

TG13.1 – Roof Park Landscaping and Irrigation

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

Question No.	Submission Date	Drawing No.	Document/ Spec. No.	Question	Response
TG13.1-118	5/6/2015	32 15 10, 2.2.D		Please confirm the frequency of tests required in paragraph D section 2.2 for the Resin aggregate paving.	Refer to SKLA-434, Specification Section 32 15 10 resin aggregate paving for the resin paving test frequency requirements.
TG13.1-122	5/7/2015	A1-2904, L1-2639, 2/L1-7647, 12 93 20		<p>Callout on sheet L1-2639 states that Play Structure Post Footing "Layout According to Play Structure Installers Written Instructions."</p> <p>Confirm that the play structure footings will be installed per A1-2904 and that locations will not change. Please confirm that per 2/L1-7647 the waterproofing stops at the base of the footing and does not continue up the vertical surface or cover the top of the footing. Please provide sleeve or connection details at the top of footing for the play structure posts.</p> <p>Specification Section 12 93 20 is in metric measurements. Confirm that the play structure as specified may be purchased in the United States in compliance with Buy America.</p>	<p>1) Confirmed. The play structure footings will be installed per A1-2904; please refer to attached SKLA-356.3 for clarification.</p> <p>2) Install waterproofing per details 2 and 6/A1-8851. Also, please refer to attached SKLA-356.2 Rev, which illustrates one suggested method of installing the play structure post to the footing.</p> <p>3) The Contractor will resolve the final method of post installation assuming the footing is already installed (See note 2 above).</p> <p>4) Currently, a domestic supplier is specified for the play structure.</p>
TG13.1-138	5/18/2015	32 91 20		<p>Per specification section 32 91 20, there are three types of planting medium material listed in section 2.2: ¾" lava drain rock, Light Aggregate, and planting medium structural component.</p> <p>Please confirm that the planting medium structural component is to be used for the actual wetland planting medium, and we're to use either the ¾" lava drain rock, or the light aggregate as the 3" surface layer of aggregate in planting areas? Or if all three are to be mixed to form the wetland planting medium, please give us the mixture requirements.</p>	See attached SKLA-431 for clarification. For surface aggregate please refer to material plan.

TG13.1-142	5/20/2015	6/L1-7620		<p>Per detail 6 on sheet L1-7620, is trade package TG13.1 responsible for the waterproofing at the basins? Or will all waterproofing be covered by TG13.2? Also is there a specification for the root inhibitor? Or is this installed by trade package TG13.2 as well? Finally per TG13.1-059 question and response, is TG13.1 responsible for any of the items included in the response (i.e. $\frac{3}{4}$" plywood and waterproofing assembly).</p>	<p>The TG13.2 Trade Subcontractor is responsible for all above-grade waterproofing and damproofing for the Transbay Transit Center Building. Refer to TG13.1 Exhibit A, IV. Scope of the Package and Bid Item Information, 3. Base Bid Item Scope, General, 21.</p> <p>Items mentioned in TG13.1-059 are scoped as follows: The TG13.1 Trade Subcontractor shall provide and install plywood. The TG13.2 Trade Subcontractor will provide and install waterproofing and protection board.</p> <p>Refer to specification 07 13 00 part 1.1 for waterproofing types. See attached SKLA-433 for a sample potential root inhibitor product.</p>
TG13.1-143	5/20/2015	32 84 00, 33 41 19		<p>Due to PVC's price correlation with oil, we're unable to predict the escalation for all of the irrigation and drainage PVC. The price of PVC has dropped roughly 50% with the price of oil.</p> <p>While we don't anticipate it, the price may rebound to original levels by the time this package begins construction. Are we able to use the escrow documents to show PVC pricing at bid time if we do in fact realize a large price increase and will we be granted a change order to cover this increase?</p>	<p>Prices submitted at time of bid will remain as submitted. A change order will not be issued to cover any increase in price.</p>

SECTION 32 15 10 – RESIN AGGREGATE PAVING

PART 1 - GENERAL

1.1 RESIN PAVEMENT SURFACE COURSE

- A. Fog Seal.
- B. Tack Coat.

1.2 REFERENCES

- A. ASTM — American Society for Testing and Materials:
 - 1. ASTM D 698 — Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³))
 - 2. ASTM D 1557 — Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))
 - 3. ASTM D 1559-89 — Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus.
 - 4. ASTM D-6931 — Test Method for Indirect Tensile (IDT) Strength of Bituminous Mixtures.
 - 5. ASTM D-4123 — Test Method for Indirect Tension Test for Resilient Modulus of Bituminous Mixtures

1.3 DEFINITIONS

- A. Finished Surface: The required final surface grade elevations of RESIN PAVEMENT indicated on the Drawings.
- B. RPBE: Resin Pavement Binder Emulsion.
- C. RPM: Resin Pavement Mixture.
- D. RP: Resin Pavement.
- E. RPTC: Resin Pavement Tack Coat.
- F. RPFS: Resin Pavement Fog Seal.
- G. ~~1...DELETED Sand Layer: refer to 32-14-40. ... I~~
- H. LEED Submittals:
 - 1. Within 30 days of Contract award, assemble and submit all LEED material information on the “LEED Material Tracking Spreadsheets” and forms provided in the Project Manual, together with all supplemental documentation as required by LEED.
 - 2. Credit MR 4: Product data indicating percentage by weight of post-consumer and postindustrial recycled content for products having recycled content. Include a statement indicating projected costs for each product having recycled content.

3. Credit MR 5: Product data indicating location of extraction and processing and location of manufacture. Include a statement indicating projected costs for each product being extracted, processed, and manufactured within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: $(\text{Distance by rail}/3) + (\text{Distance by inland waterway}/2) + (\text{Distance by sea}/15) + (\text{Distance by all other means}) = 500 \text{ miles [800 kilometers]}$.
4. Credit SS 7.2: Provide product data for hardscape materials indicating Solar Reflectance Index (SRI) as calculated according to ASTM E 1980.

