

Item SC



MEMORANDUM

TO: Environmental Board Chair and Members

FROM: Chuck Lesniak, Environmental Officer
Watershed Protection Department

DATE: October 11, 2013

SUBJECT: Staff Recommendations on the Use of Aggregate in Commercial Landscapes

This memo is a preliminary report responding to City Council Resolution No. 20130523-078. A final report will be sent to Council after consideration of input from the Environmental Board.

Earlier this year, individuals in the landscape architect community expressed concern about the City's regulations prohibiting the use of aggregates as a soil cover under plants in commercial landscape designs. As a result, Council directed staff to work with stakeholders to review City requirements regarding the use of aggregate materials in commercial landscaping and make any necessary recommendations for code or criteria changes. Aggregate materials in this context are regarded as any non-plant-based material used for ground cover in landscaping, and include decomposed granite, "mineral mulch", river rock, pebbles, crushed glass, and similar materials. In this document, the term "mulch" is intended to mean plant based materials used as a soil cover or amendment.

A final report will be prepared after input is provided by the Environmental Board and considered by staff. The resolution cites City Code Section 25-2-1003(D), which allows a required landscaped area to include features such as brick, stone, and aggregate if they do not predominate over the plant materials. It also cites the intent of City Council to promote landscaping that incorporates sustainable design features, minimizes treated water use, reduces storm water runoff, enhances infiltration, reduces building energy use, and is aesthetically pleasing as well as environmentally suitable with regard to water quality, air quality, urban heat island effect, and water conservation.

Staff held internal and external stakeholder meetings to discuss the issue. Following is a brief summary of the meetings:

External Stakeholder Input

Three external stakeholder meetings were held on July 10, August 19, and September 16, 2013 to collect input and questions from the general public and the landscaping professionals. The external stakeholder meetings were publicized via the city of Austin's website and more specifically to stakeholders identified in the resolution, including members of the landscaping community e.g. design firms, vendors, real estate associations, the American Society of Civil Engineers (ASCE), the American Society of Landscape Architects (ASLA), and other interested parties. Comments were also received electronically from those not able to attend the meetings.

From the external stakeholders we heard:

- Broad support in the landscape community for the intent of the landscape ordinance, i.e. for landscaping in the City of Austin to represent an Austin style by emphasizing the use of native Central Texas plant communities.
- General support for the idea that landscape designs should be environmentally sustainable and protective of water quality, air quality, urban heat island effect and water conservation.
- Concern from some that current code is too prescriptive to allow for response to site conditions and to allow for aesthetic flexibility.
- Aggregate can be sized appropriately for slopes to prevent erosion and provide for infiltration of water into the underlying soils.
- Aggregates can be beneficial in areas of high traffic, where the alternate state is bare and compacted dirt.
- Landscaping can be designed to prevent or limit exposure of aggregates to direct sunlight.
- Over the long-term aggregates can be a lower cost option for the property owner due to less frequent replacement.
- Plants that thrive when using aggregate in lieu of mulch frequently require less water, which is a significant consideration in current landscape design.
- Some difference of opinion regarding aggregate's effect on the landscape's ecological function, use in lieu of plant based mulch, and ability to stabilize a landscaped area.

Internal Staff Input:

Three internal, interdepartmental meetings were held including representatives from the Watershed Protection Department, Austin Water, Austin Energy, Office of Sustainability, and Planning and Development Review Environmental Review, Arborist, and Landscape Inspection.

In the interdepartmental meetings we heard that:

- Staff believes current code and criteria generally meet the goals of the Council resolution for environmental protection and sustainability.
- Current code does not allow for the use of aggregate in lieu of plant based mulch in landscaping.
- Aggregate should not be used in lieu of soil as a planting medium.
- Staff has significant concerns about the use of aggregate and potentially negative impacts on water quality, urban heat island, soil temperatures, and infiltration of water into soils (more on this below).
- Use of aggregates around trees is generally not an acceptable substitute for mulch except in areas where there is special need to alleviate soil compaction, and current code provides flexibility to allow this.
- There is a need for better communication between departments and programs to provide for more consistent application of landscape requirements.
- Definition of terms and requirements in City code and criteria would be helpful for understanding by both staff and the regulated community.

