

## Official Question and Answer Document for the 2016 Land Art Generator Initiative Design Competition

The questions below have come directly from LAGI 2016 participants. The answers may provide you with additional insights, links to relevant documents, or spark design ideas. This document should be considered as an addendum to the **LAGI 2016 Design Brief** itself.

1. Q: What constitutes a renewable resource? We were hoping to utilize stormwater and wastewater from the pier and surrounding city to create energy and produce clean water. Would stormwater and wastewater count as renewable resources?

**A: Any continuously available (even if intermittent) resource containing potential or kinetic energy to harness\*, or the use of which dispenses with the need to expend energy elsewhere, can be considered as a renewable resource. The carbon-free recycling of local stormwater or wastewater can help reduce demand on carbon intense water purification infrastructures. If you are working with stormwater as a design element, you may want to study the Santa Monica Urban Runoff Recycling Facility located northeast of the Pier (between Appian Way and Moomat Ahiko Way). There may be an opportunity to expand on that existing infrastructure. LAGI 2016 encourages regional systems thinking and innovative approaches to creating feedstock loops that divert otherwise useful resources from waste streams.**

**\*Energy can exist in many different forms. Examples of renewable potential or kinetic energies that can be converted into electrical energy include: thermal, radiant, gravitational (hydrological flows, tides, human footfall), chemical (biofuel), mechanical (wind, wave, other kinetic systems), elastic, magnetic, and sonic.**

2. Q: Do you have a list of who is entering this year's competition? I am a waste artist and would like to enter the competition. I am seeking an architect, alternative power designer and a marine biologist who might live around the Southern California area.

**A: We have recently re-opened an online social tool called Town Square at <http://landartgenerator.org/townsquare/>. It's designed to allow you to search other participants for their skill-set and form teams. As a social networking engine, it's only as powerful as the number of people that use it.**

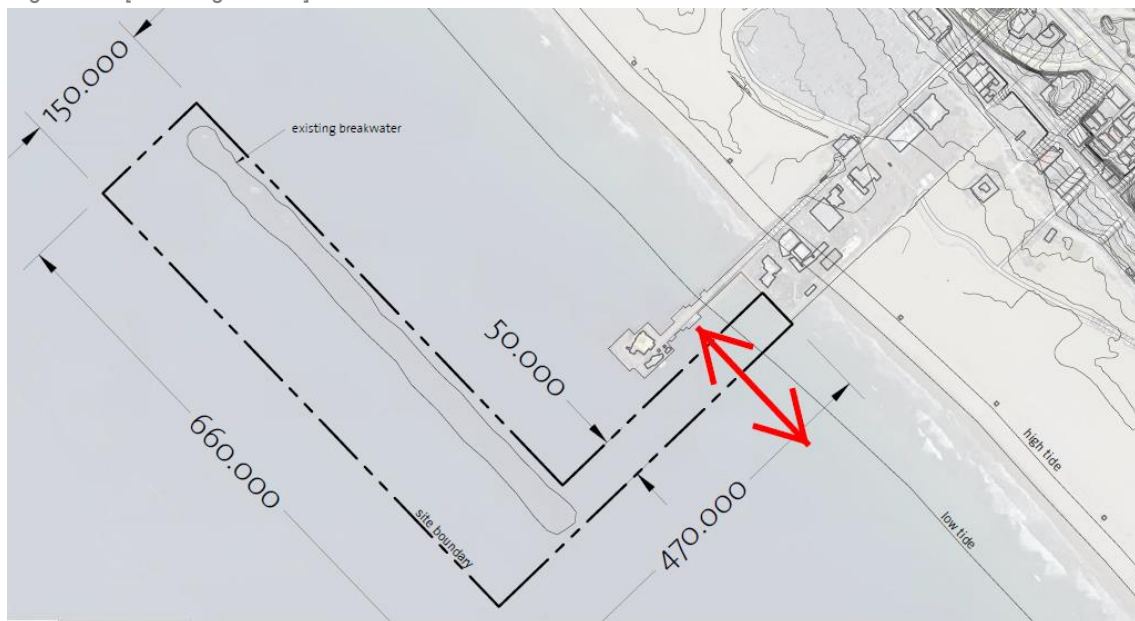
**Since you live in Southern California, you may also want to attend events held by USGBC LA, the LA Department of Public Works, the LA Department of Water and Power, the American Institute of Architects, and the Santa Monica Bay Foundation, where you'll be able to network with architects, power engineers, and marine biologists. Similar events and institutions exist in every city for networking opportunities that can lead to LAGI design team formation.**

3. Q: The submissions are 2D documents - should we have a just drawings/specs, working prototype, or actual finished piece?

