ADDENDUM NUMBER TWO

Date: OCTOBER 09, 2020
Project: Coes Park Parking Lot Expansion
City of Worcester Department of Public Works and Parks
Parks, Recreation and Cemetery Division

General Bid Clarifications

1. Installation of ornamental fence and concrete mow strip along Sterns Tavern is by others. Notes 5a, 5b and 5c on sheet CD201 is provided to Bidders for calculation of volume and work. Layout of post shall be coordinated in the field. General Contractor is only responsible for excavation and disposal of excess earthworks for the above mention work.
2. Include $30,000 in base bid for allowance to furnish and install cameras and associated appurtenances not indicated in the bid documents. Include in base bid furnish and install of security boxes and internal back plate to light poles PP#6 thru 8 and power to internal components. Owner will be responsible to secure specifications and vendor pricing for products, installation labor and connection to existing security system. Final value for this work to be calculated as per Section 12.4.1, item 1 of Form 30,39M.
3. Furnish and install 30' wide double pipe gate and two stanchions at the entrance drive to be located in the field.

Question1: *Section 01270 of the Specifications states that the Base bid shall include an allowance for the purchase of two security cameras and all necessary equipment, but it does not provide a dollar amount.*
Answer: See General Bid Clarification item #2.

Question2: *Sheet CD201 shows 6' construction fence with dust control screening. Shall all of the fence at the mound removal area include screening or just the section along Coes Reservoir?*
Answer: All project construction fencing shall include dust control screening.

Question3: *Sheet CD201 – Note 5. Please provide specifications and details for the ornamental fence and gates.*
Answer: See General Bid Clarification item #1.

Question4: *Special Conditions- Drawing D-1. Shall bollards be installed at the beginning and end of each run of wood guardrail around the parking lot and at the back of sidewalk?*
Answer: No

Question5: *Sheet CD201 – Note 5. Will the concrete mow curb require a gravel base course or shall it be placed on compacted subgrade similar to Detail 4/CG503?*
Answer: See bid clarification #1- Concrete mow curb is by others

Question6: *Sheet E101 shows connecting the proposed 2" electrical conduit at an existing light pole. Does this light pole have an existing conduit stub for the connection? If not, please provide a detail of the proposed connection.*
Answer: Yes, existing light pole base has a spare conduit.

Question7: *The Special Order of Conditions (Attachment A). Will a Stormwater Pollution Prevention Plan (SWPPP) be required for this project?*

Answer: YES. A SWPP is required per the Order of Conditions.

Question8: *Section 01110 – 3.03 – B. Please confirm that should Police Detail be deemed necessary for a portion of the work, the City will either pay the invoices directly or the Contractor will be reimbursed for paying invoices.*

Answer: Contractor responsible for coordination/scheduling and payment with WPD.

Question9: *Section 02920 – 1.02 – A. The section of the Specifications states 'Test results of the on-site loam are provided at the Appendix of Section 02911 Root Zone Mix.' However, Section 02911 is not included in the bid documents.*

Answer: All soil test results are found in section 0320. Additional testing has not been done on site. Delete all references to section 02911 and associated information.

Question10: *Please advise on the below questions with the Ornamental fence as mentioned in Note 5. What is height? What is type of ornamental fence? Are gates to be attached to granite posts? Please provide detail*

Answer: See General Bid Clarification item #1.

Question11: *Note 5 on Sheet CS101 states that wood guardrail from the Stearns site can be reused along the northern end and at the ends of the drive isle. The wood guardrail along Mill Street is painted. Will this be acceptable to reuse? I assume that 'the northern end' is referring to the parking lot. Will the wood guardrail along Coes Street also be allowed to be reused?*

Answer: Yes to All.

Question12: *Will the excess soil from the parking lot and detention basin need to be tested before removing and disposing?*

Answer: Any excavated materials leaving the Site requires disposal characterization prior to off-Site transport and disposal/recycling. As listed in Section 00320, SUBSURFACE DATA, environmental impacts and a deed restriction via an Activity and Use Limitation extends into the project area. Please refer to Section 02113, EXCAVATION AND STOCKPILING OF IMPACTED MATERIAL Item 3.04 for Contractor-performed sampling and analysis requirements.

Soil in the areas surrounding sample PL-03 shall be segregated and relocated on-Site under a paved project area as advised by the Engineer. The volume of soil from this area is estimated to be approximately 10 cubic yards. The Contractor shall over-excavate and dispose/recycle surplus material to provide on-Site relocation volume for the PL-03 soil.

Question13: *Is there analytical data on the existing pile to be removed that is shown on CD201? Provide RAM plan as referenced on CD201.*

Answer: The data provided in Section 00320, SUBSURFACE DATA includes results from two January 2020 soil samples collected at the mound. These samples are identified as NM-NORTH and NM-SOUTH. Please note that recycling or disposal facilities may require more current data to accept this material and the collection of proper characterization of all excavated material leaving the Site is a Contractor requirement per Section 02113, EXCAVATION AND STOCKPILING OF IMPACTED MATERIAL. The RAM Plan will be provided immediately in advance of the start of work by the Engineer. The RAM Plan will match the requirements of

the Contract Documents; the RAM Plan will not change the construction approach and the Engineer will submit RAM Plan reports to the MassDEP on behalf of the Owner.

