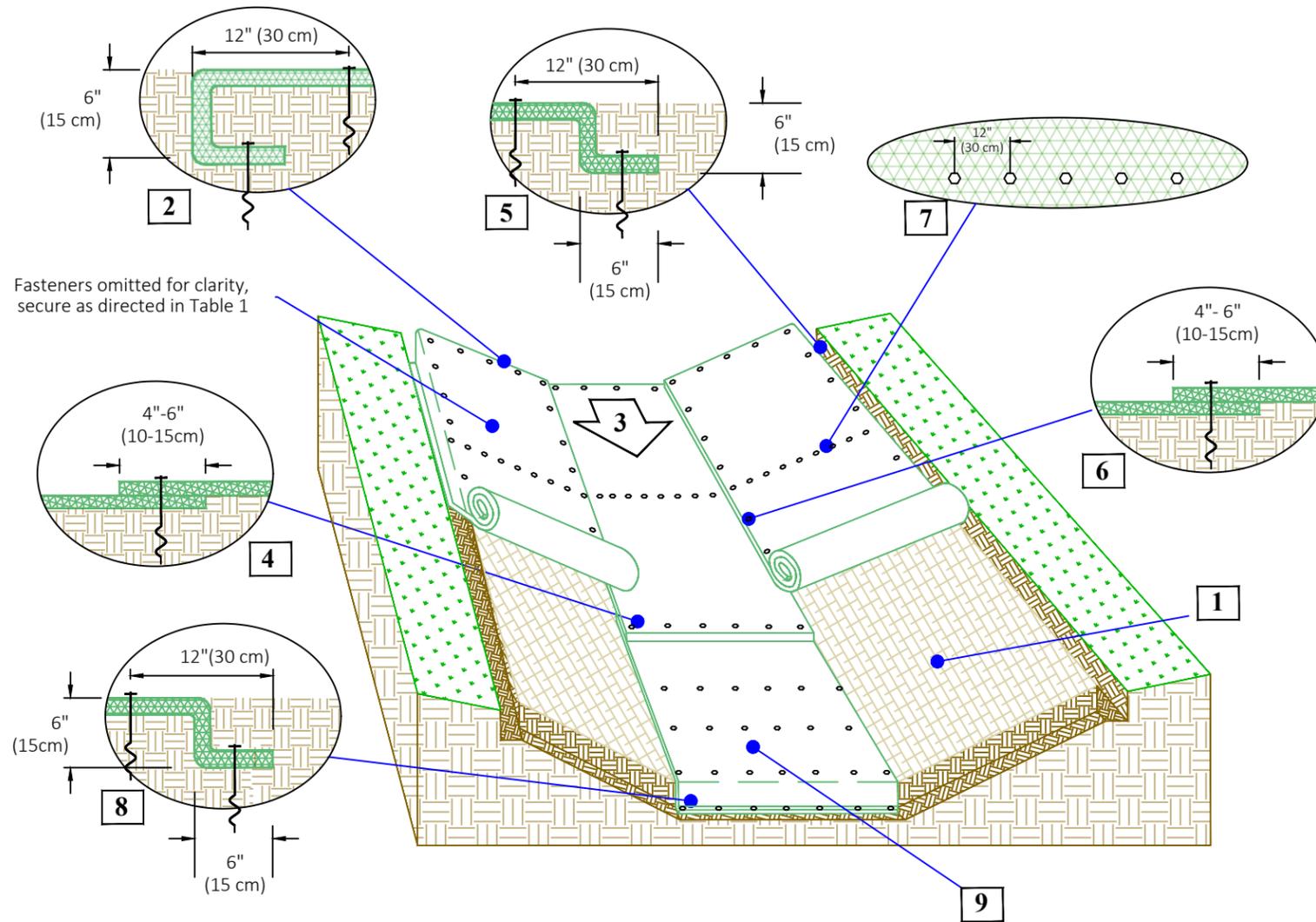
1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
2. Begin at the top of the slope by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at  $S_T$  apart in the bottom of the trench. Backfill and compact the trench after stapling and fold the roll over downslope. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced at  $S_T$  apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. When laying RECPs horizontal, a maximum of two roll widths or 16 feet, whichever is less, may be applied up the slope. If two roll widths or 16 ft is insufficient to cover the slope, material shall be placed vertically. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide. RollMax RECPs and ECBs should utilize Staple Pattern C, TRMs and VMax materials should utilize Staple Pattern D.
4. The edges of parallel RECPs must be stapled with approximately 4" - 6" (10 - 15 cm) overlap.
5. Consecutive RECPs spliced down the slope must overlapped with the upstream mat atop the downstream mat (shingle style). The overlap should be 4" - 6" (10 - 15 cm).
6. At the terminal end, secure each mat across the width with a row of staples/stakes/pins spaced at  $S_T$ . If exposed to flow, foot traffic, wind uplift or other disruption, trench the terminal end in as shown in detail.
7. Fasteners should provide a minimum of sixty pounds of pullout resistance. Falcon HC-8 or HS-8 are typically adequate. In loose soils, longer twist pins may be necessary, HC-12 or HS-12. In hard or rocky soils, hardened spikes (12" Ardox) or Falcon HR-8 / HR- 12 pins may be used, assuming minimum pullout resistance is provided. Bio-degradable fasteners shall not be used with TRM or HPTRM materials.