1.4 PRODUCT DELIVERY

- A. RPM: Transport, deliver and handle RPM so as to prevent drying, moisture damage, overexposure, contamination, or freezing prior to installation.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Meet requirements of applicable laws, codes, and regulations required by authorities having jurisdiction over such work.
- B. Pavement Performance: Upon request, RPM manufacturer shall submit for reference the information and contacts for no fewer than three public agency projects where the manufacturer's paving mix material has been installed and in service for a period of not less than seven years, and which has a proven wear resistance surface without the continuing generation of fine particle material from the full surface of the pavement installation and does not need ongoing or regular application of additional seal coat treatments in order to preserve the integrity of the pavement.
- C. Installer: The RPM is installed in a manner similar to that for hot mix asphalt mixtures using asphalt paving equipment and tools. Installer shall be a professional paving company with appropriate equipment and personnel previously experienced in placement of asphalt pavement materials and with no fewer than five previous installations exhibiting a professional standard of pavement installation workmanship of the RPM product.
- D. Paving contractor is responsible to supply adequate number of crew and paving equipment to meet their planned daily paving production rates on the RPM project without creating delays in placement, raking, compaction operations or finish work that may compromise the integrity or appearance of the finished pavement installation.
- E. Pavement Mix Production: Pavement mix production shall be under the direction of an RPM manufacturer with not less than eight years experience in the production of RPM product. RPM shall be prepared with RPM manufacturer's mixing plant dedicated to the production of RPM product and equipped with metering controls for accurate proportioning of RPM ingredients.

1.6 SUBMITTALS

- A. Submit sample for approval to assure aggregate size, color and finish: 24-inch by 24-inch by 3-inch deep.
- B. Provide Test Data Reports: RPM minimum stability as identified in Part 2.1.C of this Section.
- C. Slip sheet: Product data and one 12-inch by 12-inch sample.

PART 2 - PRODUCTS

2.1 LEED REQUIREMENTS

- A. 1...Credit MR 5: Provide ~~mulch~~ materials with minimum 100 percent final products and having raw materials being sourced within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers]. ... 1

2.2 MATERIALS

- A. The RPM shall be cold-manufactured, cold-applied, display the natural coloration and texture of the aggregate material used in the mix formulation, and be suitable for vehicular and pedestrian traffic and with high strength such as that exhibited by hot mix asphaltic concrete mixtures.
- B. 1...RPM: The RPM shall be NaturalPAVE® XL Resin Pavement™ (color to be selected by TJPA Representative, **color and finish shall be 'Fresco', or approved equal**) as manufactured by Soil Stabilization Products Company, Inc., (SSPCo), Merced, CA. (209) 383-3296 or (800) 523-9992, or equal. NaturalPAVE XL Resin Pavement, similar to hot mix asphalt, is a surface course pavement material that is reliant on the workmanship of the pavement contractor during placement operations and on the strength and stability of the base course and underlying layers upon which it is constructed. SSPCo is a supplier of pavement materials only and not a contractor, engineer, installer or construction inspector. ... 1
- C. RPBE Performance Record: RPM using the RPBE shall have a record of Marshall Stability test results where mixtures exceeded 10,000 pound stabilities when tested at 140°F (60°C) temperature, TSRST test results where finished mixtures demonstrated all of the low temperature performance criteria down to a temperature of -18.4°F (-28°C), and Resilient Modulus test results in accordance with ASTM D-4123 test methods demonstrating layer equivalency equal or better than conventional hot mix asphalt. RP using the RPBE shall have a documented record of having performed as well or better than asphalt pavement in both wet and dry Rotational Penetrometer test evaluation of Firmness and Stability for use as an accessible outdoor surface. Dynamic Modulus engineering performance test data also shall be available from independent materials testing laboratories demonstrating that the RPM product equals or exceeds the performance of typical hot mix asphalt mixes. Falling Weight Deflectometer (FWD) test results shall be available from the supplier to confirm that RP constructed with the RPBE product have achieved Moduli values comparable or better than typical hot mix asphalt pavement of similar layer thickness when evaluated in engineering field studies of completed projects.

- D. RPM shall be sampled for testing at time of delivery to RPM installer, prior to installation of the RPM material by the installer. The collection of RPM sample for testing, the transport of sample to the testing laboratory and the specified Marshall Test laboratory procedure shall be the responsibility of the installer. The installer shall provide test reports from an independent pavement materials testing laboratory to TJPA's Representative and to the RPM Manufacturer at a frequency of not less than one test per every 5,000 square feet of finished RP surface course. RPM sample shall be compacted to appropriate dimensions with specified compactive effort in laboratory Marshall Test molds while placed on top of solid metal base. Marshall Test for stability of the finished RPM mixture to be conducted in laboratory controlled conditions after a minimum of thirty (30) days curing and two hours of heating in air bath at 140°F temperature in accordance with ASTM D 1559 test requirements by an independent pavement materials testing laboratory previously experienced in testing NaturalPAVE XL

Resin Pavement materials. RPM sample shall be tested by the RPM installer. These laboratory test specimens shall meet the following requirements:

Test Properties	
<i>Property</i>	<i>Value</i>
Stability Minimum (lbs.):	8,000

- E. Stability requirements listed above are specific to the finished RPM mixture as delivered to the installer and are not intended as a quality control standard for the installed pavement, which is the product of the work of the installer, the firmness of the base course, weather conditions during and after installation, adherence to traffic and irrigation water restrictions during pavement curing, and other variables affecting the performance of the constructed product.
- F. The RPM shall have a demonstrated record of Solar Reflectance Test results where a pavement specimen constructed with the mixture exceeds the minimum reflectance of 0.3 and qualifies as a high-albedo material that reduces heat absorption as required for a LEED™ Rating System Point toward “Green Building” Certification from the U.S. Green Building Council (USGBC) as a per Credit 7.1 (Heat Island Effect) for light-colored/high albedo pavement.
- G. RPTC: Same as NaturalPAVE XL Resin Pavement Binder Emulsion for RPM. Uniformly mix 1 part RPTC with 1 part water.
- H. RPFS: Same as NaturalPAVE XL Resin Pavement Binder Emulsion for RPM. Uniformly mix 1 part RPFS with 4 parts water.