2. If necessary, revise the Land Development Code and/or Environmental Criteria Manual to allow the use of aggregate in lieu of mulch under the following conditions:
 - a. The use of aggregate should not functionally increase impervious cover. This can be achieved by using washed and screened materials to prevent compaction and filling of pore spaces.
 - b. Aggregate should only be used in areas shaded by buildings or plants. Areas to be shaded by new plantings should be measured using a percentage of the bed coverage of the mature plant or within 1-2 years growth.
 - c. The plants recommended for planting with aggregate should either be native to Central Texas rocky, limestone soils or be an adapted plant with similar required growing conditions.
 - d. When aggregate is used in planting beds, it should be used only as a soil cover and not as a planting medium (not in place of the soil).
 - e. Where aggregate is used it should have borders around it to contain the material and prevent migration of the aggregate.
 - f. The aggregate should be sized appropriately to be permanently stable on the given slope.
3. Update the Environmental Criteria Manual for clarity.
 - a. Standardize language regarding aggregate and mulch and eliminate confusion by discerning between size classes of aggregate and eliminating references to the terms 'mineral mulch', 'inorganic mulch', and 'gravel mulch';
 - b. Clarify that finer aggregates such as decomposed granite are not suitable for steep slopes. Discerning between size classes in the criteria will assist in this clarification.
4. Continue to prohibit the use of aggregates as a substitute for mulch under preserved or newly planted trees except in areas of high foot traffic or other situations that may cause soil compaction. Current rules allow the City arborist discretion in this area.
5. Improve consistency of application of City requirements and departmental communication through a series of PDRD staff trainings on aggregate use.
6. Provide resources to conduct a broader review and revision, if necessary, of the landscape portion of the ECM, including the Appendix N (plant list), possibly as part of the Land Development Code review that is currently underway.
7. Consider re-establishing the former City Landscape Architect position responsible for maintaining and interpreting the landscaping requirements in the City code and criteria.

Cc: Victoria J. Li, P.E., Director, Watershed Protection Department
Greg Guernsey, Director, Planning and Development Review Department
Lucia Athens, Chief Sustainability Officer

- Use of aggregate might be allowable using the Alternative Compliance path provided in the Environmental Criteria Manual, however, it is not completely clear.
- The City's landscape code and criteria have, for the most part, not been updated since the mid-1990's and could benefit from a comprehensive review.

Potential Problems Associated with Aggregate Use

Allowing extensive use of aggregate has the potential to create significant problems regarding water quality, air quality, urban heat island and water conservation including:

Water Quality

- Aggregates can erode and migrate from landscaped areas to storm drains and waterways if not installed properly (as can organic mulches).
- Fine aggregate, particularly the widely-used decomposed granite, can compact over time and function as impervious cover. This can increase stormwater runoff and prevent infiltration of rainfall into soils. The type of aggregate used in patios and footpaths may not be appropriate for use as a landscape feature.

Urban Heat Island

- Aggregates exposed to sunlight retain heat, heat the soil and surrounding landscapes to a greater degree than organic mulches, and increase air temperatures which can increase the water needs of surrounding plants and cooling needs of surrounding buildings and exacerbate the urban heat island effect.
- In humid areas such as Austin, aggregates retain heat overnight, unlike in arid desert climates which tend to cool rapidly after day time heating.

Soil Quality

- Aggregates contribute little to the soil, whereas organic mulches break down and enhance the soil.

Plant Adaptability

- Many plants are not well adapted to growing with aggregate placed as a soil cover.
- Aggregate is unsuitable as a growing medium in lieu of soil.
- Nearby plants and trees may be impacted by increased soil and air temperatures.

Water Conservation

- Plants and trees not adapted to higher soil and air temperatures can require more water.

