



MARK PESTRELLA, Director

# COUNTY OF LOS ANGELES

## DEPARTMENT OF PUBLIC WORKS

*"To Enrich Lives Through Effective and Caring Service"*

900 SOUTH FREMONT AVENUE  
ALHAMBRA, CALIFORNIA 91803-1331  
Telephone: (626) 458-5100  
<http://dpw.lacounty.gov>

ADDRESS ALL CORRESPONDENCE TO:  
P.O. BOX 1460  
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE

REFER TO FILE:

**BRC-2**

July 25, 2023

**NOTICE TO BIDDERS "C"**  
**CAMPUS KILPATRICK WASTEWATER TREATMENT SYSTEM**  
**REPLACEMENT PROJECT**  
**PROJECT ID NUMBER: BRC0000432**

This Notice to Bidders "C" clarifies certain portions of the Project Manual and drawings, responds to bidders' questions, and forms a part of the contract documents.

**PROJECT MANUAL**

1. Refer to Section 00 01 00, Instructions to Bidders, Part 1 – General, 1.

**Add** in its entirety:

This project includes the Countywide Community Workforce Agreement (CWA).

2. Refer to Section 00 01 00, Instructions to Bidders, Article 1.53 Application of Countywide Community Workforce Agreement.

**Add** in its entirety the following information:

**1.53 Application of Countywide Community Workforce Agreement**

The Countywide Community Workforce Agreement (CWA) with the Los Angeles/Orange Counties Building and Construction Trades Council and its respective unions was fully executed on June 7, 2023. A copy of the Countywide CWA is included as Attachment D of the Project Manual and will become an Exhibit in the final contract for this project. Countywide CWA will apply to this Project. The Contractor shall comply with all terms therein and shall be bound by the terms and conditions of the Countywide CWA applicable to the contractors for all Work on the Project for the entire duration of the Project. Countywide CWA shall be deemed

incorporated in full into this agreement including, but not limited to, the provisions regarding the hiring of workers for the Project by the Contractor and all of its subcontractors of all tiers. Contractor shall execute and return to the County the Letter of Assent, attached to the Countywide CWA as Attachment A to the Attachment D at the time of contract execution and shall cause each of its subcontractors of all tiers to also execute and return to the County a copy of the Letter of Assent.

3. Refer to Section 00 03 00, Form of Bid to be used by Bidders.

**Delete** in its entirety and **replace** with the following:

Section 00 03 00 Form of Bid to Be Used by Bidders (Attachment A).

4. Refer to Section 00 04 00, Attestation of Contractors Qualifications, to be used by Bidders.

**Delete** in its entirety and **replace** with the following:

Section 00 04 00 Attestation of Contractors Qualifications to Be Used by Bidders (Attachment B).

5. Refer to Project Manual and **add** new Specification Section 07 14 00, Fluid Applied Membrane Waterproofing (Attachment C).

6. Refer to Section 09 90 00, Painting and Coating, Section 1.6, Submittals A. **Delete** the row labeled "Applicators Quality Assurance".

7. Refer to Section 22 13 3,7 Packaged Sewage Pump Station, Section 1.4, Quality Assurance B. 1.

**Delete** in its entirety and **replace** with the following:

1. Have been engaged in manufacture of pumps similar to those furnished for at least 5 years.

8. Refer to Section 22 14 53, Reclaimed Water Systems.

**Delete** in its entirety and **replace** with the new Section 22 14 53 Reclaimed Water Systems (Attachment D).

9. Refer to Section 26 05 19, Low Voltage Wires 600 Volt AC Section 1.4, Quality Assurance C. 1 through 3.

**Delete** items 1 through 3 in their entirety:

10. Refer to Section 26 32 13, Emergency/Standby Generators 1.06, Quality Assurance A, and **delete** Paragraph A in its entirety.

11. Refer to Section 26 36 00, Automatic Transfer Switches 1.04, Informational Submittals C. 2., and **delete** this paragraph in its entirety.

12. Refer to Section 33 05 24, Utility Pipe Jacking 1.4, Quality Assurance A.

**Delete** in its entirety and **replace** with the following:

Bore-and-jack operations shall be performed by contractor or subcontractor with a valid Contractors State License C-34, Pipeline Contractor, who has held the license for a minimum of 5 years.

13. Refer to Section 33 11 11, Ductile-Iron Pipe and Fittings 1.4, Quality Assurance A. **Delete** Paragraph A its entirety.

14. Refer to Section 33 45 00, Process Blowers, Part 2 – Products, Quality Assurance A., 1, and **delete** this paragraph in its entirety.

15. Refer to Section 46 07 00, Packaged Water/Wastewater Treatment Equipment 1.4, Quality Assurance B.

**Delete** in its entirety and **replace** with the following:

- A. Suppliers that are submitted as equal to the suppliers named herein shall be considered with the following standards: Equipment furnished under this Section shall be supplied by a single Supplier who has been regularly engaged in the design and manufacture of such equipment for at least ten (10) years under the same management. The Supplier shall demonstrate to the satisfaction of the Engineer that the quality is equal to equipment made by those manufacturers named herein.
16. Refer to Section 46 07 53.49 Packed MBR Systems 1.05, Quality Assurance B.

**Delete** in its entirety and **replace** with the following:

- B. Manufacturers that are submitted as equal to the manufacturers named herein shall be considered with the following standards: Manufacturers: Equipment furnished under this Section shall be supplied by a single Supplier who has been regularly engaged in the design and manufacture of such equipment for at least ten (10) years under the same management. The Supplier shall demonstrate to the satisfaction of the Engineer that the quality is equal to equipment made by those manufacturers named herein.
17. Refer to Section 46 07 53.49 Packed MBR Systems 2.01, Suppliers A.