Question14: *Note 5 on CD201 states new ornamental fence with mow curb is proposed in place of existing guardrail, provide details on mow curb and spec on ornamental fence/gate*
Answer: See General Bid Clarification item #1.

Question15: *Provide estimated CY of contaminated soils to be removed from site.*
Answer: This is Lump Sum Bid. Final Calculations are responsibility of the Bidder. The Contractor shall refer to Section 01270, Measurement and Payment, Item 1(c) for the estimated 500 tons of impacted material requiring off-Site transport and disposal. The Contractor shall refer to Section 00320, SUBSURFACE DATA for January 2020 disposal characterization results associated with the Site.

Question16: *Are there soil borings available?*
Answer: All soil test results are found in section 0320

Question17: *M&P Section 01270 1 E lists allowance for security cameras but does not state amount, is this required and if so, provide allowance amount to be carried.*
Answer: See General Bid Clarification item #2.

Question18: *LX101 calls out elevation for top of granite curb at Broad Crested Weir, however no other drawing or detail shows this granite weir, is this required?*
Answer: Granite weir is not required. Grade is for top of Broad Crested Weir without granite.

Question19: *At Sterns Tavern, are we to install fence posts, granite posts and mow strips or just remove timbers, guard rail and excavation for mow strips?*
Answer: See General Bid Clarification item #1.

Question20: *There are no specifications on soil liner.*
Answer: Please see SECTION 02071 2.03 DEMARCATION LAYER GEOTEXTILE and attached.

Question21: *Are we responsible for testing and reports for moving all AUL soil?*
Answer: Answer: Per Section 02113, EXCAVATION AND STOCKPILING OF IMPACTED MATERIAL the Contractor is responsible for the soil disposal characterization testing; the Engineer must be notified at least two (2) days prior to any proposed sampling. The Contractor shall also submit an Excavated Materials Management Plan (EMMP) listing disposal characterization and proposed receiving facilities among other specified information. The Engineer will prepare and submit MCP Reports including the RAM Plan and RAM Status and Completion Reports. The Contractor per the Contract Documents shall file Bill of Lading and LSP Opinion letter(s) after Engineer review.

Question22: *There are no specifications on cameras and equipment.*
Answer: See General Bid Clarification item #2.

Question23: *Regarding the notes on plan sheet CD201, is the GC responsible for digging post holes for the ornamental fence? The ornamental fence and gates and posts will be furnished and installed by others? Who is responsible for the mow curb? Is the concrete mow curb along Mill Street bituminous or cast in place?*
Answer: See General Bid Clarification item #1.

Question24: *Are the security cameras furnished and installed by others?*
Answer: See General Bid Clarification item #2.

Question25: *Please provide specification/detail for new ornamental fence.*
Note 5 on sheet CD-201 mention the following items:
Excavate and dispose of excess earthwork required to install 300 lf of new ornamental fence with two gates and concrete mow curb.

1. *Post spacing for fence is 8'-0", typical. Dimension of granite posts (4) for gates is 8" square. Typical post depth is 36" below adjacent sidewalk.*
2. *Alignment of new ornamental fence is centered on concrete mow curb. Mow curb is parallel and adjacent to back of existing sidewalk.*
3. *Mow curb finished dimension is 12" wide x 12" depth x 300 lf and is 6 inches above adjacent sidewalk.*

Answer: See General Bid Clarification item #1.

Question26: *Specs Section 02113 and 02130 for Impacted Material. Per both specification sections contractor is managing as well as disposing this material. In order to put all the bidders on an equal level footing, please provide characteristic of material and the quantity and if you do not have this information then please give us an allowance to cover the above sections.*
Answer: The Contractor shall refer to Section 01270, Measurement and Payment, Item 1(c) for the estimated 500 tons of impacted material requiring off-Site transport and disposal. The Contractor shall refer to Section 00320, SUBSURFACE DATA for January 2020 disposal characterization results associated with the Site.

Question27: *The limit-of-work line is different on pages CD101 and CD201. Can you clarify which is the correct drawing?*
Answer: Based on the question, discrepancy seem to be area to the southeast of existing parking lot - adjust limit of work line as needed for finished work, which is primarily excavation at back of existing roadway curb for conduit.

Question28: *Can you clarify whether the HMA Cape Cod berm, detail on CG502, is beneath the guardrail or if there is lawn beneath the guardrail?*
Answer: See Sheet LP101

Question29: *Will the mow curb under the guard rail be installed prior to the installation of the guardrail?*
Answer: Contractor's means and methods.

Question30: *Please provide a detail for the sediment forebay depicted on Sheet CS101. Detail 8/CG502 only shows a Stone Check dam.*
Answer: See Sheet LX101 for layout and grades. 125 c.f. of storage is to be created with a half crescent berm of riprap, the cross section of which will be similar in construction to the weir in detail 8/CG502

Question31: *Is the earthen embankment around the infiltration basin constructed of loam and seed as shown on the landscape plan, or constructed of impervious fill and riprap as shown on the detail?*
Answer: See Sheet LP101

Question32: *The plans show approx. 250 of existing chain link fence to be removed by hand. Can you please confirm that contractor may not use any machines to remove the fence posts/ footings?*
Answer: Removal by hand is only required in the wooded area not to be cleared for construction of the parking lot. In areas where footings will not be located under pavement or in conflict with finished work, footings may remain.