2.3 EDGING

- A. As indicated on Drawings. Edging should be installed with compacted aggregate shoulder backing level with top of edge or staked sufficiently so as to eliminate any deflection of edge during placement of RPM and during vibratory compaction of RPM while roller is operating immediately adjacent to and on top of edge. Shoulder backing or staking should be constructed with sufficient strength to permanently hold edge firmly against pavement regardless of subgrade soil moisture conditions.
- B. Slip Sheet: 20 mils, HDPE. Size as indicated on Drawings.

PART 3 - EXECUTION

3.1 PREPARATION OF SUBGRADE

- A. Prepare subgrade per TJPA Representative's direction and compaction specification requirements, but in no case shall the subgrade for a RPM installation be compacted to less than 95 percent of the optimum density determined by Test Method ASTM D 698. Compaction testing to be provided by project TJPA at a frequency of not less than one test per one hundred (100) lineal feet of RPM subgrade or not less than one test per 2,000 square feet of RPM subgrade.

3.2 INSTALLATION OF BASE COURSE FOR PAVING

- A. Prepare base layer per specification requirements to provide a firm, stable and dry platform for surface course paving operations. The base layer for the RPM should be compacted uniformly to the extent necessary to provide not less than 95 percent of the optimum density as determined by Test Method ASTM D 1557. Compaction testing to be provided by project TJPA at a frequency of not less than one test per one hundred (100) lineal feet of pavement base layer or not less than one test per 2,000 square feet of pavement base layer.

3.3 EXAMINATION

- A. RPM Installer Verification of General Conditions: Examine site and verify that conditions are suitable to proceed with the RPM installation and that no defects or errors are present which would cause a defective installation of the pavement or cause latent defects in function.
- B. RPM Installer Verification of Base Course: Verify that base course has been constructed according to directions and compaction specification requirements to the correct grades and slopes and that it is free of cracking or other damage that could reflect upward through the RP. Proof roll base course prior to paving with equipment of weight similar or heavier than the loaded delivery trucks and paving equipment and rollers that will operate on the base during pavement operations. Any areas of base course that rut, crack or deflect in any manner under proof rolling should be replaced full depth and retested for compaction.
- C. Slip Sheet: Provide slip sheet at all joints in subslab. Size as indicated on drawings.
- D. Verify that positive drainage conditions have been established at all locations where the RPM will be installed so that the RPM installation is protected from water ponded on the pavement surface or against the edge of the pavement or pavement base course.
- E. Unsuitable Conditions: Before proceeding with work, notify the TJPA's representative in writing of unsuitable conditions and conflicts.

3.4 WEATHER LIMITATIONS

- A. General: RPM shall not be applied when it is raining or when rain is expected. Weather forecasts should indicate no rain during application procedures and for at least 24 hours following application. The ambient temperature must be above 16 degrees C (60 degrees F) for application of RPM unless otherwise approved in writing by the RPM manufacturer. The same weather limitations apply to the application of fog seal.

3.5 EQUIPMENT FOR PLACEMENT

- A. For all areas accessible by paving machine, the RPM shall be placed using a self-propelled mechanized spreading and finishing machine equipped with a screed or strike off assembly capable of being accurately regulated and adjusted to a uniform depth to provide a structural section of compacted Design Thickness upon completion of final compaction. The equipment shall be inspected and cleaned prior to use to ensure that no residue from previous hot mix asphalt or other pavement placement operations will contaminate the RPM.
- B. The RPM shall be compacted with a self-propelled tandem smooth drum rollers of less than 1,500 pounds (such as the MULTQUIP R-2000H), capable of operation in both static and vibratory compaction modes, and a vibratory plate for areas that are inaccessible to rollers. Hand tamping equipment shall be provided for compaction in areas immediately adjacent to walls and other structures where asphalt rollers and vibratory plates cannot be operated without risk of damage to wall or structure. In combination with the self-propelled tandem smooth drum roller described above, which must be used to compact all areas of pavement accessible to rollers of this size, other equipment may be used during final compaction such as beveled edge polypropylene lawn rollers. In any case, it is the responsibility of the installer to review the suitability of all compaction equipment for project specific requirements and to operate the equipment so as not to damage the pavement mat during installation procedures.
 - 1. During initial and final compaction operations the self-propelled tandem smooth drum rollers should be parked, when not in use, upon a sheet of 3/4" plywood that is placed on the pavement mat, rather than being left parked directly on the pavement surface.
 - 2. Steel rollers and vibratory plate surfaces should all be inspected and cleaned of debris, grease and oil prior to use.
- C. The fog seal shall be applied by pressurized equipment capable of applying the RPFS in a uniform manner at the specified application rate.