**Delete** in its entirety and **replace** with the following:

- A. Cloacina, LLC, or equal.

### **QUESTIONS AND ANSWERS**

Question 1: Refer to Sheet C02, Site Improvement Plan, the notes to contractor states "apply 20 mils Sikagard 7600, or equal, per specification 09 97 25". In the project manual, I do not see the aforementioned Specification Section. Could you please clarify whether the effluent pond is to be rehabilitated per this section or not??

Answer: Disregard reference to Section 09 97 25. The pond must be rehabilitated per Section 07 14 00 (Attachment B to this Notice C).

Question 2: Referencing Section 22 14 53, Reclaimed Water Systems, 2.2.B "Components". The parameters are blank. Please provide the required parameters.

Answer: Refer to the new Specification Section 22 14 53, Reclaimed Water Systems issued as Attachment C to this Notice C.

Question 3: Can you provide tank pre-filtration information?

Answer: No pre-filtration is required.

Question 4: Can you provide information on tank size, material of construction, and configuration?

Answer: Refer to Specifications Section 43 41 43, Polyethylene Tanks, and Sheet C-08.

Question 5: Is there any project specific pump information, like pump system flow and pressure requirements?

Answer: Pumps are existing. Information on the pumps is not currently available.

Question 6: Is there any water treatment requirements?

Answer: There is no requirement for tank treatment.

Question 7: Is there any system control information? For example, tank level monitoring requirement, control data points needed, and if the system requires Basic Automated System integration.

Answer: A level sensor is required inside the tank. Minor integration may be required between the new and existing irrigation controllers.

Question 8: Is there instrumentation outside scope of the prepacked system whereas the contractor will be responsible to supply? If so, what are they and are there tag numbers?

Answer: Refer to the tank level control is specified on Sheet A-03. There is no tag or ID number.

Notice to Bidders "C"  
July 25, 2023  
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Please notify your subcontractors to this effect.

Very truly yours,

MARK PESTRELLA, PE  
Director of Public Works

*Brian Soria*  
*for*

EDWIN MANOUKIAN  
Administrative Services Manager III  
Business Relations and Contracts Division

BS:em

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# **ATTACHMENT A**

\_\_\_\_\_  
Name of Bidder (Firm Name)

\_\_\_\_\_  
Vendor Identification Number

**SECTION 00 03 00**

**FORM OF BID TO BE USED BY BIDDERS**

The undersigned proposes to furnish all materials, labor, and equipment required for the construction to complete the Campus Kilpatrick Wastewater Treatment System Replacement Project, in accordance with Drawings and Specifications 7868, including addenda thereto, if any, adopted by the Board of Supervisors, and on file in the office of the Board of Supervisors, as follows:

**The lowest bid price shall be determined by adding the following items: Lump Sum Bid in Words (1) + Bid Alternate 1 (2) + [Extended Overhead Daily Rate (3) x Multiplied by 30 days] = Total Lump Sum Bid. Preference as stated in Section 00 01 00, 1.30, will be applied to the Total Lump Sum Bid, if applicable, to determine the final total bid amount.**

**1. LUMP SUM BID:**

The lump sum bid for the work, including Best Management Practices (BMP) and Construction and Demolition Debris Recycling, and Mandatory Jobs Coordinator requirements complete according to the Drawings and Specifications, will be:

(\$ \_\_\_\_\_) ( \_\_\_\_\_)  
Lump sum bid in figures Lump sum bid in words

**2. BID ALTERNATE 1:**

The amount to be added to the Lump Sum Bid for inclusion of the work of Additive Alternate 1:

To install new above grade 12,000 gallon polyethylene effluent storage tank and connect to (E) irrigation system, to install new 10" gravity sewer line connected to (E) MH, including jack and bore 10" sewer and casing under Encinal Canyon Road, to install new 4" recycled water line as specified in Section 01 23 00, Alternatives and Construction Document Drawings.

(\$ \_\_\_\_\_) ( \_\_\_\_\_)  
Bid Alternate 1 in figures Bid Alternate 1 in words



**3. EXTENDED OVERHEAD DAILY RATE:**

The daily rate for the sum of the Contractor's field office and home office overhead applicable to this project, for each day of compensable delay will be:

(\$ \_\_\_\_\_) ( \_\_\_\_\_ )  
Daily rate in figures Daily rate in words

**4. COUNTY PROGRAM PREFERENCE:**

The Local Small Business Enterprise Program Preference, Social Enterprise Program Preference, and Disabled Veterans Business Enterprise Program Preference are provided by the County for purposes of bid evaluation only, as specified in Article 1.30 of Section 00 01 00. If Bidder is a qualifying Local Small Business Enterprise, Social Enterprise Preference, and/or Disabled Veterans Business Enterprise check "yes" in the box below. Section 00 04 38 Request for County Program Preference Consideration must be submitted at the time of bid with a copy of the certification letter issued by the County of Los Angeles Department of Consumer and Business Affairs. If non-qualifying, check "no" in the appropriate box.

LSBE Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
SE Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
DVBE Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

**4. RECEIPT OF NOTICE TO BIDDERS: (IF APPLICABLE)**

I hereby certify and declare that I have received, reviewed and incorporated Notice to Bidders A and B dated July 20, 2023, and Notice to Bidders C, dated July 25, 2023, into my Bid.

Executed this day of \_\_\_\_\_ (Month and Year)

By: \_\_\_\_\_  
(Authorized Signature of a Principal Owner, Officer, or Manager)

NOTE: Any alteration or addition to the Form of Bid may invalidate same. All blank spaces shall be filled out completely. Line out nonapplicable blanks. An incomplete form may invalidate bid. The County reserves the right to waive any informalities or to reject any or all bids or to accept any alternatives when called for.