Question33: *Where is the contractor supposed to transport the 40 granite blocks?*
Answer: Lake Park – 300 Lake Ave.

Question34: *Is there any additional available soil analysis, specifically for the mound of material adjacent to the concrete playground area?*
Answer: Soil testing for the mound can be found in section 00320 attachment table under the NM columns of the soil testing results.

Question35: *Regarding Section 02232 – Selective Clearing of Invasive Species. Is there expected to be any selective pruning, invasive species removal or application of herbicide throughout the course of this project?*
Answer: Yes. Contractor to remove invasive species within the limit of work as part of the clearing and grubbing in the manner required in the order of conditions and specifications. No herbicide is to be used.

Question36: *Can classification of the soils and impacted soil disposal be handled with unit cost bid items similar to how it's been done with previous contracts on this site?*
Answer: See answer 26.

Question37: *Regarding the notes on plan sheet CD201, is the GC responsible for digging post holes for the ornamental fence? The ornamental fence and gates and posts will be furnished and installed by others? Who is responsible for the mow curb? Is the concrete mow curb along Mill street bituminous or cast in place?*
Answer: See General Bid Clarification item #2.

Question38: *Are the security cameras furnished and installed by others?*
Answer: See General Bid Clarification item #1.

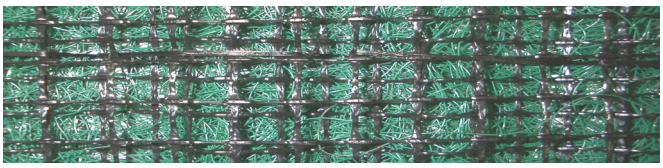
Attachment:

Turf Reinforcement Mat (10 pages)

END OF ADDENDUM TWO

ROLLMAX™
ROLLED EROSION CONTROL

Specification Sheet
VMax® P550® Turf Reinforcement Mat



DESCRIPTION

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 100% UV stable polypropylene fiber matrix incorporated into permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between a ultra heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an ultra heavy UV stabilized, dramatically corrugated (crimped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, and covered by an ultra heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form permanent three-dimensional turf reinforcement matting. All mats shall be manufactured with a colored thread stitched along both outer edges as an overlap guide for adjacent mats.

The P550 shall meet Type 5A, 5B, and 5C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.18

Material Content		
Matrix	100% UV stable polypropylene fiber	0.5 lb/sy (0.27 kg/sm)
Netting	Top and Bottom, UV-Stabilized Polypropylene	24 lb/1000 sf (11.7 kg/100 sm)
	Middle, Corrugated UV-Stabilized Polypropylene	24 lb/1000 sf (11.7 kg/100 sm)
Thread	Polypropylene, UV Stable	

Standard Roll Sizes		
Width	6.5 ft (2.0 m)	8 ft (2.44m)
Length	55.5 ft (16.9 m)	68 ft (20.7 m)
Weight ± 10%	52 lbs (23.59 kg)	78 lbs (35.4 kg)
Area	40 sy (33.4 sm)	60 sq. yd. (50.2 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.63 in. (16 mm)
Resiliency	ASTM 6524	95%
Density	ASTM D792	0.91 g/cm^3
Mass/Unit Area	ASTM 6566	21.0 oz/sy (712 g/sm)
UV Stability	ASTM D4355/ 1000 HR	90%
Porosity	ECTC Guidelines	96%
Light Penetration	ASTM D6567	10%
Tensile Strength – MD	ASTM D6818	1050 lbs/ft (15.5 kN/m)
Elongation – MD	ASTM D6818	25%
Tensile Strength – TD	ASTM D6818	1050 lbs/ft (15.5 kN/m)
Elongation – TD	ASTM D6818	20%
Biomass Improvement	ASTM D7322	400%

Design Permissible Shear Stress		
	Short Duration	**Long Duration**
Phase 1: Unvegetated	4.0 psf (191 Pa)	3.3 psf (156 Pa)
Phase 2: Partially Veg.	12 psf (576 Pa)	10 psf (576 Pa)
Phase 3: Fully Veg.	16 psf (766 Pa)	12 psf (576 Pa)
Unvegetated Velocity	12 fps (3.8 m/s)	10 fps (3.1 m/s)
Vegetated Velocity	25 fps (7.6 m/s)	22 fps (6.7 m/s)

NTPEP ASTM D6460 Large Scale Channel	
Vegetated Shear Stress	>13.2 psf (632 Pa)
Vegetated Velocity	>24.5 fps (7.47 m/s)

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2.1	≥ 2:1
≤ 20 ft (6 m)	0.0005	0.015	0.043
20-50 ft	0.0173	0.031	0.050
≥ 50 ft (15.2 m)	0.035	0.047	0.057

Roughness Coeffiencts - Unveg.
Manning's n
τ_{upper} : 0.023
τ_{mid} : 0.026
τ_{lower} : 0.029

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INSTALLATION GUIDE

NORTH AMERICAN GREEN®

RollMax™ Installation Guidelines:

North American Green is the world's leading provider of performance-guaranteed erosion control solutions. For more than 25 years, our line of erosion and sediment control products has kept our customers on solid ground. Our short-term and long-term Erosion Control Blankets (ECBs) and Turf Reinforcement Mats (TRMs) keep you one step ahead of just about any erosion challenge.