## Staple Pattern Guide



Dimension	Staple Pattern	
	C	D
$W_T$	30" (75 cm)	22" (55 cm)
$L_T$	30" (75 cm)	22" (55 cm)
$S_T$	18" (45 cm)	18" (45 cm)
Nominal Frequency	1.7/SY (2.0/Sm)	3.0/SY (3.6/Sm)
Application	ECB (Degradable)	TRM (Permanent)
Required Fastener	Min. 60# pullout	Min. 60# pullout

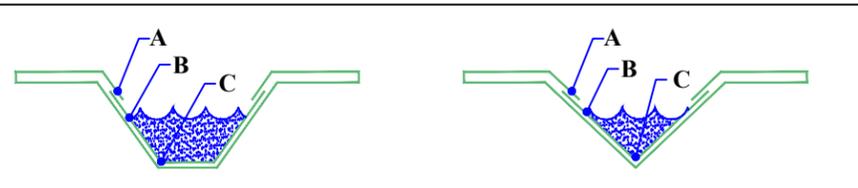
\*Note: Staple Pattern A and B used prior to 8/2019 have been discontinued.



Fasteners omitted for clarity, secure as directed in Table 1

**CRITICAL POINTS**

- A. Overlaps and Seams
- B. Projected Water Line
- C. Channel Bottom/Side Slope Vertices



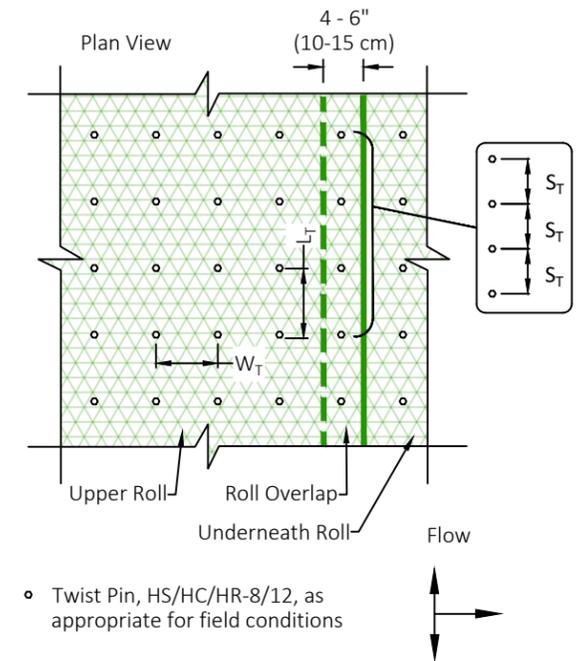
**NOTES:**

\*Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.