I (We) certify that on \_\_\_\_\_, 20\_\_\_\_, License No. \_\_\_\_\_, license classification(s) \_\_\_\_\_, was issued to me (us), in the name of \_\_\_\_\_, by the Contractors' State License Board, pursuant to California Statutes of 1929, as amended, and that said license has not been revoked.

**Firm Ownership Information**

Check where applicable:

1.     ☐     Minority-Owned  
         ☐     Woman-Owned  
         ☐     Disadvantaged-Owned  
         ☐     Disabled Veteran-Owned  
         ☐     LGBTQQ-Owned

2.     ☐     An individual  
         ☐     A corporation. Name  
                          state or territory of  
                          Incorporation

☐     A copartnership

☐     A joint venture

**Race/Ethnic Composition**

For statistical purposes only.

- ☐     Black/African American  
☐     Hispanic/Latino  
☐     Asian or Pacific Islander  
☐     Native Americans  
☐     Subcontinent Asian  
☐     White

If a copartnership or joint venture, list names of individuals comprising same below

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date signed \_\_\_\_\_, 20\_\_\_\_

Respectfully submitted,

Place \_\_\_\_\_

City and State

\_\_\_\_\_  
Firm Name (if applicable)

Bidder's address, E-mail address, and telephone:

\_\_\_\_\_  
Number and Street

\_\_\_\_\_  
Signature and Print Name

\_\_\_\_\_  
City and State

\_\_\_\_\_  
Title and E-mail Address

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Signature and Print Name

\_\_\_\_\_  
Fax

\_\_\_\_\_  
Title and E-mail Address

# **ATTACHMENT B**

**SECTION 00 04 00**

**ATTESTATION OF CONTRACTOR'S QUALIFICATIONS**

General Contractor's Firm Name (as shown on bid): \_\_\_\_\_

**As specified in the bidding documents, in order to qualify to bid on this project, the General Contractor, or subcontractor listed in Section 00 04 30 (Subcontractor Listing and Subcontracting) must have completed within the last 10 years, 2 waste water treatment projects, of at least \$4 million final contract value each, and waste water system with a minimum of 15,000 GPD average annual flow, for a public entity.**

**In addition, the manufacturer mentioned in Section 22 13 37, Packaged Sewage Pump Station, 1.4, Quality Assurance B.1., shall have been engaged in the manufacture of pumps similar to those furnished for at least 5 years.**

**Lastly, the installer mentioned in Section 22 14 53, Reclaimed Water Systems, 1.6 C.1, shall have completed 2 projects within the last 10 years with a minimum of a 5,000 gallon tank.**

The general contractor hereby certifies to the County of Los Angeles that it possesses the qualifying experience.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge.

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 2023 at \_\_\_\_\_  
(Month) (City and State)

By: \_\_\_\_\_  
(Signature of owner or officer of the General Contractor)

\_\_\_\_\_  
(Title)

SECTION 00 04 00

ATTESTATION OF CONTRACTOR'S QUALIFICATIONS

The general contractor shall submit verification and justification of its qualifying experience on this County provided form as part of its bid submittal. Failure to submit the information at the time of bid and to meet requirements for qualifying experience may result in a determination by the County that the Bidder is non-responsive and/or not qualified.

The County will determine, in its sole discretion, whether or not the information provided meets the requirements for qualifying experience in order for the general contractor to be considered a qualified bidder for this project.

PROJECT 1:

Project Name	Average Annual Flow (GDP)	Owner Contact Name and Address	Owner Phone and Email Address	Final Contract Value (\$)	Date Completed

Project description:

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PROJECT 2:

Project Name	Average Annual Flow (GDP)	Owner Contact Name and Address	Owner Phone and Email Address	Final Contract Value (\$)	Date Completed

Project description:

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- 1. The manufacturer mentioned in Section 22 13 37, Packaged Sewage Pump Station, 1.4, Quality Assurance B.1., shall have been engaged in the manufacture of pumps similar to those furnished for at least 5 years.**

Name of Manufacturer	Engaged in manufacturer of similar pumps (Yes or No)	At least 5 years (Yes or No)

- 2. The installer mentioned in Section 22 14 53, Reclaimed Water Systems, 1.6 C.1, shall have completed 2 projects within the last 10 years with a minimum of a 5,000 gallon tank, attach proof.**

Name of Manufacturer	Completed 2 projects within last 10 years (Yes or No)	Minimum of 5,000 gallon tank (Yes or No)

# **ATTACHMENT C**

**SECTION 07 14 00**  
**FLUID-APPLIED MEMBRANE WATERPROOFING**

**PART 1 - GENERAL**

**1.1 Summary**

- A. Provide a cold fluid-applied bitumen-modified polyurethane waterproofing system on structural concrete , metal or other substrates.
  - 1. Work includes substrate preparation.
  - 2. Work includes bridging and sealing air leakage and water intrusion pathways and gaps including connections of the slabs and walls to the penetrations, drains etc.

**1.2 Related Sections**

- A. Section 03 30 00 – Cast-In-Place Concrete.

**1.3 Performance Requirements**

- A. Cold fluid applied bitumen-modified polyurethane waterproofing system is intended to perform as a continuous barrier against liquid water, waste water and aqueous chemicals (per chemical resistance chart ) . Membrane system is UV stable and is intended to be exposed, submerged or to receive an overburden of concrete, tile in a cementitious setting bed, pavers in a sand setting bed, pavers on supporting pedestals, or soil/growing media, and shall accommodate movements of building materials as required with a separate detail coat done by itself reinforced with polyester fabric or accessory sealant materials at locations such as: changes in substrate, perimeter conditions and penetrations. Installed waterproofing membrane system shall not permit the passage of water and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.
- B. Manufacturer shall provide all primary waterproofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.