North American Green provides everything you need to know for quick, accurate erosion control installation tailored to your site. From start to finish, the North American Green® RollMax System™ product installation instructions are based on extensive research and field-proven techniques to ensure project success. The following pages offer instructions and guidelines for several scenarios you may encounter during the installation of the RollMax System.

EXPERIENCE YOU CAN RELY ON

We are the industry leader when it comes to providing comprehensive erosion and sediment control and turf reinforcement solutions. We have developed integrated systems and products with the sole objective to ensure absolute customer satisfaction. Our products are backed by the most thorough quality assurance practices in the industry. In addition, we provide comprehensive design assistance for every North American Green system.

For additional installation assistance with the RollMax System, please visit **www.nagreen.com**, e-mail **info@nagreen.com**, or call **800-772-2040** and we will be happy to put you in touch with an erosion control specialist who can assist you.

Installation Made Easy

When under the pressure of severe conditions, even the best erosion control products can't function to their full potential without proper installation and anchoring. North American Green supplies a wide variety of fastener options for nearly every application and soil type.

For use in cohesive soils, wire staples are a cost-effective means to fasten RollMax™ System Rolled Erosion Control Products (RECPs). Available in 6 in., 8 in., 10 in. and 12 in. lengths, our U-shaped staples reach various depths to ensure adequate pull-out resistance. For installation using our handy Pin Pounder installation tool, 6 in. V-top staples or 6 in. circle top pins are available.

Our biodegradable BioStakes® are available in 4 in. and 6 in. lengths and provide an environmentally friendly alternative to metal staples. For an even more durable, deeper reaching yet all-natural anchoring option, our wood EcoStakes® are available in 6 in., 12 in., 18 in. and 24 in. lengths.

For severe applications needing the ultimate, long-lasting hold, try our 12 in. and 18 in. rebar staples, our 12 in. plastic ShoreMax® stakes, or our complete line of percussion earth anchors. The earth anchors reach deep into the soil strata to offer enhanced anchoring in the worst conditions. Our variety of earth anchors are designed for durability and holding power under extreme hydraulic stresses and adverse soil conditions.

STAPLE PATTERNS

Proper staple patterns must be used to achieve optimal results in RECP installation. We recommend the following general stapling patterns as guidance for use with our RECPs as seen in (Figure 1). Site-specific staple pattern recommendations based on soil type and severity of application may be acquired through our Erosion Control Materials Design Software (ECMDS®), **www.ecmds.com**.