3.6 INSTALLATION OF RPM

- A. Placement of RPM:
 - 1. Do not place RPM without enough time to complete placement and initial compaction during daylight hours. RPM delivered in Super Bags to the project site should be placed in a timely manner to ensure that the mix retains its moisture content as delivered. RPM delivered in super bags to the project site should be stored until use under roof or under well-secured waterproof covers in a well-drained location. Super bags are not designed to withstand high wind and wet weather conditions. Super bags containing NaturalPAVE XL Resin Pavement mix should not be left exposed to the environment or subjected to freezing temperatures.
 - 2. RPM to be retained for small-scale touch up work should be obtained from the Super Bagged RPM and stored in sealed 5-gallon plastic pails.
 - 3. Regardless of method of storage or length of storage, RPM installer is fully responsible to retain RPM in suitable condition for placement and measures should be taken to keep it enclosed in the super bag and protect it against drying in the case that temporary delays are encountered during the placement operation. Any mix left outside of the super bag should be securely covered. RPM delivered should be protected against drying until placed and compacted.

4. For areas inaccessible by paving machine, the RPM may be installed by hand and must be placed in two (2) lifts of equal depth. Important: Care should be taken to place the mix by raking or spreading with shovels rather than 'dropping' the mix when shoveling from any height. The goal is to position the mix in a manner that facilitates as uniform density as possible. Spreading the mix in this manner will result in a smoother finish after compaction with less undulation in the final surface. Immediately after the first lift of one-half the total loose thickness is placed and evenly distributed, compact the lift with the steel drum roller of less than one ton, applying one forward pass in vibratory mode and one reverse pass in non-vibratory mode. Compact with a minimum of five passes of a vibratory plate those areas inaccessible to the roller. Install the second lift to a depth that upon final compaction meets the specified Design Thickness and the Finished Surface Smoothness requirements (See Section 3.8 TOLERANCES). For those areas inaccessible to the roller, compact the second lift with a minimum of five passes of a vibratory plate. Go to Section 3.6.B. for Initial and Final Compaction procedures.
5. For areas where the finished compacted depth of the RP is 3 inches or less, place RPM via a single, continuous operation using a self-propelled mechanized spreading and finishing machine designed specifically for that purpose, equipped with a screen or strike-off assembly capable of being accurately regulated and adjusted to distribute a predetermined uniform depth.
6. If there are areas where the finished compacted depth of the RP is greater than 3 inches, install the RPM in two lifts
7. In areas where two lifts are required, the second and final lift of RPM may be placed without application of Tack Coat if surface of first lift is clean and restricted to traffic and second and final lift is placed no sooner than 36 hours after and no more than 7 days following final compaction of the first RPM lift.
8. If tack coat is required, clean surface of first RPM or hot mix asphalt placement lift of any debris or track on and apply tack coat no more than 10 minutes ahead of RPM placement operations.
9. Apply tack coat at rate of 0.05 gallon RPTC per square yard.
10. The second and final lift should be installed to provide a compacted depth that upon final compaction meets the specified Design Thickness and the Finished Surface Smoothness requirements (See Paragraph 3.8 TOLERANCES).

B. Compaction: Similar to procedures used during rolling and compaction of hot mix asphalt pavement, vibratory plates and rollers should be operated by skilled roller operators taking precautions to avoid damage to the freshly placed pavement mixture. When operating vibratory plates, each vibratory compaction pass should be ended at a different location on the pavement mat and turning action directed accordingly to avoid marking pavement surface by continued turning of vibratory plate. When operating rollers in vibratory mode, the vibrators should be shut off before coming to a stop or a change of direction. Rollers should be started and stopped slowly and smoothly, coming to a complete stop before reversing direction. Rolling passes should not all end at the same spot. Turning or articulation during rolling operations should be modified accordingly to avoid tearing or stress cracking the pavement mat. When rolling corners or turns, reduce the rolling speed and make multiple passes with very gradual turning action, moving over no more than 3 to 4 inches per pass, until the full area of pavement has been rolled. Changes of direction, turning or articulation of the roller should only take place when rollers are moving and should be done in a very deliberate and cautious manner.

1. Initial Compaction:

- a. Begin initial rolling as soon after RPM placement as RPM will bear roller without undue displacement.

- b. If RPM will not support compaction equipment, delay initial compaction until RPM achieves adequate stability to support compaction equipment but not to the point where the moisture content in the surface mat is lost which is essential to effective bonding of surface aggregates.
- c. Perform initial compaction with self-propelled tandem smooth drum rollers of less than one ton capable of operation in both static and vibratory modes.
- d. When working on grades 4 percent or steeper, operate equipment at slow speeds and with the drive wheel forward to the uphill direction of work progress.
- e. Make three complete passes with the roller during initial compaction, forwards and backwards, while moving continuously across and overlapping each previous pass by three to five inches.
- f. Test pavement surface for slope, smoothness and review surface finish after initial rolling, and correct deficiencies immediately so that finished surface will meet specified tolerances and requirements for slope, smoothness, and surface finish upon final compaction.
- g. Furnish and maintain at site a clean, 10-foot long aluminum straightedge having blades of box or box-girder section with a flat bottom reinforced to ensure rigidity and accuracy available for use by the TJPA's representative.

2. Final Compaction:

- a. Begin final compaction as soon as possible once initial compaction has been completed and the specified preliminary tests of slope and smoothness completed and deficiencies, if any, are corrected.
- b. Perform final compaction with self-propelled tandem smooth drum rollers and for areas inaccessible to the self-propelled tandem smooth drum rollers with the beveled edge polypropylene lawn rollers. Make no fewer than 5 complete rolling passes, forwards and backwards on all areas of pavement installation, while moving continuously across and overlapping each previous pass. The lawn rollers should be used to roll out any roller marks and surface irregularities left by the smooth drum roller.
- c. Do not over roll the pavement installation. Once final compaction effort has produced a pavement mat that is compressed, uniformly shaped and textured, free of roller marks and surface deformities, and meeting grade and smoothness specifications, no further compaction is required. The minimum number of compaction passes to achieve these goals is specified.
- d. There may be circumstances when rolling passes will be required the day following placement and compaction in order to address any roller marks and surface irregularities that remain at that time. This would be in addition to the Initial Compaction and Final Compaction specified for the day of placement. The installer should plan for this possibility and schedule availability of roller equipment and the roller operator for the day following placement in the event that additional rolling is required.