**Instructions**

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
2. Begin at the top of the channel by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench with the RECPs staged upstream of the trench. Anchor the RECPs with a row of twist pins spaced at  $S_T$  apart in the bottom of the trench. Backfill and compact the trench after fastening. Apply seed to the compacted soil and unroll the RECPs back over the seed and compacted soil, proceeding downstream. Secure RECPs over compacted soil with a row of twist pins located approximately 12" (30 cm) from the upstream edge of the installation, spaced at  $S_T$ .
3. Roll center RECPs in direction of water flow in bottom of channel. RECPs shall be unrolled with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing twist pins in appropriate locations as shown in the pin pattern guide.
4. Place consecutive RECPs end-over-end (Shingle style) with a 4"- 6" (10 - 15 cm) overlap. Secure overlaps as shown.
5. Full length edge of RECPs at top of side slopes must be anchored with a row of twist pins spaced at  $S_T$  apart in a 6" (15 cm) deep X 6" (15 cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPs must be overlapped approximately 4"- 6" (10 - 15 cm) and secured with twist pins at  $S_T$ .
7. In high flow channel applications a pin check slot is recommended at 30 to 40 foot (9 - 12m) intervals. Use a row of twist pins spaced at 12" (30 cm) on center over entire width of the channel.
8. The terminal end of the RECPs must be anchored with a row of twist pins spaced at  $S_T$  apart in a 6" (15 cm) deep X 6" (15 cm) wide trench (minimum). Backfill and compact the trench after stapling.
9. Secure fasteners throughout the body of the mats. Fasteners should provide a minimum of sixty pounds of pullout resistance. Falcon HC-8 or HS-8 are typically adequate. In loose soils, longer twist pins may be necessary, HC-12 or HS-12. In hard or rocky soils, hardened spikes (12" Ardox) or Falcon HR-8 / HR- 12 pins may be used, assuming minimum pullout resistance is provided. Bio-degradable fasteners shall not be used with TRM or HPTRM materials.

**Pin Pattern Guide**



○ Twist Pin, HS/HC/HR-8/12, as appropriate for field conditions

**Table 1**

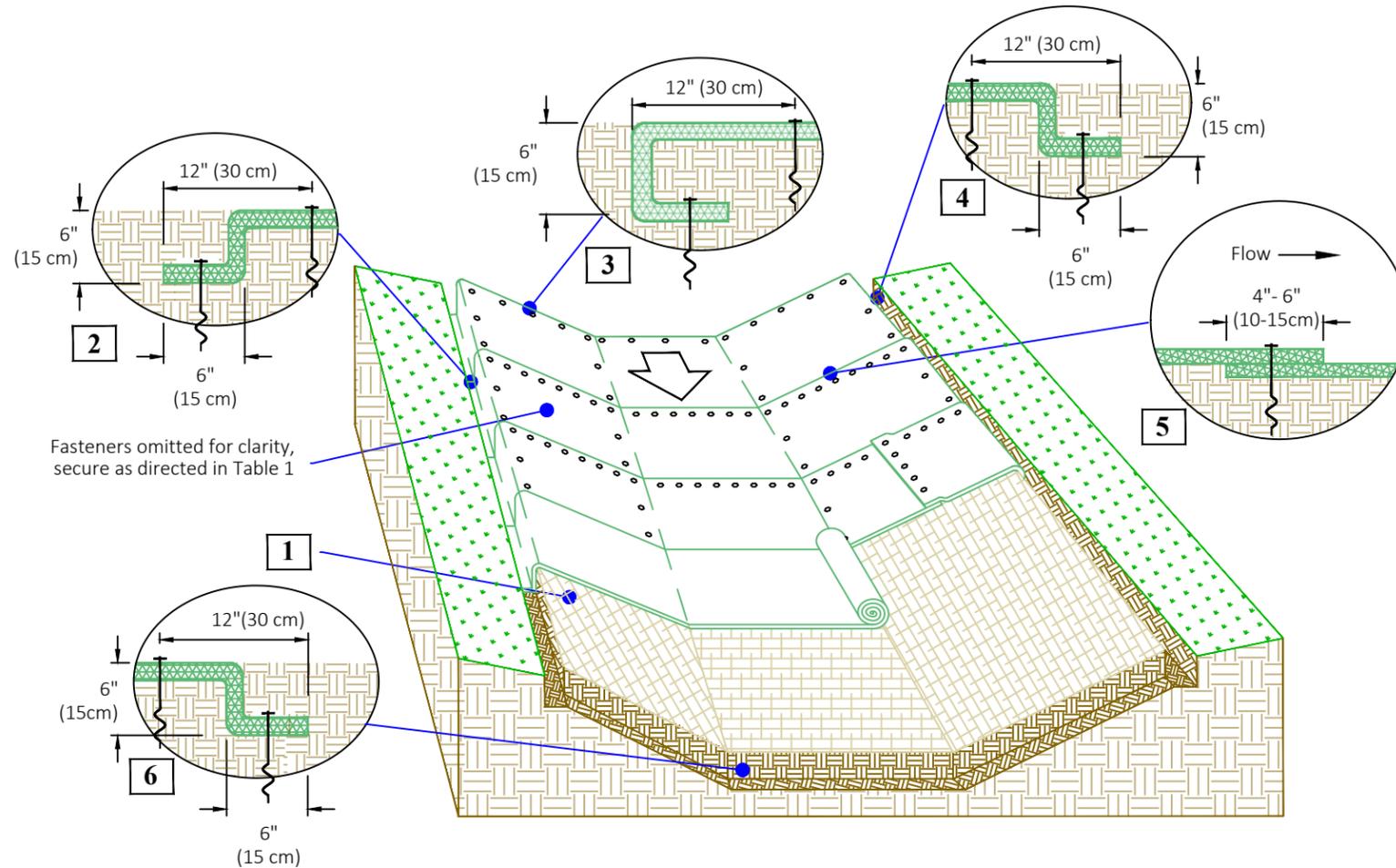
	Pin Pattern
Dimension	E
$W_T$	20" (50 cm)
$L_T$	20" (50 cm)
$S_T$	18" (45 cm)
Nominal Frequency	3.8/SY (4.6/Sm)
Required Fastener	Min. 60# Pullout