**1.4 Submittals**

- A. Comply with requirements of Division 01 Submittal Procedures.
- B. Product Data: For each product.
- C. Shop Drawings: Manufacturer's standard details and shop drawings for the specified system.
- D. Application Instructions
  - 1. Required for each paint and coating per application instruction requirements. Include



2. Surface Preparation Requirements.
  3. MSDS sheets identifying flammability, toxicity, allergenic properties and any other characteristics requiring field precautions.
  4. Minimum and maximum recommended dry-film thicknesses per coat for prime, intermediate, and finish coats.
  5. Percent solids by volume.
  6. Statement verifying selected prime coat is recommended by Manufacturer for use with selected intermediate and finish coats.
- E. Manufacturer' Certification: Certification showing full time quality control of production facilities and that each batch of material is tested to ensure conformance with the manufacturer's published physical properties.
- F. VOC Certification: Manufacturer's certification that all waterproofing system products meet current Volatile Organic Compound (VOC) regulations as established by the State in which they are being installed; and stating total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, etc.).
- G. Certification of Applicator's Supervisor: Submit for applicator's supervisor a certificate indicating completion of manufacture's contractor training program.
- H. Certifications of Compliance
1. For work done in California, submit certification that all coatings conform to applicable local Air Quality Management District rules and regulations for products and application.
  2. Submit coating system and application certification that coatings comply with specified requirements and are suitable for intended application per certificate of compliance requirements.
  3. Submit description of repair procedures used if any.

## **1.5      Quality Assurance**

- A. Manufacturer's Qualifications: Manufacturer shall demonstrate qualifications to supply materials of this section by certifying the following:
1. Membrane Manufacturer shall have available an in-house technical staff to assist the contractor when necessary, in the application of the products and site review of the assembly.
  2. Installer's Qualifications: The Contractor shall demonstrate qualifications to perform the Work of this Section by submitting certification or license by the waterproofing membrane manufacturer as a trained and authorized applicator of the product the installer intends to use.

- B. Source Limitations: All components listed in this section shall be provided by a single manufacturer or approved by the primary waterproofing manufacturer.
- C. Materials Compatibility: All materials included in the waterproofing assembly, as well as associated materials adhered to/applied beneath the waterproofing membrane shall have been tested and verified to be compatible. Include written testing documentation and test reports if requested by Architect.
- D. Applicable Regulations: Comply with local code and requirements of authorities having jurisdiction. Do not exceed VOC regulations as established by the State in which they are being installed; including total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, and similar items).

#### **1.6 Pre-Installation Conference**

- A. Prior to scheduled commencement of the waterproofing installation and associated work, conduct a meeting at the project site with the installer, owner, owner's representative, manufacturer's representative and any other persons directly involved with the performance of the Work. The Installer shall record conference discussions and to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to the Work.

#### **1.7 Delivery, Storage And Handling**

- A. Deliver all waterproofing materials to the site in original containers, with factory seals intact.
- B. Store all pail goods in their original undamaged containers in a clean, dry location within their specified temperature range.
- C. Do not expose materials to moisture in any form before, during, or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.
- D. Remove manufacturer supplied plastic covers from materials provided with such. Use "breathable" type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.
- E. Materials shall be stored above 60-90°F (15-30°C) a minimum of 24 hours prior to application.

#### **1.8 Project Conditions**

- A. Weather: Proceed with waterproofing only when existing and forecasted weather conditions permit. Membrane application should not proceed when precipitation is imminent. Ambient temperatures shall be above 36°F (2°C) when applying the waterproofing system.
- B. All surfaces to receive the waterproofing membrane shall be free from visible

water, dew, frost, snow and ice. Application of waterproofing membrane shall be conducted in well-ventilated areas.

- C. Minimum age of concrete must be 21-28 days depending on curing and drying conditions.
- D. Waterproofing Membrane:
  - 1. Waterproofing membrane is not intended to be exposed or in contact with a constant temperature below -25°F (-31.7°C) or in excess of 200°F (93.3°C).
  - 2. Specified waterproofing membrane is VOC compliant. Consult container, packaging labels and Safety Data Sheets (SDS) for specific safety information.
  - 3. Some low molecular weight alcohols can soften. Any exposure to foreign materials or chemical discharges shall be presented to membrane manufacturer for evaluation to determine any impact on the waterproof membrane assembly performance prior to warranty issuance.
  - 4. Contractor shall ensure adequate protection during installation of the waterproofing system.

## **1.9 Warranty**

- A. Provide a five-year material and one-year labor warranty from date of final acceptance. Obtain material warranty from manufacturer.

## **PART 2 - PRODUCTS**

### **2.1 Manufacturer**

- A. Acceptable High Performance Lining and Coatings for potable water concrete tanks/ponds include the following:

ITEM	MANUFACTURER	MANUFACTURER LOCATION
High Performance Coating for Potable Water Concrete Tanks/Ponds	Sikagard – 7600 HG	Lyndhurst, NJ
	Accepted equal	

## 2.2 **Waterproofing System**

A. Fluid-Applied Membrane System, 5 Year System: Sikagard 7600, Sika Flexitape Heavy :

1. Sikagard 7600 , 60 mils wet film thickness resulting in 25 SF/gal coverage ( 2 coats each 30 mils)
2. Reinforcing fabric recommended for moving transitions such as transitions between dissimilar materials, corners, penetrations, seams, joints and cracks. The fabric is embedded into a separate 30 mils detail coat underneath of the first coat.

## 2.3 **Membranes And Coatings**

A. Detail coat with optional Sika Flexitape Heavy reinforcement per the waterproofing system build shall be Sikagard 7600 HG or VG by Sika Corp, a two component, cold fluid applied, chemical cure, bitumen modified, polyurethane detail coat membrane.