3.7 FOG SEAL

A. Application:

- 1. Apply fog seal to surface of completed RP surface course not earlier than 24 hours and not later than 7 days following final compaction. The installer is responsible for verifying that the newly placed pavement is adequately cured to support the fog seal distribution equipment before commencing the fog seal application.
- 2. Protect pavement surface against track on of dirt and mud until fog coat application has been completed.
- 3. Apply fog seal at rate of 0.02 to 0.04-gallon of RPFS per square yard.

4. Apply fog seal using pressurized distribution equipment that is designed, equipped, maintained, and operated in such a manner that RPFS may be applied uniformly at variable widths.
5. Provide a verifiable application method that will reliably place the product at controlled rates with uniform pressure.
6. Make applications in multiple passes of the distribution equipment if necessary to avoid loss of the material from run-off.
7. Protect adjacent surfaces as required to prevent overspray, migration and staining caused by Fog Seal.

B. Curing of Fog Seal:

1. Allow fog sealed surface to dry for at least 48 hours prior to allowing traffic on pavement. Wind, temperature, humidity, and pavement surface absorbency affect drying and curing rates.
2. Restrict access following fog seal application until pick-up on tires will not occur.
3. Requirements for curing of fog seal as described above do not supercede curing time and traffic restriction requirements for the RP installation itself.

3.8 TOLERANCES

- A. In-Place Compacted Thickness Variation from Design Thickness: Maximum $\frac{1}{4}$ -inch plus, minus 0 inch.
- B. Finished Surface Smoothness of RP surface course: Maximum $\frac{1}{4}$ - inch variation from a 10-foot long straight edge laid parallel to the road center lines, except at intersections, grade breaks and tie-in points to adjacent pavements and hard surfaced pedestrian walking paths.

3.9 FIELD QUALITY CONTROL

- A. RP Finished Surface Smoothness:
 1. Test pavement continuously following initial compaction for smoothness and correct profile by laying a 10-foot straightedge on the paving finished surface parallel to road or path centerline.
 2. Surface shall not vary more than $\frac{1}{4}$ -inch, except at intersections, grade breaks, and tie-in points to adjacent pavements.
 3. Correct areas not meeting specified surface tolerance immediately after initial compaction.
- B. RP Course Thickness: As shown in Drawings.

3.10 IN-PLACE COMPACTED THICKNESS VARIATION FROM DESIGN THICKNESS: MAXIMUM 1/4-INCH PLUS/MINUS 0-INCH.

- A. If verification tests are to be conducted by TJPA Representative for In-Place Compacted Thickness, tests should be conducted immediately following final compaction. Installer should be previously notified to store appropriate quantity of touch-up mix in sealed container to provide for the required repairs of test areas. This test will require removal of pavement and a patch repair that will be visible as a patch in the final pavement product. Any concerns of the project TJPA regarding the appearance and location of test patches, beyond thickness and smoothness tolerances specified, will be the responsibility of the TJPA Representative. To conduct the thickness test, remove a small section of pavement to expose base course. Measure from bottom of straight edge placed across excavation to surface of base and record distance to nearest 0.01 foot. Installer should immediately proceed with pavement repair once measurements are taken.

3.11 REPLACEMENT OF DEFICIENT OR DAMAGED RP

- A. Areas to Be Replaced: Replace full depth of RP thickness if RPM is contaminated or if paving work is defective.
- B. Edges of Replaced Pavement:
1. Cut edges of RP to be removed so that sides are vertical and oriented perpendicular and parallel to direction of traffic.
 2. Spray edges with a tack coat of RPTC.
- C. Installation:
1. After applying tack coat, place RPM in areas where paving was removed in sufficient quantity that will allow finished surface to conform to elevation and tolerance requirements after final compaction.
 2. Thoroughly compact RPM so that cured patch meets requirements specified herein.
 3. Replacement RPM shall match adjacent material without exception.

3.12 PROTECTION

- A. Traffic Restriction:
1. Do not permit traffic on pavement surface until curing is complete. Protect pavement surface against traffic until pavement has cured sufficiently to support traffic without marring, rutting, tearing, distressing, or damaging the pavement in any way. Utilize warning signs, barricades, and protection fencing to protect pavement from traffic. If the pavement structural section design and edge design are for pedestrian and bicycle traffic only, then restoration of traffic applies to pedestrian and bicycle traffic only. If the pavement structural section design and edge design are for light duty vehicular traffic use only, then restoration of traffic applies to light duty vehicular traffic only. All damage to the pavement by contractor construction equipment and construction truck traffic will be the responsibility of the contractor to repair.
 2. **1...**The general guidance in regards to traffic restriction requirements below in Item 3 (Section 3.44-12.A.3) does not supersede the responsibilities of the Installer, TJPA Representative and Project TJPA to protect the newly installed pavement as addressed above in Item 1 (Section 3.44-12.A.1), and to make the final determination in regards to the status of the curing pavement layer for restoration of traffic. As further addressed in Item 3 below (Section 3.44-12.A.3), shaded areas will cure more slowly and may require more lengthy traffic restriction than areas receiving full sun exposure.**... 1**