**A: Please refer to the design guidelines for the actual submission requirements. And it may also be helpful to look through the portfolio to see what has been submitted to previous LAGI design competitions.**

**There is no requirement for a prototype or 3D work, but sometimes desktop models are a good way to work through and test design ideas. We are looking for great concept ideas that are illustrated in two dimensions, but that provide jurors with a good understanding of how the installation would work in the context and what it would feel like in its constructed form. This can be done with renderings or photos of desktop models. A "rendering" can be a hand drawing. We don't require computer generated renderings.**

4. Q: Must boat access to the existing Harbormaster's dock on Santa Monica Pier be maintained through the project site? If so, how wide a passage and what is the minimum vertical clearance between any structure and Mean High Tide? [see image below]



**A: Access from the south/east can either be maintained, or a new Harbormaster dock location can be provided as a part of the LAGI 2016 proposal. If maintained, it is recommended to allow 50 meters of clear path width and a 15 meter clearance at high tide.**

**From the Santa Monica Pier Manager:**

**“Right now that side is favored because of currents which sometimes can be quite strong. At present there is no secure way for civilian boats to access the Pier.”**

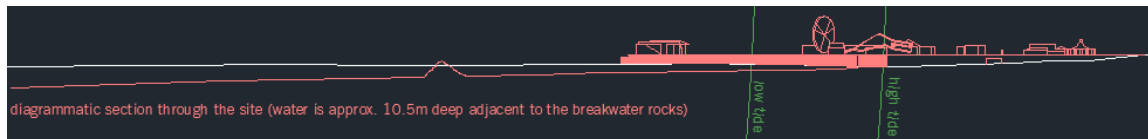
5. Q: Can you please provide a high resolution marine survey or bathymetry for the competition site?  
[NOAA Chart 18744 <<http://www.charts.noaa.gov/PDFs/18744.pdf>> is the most detailed published bathymetry for the competition site, but lacks sufficient detail of the sea floor adjacent to the Santa Monica Breakwater to be useful in the design process]

**A: Sea floor topography is not very consistent at the scale of the site (with sands that shift during weather events).**

The site section within the *LAGI-2016-Design-Site-Boundary-Santa-Monica.dwg* file [[http://landartgenerator.org/designcomp/downloads/LAGI2016-LOCATION\\_PLAN.zip](http://landartgenerator.org/designcomp/downloads/LAGI2016-LOCATION_PLAN.zip)] provides an approximation of the slope of the sea floor from the coast line to the breakwater.

For the purposes of the LAGI 2016 design competition, please assume the slope is consistent across the design site based on that site section. The dimensions of the breakwater itself are not very accurate in the section, but it shows an approximation of the highest existing construction.

As you can see in the photos taken from the pier, the breakwater has eroded significantly over the years and the top of the rocks barely break the surface in just a couple of places during high tide. At low tide they are slightly more visible, but still do not form a continuous line above the surface.



Screen capture of the site section available in the *LAGI-2016-Design-Site-Boundary-Santa-Monica.dwg* file

6. Q: Are there any nearby storm drain outfalls or sewage lines that can be diverted to the site to provide 'raw' water to purify? If so, can you provide data on the volume of water that is available?

**A: From the City of Santa Monica Civil Engineering Department:**  
Dry weather runoff is unlikely to be available as SMURRF requires all of the dry weather runoff to meet daily demand.

Wet weather flows depend on the amount of rainfall. Participants in the competition will have to make reasonable assumptions based on Santa Monica's average rainfall of about 12-13 inches and an upstream tributary area to the outfall of about 80 acres.

Attached is a schematic map of the Clean Beaches Initiative project at the Deauville lot.

This project will be constructed over the next 2½ years. The project is a subterranean tank that stores up to 1.6 MG of runoff during each rain event. *This could be a source of raw water for purification.*

By 2020, if our Prop 1 funding applications are successful, we will have constructed Element 1 of the Sustainable Water Infrastructure Program, a brackish water well, which would supply brackish water to the Clean Beaches Initiative tank. *This could be another source of raw water for purification.*

See also the Siting Study from the DRIP/SWIP projects. If you refer to page 60, it states that the site is adequate for up to 3MGD flows.