1. Base coat shall be Sikagard 7600 HG or VG by Sika Corp, a two component, cold fluid applied, chemical cure, bitumen modified, polyurethane base coat membrane.
2. Top coat shall be Sikagard 7600 HG or VG by Sika Corp, a two component, cold fluid applied, chemical cure, bitumen modified, polyurethane top coat membrane.

B. Base coat and top coat membranes shall be low in VOC's, and be a two component elastomeric polyurethane membrane that may be brush or roller applied. Membrane shall have the following physical properties and conforms to ASTM D7311-07: Standard Specification for a single component, cold fluid applied, moisture cure, bitumen modified, polyurethane membranes.

C. Liquid and Cured Film Property Requirements:

Standard Measurement / Grade

ASTM D-624, Die C: Tear Resistance (psi)	150 ± 50
ASTM D-412: Elongation at Break (%)	450 ± 50
ASTM D-412: Tensile Strength (pli)	850 ± 50
ASTM D-2240: Hardness (Shore A)	60 ± 5
ASTM D-2697: Total Volume Solids (%)	89 ± 2
ASTM D-236: Total Weight Solids (%)	95 ± 2
ASTM D-2369-81: VOCs (g/l)	78
ASTM D-751: Permeability to water vapor (perms)	0.06
Specific Gravity (lbs/gal)	8.30

## **2.4 Membrane Reinforcement - Polyester**

- A. Reinforcement for the waterproofing membrane system shall be stitch bonded polyester fabric designed to provide greater impact resistance and greater resistance to excessive thermal and structural movement while maintaining elasticity and membrane film integrity.
- B. Supplemental reinforcement of the waterproofing membrane system shall be Sika Flexitape Heavy by Sika Corp., a nylon mesh specifically designed for local reinforcement of the waterproofing membrane at structural cracks, expansion joints and transitions between dissimilar materials.

## **2.5 Fillet Bead And Penetration Sealant**

- A. Sealant for fillet bead applications and membrane penetrations shall be Sikaflex sealant including Sikaflex 1a and 2c NS EZ Mix by Sika Corp., one and two part polyurethane sealants suitable for fillet bead transition compound to be applied prior to the installation of the membrane system at changes in substrate direction, sealing reglet terminations, cracks in the substrate and penetrations of the waterproofing system. Sikagard 7600 itself applied as thick strip coat can be also used as transition compound to be applied prior to the installation of the membrane system.

## **2.6 Primers**

- A. Sikalastic PF Lo-VOC Primer- 200 sf/gal is optional to avoid pinholing and to improve adhesion over the concrete substrate which has an open texture or over metallic substrates.

## **2.7 Repair And Patching**

- A. Cementitious repair mortar to repair bug holes, spalled areas, and other non-structural surface defects, to fill uneven areas and birdbaths, or to repitch decks shall be SikaQuick 1000 by Sika Corp., a two component, polymer-modified, Portland cement, fast-setting, trowel-grade mortar or SikaQuick® Smooth Finish a fast setting, one component, polymer modified, durable, sand free mortar for repairing and reprofiling vertical and overhead concrete surfaces to achieve a smooth finish. If such repaired substrate is free of any bug holes and imperfections Sikagard 7600 can be applied without any primer.

## **2.8 Drainage Mat**

- A. Dimpled core polystyrene drainage mat with a non-woven (420) and woven (720) polypropylene filter fabric bonded to the topside of the mat, and a bonded protection sheet on the underside of the mat. To be installed between the waterproofing membrane and extruded polystyrene insulation or topping slab . Drainage mat to be Sika Drainage Mat 420 or 720.
- B. Geonet polypropylene composite drainage mat with a non-woven polypropylene filter fabric bonded to the topside of the mat, and a bonded protection sheet on the underside of the mat. To be installed between the waterproofing membrane and extruded polystyrene insulation or topping slab. Drainage mat to be Sika Drainage Mat

1000.

- A. Impermeable dimpled polystyrene drainage perforated core with a bonded to a root resistant non- woven polypropylene filter fabric on the top side and non-woven polypropylene membrane protection fabric on the bottom side. The core is installed dimpled side down to allow water retention within the cups. Excess water is collected and conveyed to a proper collection system, helping to control drainage flow. To be installed between the waterproofing membrane and extruded polystyrene insulation or topping slab. Drainage mat to be Sika Drainage Mat GRS.

## **2.9      Extruded Polystyrene Insulation**

- A. Extruded polystyrene foam board insulation, either flat stock or tapered, meeting the requirements of ASTM 578 Type VI (40 psi – stone ballast or pavers in sand bed/direct application), Type VII (60 psi – concrete pavers on pedestals), or Type V (100 psi – superimposed loads). Insulation shall be Sarnatherm XPS by Sika Corp.

## **2.10     Filter Fabric**

- A. Non-woven needle-punched polyester UV-stabilized mat, 3 oz./sq.yd., used between the extruded polystyrene insulation and overburden. Filter fabric shall be Sika 120 Fleece by Sika Corp.

## **2.11     Spray Equipment**

- A. Use Sikagard ® 7600 HG
- B. Spray Pumps: Per manufacturer's recommendation.

# **PART 3 - EXECUTION**

## **3.1      Examination**

- A. Verify that surfaces and conditions are ready to accept the Work of this section. Notify Architect in writing of any discrepancies. Commencement of the Work in an area shall mean Installer's acceptance of the substrate.
- B. Surfaces shall be sound, clean and free of standing water, oil, grease, dirt, excess mortar or other contaminants. Fill voids, gaps and spalled areas in substrate to provide an even plane. Strike masonry joints full flush.