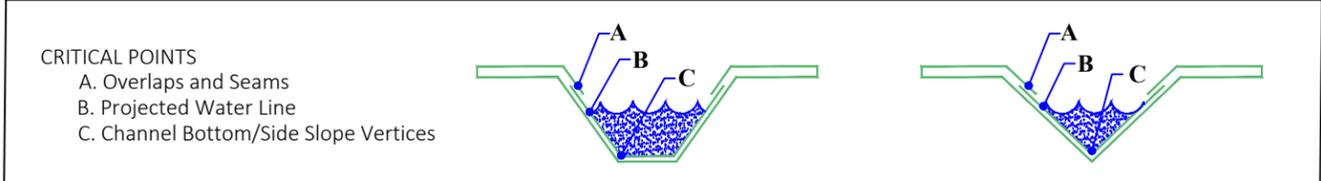
Project: Standard Channel Layout, Unroll w/Flow - RECP w/Falcon Twist Pins

Shown: Isometric View of Channel, Fastener Placement, Trenching and Overlap, Some Fasteners and Vegetation Omitted for Clarity, NTS

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Fasteners omitted for clarity, secure as directed in Table 1

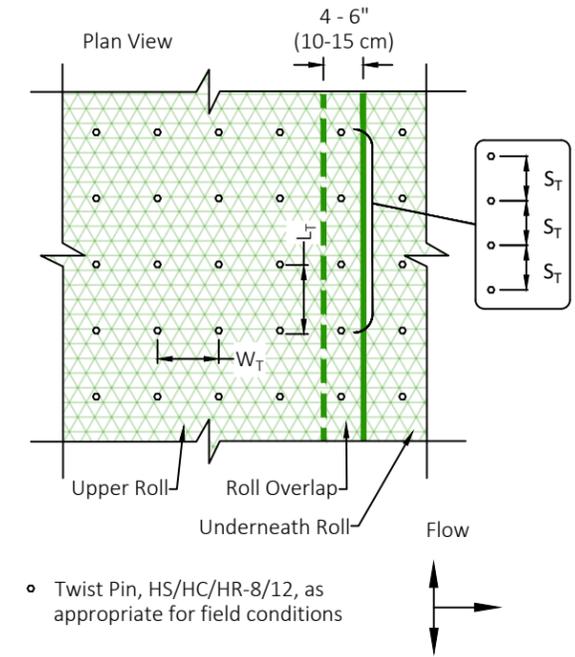


NOTES:  
 \*Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.