Recommendations

While current code is effective in meeting the City's environmental and sustainability goals, after consideration of input from external and internal stakeholders it appears that City requirements could be modified to provide greater flexibility to the landscape community and still meet the City's goals. To that end we recommend that limited use of aggregate as a soil cover in lieu of plant based mulch should be allowed with specific criteria that address the possible negative impact of aggregates. Furthermore, with the same or similar limitations aggregate could be used as a permanent soil cover in combination with plants on other disturbed areas of a site. Specific recommendations are:

1. Clarify whether or not current Alternative Compliance in the Environmental Criteria Manual is a viable mechanism to allow the use of aggregate as recommended using current criteria.

RESOLUTION NO. 20130926-077

WHEREAS, the City of Austin owns a 7.36 acre tract of land in the upper Waller Creek watershed at 401 West St. Johns Avenue; and

WHEREAS, Waller Creek is a high priority watershed due to pollution and flooding concerns; and

WHEREAS, the site was purchased for stormwater management use and the Watershed Protection Department (WPD) has identified it as an appropriate location for a stormwater management pond to address pollution; and

WHEREAS, in 1970 the Austin City Council approved the use of the West St. Johns Avenue site as a sports field and has leased the site to the University Hills Optimists (UHO) for its exclusive use since 1971; and

WHEREAS, UHO currently offers kickball, baseball, and soccer to youth in Austin and surrounding communities at "Reznicek Field" at the site; and

WHEREAS, the City of Austin relies on organizations like University Hills Optimists to provide youth sports programming on public land throughout Austin; and

WHEREAS, most recent numbers from the Parks and Recreation Department suggest that a substantial number of youth sports participants who use this facility reside outside the City of Austin; and

WHEREAS, the site remains locked when youth sports activities are not taking place and thus largely inaccessible for more general park use; and

WHEREAS, the 2003 Brentwood/Highland Neighborhood Plan calls for construction of a park on this property but the City has taken no action in the past decade to consider or facilitate such a use; and

WHEREAS, the City of Austin has adopted a goal of providing parks within a distance of one-quarter to one-half mile of every household, and the Parks and Recreation Department's (PARD) Gap Analysis in the Long Range Plan identifies this area of Austin as deficient in adequate parkland; and

WHEREAS, among the top five votes during the Central Public Input Meeting conducted as part of PARD's Long Range Plan was to "move [the University Hills Optimists]... to create more park opportunity"; and

WHEREAS, WPD presented 60%-complete plans for the stormwater facility to the Highland Neighborhood at meetings on December 13, 2012, and February 18, 2013, and neighbors expressed concern over lack of input regarding the design of the pond and their interest in using the WPD site as a park; and

WHEREAS, WPD has placed plans for construction of the stormwater facility on hold pending direction from the City Council regarding future use of the site; **NOW, THEREFORE,**

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF AUSTIN:

The City Manager is directed to hold a community meeting to solicit suggestions and ideas and to report to Council by January 15, 2014, with options for the future use of the Watershed Protection Department tract located at 401 West St. Johns Avenue, including 1) using the entire tract for stormwater management; 2) using the entire tract as a park including a stormwater

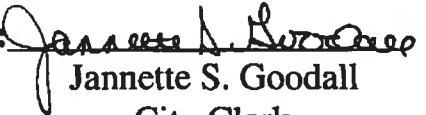
management pond and relocating University Hills Optimist sports; 3) reconfiguring the site to allow both public park uses, a stormwater pond, and continued youth sports activities; and 4) maintaining the site in its current use and configuration with modifications necessary to include a stormwater pond.

BE IT FURTHER RESOLVED:

The City Manager is directed to include in consideration of options 1-3 possible relocation options for the University Hills Optimist sports and, with regard to option 3, to prioritize which sports activities fill the greatest need in the community and also allow flexibility in the use of the site.

ADOPTED: September 26, 2013

ATTEST:


Jannette S. Goodall

City Clerk