## **3.2      Surface Preparation**

- A. Verify that the surface is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters. Verify that all openings or penetrations through the intended substrate are secured back to solid blocking. Ensure all preparatory Work is complete prior to applying membrane.
- B. All surfaces shall be blown clean using an air compressor to remove any remaining loose debris.
- C. All cracks and voids greater than 1/16 inch shall be routed and troweled with Sikagard 7600 or caulked with Sikaflex sealant. Allow to cure per waterproofing membrane

manufacturer's technical data sheets prior to over-coating with the specified waterproofing membrane system.

- D. At all inside corners, gaps or voids at the juncture of the deck and penetrations apply a minimum 3/4 inch fillet bead of Sikaflex sealant or Sikagard 7600 and allow to cure per waterproofing membrane manufacturer's technical data sheets prior to installing the waterproofing membrane system.
- E. Sikaflex Sealants Sikaflex 1a and Sikaflex 2cNS used in detailing can be over coated with Sikalastic 7600 once tack free.
- F. Membrane is self-terminating but membrane terminations can be established prior to project start- up and documented in shop drawings. Terminations can occur in raked-out mortar joints, saw cut terminations or under installed counter-flashing materials.
- G. Use tape lines to achieve a straight edge detail.

### **3.3      Substrate Preparation**

- A. Acceptable substrates include concrete, concrete block, solid wood/plywood sheathing, and metal.

### **3.4      Priming**

- A. Metal
  - 1. Apply Sikalastic EP Primer or Sikalastic PF Lo-VOC primer for metal surfaces. To clean and prepared drain bowls and other metal surfaces by brush or roller at the application rate shown on the technical data sheet to achieve an overall wet film thickness of 8 mils. High porosity and roughness of the substrate will decrease coverage rates.
  - 2. Allow to cure and dry in accordance with manufacturer's technical data sheets.
- B. PVC
  - 1. Apply Sikaflex 449 Primer to clean and prepared PVC surfaces by brush or roller at the application rate of 100-150 SF/gal.
  - 2. Allow to cure and dry in accordance with manufacturer's technical data sheets.

### **3.5      Membrane Reinforcement**

- A. Reinforcement of Cracks, Plywood and Cover Board Joints/Seams, and Base/Curb Flashing Transitions:
  - 1. For all locations where the specified membrane system is to be applied directly to the substrate surface, reinforcement of cracks and joints prior to applying the specified membrane system is conditional on the terms agreed to in a given warranty.
  - 2. For all horizontal-to-vertical transitions, provide a Sikaflex polyurethane

sealant cant or Sikagard 7600 strip coat.

3. Back roll reinforcement to fully embed reinforcement into the wet liquid polyurethane detail coat. Add more liquid membrane as needed to fully embed the reinforcement and to achieve 30 WFT.
4. Ensure reinforcement is not in tension during embedment.

### **3.6 Cold Fluid Applied Membrane Application**

- A. Install waterproofing membrane system in accordance with current technical data sheets and in accordance with warranty guideline requirements.
- B. Apply strip coat or detail coat with brush.
- C. Apply pressure to the membrane reinforcement with a roller as appropriate to fully embed and saturate the membrane reinforcement into liquid waterproofing material. Remove air pockets from under the membrane by rolling them out.
- D. Apply additional liquid material as required to ensure desired millage and the membrane reinforcement is fully embedded and has conformed to the substrate without tenting or visible pinholes.
- E. Apply base coat to horizontal deck and vertical wall surfaces with 1/2 inch – 3/4 inch phenolic core roller to achieve a continuous and uniform minimum wet film thicknesses as specified in warranty guideline requirements. Brush can be used to apply strip coat or detail coat prior to the first waterproofing layer.
- F. Overlap sheets of scrim reinforcement 3 inches at side laps and 6 inches at end laps.
- G. Extend reinforcement vertically at adjacent wall surfaces in accordance with project details and specifications.
- H. Apply top coat by phenolic core roller to achieve a continuous and uniform minimum wet film thickness as specified in warranty guideline requirements.
- I. Install all flashings in accordance with manufacturer's construction details.

### **3.7 Drip Edges And Other Metal Flanged Flashing**

- A. Clean, prepare and prime metal flange surfaces ready to receive membrane.
- B. Metal flanges are typically encapsulated between two membrane layers, usually by providing membrane flashing as a stripping ply over the metal flange, with the field or flashing membrane extending beneath the metal flange. It is also acceptable to install the stripping ply under the metal flange, and extend the field or flashing membrane over the metal flange.

### **3.8 Drains**

- A. Clean, prepare and prime surfaces ready to receive membrane applications. Block drain bowl opening to avoid waterproofing material from entering the drainage system.
- B. Remove strainer baskets and clamping rings from the drain bowl assembly.



Temporarily replace the bolts back into assembly to avoid miss-alignment of connections after membrane applications are completed.

- C. Extend the liquid waterproofing material and membrane reinforcement directly into the throat of the prepared drain.
- D. Remove drain blocks and allow the waterproofing system to fully cure dry prior to re-connecting the drain bowl assembly.

### **3.9      Penetrations**

- A. Clean, prepare and prime surfaces ready to receive membrane. Ensure that penetrations are secured to prevent movement.
- B. Apply a cant bead of Sikaflex sealant or strip coat of Sikagard 7600 the base of penetrations and apply Sikalastic 7600 membrane vertically up the penetration 6-8 inches.

### **3.10     Expansion Joints**

- A. Expansion joints are formed separately from the Sikalastic 7600 membrane.

### **3.11     Flood Test**

- A. Upon the completion of the waterproofing membrane system and associated terminations the contractor shall flood test the system. Provide temporary stops and plugs for the drains within the test area. Flood test with a minimum 2 inches of water for no less than 24 hours.
- B. Repair and retest the system for no less than 24 hours, report all deficiencies to the Architect. Remove temporary stops and plugs. No other Work is to proceed without prior direction from the Architect.