### Instructions

1. Prepare soil (fig. 1) before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation. Apply seed and amendments to the compacted soil.
2. Dig anchor trench, 6" (15 cm) deep X 6" (15 cm) wide, at the upstream most edge of installation across the channel. Begin at the top of the channel by unrolling the RECP across the channel, perpendicular to the direction of flow, cut to fit. Carefully flip the RECP panel upstream, leaving it upside down. Place the upside down leading edge in the trench. Anchor the RECP panel with a row of twist pins spaced at  $S_T$  apart in the bottom of the trench. Backfill and compact the trench after fastening. With the RECP secured in the backfilled trench, flip the RECP panel over, right side up, over the backfill. The end result should mimic fig. 2. Secure RECP just downstream of trench with a row of twist pins located approximately 12" (30 cm) downstream from the trench, spaced at  $S_T$ .
3. Roll subsequent RECP panels across the channel, fitting the downstream panel under the upstream panel. RECPs shall be unrolled with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing twist pins in appropriate locations as shown in the pin pattern guide.
4. Place consecutive RECPs end-over-end (Shingle style) with a 4" - 6" (10 - 15 cm) overlap, see fig.6. Secure overlaps as shown.
5. Adjacent RECPs must be overlapped approximately 4" - 6" (10 - 15 cm) and secured with twist pins at  $S_T$ .
6. The terminal end of the RECPs must be anchored with a row of twist pins spaced at  $S_T$  apart in a 6" (15 cm) deep X 6" (15 cm) wide trench (minimum). Backfill and compact the trench after stapling.
7. Secure fasteners throughout the body of the mats. Fasteners should provide a minimum of sixty pounds of pullout resistance. Falcon HC-8 or HS-8 are typically adequate. In loose soils, longer twist pins may be necessary, HC-12 or HS-12. In hard or rocky soils, hardened spikes (12" Ardox) or Falcon HR-8 / HR- 12 pins may be used, assuming minimum pullout resistance is achieved. Bio-degradable fasteners shall not be used with TRM or HPTRM materials.

### Pin Pattern Guide



Twist Pin, HS/HC/HR-8/12, as appropriate for field conditions

Table 1

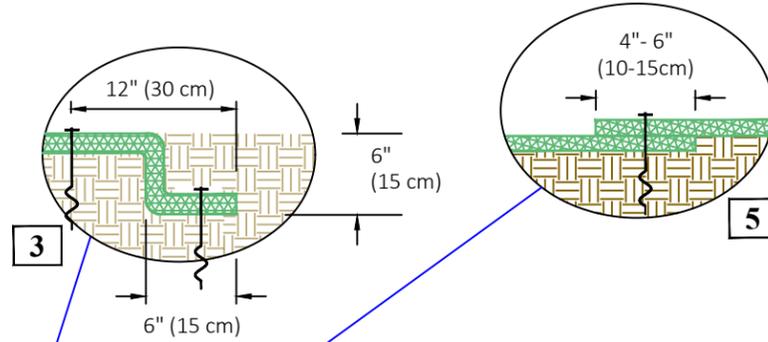
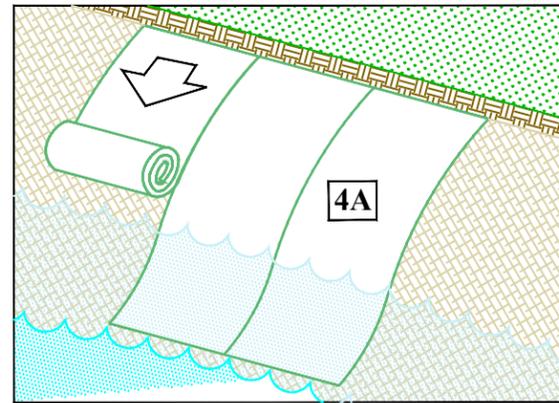
	Pin Pattern
Dimension	E
$W_T$	20" (50 cm)
$L_T$	20" (50 cm)
$S_T$	18" (45 cm)
Nominal Frequency	3.8/SY (4.6/Sm)
Required Fastener	Min. 60# Pullout