STAPLE PATTERN GUIDE

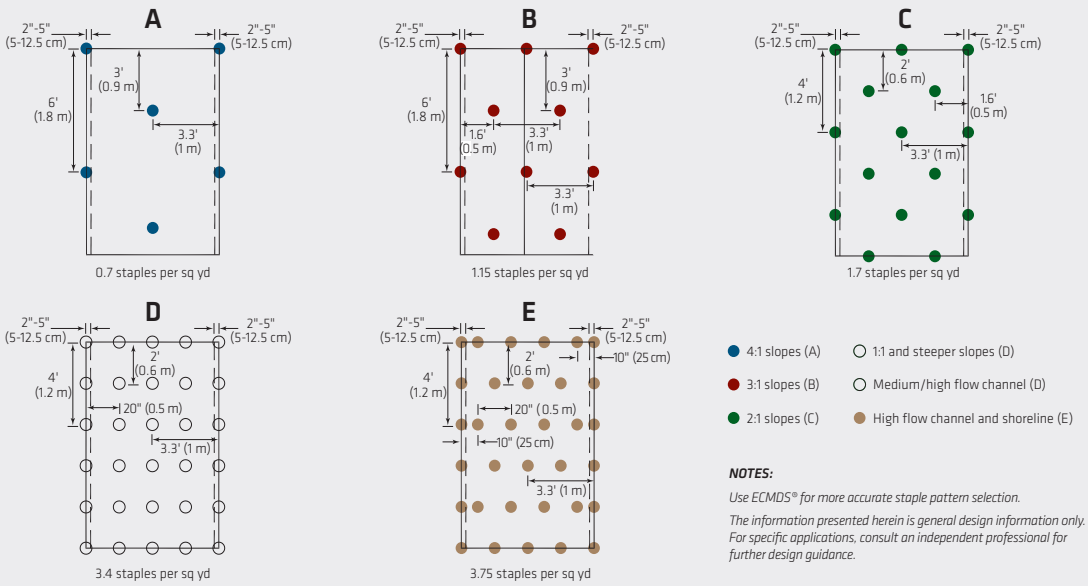
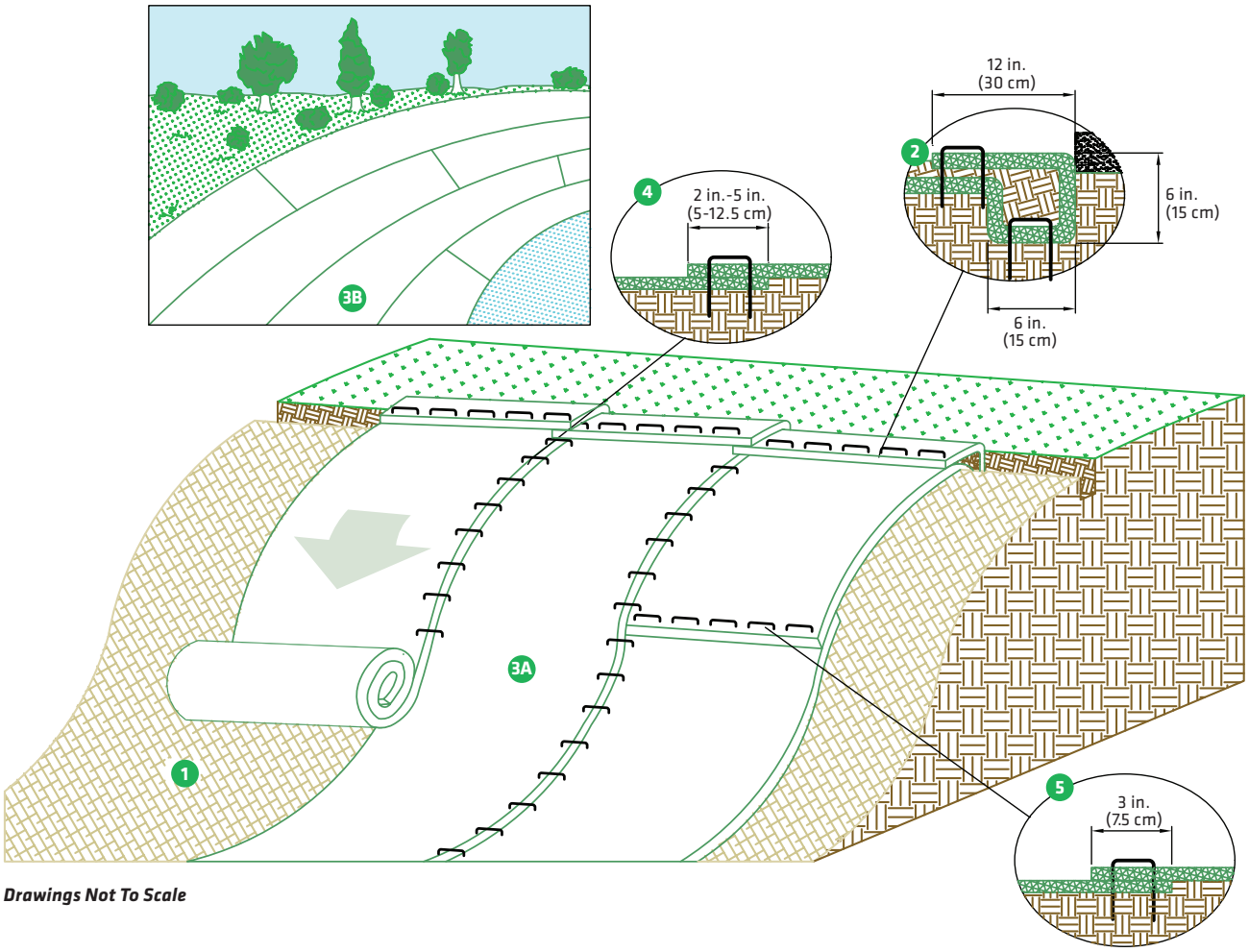


FIGURE 1

Slope Installation

The following slope guide outlines general recommendations for installing RollMax™ System temporary and/or permanent RECPs on sloping applications. Consult the staple pattern guide (Figure 1) for fastener spacing recommendations based on the slope severity.