3. The curing rates of RP installations are greatly influenced by temperature conditions during and subsequent to installation, but many other variables come in to play such as base course moisture conditions, humidity, rainfall interruptions during the curing period, wind velocity, day length, sunlight angle, and degree of shading. Lower sun angles create increased shading and shorter day lengths further limit the amount of sun exposure, typically resulting in the need to extend traffic restrictions beyond the following temperature related guidelines. The combination of cooler weather and a high degree of shading greatly slows RP curing and may require localized traffic restriction, while RP receiving full sun exposure will no longer need to be protected. Periods of rainfall during the curing period can add extra days to the minimum number of dry weather curing days required, particularly if the base course underneath the pavement becomes saturated by water ponded against the edge of pavement by heavy rainfall or other sources of water. Additional traffic restrictions may be required until excess water evaporates out of the base course and permits the lower portion of the pavement to dry back and cure.
 - a. For RP placed in temperatures of 70°F (21.1°C) or warmer, traffic should be restricted following final compaction for a minimum of 5 days of dry weather curing with temperatures of 70°F (21.1°C) or warmer.
 - b. For RP placed in temperatures of 60°F (15.55°C) to 70°F (21.1°C), traffic should be restricted following final compaction for a minimum of 7 days of dry weather curing with temperatures of 60°F (15.55°C) or warmer.

B. Drainage and Irrigation Water Restriction:

1. Provide drainage during construction to prevent water from collecting or standing on or adjacent to areas to be paved or areas of freshly placed pavement.
2. 1... Installer shall notify TJPA Representative and require notification of project TJPA, facility manager and landscape maintenance staff that landscape irrigation water is to be absolutely restricted from the pavement surface or from ponding near pavement edges during the full period of traffic restriction as required above in Item 1 (Section ~~3.44~~**12.B.1**). Any landscape watering in the vicinity of the newly installed RP during the traffic restriction period should be conducted by hand watering and timers for automatic sprinkler and watering systems should be shut off with explanatory written notices attached. ... 1

END OF SECTION 32 15 10

SPECIFICATION ISSUE LOG

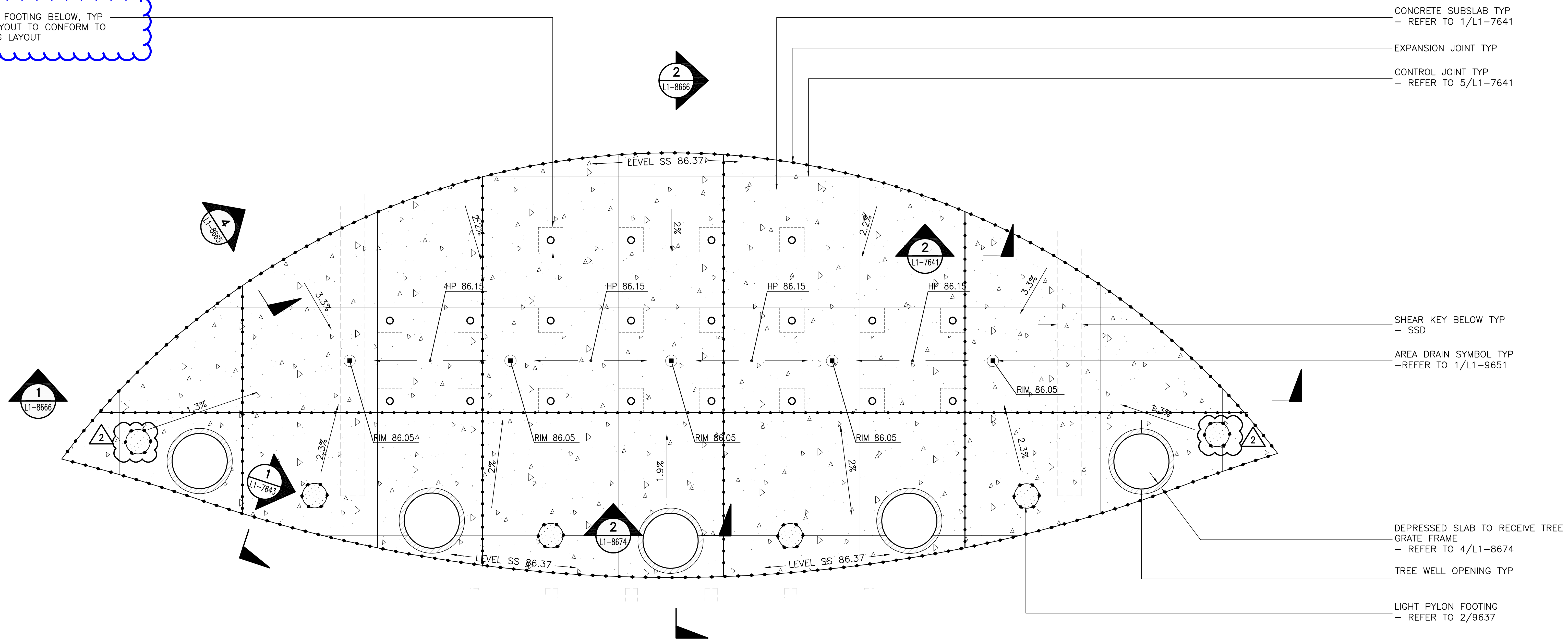
Revision	Date
0	03/31/14
1	02/27/15

1 FURNITURE FOOTING IN COBBLESTONE ALONG BAMBOO BASIN
 SCALE: 3" = 1'-0"

2
 PLAY STRUCTURE ANCHOR ASSEMBLY FOOTING

Crystal May 27, 2015 - 4:46pm Z:\PCP\8011Field\Sketches\SKLA-356-RF1 T-2082 SFS & RF1 T0121-122 - Play Structure Assembly Footing at the Shear Key For Transit Center Building\SKLA 356_L1-2633.dwg