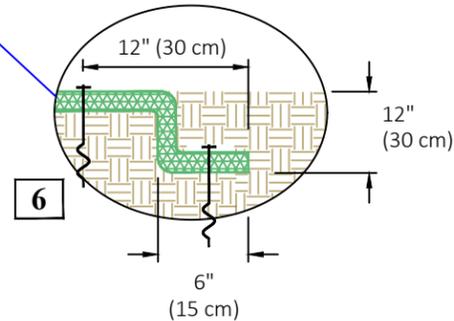
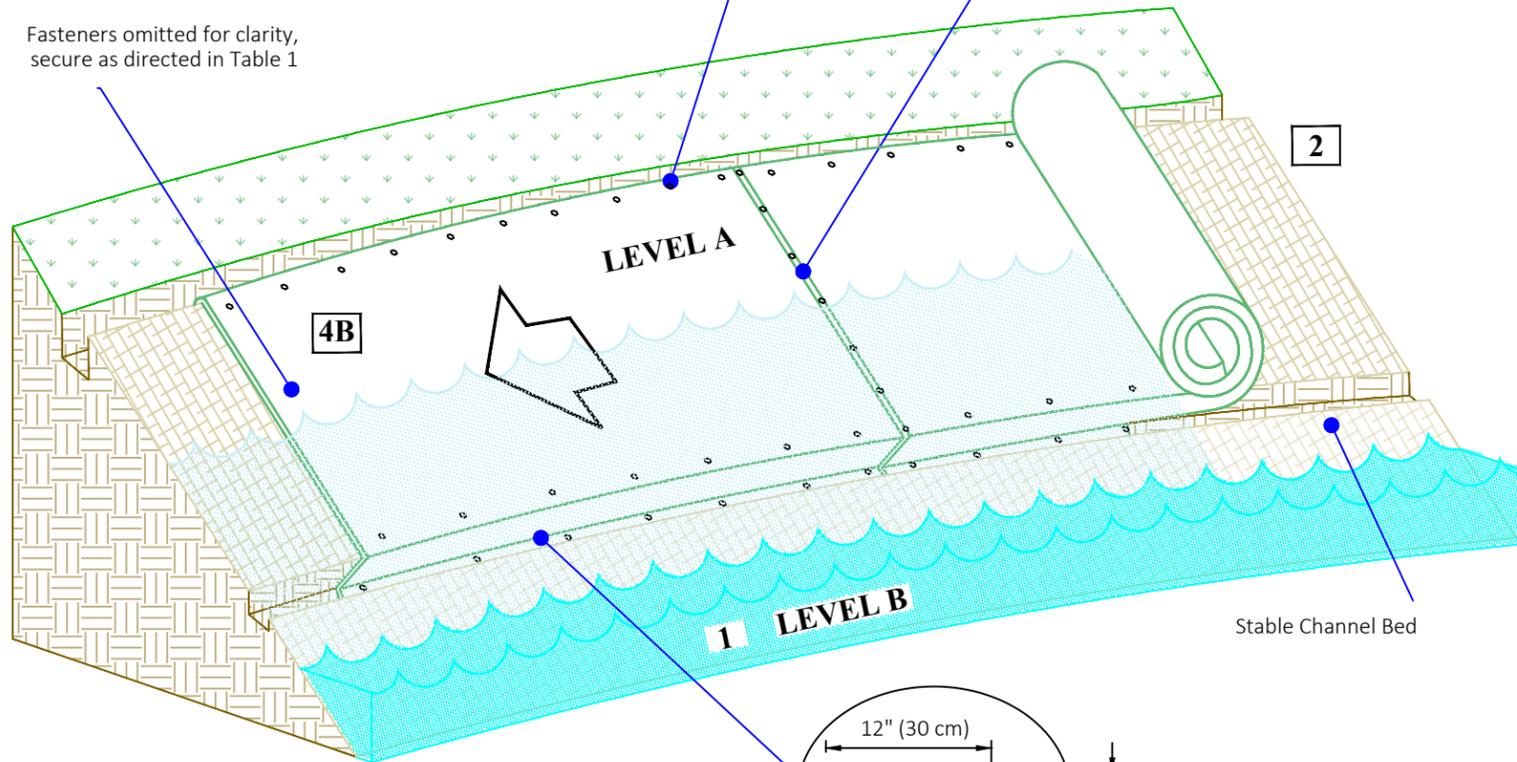
Project: Standard Channel Layout, Unroll Cross Flow - RECP w/ Falcon Twist Pins