Drawings Not To Scale

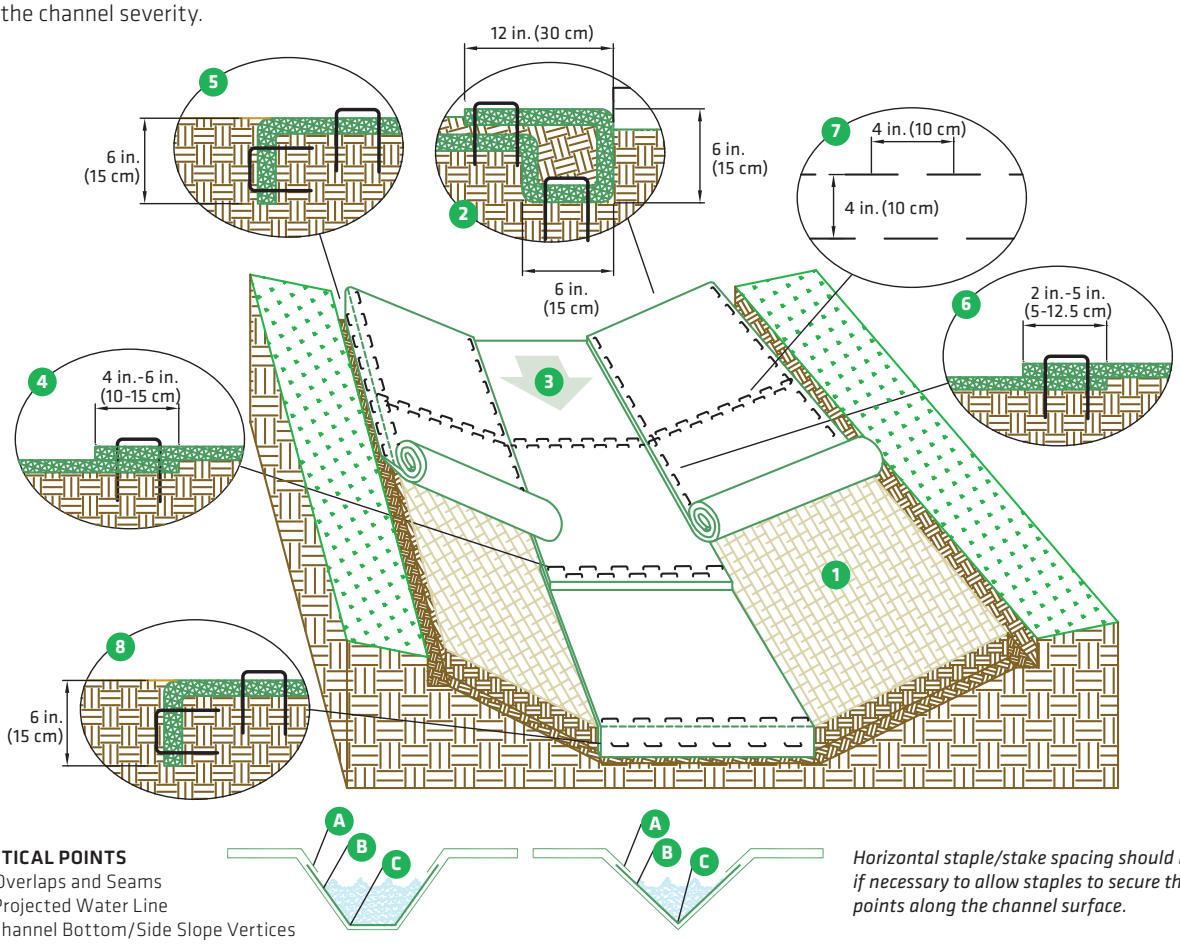
SLOPE INSTALLATION STEPS

1. Prepare soil before installing RECPs, including any necessary application of lime, fertilizer and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench with approximately 12 in. (30 cm) of RECPs extended beyond the upslope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12 in. (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12 in. (30 cm) apart across the width of the RECPs.
3. Roll the RECPs (3A) down or (3B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. The edges of parallel RECPs must be stapled with an approximately 2 in.-5 in. (5-12.5 cm) overlap depending on the RECP type.
5. Consecutive RECPs spliced down the slope must be end-over-end (shingle style) with an approximate 3 in. (7.5 cm) overlap. Staple through overlapped area, approximately 12 in. (30 cm) apart across entire RECPs width.*

***NOTE:** In adverse soil conditions longer staples/stakes or earth anchors may be necessary to properly secure the RECPs.*

Channel Installation

The following channel guide outlines general recommendations for installing RollMax System temporary and/or permanent RECPs in concentrated flow applications. Consult the staple pattern guide (Figure 1) for fastener spacing recommendations based on the channel severity.