All above referenced documents are available here:

<http://landartgenerator.org/designcomp/downloads/StormWater+SewerLayouts.zip>

7. Q: Is there additional geotechnical information available in addition to the 2010 Santa Monica Pier Structural Upgrade Final Study/Mitigated Negative Declaration (link below)?

<http://www.smgov.net/departments/council/agendas/2011/20110823/s201108233-I-2.pdf>

[geotechnical report starts on page 194]

**A: From the City of Santa Monica Civil Engineering Department:**

The 2010 soils report (linked to above) is probably the best one available to LAGI 2016 participants.

8. Q: Do you already have the permissions in place to build this project from the local government of Santa Monica?

**A: LAGI 2016 is an ideas competition. The award money is a cash payment to the winning designer and is not related to costs of detailed design or construction of the work. There is no guarantee of any of the submitted designs being constructed. LAGI 2016 is presenting a model for Santa Monica and other coastal cities around the world of what is possible.**

Following the conclusion of the competition and exhibition of the shortlisted proposals, LAGI will continue conversations with local stakeholders and the City of Santa Monica to determine if there is a viable path to implementation of one or more of the ideas. Construction projects in the waters adjacent to the Santa Monica Pier require a high level of oversight and multi-step approvals from authorities having jurisdiction, including the City, County, State, EPA, Corps of Engineers, and the Coastal Commission of California.

All submissions to LAGI design competitions become a part of the growing portfolio of ideas and many appear in our popular Prestel publications. Cities and developers reach out to LAGI frequently for advice on the creative integration of renewable energy, and we refer back to our network of past LAGI participating teams when we are presented with new opportunities for design and construction projects.

9. Q: How would this work intersect with the sewage treatment plant and/or the power grid of Santa Monica? Where exactly is the wastewater and power grid in relationship to the site?

**A: Please refer to Question no. 6 above.**

10. Q: Would the water that needs purifying be waste water/ sewage or just salt water?

**A: Any available source is allowable.**

11. Q: Does Land Art Generator have permission to make visible structures above the water line so that viewers can actually see the artwork from the shore and the pier?

**A: Yes. The idea is that the renewable energy installation will be intentionally designed as an aesthetic amenity for Santa Monica. It is meant to be visible and to be a celebrated addition to the skyline, to the City's cultural history, and an attraction for (eco)tourists, pointing the way to the future of sustainable and resilient development.**

**Please also refer to the Design Brief requirement that designs must not exceed 80 meters in height (or 2x the height of the Pacific Ferris Wheel).**

12. Q: What kind of renewable energy source would work for the site? Is this something that is already know or would each team need to make their own site assessment of this based on the drawings/plans that have already been provided? If so which documents give this information?

**A: Any renewable energy resource can be utilized in your design. For more information about renewable energy technologies, see [A Field Guide to Renewable Energy Technologies](#).**

**To assist you with site-specific assessment, meteorological data including solar, wind, tide, and wave information has been provided in the [SUPPORTING\\_DOCUMENTS.zip](#) file.**

13. Q: If the technology that I would like to use requires a deep ocean component, may this exist outside of the site boundary?

**A: For the purpose of this answer, deep ocean components are assumed to be related to technologies like ocean thermal energy conversion (OTEC) or deep water desalination that could only function in deep ocean waters. You cannot place wind turbines or solar panels farther offshore or outside of the project boundary simply to increase energy generation because these technologies are not deep-ocean dependent.**

**You may propose that some auxiliary deep water technology (that requires deep waters to operate) complement your primary public art composition, which itself must respect the site boundary. Such an auxiliary aspect will by nature of its distance from shore have very little visual relationship to the Pier. It is suggested that there be some conceptual relationship to the primary artwork. Judging criteria will be applied to the artwork that is within the project boundary and with one exception allowing energy or water production input from the auxiliary offshore element. Environmental impact is a strong**