Shown: Isometric View of Channel, Fastener Placement, Trenching and Overlap, Some Fasteners and Vegetation  
 Omitted for Clarity, NTS

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Fasteners omitted for clarity, secure as directed in Table 1



## Instructions

1. For easier installation, lower water level from Level A to Level B before installation.
2. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
3. Begin at the top of the shoreline by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench. Anchor the RECPs with a row of staples/stakes/pins spaced at  $S_T$  apart in the bottom of the trench. Backfill and compact the trench after stapling.
4. Roll RECPs either (A) down the shoreline for long banks (top to bottom) or (B) horizontally across the shoreline slope. RECPs will unroll with appropriate side against the soil surface. VMax TRMs should always be installed parallel to flow. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide.
5. The edges of all horizontal and vertical seams must be stapled with approximately 4" - 6" (10 - 15 cm) overlap. Note: \*In streambank applications, seam overlaps should be shingled in the predominant flow direction.
6. The edges of the RECPs at or below normal water level must be anchored by placing the RECP's in a 12" (30 cm) deep X 6" (15 cm) wide anchor trench. Anchor the RECPs with a row of staples/stakes/pins spaced approximately 12"(30cm) apart in the trench. Backfill and compact the trench after stapling (stone or soil may be used as backfill). For installation at or below normal water level, use of ShoreMax mat on top of the RECP or geotextile underneath is likely required for sections below the normal water line.
7. Fasteners should provide a minimum of sixty pounds of pullout resistance. Falcon HC-8 or HS-8 are typically adequate. In loose soils, longer twist pins may be necessary, HC-12 or HS-12. In hard or rocky soils, hardened spikes (12" Ardox) or Falcon HR-8 / HR- 12 pins may be used, assuming minimum pullout resistance is provided. Bio-degradable fasteners shall not be used with TRM or HPTRM materials.

## Pin Pattern Guide

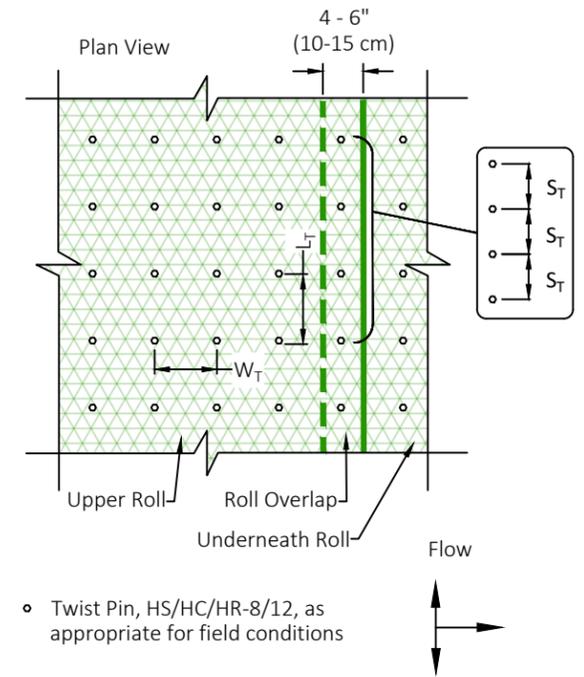


Table 1

Dimension	Pin Pattern
	E
$W_T$	20" (50 cm)
$L_T$	20" (50 cm)
$S_T$	18" (45 cm)
Nominal Frequency	3.8/SY (4.6/Sm)
Required Fastener	Min. 60# Pullout



Project: Standard Channel Bank Layout - RECP w/Falcon Tist Pins

Shown: Isometric View of Channel, Fastener Placement, Trenching and Overlap, Some Fasteners and Vegetation Omitted for Clarity, NTS

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