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

Drawings Not To Scale

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

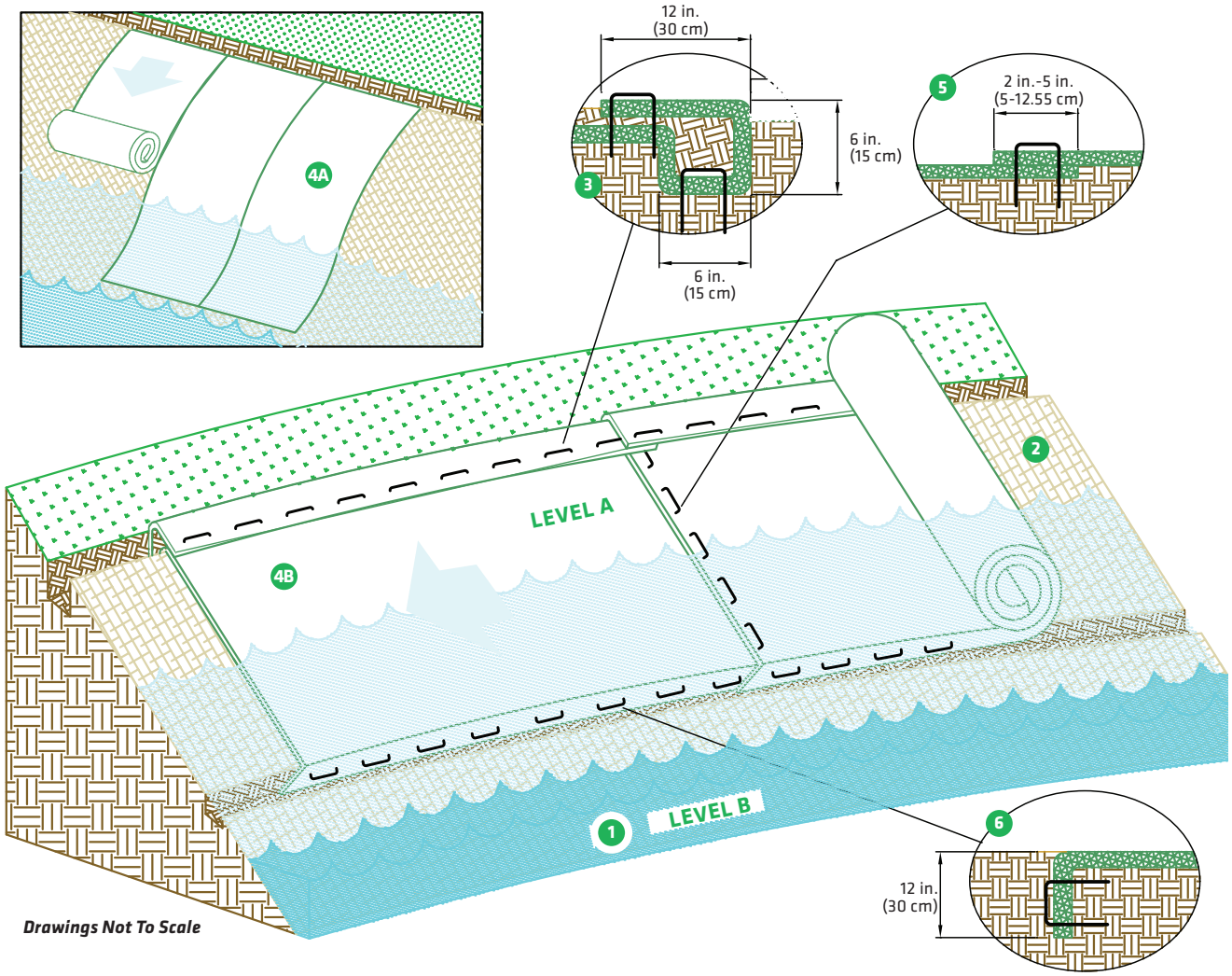
CHANNEL INSTALLATION STEPS

1. Prepare soil before installing RECPs, including any necessary application of lime, fertilizer and seed.
2. Begin at the top of the channel by anchoring the RECPs in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench with approximately 12 in. (30 cm) of RECPs extended beyond the upslope portion of the trench. For supplemental scour protection, use RevetMax™ System ShoreMax® Mat at the channel/culvert outlet as needed. Anchor the RECPs with a row of staples/stakes approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12 in. (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12 in. (30 cm) apart across the width of the RECPs.
3. Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. Place consecutive RECPs end-over-end (shingle style) with a 4 in.-6 in. (10-15 cm) overlap. Use a double row of staples staggered 4 in. (10 cm) apart and 4 in. (10 cm) on center to secure RECPs.
5. Full-length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPs must be overlapped approximately 2 in.-5 in. (5-12.5 cm) (depending on RECP type) and stapled.*
7. In high flow channel applications a staple check slot is recommended at 30 to 40 ft (9-12 m) intervals. Use a double row of staples staggered 4 in. (10 cm) apart and 4 in. (10 cm) on center over entire width of the channel.
8. The terminal end of the RECPs must be anchored with a row of staples/stakes approximately 12 in. (30 cm) apart in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench. Backfill and compact the trench after stapling.

***NOTE:** In adverse soil conditions longer staples/stakes or earth anchors may be necessary to properly secure the RECPs.*

Shoreline Installation

Below are recommendations for installing RollMax System temporary and/or permanent RECPs along shoreline and stream bank applications. Consult the staple pattern guide (Figure 1) for fastener spacing recommendations based on the bank severity.