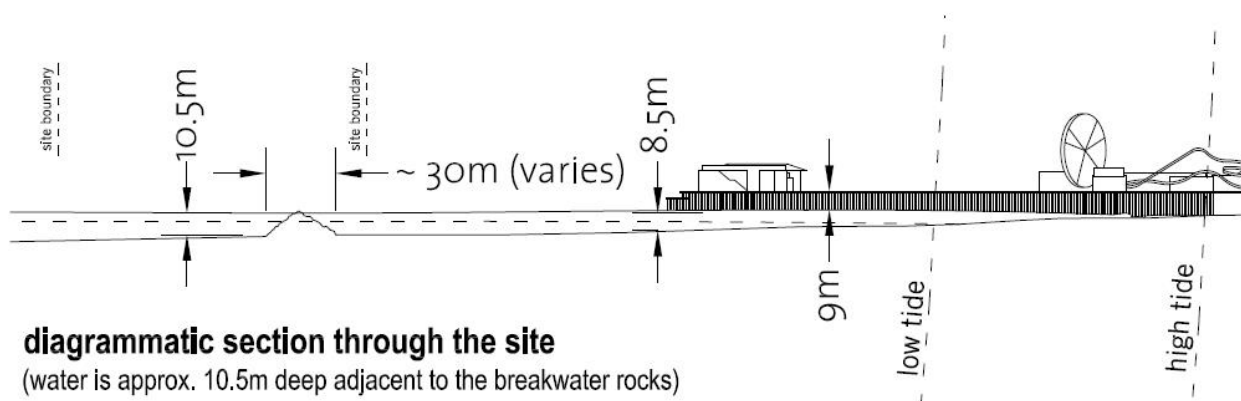
consideration. Please address the impact of any deep ocean technology and shore connections on marine ecosystems in your written statement.

14. Q: What is the height above the ocean floor of the pier?

**A: See below.**

15. Q: What are the dimensions of the water break, the width, length, and height?

**A: Please see the diagram below which is printed from the LAGI-2016-Design-Site-Boundary-Santa-Monica.dwg file: [[http://landartgenerator.org/designcomp/downloads/LAGI2016-LOCATION\\_PLAN.zip](http://landartgenerator.org/designcomp/downloads/LAGI2016-LOCATION_PLAN.zip)]. As for the overall length of the breakwater, it is not continuous, and the best estimation can be made from looking at the shadows in the satellite imagery, but we guess that it is about 30 meters wide.**



**diagrammatic section through the site**

(water is approx. 10.5m deep adjacent to the breakwater rocks)

Please also refer to question #5 in this document.

16. Q: Can we change the dimensions of the breakwater?

**A: There are no restrictions against altering, adding to, or removing some or all of the existing breakwater.**

17. Q: what is the degree of air pollution in Santa Monica? Can the rain water be consumed safely?

**A: We don't have detailed information on the air quality in Santa Monica, although it is some of the best relative quality in the LA area due to the wind effects from the ocean.**

No matter where rainwater is collected it is recommended that it be filtered before drinking. Santa Monica rainwater is no better or worse than rainwater from elsewhere, but there are a lot of potential contaminants during the process of collection, such as those produced by sea gulls, etc. Still it can be used for drinking if properly filtered.

18. Q: Do you accept biogas as clean technology?

**A: Yes. Please refer to “A Field Guide to Renewable Energy Technologies” for a vast array of renewable energy technologies that can be incorporated into your design.**

19. Q: Are there any requirements for the pedestrian public to access the site from the pier and if so what are they?

**A: There are no requirements for pedestrian access to the artwork or the area within the site boundary. It is entirely up to you and your team to decide if you would like to provide pedestrian access and how that is accomplished, or if you would rather the general public view the artwork from the pier/beach/water only.**

20. Q: can you please provide me with data regarding the flow rate of seawater on site as well as the pressure of the seawater at different depths through the site?

**A: Regarding “flow”, we do not have any information to provide on ocean currents. You'll find wave and tide data in the supporting documents ZIP file:**

**[http://landartgenerator.org/designcomp/downloads/SUPPORTING\\_DOCUMENTS.zip](http://landartgenerator.org/designcomp/downloads/SUPPORTING_DOCUMENTS.zip).**

**Regarding water pressure, you can use this simple online calculator to determine pressure differences under the water: [http://www.calctool.org/CALC/other/games/depth\\_press](http://www.calctool.org/CALC/other/games/depth_press).**

**You'll find that at the deepest water of the design site (approximately 11 meters per the section drawing through the site), water pressure reaches 2.1 atmospheres, 212 kPa, or 30.7 psi (equivalent values in different units).**

**The pressure reduces to one atmosphere or 14 psi as you reach the surface of the water at any location.**

**End of Q+A posted as of April 16, 2016-----OPEN PERIOD FOR QUESTIONS IS NOW CLOSED-----**