### **3.12     Protection**

- A. Protect waterproofing Work from other trades until completion.
- B. Stage materials in such a manner that avoids foot traffic over completed waterproofed areas.
- C. Provide temporary walkways and platforms to protect completed Work from traffic and point loading during the application process.
- D. Provide temporary membrane tie-ins and water-stops at the end of each workday and remove prior to commencement of work the following day.

### **3.13     Prefabricated Composite Drainage And Protection Mat**

- A. Install the drainage mat when it can be followed immediately by the installation of the extruded polystyrene insulation , topping slab or overburden. If the drainage mat cannot be installed within one week of membrane application, a protection course must be applied over the membrane to protect from other trade work and UV radiation.

- B. Install the drainage mat on horizontal and vertical surfaces in accordance with the product data sheet. Lay out and position drainage mat, and allow to lay flat. Cut and closely fit drainage mat to perimeter and penetrations.
- C. Overlap filter fabric from adjacent sheets/rolls, and bond all fabric overlaps with Sikaflex sealant. Install supplemental filter fabric as required to ensure filter fabric continuity at flashing locations.

### **3.14 Filter Fabric**

- A. Install filter fabric on horizontal and vertical surfaces over the extruded polystyrene insulation in accordance with the product data sheet.
- B. Lay out and position filter fabric. Cut and closely fit filter fabric to perimeter and penetrations, extending the filter fabric vertically to the height of the overburden.
- C. Overlap filter fabric to achieve 6 inch side and end laps. As required, bond all fabric overlaps with Sikaflex sealant to ensure filter fabric continuity prior to and during overburden installation.

### **3.15 Clean-Up**

- A. Work areas are to be kept clean, clear and free of debris at all times.
- B. Do not allow trash, waste, and/or debris to collect on the work area. Trash, waste, and/or debris shall be removed from the work area on a daily basis.
- C. All tools and unused materials shall be collected at the end of each workday and stored properly off of the finished waterproofed surface and protected from exposure to the elements.
- D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.
- E. Properly clean the finished deck surface after completion, and make sure the drains and gutters are not clogged.
- F. Clean and restore all damaged surfaces to their original condition.

## **END OF SECTION**

# **ATTACHMENT D**

## **SECTION 22 14 53**

### **RECLAIMED WATER SYSTEMS**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Reclaimed Water System for Landscape Irrigation Including the Following:
  - 1. Storage tanks. See section 43 41 43
  - 2. Backup valves.
  - 3. Controls.

##### **1.2 RELATED SECTIONS**

- A. Division 33 - Site Utilities.
- B. Section 43 41 43 – Polyethylene Tanks.

##### **1.3 REFERENCES**

- A. International Organization for Standardization (ISO):
  - 1. ISO 9001 - Quality management systems - Requirements.
- B. Underwriters Laboratories (UL):
  - 1. UL 508 - Standard for Industrial Control Equipment.

##### **1.4 SUBMITTALS**

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: For system components; include dimensions, capacities, operating characteristics, utility connections, and accessories.
- C. Shop Drawings:
  - 1. For Reclaimed Water Systems: Include system layout, components, and accessories.
  - 2. For Modular Water Storage Systems:
    - a. Include engineering, safety factors, specific gravities, atmospheric pressures, project specific loading conditions and capacities, system layout, components, and accessories.
    - b. Excavation and base preparation shall be provided in accordance with the shop drawings and Engineer's recommendations.
    - c. System shall be sized in accordance with national standards and hydraulic impact.
    - d. Unless otherwise shown on shop drawings, sub-grade excavation and preparation shall be executed in accordance with earthwork Drawings and Division 2 specifications.
    - e. Unless otherwise shown on shop drawings, sub-surface drainage materials shall be executed in accordance with earthwork Drawings and Division 2 specifications.
- D. Closeout Submittals: Operation and maintenance data.
  - 1. Provide instructions on operation, calibration, troubleshooting, and servicing equipment.
  - 2. Include layout drawings, parts lists, and component manufacturer's product data.

## 1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data:
  - 1. Manufacturer's data sheets on each product to be used.
  - 2. Preparation instructions and recommendations.
  - 3. Storage and handling requirements and recommendations.
  - 4. Typical installation methods.
- C. Verification Samples: Two representative units of each type, size, pattern and color.
- D. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.

## 1.6 QUALITY ASSURANCE

- A. System Integrator: RainHarvest Systems LLC (800) 654-9283. Russ Jackson.
- B. Manufacturer Qualifications:
  - 1. Manufacturers that are submitted as equal to the manufacturer named herein shall be considered with the following standards:
  - 2. Minimum 10 years experience in work of this Section.
  - 3. Successful completion of minimum of 10 previous projects of similar scope and complexity.
  - 4. Maintain ISO 9001 production facilities including quality management protocols for every production batch.
- C. Installer Qualifications:
  - 1. Successful completion of 2 previous projects of similar scope and complexity within the last 10 years.
  - 2. Maintain factory trained technicians on staff providing field service and warranty work.
  - 3. For Modular Water Storage Systems:
    - a. Installer: Certified by manufacturer and responsible for the following:
      - 1) Tour, inspect and discuss condition of sub-grade, drainage structures and other preparatory work.
      - 2) Review required inspections and testing procedures.
      - 3) Review safety precautions relating to installation.
      - 4) Use products manufactured or approved by manufacturer.
      - 5) Follow installation instructions and other contract documents (shop drawings, specifications, approvals, configuration report and manufacturer's recommendations).
      - 6) Use construction machinery described in manufacturer's installation and maintenance instructions.
- D. Excavation Safety: In accordance with OSHA requirements.