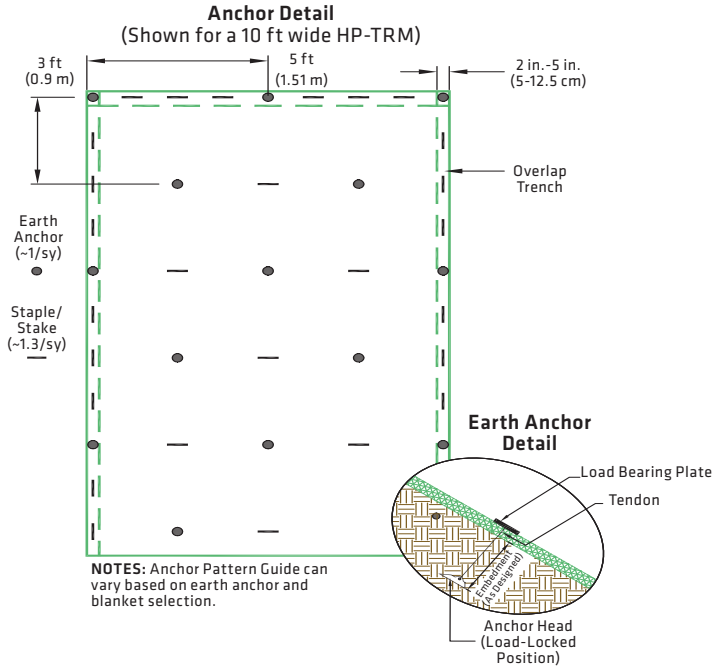
Drawings Not To Scale

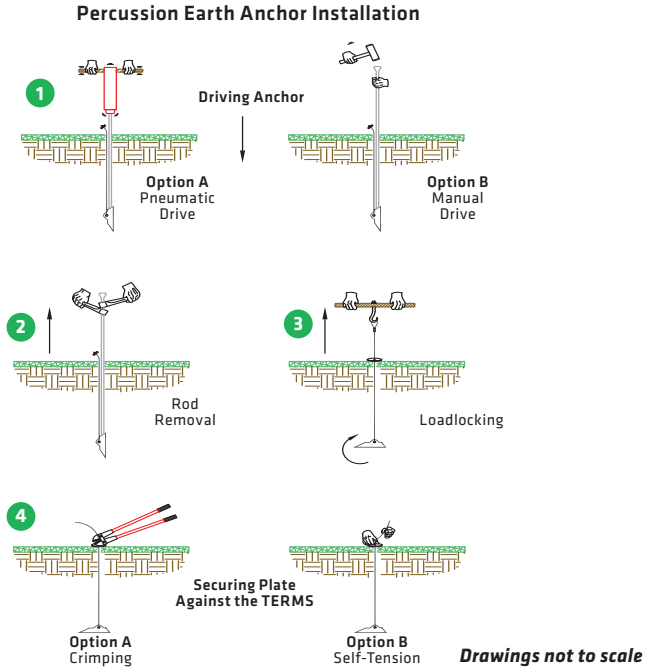
SHORELINE/STREAMBANK INSTALLATION STEPS

1. For easier installation, lower water level from Level A to Level B before installation to allow bottom trenching.
2. Prepare soil before installing RECPs, including any necessary application of lime, fertilizer and seed.
3. Begin at the top of the shoreline by anchoring the RECPs in a 6 in. (15 cm) deep x 6 in. (15 cm) wide trench with approximately 12 in. (30 cm) of RECPs extended beyond the upslope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12 in. (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12 in. (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12 in. (30 cm) apart across the width of the RECPs.
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. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
5. The edges of all horizontal and vertical seams must be stapled with an approximately 2 in.-5 in. (5-12.5 cm) overlap. 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 RECPs in a 12 in. (30 cm) deep x 6 in. (15 cm) wide anchor trench. Anchor the RECPs with a row of staples/stakes spaced approximately 12 in. (30 cm) 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 a ShoreMax Mat on top of the RECP or geotextile may be recommended. Bottom anchor trench can be eliminated when using a ShoreMax Mat over RECP along the bottom edge.

NOTE: *In adverse soil conditions longer staples/stakes or earth anchors may be necessary to properly secure the RECPs.*

Special Installation Instructions





Drawings not to scale

ANCHORING DETAIL

Consult the *RollMax™ Turf and Earth Reinforced Mat Systems (TERMS) Installation Guide* for details about using earth anchors with RollMax RECPs. The performance of ground anchoring devices is highly dependent on numerous site/project specific variables. It is the responsibility of the project engineer and/or contractor to select the appropriate anchor.

1. Staples and/or stakes should be at least 6 in. (15 cm) in length and with sufficient ground penetration to resist pullout. Longer staples and/or stakes may be needed in looser soils.
2. The percussion earth anchor assembly includes an anchor head, a tendon, a faceplate, and an end-piece device. Consult Earth Anchor specification for detailed information on assembly components and associated pull-out strength.

PERCUSSION EARTH ANCHOR INSTALLATION

1. Insert the drive rod into the assembly's anchor head then use either a sledge hammer or a vibratory hammer to drive the anchor to the desired depth.
2. After the desired anchor depth is achieved, retract the drive rod.
3. Lock the anchor assembly by swiftly pulling the cable upwards until the anchor head rotates as signaled by sudden resistance to pulling. A hooked setting tool may be used to aid in this step.
4. Secure the faceplate to the HP-TRM surface by locking the end-piece. If using a copper or aluminum stop, crimp the ferrule to secure. If using a self-tensioning end-piece (grip or wedge grip) set by simply tightening the end-piece against the faceplate. If needed, cut the remaining cable to desired length.

SEEDING AND VEGETATING

When using a Composite Turf Reinforcement Mat (C-TRM) with fiber components:

1. Pre-seed prepared soils prior to the installation of the C-TRM. Install matting as directed. C-TRM does not require soil infill or a top dressing of seed. Overseeding may be done as a secondary form of seeding.
2. Sod may be installed in place of seeding on top of the C-TRM. Additional staking of sod is recommended in high-flow conditions. Sodded areas should be irrigated until rooting through the mat and into subgrade occurs.

When using a woven HP-TRM:

1. Install the HP-TRM as directed prior to seed and soil filling.
2. Place seed into the installed HP-TRM. After seeding, spread a layer of fine soil into the mat. Using the flat side of a rake, broom or other tool, completely fill the voids. Smooth soil-fill in order to just expose the top of the HP-TRM matrix. Do not place excessive soil above the mat.
3. Additional seed, hydraulic mulching, or the use of a temporary Erosion Control Blanket (ECB) can be applied over the soil-filled mat for increased protection.
4. Sod may be installed in place of seeding. Install HP-TRM, and soil-fill as outlined above. Place sod directly onto the soil-filled HP-TRM. Additional staking of sod is recommended in high-flow conditions. Sodded areas should be irrigated until rooting through the mat and into subgrade occurs.
5. Consult with a manufacturer's technical representative for installation assistance if unique conditions apply.

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