PLAY STRUCTURE POST FOOTING BELOW. TYP _____
 - PLAY STRUCTURE LAYOUT TO CONFORM TO
 STRUCTURAL FOOTING LAYOUT



CONCRETE SUBSLAB TYP
- REFER TO 1/L1-7641

-EXPANSION JOINT TYP

CONTROL JOINT TYP
- REFER TO 5/L1-7641

- SHEAR KEY BELOW TYP
- SSD

- AREA DRAIN SYMBOL TYP
- REFER TO 1/L1-9651

DEPRESSED SLAB TO RECEIVE TREE
GRATE FRAME
- REFER TO 4/L1-8674

TREE WELL OPENING TYP

LIGHT PYLON FOOTING
- REFER TO 2/9637

NOTE: GRADES INDICATE SUBSLAB
ELEVATIONS SEE GRADING PLAN FOR
FINISH SURFACE GRADES

1 PLAY AREA SUBSLAB PLAN
 SCALE: 1/4" = 1'-0"

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CONTRACT NO.		03 04 CMCC 000		DRAWING TITLE: PLAN FOR CONSTRUCTION	
REVISIONS		NO.		DATE	
DESCRIPTION					

SKLA-356.3

DRAWN BY: SJP
CHECKED BY: CL

Response to RFTG13.1-122

SCALE: AS SHOWN
PROJECT NO.

pw

LANDSCAPE ARCHITECTURE
PLAY AREA

SUBSLAB ENLARG PLAN PHASE

PRJ:	ID#:		FIND
PRINCIPAL LEAD ARCHITECT			
APP:			
PROJECT MANAGER		EENSEN	
APP:	ID#:		
PROJECT MANAGER			SASSON
DESIGNER		J. CANTER	
P. WALKER			
DRAWN BY:	DATE:		
B. GILLETTE	02/27/2015		
SCALE:	SHEET NO.	PROJECT NO.	REVISION
1" = 1'-0"	E	140	2
SHEET NUMBER	SEQUENCE NUMBER		
L1-2639	of		

ISSUED FOR CONSTRUCTION

SECTION 32 91 20 – WETLAND PLANTING MEDIUM

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide a planting medium for the graywater treatment wetland.

1.2 DEFINITIONS

- A. Wetland Planting Medium: growing medium within the graywater treatment wetland.
 - 1. LEED Submittals: Within 30 days of Contract award, assemble and submit all LEED material information on the “LEED Material Tracking Spreadsheets” and forms provided in the Project Manual, together with all supplemental documentation as required by LEED.
 - 2. ~~**1...**Credit MR 5: Product data indicating location of extraction and processing and location of manufacture. Include a statement indicating projected costs for each product being extracted, processed, and manufactured within 500 air miles of the Project Site.~~
Product data indicating location of extraction and processing and location of manufacture. Include a statement indicating projected costs for each product being extracted, processed, and manufactured within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers]....**1**

1.3 ACTION SUBMITTALS

- A. Submit one sample of the following: Wetland Planting Medium—one quart

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect all material from damage during delivery, theft/vandalism and damage after delivery, and store under tarp to protect from sunlight exposure exceeding 5 days.
- B. Storage should occur on smooth, level surfaces, free from dirt, mud, debris, chemical contamination, and stormwater runoff.

1.5 PROJECT CONDITIONS

- A. Protect adjacent work from damage during wetland planting medium installation.
- B. Coordinate location, layout, and installation of piping, inlets, and outlets with final arrangement of utilities as determined in the field.

PART 2 - PRODUCTS

2.1 LEED REQUIREMENTS

- A. ~~1...~~ Credit MR 5: ~~Credit MR5: Provide materials with minimum 100% final products being manufactured and having raw materials sourced within 500 air miles of the Project Site based on total weight of products. Provide materials with minimum 100 percent final products and having raw materials being sourced within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers]....~~ 1

2.2 PLANTING MEDIUM MATERIAL

- A. 1... Provide One of the following:

1. 3/4- inch Lava Drain rock as provided by Clear Lake Lava, Clear Lake, CA (707) 998-1115. ~~Alternate to meet the criteria listed above.~~
2. ~~Alternate: 3/4- inch Stalite Drain rock as provided by Carolina Stalite Company:~~ Contact: Chuck Friedrich, RLA, ASLA, (800) 898-3772. ... 1
3. ~~1... Or equal. ... 1~~

- B. ~~Provide a Light Aggregate listed below that~~ Approved planting medium material will meet the ASTM standards as follow:

1. ~~1... 3/4 inch Stalite Expanded Slate or Lava Drain rock: 100 percent. ... 1~~
2. Angle of Internal Friction (Loose): 40 degrees.
3. Angle of Internal Friction (Compacted): 43-46 degrees.
4. Void Ratio: 0.962.
5. Permeability (Hydraulic Conductivity) (ASTM D2434 or D5084): cm/sec @ 20°C: 1.2E-01.

- C. Planting Medium Material Structural Component: ~~3/4 inch Stalite Rotary Kiln Expanded Slate.~~

1. ASTM C29 Unit Dry Weight (Loose) (48 lb./cf to 55 lb./cf).
2. ASTM C127 Specific Gravity to meet 1.45 to .70, SSD.
3. ASTM C330: ASTM Gradation 3/4" to #4 Size: see chart below.

<i>Sieve Size</i>	<i>% Passing</i>
1"	100
3/4"	90 - 100
3/8"	20 - 50
#4	0 - 10

4. Absorption (ASTM C127): 5 percent to 12 percent.
5. Test for degradation loss using Los Angeles Abrasion testing in accordance with ASTM C-131 modified method FM 1-T096. No more than 28 percent of the weight of the aggregate must be lost to degradation.

- D. Pesticide and Herbicide Use: The use of pesticides and herbicides is forbidden.

- E. ~~1... DELETED Bid Alternate: 3/4- inch Lava Drain rock as provided by Clear Lake Lava, Clear Lake, CA (707) 998-1115. Alternate to meet the criteria listed above. ... 1~~

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Comply with Section 01 70 00 Execution and Closeout Requirements. Examine graywater treatment wetland with TJPA's Representative and Contractor present before beginning installation.
- B. Obtain verification in writing from TJPA's Representative that associated plumbing work has been prepared.
- C. Obtain verification in writing from TJPA's Representative that concrete planter and waterproofing is in condition to receive planting medium.

3.2 PLANTING MEDIUM INSTALLATION

- A. Install planting medium in location shown in drawings. Material shall be spread to uniform depth.
- B. Planting Medium Finished Grade: Allow for a 3-inch layer of decorative mulch over the Wetland Planting Medium. Maintain the top of the decorative mulch flush with the adjacent paving surface (minus 1/2-inch).
- C. Do not drive upon or mechanically compact wetland planting medium.
- D. Prevent all non-installation related construction traffic over the completed planting medium installation.

3.3 FIELD QUALITY CONTROL

- A. The TJPA's Representative reserves the right to take samples of planting medium for testing for conformity to specifications. Rejected materials shall be removed off of project site at Project Contractor's cost. Project Contractor shall pay cost of testing of materials not meeting specifications.

3.4 CLEAN UP

- A. Perform cleaning during the installation of work and upon completion of the work. Remove from site all excess materials, debris, and equipment.
- B. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

END OF SECTION 32 91 20

SPECIFICATION ISSUE LOG

Revision	Date
0	03/31/14
1	12/16/14



GRS 2000

Root Resistant Waterproofing Membrane

DESCRIPTION

Davco K10 GRS 2000 is a liquid applied polyurethane elastomeric waterproofing membrane specially developed for use in roof gardens. Its root resistive property prevents the plant roots from tearing the waterproof membrane as they grow and flourish in the roof garden.

Davco K10 GRS 2000 is a liquid applied waterproofing membrane that is easy to apply, allowing for fast, effortless and seamless application even in garden designs that are irregular and unique.

USES

- All types of roofs, balconies and decks.
- Retaining walls and basements.
- Waterproofing of planter boxes.
- Eliminates soldering of cracked non-ferrous roof valleys and flashings.

ADVANTAGES

- Environmentally friendly.
- Protects against root penetration.
- Easy to apply.
- Gives a seamless waterproofing system with high tensile strength.
- High durability.
- Remain effective under extreme weather condition.

TECHNICAL DATA

Solid content	85% ± 2
Viscosity	> 5000 cP
Elongation at break	> 500%
Shore hardness	35 (after two weeks)
Water vapour transmission	19.4 g/m ² /24 hrs
Tensile strength	> 2 MPa
Tear Strength	> 250 N
Root Resistance	Yes

Specifications are subject to change without notification. Results shown are typical but reflect test procedures used. Actual field performance will depend on installation methods and site conditions.



PAGE 1 OF 2



DRAWING TITLE:
Response to RFI TG13.1-142

SCALE: AS SHOWN DATE: 05/27/15

PROJECT NO.

SKLA-433

DRAWN BY: SJP
CHECKED BY: CL



GRS 2000

APPLICATION

All surfaces to be treated must be as clean and dry as possible. It may be necessary to wire brush areas where dirt or scale cannot be removed, with a stiff broom.

Check surface for cracks, splits, flashing, coverings, etc. where cracks exceed 1 mm, they must be filled with fabric matting, followed by a liberal application of Davco K10 GRS 2000.

Prime the substrate with a layer of GRS Primer.

Davco K10 GRS 2000 should be applied directly from the pail. Apply by brush one coat of Davco K10 GRS 2000 to the whole area and allow to cure, approx. 6-10 hours. (Temperature dependent)

Apply the 2nd coat in a perpendicular direction to the 1st coat. It may require third coat to achieve final thickness.

All joints in floors should preferably be treated with additional coat of Davco K10 GRS 2000.

Davco K10 GRS 2000 can be applied using brush or roller. Normally a minimum of 2 coats is required, unless a trowel method of application is adopted.

Where Davco K10 GRS 2000 has to be applied to above a height of 300mm from the floor level, fixed a wire mesh prior to applying the protective render to prevent cracking and to improve adhesion.

Ponding should be carried out at least 48 hours after the final application of Davco K10 GRS 2000.

PACKAGING

20 kg pail.

COVERAGE

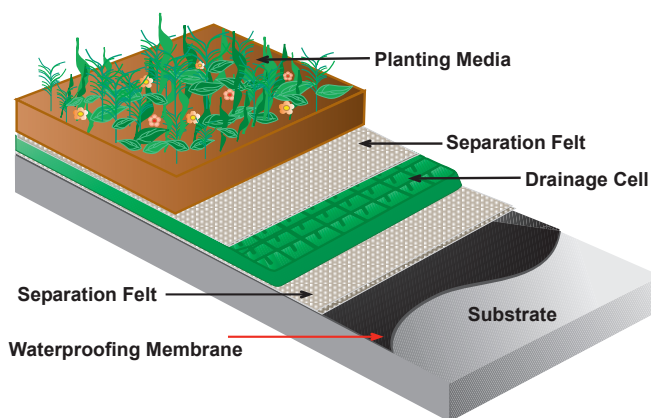
Recommended coverage approximately 0.8 - 1.2 kg/m².

CLEANING

All tools and equipment should be cleaned immediately with clean water after use. Hardened material can only be removed mechanically.

HEALTH & SAFETY

Please refer to the latest Material Safety Data Sheet.



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Davco



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Building expertise, together

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PAGE 2 OF 2

Disclaimer: The use of this product is beyond the manufacturer's control and liability is restricted to the replacement of material proven faulty. The manufacturer is not responsible for any loss or damage arising from incorrect usage. Specifications are subjected to changes without prior notice.

Updated WP30 Dec 2012