## 1.7 PRE-INSTALLATION CONFERENCE

- A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver system components until time needed for installation, and after proper protection can be provided.

- B. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
- C. Protect from damage due to weather, excessive temperature, and construction operations.
- D. Leave protective coverings in place until just prior to installation.
- E. Store modular water storage system components on smooth surfaces, free from dirt, mud and debris.
- F. Handle modular water storage system components with forklifts and manufacturers recommended equipment during transportation and site construction. System components shall be protected from damage during delivery.

## 1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

## 1.10 WARRANTY

- A. Manufacturer's Warranty: Provide manufacturer's standard limited warranty against defects in materials and workmanship.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: RainHarvest Systems, LLC, which is located at: 4475 Alicia Lane; Cumming, GA 30028; Toll Free Tel: 800-654-9283; Tel: 770-889-2533; Fax: 770-889-2577 ; Email: [request info \(rkauk@rainharvest.com\)](mailto:request_info_(rkauk@rainharvest.com)); Web: <http://www.rainharvest.com>
  - 1. Acceptable Manufacturers for Storage Tanks:
    - a. Graf.
    - b. RainHarvest Systems.
    - c. Atlantis D-Raintank.
    - d. RainFlo Corrugated Steel Tanks.
    - e. RainFlo FRP Rainwater Storage Tanks.
    - f. RainFlo FRP Panel Tanks.
    - g. Norwesco.
    - h. Chem-Tainer.
  - 2. Acceptable Manufacturers for Pumps and Pump Skids:
    - a. RainHarvest Systems.
    - b. Goulds.
    - c. RainFlo.
    - d. Dab.
  - 3. Acceptable Manufacturers for Controls and Float Switches:
    - a. RainHarvest Systems.
    - b. RainFlo.
  - 4. Acceptable Manufacturers for Rainwater Filters, Storage Tank Accessories, and Purification Kits:
    - a. GRAF.
    - b. UV Pure.
    - c. Viqua.
    - d. Pentek.
    - e. RainFlo.
    - f. Shelco.

- g. Strain-rite.
- h. Amiad.

- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.2 RECLAIMED WATER SYSTEMS

- A. Reclaimed Water Systems: Components as manufactured by RainHarvest Systems, LLC unless otherwise specified.
  - 1. System Description: Custom rainwater harvesting system consisting of manufactured components integrated into an automated system. The system shall collect rainwater from the roof and convey rainwater through roof drains, downspouts and conveyance piping, self-cleaning, gravity fed pre-filters. Filtered rainwater will travel through the pre-filter and into a rainwater storage tank. Water will be drawn out of the storage tank and pumped through a packaged pumping system to the irrigation/plumbing system. The pumping system will be designed to provide water at the desired design point on an on-demand basis.
  - 2. Design Requirements: Filter, store, and distribute harvested rainwater.
  - 3. Water Disinfection Methods: May include sediment filtration, ultraviolet treatment, chlorine injection, carbon filtration, or a combination thereof.
  - 4. Assemble and test purification system in factory prior to shipment to Project site.
  - 5. Hydrostatically test prefabricated pump assembly in factory prior to shipment to Project site.
- B. Components:
  - 1. Reclaimed Water Storage Tanks:
    - a. See Section 43 41 43 Polyethylene Tanks.
  - 2. Pump Systems:
    - a. Existing from wastewater treatment plant.
  - 3. Pump Control System:
    - a. Existing from wastewater treatment plant
  - 4. Reclaimed Water System Control: Continuous water level measurement with automatic switchover to a backup water supply. Controller must activate a 3-way valve based on programmed water levels in the rainwater system controller.
  - 5. Water Treatment Systems:
    - a. Treated at wastewater treatment plant.
  - 6. Water Treatment System Components:
    - a. Not used
  - 7. Storage Tank Accessories:
    - a. Floating Filter and Hose:
      - 1) RainHarvest Model: No. 333009.
      - 2) Description: 2 inch (51 mm) Stainless steel filter housing and mesh fabric, and polyethylene floating ball.
  - 8. Overflow Siphon:
    - a. RainHarvest Model: No. 330108.
    - b. Description: Polyethylene overflow device with support strut and clamp for 4 inch (102 mm) overflow piping.
- C. Accessories:
  - 1. Bulkhead Fittings: Sized to match system inlet, outlet, pump flow rate, vents, and other penetrations.
  - 2. Vent Assembly: PVC rodent-proof cap for tank air and vacuum relief; extend from top of tank to above grade.
  - 3. Waterproof Electrical Connection Box: Located in manway, field installed.

## PART 3 EXECUTION

### 3.1 EXAMINATION AND PREPARATION

- A. Prepare substrates using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions.
- B. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.
- C. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

### 3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.
- B. Arrange equipment so that components requiring removal or maintenance are readily accessible without disturbing other components. Arrange for clear passage between components.
- C. Connect to utility supplies and equipment.
- D. Do not bury components deeper than manufacturer's recommended depth or in a manner that would exceed engineering loads.
- E. Do not bury Graf filters deeper than manufacturer's recommended depth unless a vault is installed.
- F. Ground components in accordance with component manufacturer's instructions.
- G. Install prefilters at time storage tanks are installed.

### 3.3 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.
- B. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
- C. System Integrators:
  - 1. Installation oversight and technical support.
  - 2. Terminate and test control system wiring and operation of electrical components.
  - 3. Demonstrate proper pump and controls operation.
  - 4. Make adjustments to meet user-defined system performance.
  - 5. Review operation and maintenance procedures with Owner's representative.

### 3.4 CLEANING AND PROTECTION

- A. Clean and protect products in accordance with the manufacturer's recommendations.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION



