

NATURE PLAY GUIDELINES

GUIDANCE ON INCORPORATING NATURE PLAY IN PUBLIC SPACES



PREPARED FOR:

 **Austin**
Parks and Recreation



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Bienenstock Natural Playgrounds
City of Boulder - Parks and Recreation Department

Front cover photo: Lantana Neighborhood Park nature play space.

Photo (opposite): Child playing along Lady Bird Lake.

Photos by Austin Parks & Recreation.

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01 OVERVIEW



OVERVIEW

The Nature Play Guidelines instruct City of Austin Parks and Recreation staff, City of Austin contractors and vendors, partners (Austin ISD and other schools, Nonprofits), and others in the design, installation, maintenance, and management of nature play spaces. The City of Austin defines “nature play space” as a designated area for all ages and abilities, which encourages creative and unstructured play while exploring natural materials.

Photo (opposite): Will Smith Zoo School at the San Antonio Zoo. Photo (top) Balance log at Wooldridge Elementary Green School Park. Photos by Austin Parks & Recreation.



GOALS OF GUIDELINES

The addition of nature play spaces to City of Austin green spaces supports the goals of the Cities Connecting Children to Nature initiative - Nature Play Strategy, seeking to build a world in which all children can explore nature through play. It further aligns with larger City of Austin priorities, including the Climate Equity Plan, Heat Resiliency Playbook, Green Building Program, Imagine Austin, “Our Parks, Our Future”: Austin Parks and Recreation Long Range Plan 2020-2030, and Austin Independent School District Sustainability Plan goals around nature. Specific aims of the Guidelines include:

- Standardize how nature play is created across City of Austin property;

- Promote a shared understanding of what constitutes nature play and nature play spaces;
- Provide best practices to City staff and partners when designing, installing, maintaining, and evaluating nature play spaces; and
- Share resources for continued learning around nature play.

NOTICE: The guidance provided herein is a combination of best practices from across the world as it relates to nature play and nature play spaces. These guidelines are a living document and subject to change based on new techniques developed and the latest research. This set of guidelines is also not meant as a substitute for standard playground safety but as a complement to those rules and regulations.

02 WHY NATURE PLAY?



WHY NATURE PLAY?

As Austin Parks & Recreation seeks to incorporate nature play opportunities into daily practices and procedures the following section acknowledges why this is important.

Photo (opposite): Earth Camp. Photo by Austin Watershed Protection. Photo (top): Butterflies on wildflowers. Photo by Austin Parks & Recreation.



PHILOSOPHY OF NATURE PLAY

- Enables learning about the natural world through exploring and playing within it, thereby fostering a better understanding of how one is connected to that world;
- Brings nature into people's play and learning environments;
- Is self-directed, allows for autonomy over the experience and choice of action;
- Provides the opportunity to build physical, social-emotional, cognitive, and mental wellbeing;
- Engages all of the senses, and encourages exploration and curiosity; and
- Allows children to gradually test and increase the amount of risk with which they are comfortable, building resilience.

DEFINITIONS

The following definitions provide consistent language and understanding around nature play for the City of Austin. While there are many variations on how people define nature play, Austin Parks & Recreation encourages staff and partners to refer to the definitions below when designing, building, and communicating about nature play.

NATURE PLAY

Definition: Nature play is any type of play that involves the interaction with or use of objects that nature provides.

Description: Nature play is unstructured, intuitive, and allows for choice and developmentally appropriate risk-taking. It allows for multi-generational play, cooperative or solitary play, and can be imaginative or

constructive. Nature play often consists of a blend of materials and experiences to create purposely complex interplays of natural and other objects.

Examples: Nature play often includes the interaction with tree pieces, plant parts, rocks or fossils, puddles, dirt, sand or mud, and natural landforms, such as hills and streams. Nature play can take place both indoors and outdoors.

NATURE PLAY SPACE

Definition: A nature play space is a defined area for all ages and abilities, which encourages creative and unstructured play while exploring natural materials.

Description: Nature play spaces can be incorporated into areas such as parks, childcare centers, schools, libraries, and backyards, and can be created both indoors and outdoors. They are designed with consideration given to the following: the types of play, ages of intended users, type of audience, amount of use, weather, and other related factors. A nature play

space usually includes elements such as boulders, logs, gardens, nature trails, vegetation, acorns, pinecones, sticks, and other natural objects.

Examples: Nature play spaces are designed using the environment. Inside a classroom, it can be as simple as incorporating natural materials for loose parts play (often used for sorting, stacking, designing). In a backyard, a nature play space may include a mud kitchen or an herb, vegetable, or habitat garden. In a city park, a nature play space could include large tree pieces for climbing, a sand digging space, a dry creek bed, or large loose parts for a natural building station.

When designing nature play opportunities, Austin Parks and Recreation (APR) considers nature play to include the following: playful borders, ecological restoration, intentional climbing features, and opening up access to surrounding nature (i.e., raising tree canopy as needed, adding stepping stones across creek, etc).

BENEFITS OF NATURE PLAY

Research has shown that kids who learn and play in nature are healthier, happier, and perform better in school. Health benefits include:

- Physical: improved eyesight;^{1,2} physical strength, balance, and coordination; increased physical activity,^{5,6} reduced risk of obesity⁷
- Emotional: calm and less stressed/⁹ better able to cope with stress,⁸ increased self-esteem,^{20,21} increased resiliency^{8,23}
- Social: more cooperative with others/⁹ cooperative learning with others⁹
- Cognitive: reduces symptoms associated with ADD¹⁰ and ADHD,¹¹ better self discipline⁴ and problem solving ability,²² increased creativity,²² disruptive behavior disorders more readily calmed,³ increased focus and attention^{14,15}

- Academic: improved executive function (following directions, working cooperatively) in the classroom after use of/experience in nature, improved grades and test scores,^{12, 13} increased enthusiasm for learning¹⁶
- Nature connection/stewardship: want to protect what we love, pro-environmental behaviors,^{18, 19} and
- Play is more varied, lasts longer⁴

Financial and economic benefits include:

- More than a \$3 return for every \$1 invested in green schoolyards,⁵¹ which often include nature play features
- Bring in additional sources of funding;²⁷
- Sourcing of nature-play materials:
 - Re-use of otherwise discarded materials,²⁹
 - Interdepartmental sourcing - Sustainable operations that optimize City budgeting and reduce resource waste.³⁰

Environmental benefits include:

- As a living system, nature-based spaces can provide habitat for wildlife;²⁵
- Replacing use of asphalt, concrete, and rubber with mulch, grass, gravel:
 - Can provide breaks from the urban heat island effect;²⁶
 - Allows for better water infiltration and decreases stormwater runoff;²⁸
- Adding trees and other vegetation improves:⁵⁰
 - Air quality
 - Health
 - Carbon sequestration
 - Temperature

CITIES CONNECTING CHILDREN TO NATURE

Cities Connecting Children to Nature (CCCN) is a national initiative that seeks to create more equitable and abundant access to nature in cities through a partnership

between the National League of Cities Institute for Youth, Education, and Families and the Children & Nature Network. CCCN supports citywide action plans to implement policy, develop new partnerships, amplify nature-based programming, and create more equitable nature access. The initiative ensures that a connection to nature becomes an integral part of city priorities, planning, and policymaking across a range of areas, including community health and wellness, education, out-of-school time programming, job creation, transportation, and land use.

CCCN-Austin works to achieve equitable connection to nature for children through five key strategies: Green School Parks, Early Childhood, Youth Leadership, Nature Smart Libraries, and Nature Play. The vision of the Nature Play Strategy is “building a world where all children can explore nature through play.”



Child exploring water flowing through a limestone boulder. Photo by Lady Bird Johnson Wildflower Center. Photo (opposite): Nature play space Wooldridge Elementary Green School Park. Photo by Austin Parks & Recreation.

ADDRESSING NATURE DEFICIENCY

Discrimination and racism in the United States have had profound effects on human settlement patterns and on protections for the nation's natural areas. Historical and current systemic racism have led to Austin's natural spaces being unevenly distributed and accessed. Recognizing and acknowledging this inequity, the Austin Parks & Recreation, along with dozens of partner organizations, created the [Austin Children's Outdoor Bill of Rights](#) (COBOR). Austin City Council unanimously voted to pass the COBOR on January 26, 2017, with the support of more than 1,000 citizens, key partners such as Austin Independent School District, and then Mayor Steve Adler.

The creation of the Children's Outdoor Bill of Rights allowed Austin to show what equitable access to nature should look like and establish a common foundation and high aspirations for nature connection in our community. The COBOR served as a platform to launch the CCCN Austin initiative and included

a celebration at City Hall. The COBOR was developed in tandem with the CCCN Austin [Nature Equity Map](#), which identifies areas in Austin where children lack access to their outdoor rights, also known as nature deficiency. This map is used to inform decisions on where to focus resources and programs to address inequities surrounding children's safe access to nature in the city.

03 SITE CONSIDERATIONS



SITE CONSIDERATIONS



SITE SELECTION

Nature play can be a standalone feature or developed in tandem with a traditional playground space.

If your project involves installation of only nature play features, the following considerations come into play for site selection:

- Proximity to shade trees
- Access – who can easily access the site and by what means (e.g., biking, walking, driving)
- Inviting play into natural areas of space (e.g., creek access, wildflower meadows)
- For playground inspection and maintenance purposes, it's recommended to keep nature play

outside the traditional playground footprint and curbing

One thing to note, due to its low impact and natural materials, nature play is suitable for flood zones and critical water quality areas where traditional playscapes cannot be added. However, materials in these spaces will naturally degrade faster and a replacement strategy should be considered.

The following tools may be used to prioritize site selection:

- [Cities Connecting Children to Nature Austin Nature Equity Map](#)
- [Trust for Public Land's ParkScore](#)
- [Texas Healthy Parks Plan](#)
- [Neighborhood Prosperity Dashboard](#)

SITE ANALYSIS

Once a site is selected, it's important to perform a comprehensive site analysis prior to beginning design. Each site will have a combination of strengths and weaknesses that should be considered in order to optimize its possibilities for nature play. In addition, it will be necessary to look beyond the site to understand how users may access the proposed nature play program and to create a context-sensitive design.

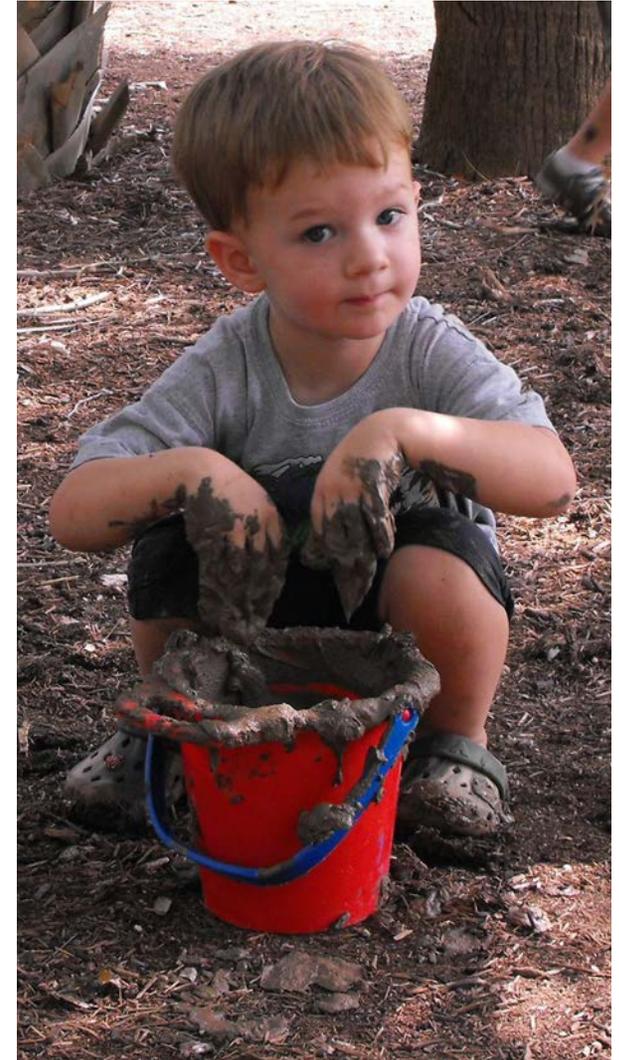
Soil

A basic soil test can provide keys to understanding the likely outcomes of various design choices. For example, plant species have different tolerances for pH levels, chemicals, and nutrients found in soil, and for the amount of water that a soil can hold. Successful plant choices are site-dependent, and rely on a knowledge of the soil's underlying characteristics. If the project will have a vegetable or other non-native garden, knowing the pH, organic matter, and nutrient levels of the soil can provide information on what plants are suited to the site, soil amendments that may be

needed, or whether more suitable soil should be brought in from elsewhere.

Soil is made up of particles of sand, silt, or clay, and the ratio of these three components is known as soil texture. Knowing the soil texture of a site can give a sense of how quickly water will leave your site. A mostly sandy soil will drain quickly, while a mostly clay soil will hold water for longer. In addition to plant preferences for fast- or slow-draining soils, this information can affect choices about play surfacing. If mud play is the goal, a clay soil that stays wet for a long time can enhance this type of play. If the site tends to puddle or hold water, however, alternative surfaces that shed water quickly or designs that focus play in drier areas should be considered.

In urban redevelopment or areas where the site history is uncertain, soil tests that test for toxic metals or other contaminants are advised, especially if children will have close contact with the soil for gardening, mud kitchens, or other soil-based play. Reach out to your local agricultural extension agent, university, or municipality to find out how to perform this type of soil test.



Fun with mud. Photo by Allison Fisher



Kids with veggies. Photo by UT Sprouting Teachers program.

Vegetation

Review the existing vegetation on the site. Are there unique species or plant communities that should be preserved as part of the design? Invasive, poisonous, or thorny species that should be removed? Any trees surrounding the intended play area should be inspected by an International Society of Arboriculture Certified Arborist to ensure they pose no elevated risk to users of the area. If there is thick vegetation, clearing may be required so that sightlines through the site establish a feeling of safety for children and their parents.

The existing pattern of shade and sun on the site should also be considered. Does that pattern provide for a comfortable play experience, or will additional tree planting be needed? It is also important to look at the condition and age of existing trees. If the site is populated with one species all of the same age, it is likely that a shady site could change dramatically when those trees reach the end of their lifespan or become targets of insects or disease. Designing a planting plan that includes diverse, well-adapted species will

increase the resiliency of the site, and will enable new trees to provide shade for the play space.

Critical Root Zones

If installing nature play under tree canopy, it's important to consider the critical root zones. Critical root zones (CRZs) are the areas between the tree trunk and outer branches (or dripline) that house the most crucial roots for a tree's health and stability. Damaging roots can lead to tree decline and death, although it often will take a tree years to fully show the impacts of root damage. All trees have critical root zones, and on parkland, all trees regardless of size, are city assets and must be accounted for when planning any type of development activity.

No work, neither surface laying nor any installation requiring digging, should be done within the inner ½ of the critical root zone. In the outer ½, minimally invasive digging (no more than 4 inches) and mounting may occur. Soil work should be overseen by an ISA Certified Arborist, and may require a permit. Precautions should be taken to avoid

compacting the soil in the critical root zones of existing trees. There are multiple ways to prevent soil compaction, but the best is to keep all materials and machinery completely out of the critical root zone at all times.



[Measuring guidance for critical root zones.](#)

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See graphic below for guidance on determining the size of a critical root zone. Please note, concrete mounting is not considered minimally invasive and should not be used within the critical root zone. See [Austin City Code for Tree and Natural Area Preservation](#) for more detail.

Slope and Drainage

Sloping sites present many design opportunities for nature play. Slopes can be incorporated into climbing structures, tunnels, and embankment slides, and provide the ability to create separate spaces with differing activity levels. Low spots may create areas where children can feel a sense of shelter for quiet play, where hilltops can become places that provide the prospect of further site exploration and adventure.

Slopes also present design challenges. Creating equitable access to nature play spaces will require an analysis of the existing topography and site access points, and a plan to provide points of entry for users of all abilities.

Drainage and Natural Waterways

Similarly, site drainage patterns present both design opportunities and challenges for nature play. Understanding how much water your site receives in an average rain event and how that water moves through your site can create opportunities to slow and hold water for play or vegetable gardening, or to



Embankment slide at Austin ISD's Outdoor Wonder and Learning Center. Photo by Kristine Cheng, AISD



Students hunting for macroinvertebrates in Bull Creek at St. Edwards Park. Photo by Austin Watershed Protection.

direct it toward planting areas, rain gardens, or other water-related design features. Thinking in terms of green infrastructure can help address issues of flooding and erosion.

Creeks and rivers that intersect the site can become places for learning about and interacting with a wider range of species of plants, insects, and other animals. Waterways can be incorporated into the overall design in a variety of ways. Because they are ever-changing features in the landscape subject to flooding and erosion, nature play features within riparian zones will need to be installed to withstand or naturally dissolve under those forces. Additional permitting or regulatory approval will be required for any features designed to be permanently placed within a riparian zone.

Permitting Requirements

If there is vegetation removal of any kind, or any grading, the City's Land Development Code requirements must be followed. Projects must be reviewed by site plan review staff. Austin Development Services has a Public Projects Review Team that may be of

assistance determining which permits and regulations apply to a given project.

- [Land Development Code](#)
- [Environmental Criteria Manual](#)
- [Drainage Criteria Manual](#)

Site Context

Looking beyond the site can provide clues to when, why, and how users will access the play space, the types of wayfinding that might be required, and the number and frequency of users a nature play space might draw, all factors that will further inform design and maintenance considerations. Some things to note include:

- What transportation connections exist nearby? Are there bus or train stops or an All Ages and Abilities bikeway?
- Are there sidewalks that lead into the site? Are they accessible?
- Is there existing bike parking or will it need to be installed? Consider visibility from park entry points, shade, and ease of approach.

- How densely populated is the surrounding neighborhood? Can the design accommodate the likely number of users? Do you have the maintenance budget and staff to service the expected number of users?
- Are there schools, childcare centers, or after-school programs nearby? Is there an obvious, safe, and accessible route for those groups to get to the site?
- What wayfinding or signage can help lead new users to the nature play site?

Additionally, the broader natural and cultural ecosystem surrounding the site can provide design inspiration, weaving the nature play experience into the neighborhood's underlying fabric. For example, are there nearby creeks, rivers, locally abundant tree species, rock formations, or other natural features that can inspire the material choices for the site? How can the site reflect the community who will use it? Does the neighborhood have an abundance of murals, local businesses, or other cultural markers that the project could draw from? Are signs in the languages spoken

by the community? How can the site and its surroundings inform material choices, design layout, themes, colors, and textures of the project? Connecting locally to the community and the environment can help foster user identification with and stewardship of nature play spaces.



*Holi Festival celebration at Children's Discovery Center - South.
Photo by Children's Discovery Center - South*

04 BARRIERS TO PARTICIPATION



BARRIERS TO PARTICIPATION



PHYSICAL AND NEUROLOGICAL ACCESSIBILITY

The [Americans with Disabilities Act \(ADA\)](#) mandates equal access to recreational areas when facilities are built or altered. Features regulated by this act include accessible parking spaces, routes, seating areas, water fountains, and more. While it is not required that nature play fulfill the specific requirements outlined by the ADA, the more that natural areas are accessible, the broader the audience who can utilize them to connect to nature, supporting the ADA's goal of full participation. It would be advised to gather community feedback and recommendations from industry ADA professionals prior to installing a nature play space. For additional information on ADA requirements, visit

www.ada.gov, or for specific information regarding the enforcement of ADA with local government's parks and recreation facilities, visit [Enforcing the ADA Part 2](#).

In addition to ADA requirements, Universal Design can be utilized to provide a more comprehensive view of accessible and inclusive design. Both a physical and social event, inclusive play is not solely about physically accessing an environment, but what happens once an individual gets there. A truly inclusive and embracing play experience addresses the developmental needs of the whole child by intentionally providing opportunities for physical, cognitive, communicative, social/emotional, and sensory development.⁵⁷ By considering the diverse needs and abilities of all throughout the

Photo (opposite): Fairy pavilion at Walnut Creek Metro Park. Photo by Austin Parks & Recreation. Photo (top) Father helping child onto balance log at the Western North Carolina Nature Center.



Child exploring boulders, Photo by Children's Discovery Center - South. Photo (opposite): Community engagement signage at MLK Station Neighborhood Park. Photo by Austin Parks & Recreation.

design process, universal design creates digital and built environments, services and systems that meet peoples' needs.⁵⁸

RISK AVERSIVE PERCEPTIONS

Caregiver concerns and anxiety over children in their care getting injured are a key factor in the decline of young children's opportunities for outdoor nature play. Nature play may pose a risk of injury, however it is no different than risks of other modified natural areas, such as trails or playing fields. Education about nature's risks, as well as the major benefits, from nature play should be provided during community engagement, onsite instruction, and through graphics and signage.

EQUITY AND INCLUSION

When choosing a site for nature play, it's important to consider access to nature through an equity lens. Access to nature has historically been restricted for communities of color, low-income communities, and other marginalized groups in urban areas. In order to help prevent disparities in equity,

it is recommended to be mindful of where the nature play spaces are located and how they interact with the community as a whole. Will the area be accessible by public transportation? Will the area feel welcoming to all? If the area is located on school grounds, will the community have access during non-school hours? Will the communication/marketing efforts reflect the diversity of the community in which you are working? When providing community engagement opportunities, utilize targeted outreach efforts to ensure participation includes a diverse representation and combination of community members—including children—in order to not further socio-economic degradation. Building nature play spaces that provide a connection to those in the community is necessary to be ambassadors for social equity.

05 COMMUNITY ENGAGEMENT



Nature Play Space
Espacio de Juego de la Naturaleza



Quiet Space
Sitio Silencioso



Stump Jump
Troncos para Saltar



all park amenities.
Take a look at each amenity and
important to include
the 8 features
you park.

COMMUNITY ENGAGEMENT

Community engagement is the practice of directly involving the community in a decision-making process. Community engagement can take many forms and approaches, but broadly speaking is a practice that aims to recognize the importance of public input to the development of public policies, decision-making and planning. Community Engagement can also be referred to as “public participation,” any process that involves the public in problem-solving or decision-making and uses public input to make sustainable decisions. Outreach is a key component of engagement, but just informing community members is not community engagement.

Sand play during community engagement event at MLK Station Neighborhood Park. Photo by Austin Parks & Recreation.



For Nature Play Spaces that will involve community members in the decision-making process, project managers should complete a Community Engagement Plan, detailing the purpose for engagement, overall strategy, methods of engagement, context, and the communities impacted and interested in the process.

Community engagement may not be needed when all decisions are made by the internal team or the project is limited by budget and materials available. When the engagement will be more performative or feel like “checking a box” and community members will not actually participate in the decision-making process, stick to just outreach and promotion.

PROCEDURE FOR COMMUNITY ENGAGEMENT PLANNING

Below is an outline of the standard procedure for community engagement when working with community members to make decisions.

1. Complete preliminary Community Engagement design:
 - a. Identify the decision maker(s) and how decisions will be made.
 - b. Clarify the scope of the project and purpose of the community engagement.
 - c. Identify preliminary communities impacted and people interested in the project along with potential risks and challenges.

- d. Identify the community engagement objectives and metrics of success.
- 2. Develop a comprehensive list of people and organizations who might be impacted or interested and levels of influence.
- 3. Complete Community Engagement Plan:
 - a. Include key project activities, project milestones, timeline, and resources.
 - b. Develop a detailed engagement plan that includes specific engagement activities based on the overall strategy, interconnected with project scope, milestones, and timeline.
 - c. Identify and make use of appropriate resources consistent with the defined roles, issues, audience, and resources.
 - d. Be specific in creating an outreach strategy that focuses on people who will be directly affected by the project, including individuals and

communities often left out of these processes. Established community groups may be helpful in making these connections.

- 4. Implement the plan, thoughtfully planning and executing each method, and follow-up by communicating results and how it influenced the project team and project results.
- 5. Evaluate efforts as you go, pivoting to be more responsive as needed.

Engagement methods will differ depending on if you are working in a public or a private space. Since nature play is often a new concept to many people, having engaging, hands-on examples for the community to explore is a great way to introduce the idea. Nature play presents great opportunities to co-design sites, involving the public (adults and children alike) in determining what features they would be most interested in using. The Austin Parks & Recreation’s [Loose Parts Lending Kit](#), a set of kits containing a variety of natural materials to create and

build with, can be checked out for these purposes.

Survey tools can be helpful in gathering input, but overreliance on this method often results in overrepresentation and underrepresentation of people who might be affected by the project. Surveys should never stand alone and should be connected to other in-person opportunities for people to give both quantitative and qualitative input. All input must be shared back with community members along with analysis and how it impacted the project.



*Community engagement event for a new nature play space at Heritage Oaks Neighborhood Park.
Photo (opposite): Children playing at Rainey Street Trailhead, Photo credit The Trail Conservancy.*

CONSULTATION WITH PARKS AND RECREATION COMMUNITY ENGAGEMENT

For all projects with community engagement as a part of your process on City of Austin parkland, staff can provide support in developing your Community Engagement Plan, help you identify people and organizations potentially affected, and support creative engagement efforts while ensuring the communications loop is completed. In addition, the Parks and Recreation staff may be able to provide training on engagement.

For additional information or to schedule a consultation, please complete the [CEU Work Request form](#). For City of Austin departments, the full Parks and Recreation [Community Engagement Operations and Procedures Manual](#) can be found on [SharePoint](#). For vendors, contractors, and partners, this can be shared upon request.

06 DESIGN GUIDELINES



DESIGN GUIDELINES

Children need a variety of play opportunities in order to develop their cognitive, social, imaginative, and physical skills.⁵⁴ Nature play spaces at schools and childcare centers bring nature to the places children are required to spend most of their time. Additionally, recreation centers, parks, and other sites can provide close-to-home connections to nature. When designing these spaces, several factors should be considered to ensure the space is inviting, welcoming, and accessible to all.



Consider the scope of a project (budget, size, audience served), as larger, more complex designs may warrant outside assistance. Depending on the level and complexity or scope of your project, you may be working with a contracted designer, landscape architect, or other licensed professional. If design assistance is acquired, communicating the practical concerns around the use of the space (where does trash go, can a mower get in or around, etc.) can save headaches later on.

Any play space should also consider the four main types of play: gross motor, fine motor, creative / collaborative, and quiet contemplative. Think of play as an activity children do, not the thing they play with. Distribute play areas around a path (1/4 to 1 mile) to provide

opportunities for creative, collaborative, and quiet play.

ACCESSIBILITY

Accessibility should not be an additional design consideration, but on par with all other design elements - integral and built in. Special consideration should be given to providing accessible surfaces to a play area that meets the ASTM Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment, ASTM F1951. Nature play feature selection and location, ramps into play spaces, and the type of surfacing in the play space all need to be considered. For public or commercial sites with project budgets exceeding \$50,000, you will be required to register

your project with the Texas Department of Licensing and Registration and hire a Registered Accessibility Specialist.

Physical accessibility design considerations:

- Create space within the logs/stumps for wheelchair seating
- Create space within the logs/stumps for wheelchair transfers onto said logs/stumps
- Consider alternative methods of mobility beyond walking such as rolling, crawling, sliding, or scooting
- Add different layers so adults and kids can be at eyeline for wheelchair
- Make ramps more engaging by making them narrower with 3 foot tall grasses on either side to provide more sensory options, and longer and more fun by adding undulations
- The height of an accessible raised bed or activity bin should be 24 inches for someone seated in a wheelchair, and 30 inches for an individual who will

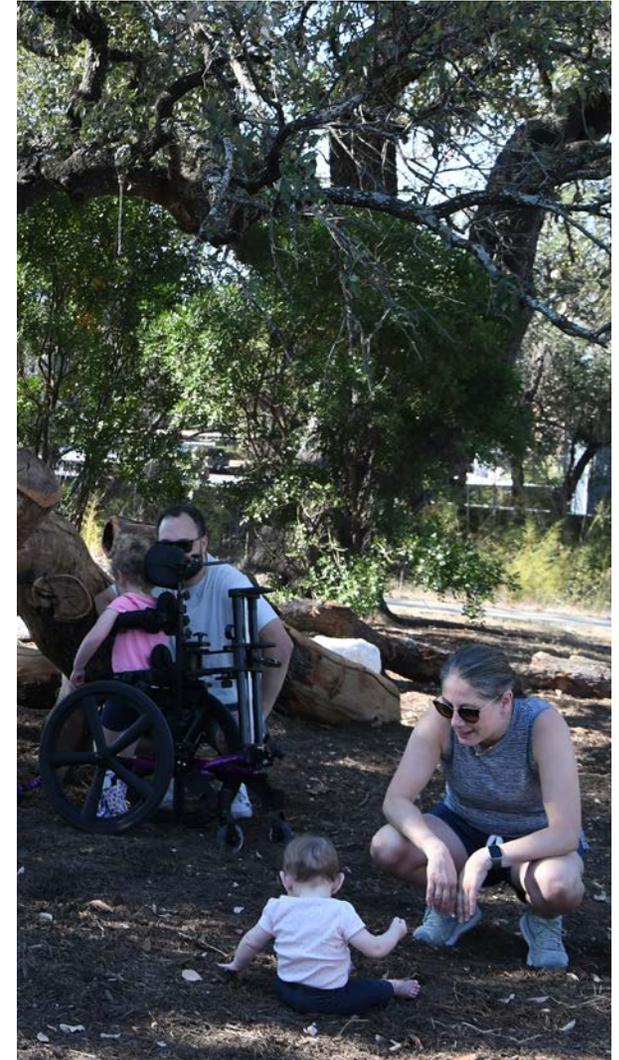
stand while gardening but has difficulty bending and reaching³⁹

- Offer large changing tables that have a privacy screen – up to 80lbs.

It should also be noted that physical challenges make up only a small proportion of children with disabilities.⁴⁰ Care should be taken to design spaces that meet the needs of all children, including those with sensory, cognitive, social/emotional, and communication challenges. This can be achieved by incorporating a variety of play pockets such as quiet spaces, sensory stimulating plants, music or art stations, or dramatic play elements.

Visual and sensory processing accessibility design considerations:

- Add communication boards at entrances to play areas (even if not used, they indicate that a place is welcome to children with disabilities)
- Incorporate some signage in Braille in addition to other languages



Heritage Oaks Neighborhood Park nature play space, where access was a focus of design. Photo by Austin Parks & Recreation

- Add as many sensory items as possible, such as
 - Ashe juniper tree cookie for smell
 - Bird or wind noises that can act as white noise
 - Plantings that offer a place to lie under so kids can lie on their backs and see the light/shade of the canopy (which can then double as a quiet/contemplative space)

Design Intent

After the [site analysis](#), the design process begins. Whether designing a multi-purpose area that could include several types of play spaces and features (such as a gross motor play area with a mud kitchen and embankment slide) or designing a site with a primary focus (such as STEAM, pre-K age, or family engagement), you will want to define the types of play appropriate for the space and how you will incorporate these types of play in your design. For safety considerations, refer to the [Safety section](#).

Subject Matter

Art and Music

Kids love the opportunity to play with, hear, and interact with sound and music. It is beneficial to include a chance for a child to be both inspired by art and the opportunity to be artistic themselves. Elements can include wall murals or easels, sound gardens, children’s art, nature art, and materials that can be used to create art and music. Art activities and spaces help build an understanding of color theory and spatial relationship and support literacy, scientific and mathematical thinking, while playing music builds confidence, encourages creativity and self-expression. And it’s all fun!

Science Exploration and Science Technology Engineering Arts Math (STEAM)

Since plants and other natural features are already occurring in an engaging way, this subject matter is often included in nature play. These areas provide a good “hook” for children and adults who want to be pulled into science exploration. Existing

nature easily provides a connection to science-based topics, such as the parts of a plant, life cycles, categorizing items, cause/effect, observation, and exploration.

Literacy

Literacy development is easily transferred to nature play spaces and is often seen in the form of story trails, alphabet gardens, vocabulary connections, places to read, drawing letters in the dirt, or using nature to tell stories. Nature can help remove barriers that inhibit learning, such as reading outdoors under a tree instead of at a desk in a classroom, to help stimulate children with literacy learning challenges.

Culture

Incorporating the culture of your visitors, such as the surrounding neighborhood or Indigenous communities in the area, can encourage the idea of nature play in general. Community engagement is critical to identify what your visitors feel is important to have represented. Cultural additions can be anything from food gardens specific to

different cultures to art or artifacts of indigenous communities.

Types of Play

Gross and Fine Motor Skills

Gross Motor: Upper body and core strength are foundations upon which little bodies rely to build coordination, cognitive, and neural development. Core body strength and cross body motion can help with attention and emotional self regulation. Climbing and balancing in a safe outdoor learning environment teaches children how to assess risk. The vestibular system, located within the inner ear, gathers information from all five senses and gives a child a sense of where they are in space. Spinning, rolling, swinging, falling, jumping, and balancing all help develop this system that later helps reduce impulsivity and builds self awareness and confidence. Outdoor play creates opportunities for fitness and improved coordination, balance, agility, and obesity prevention.

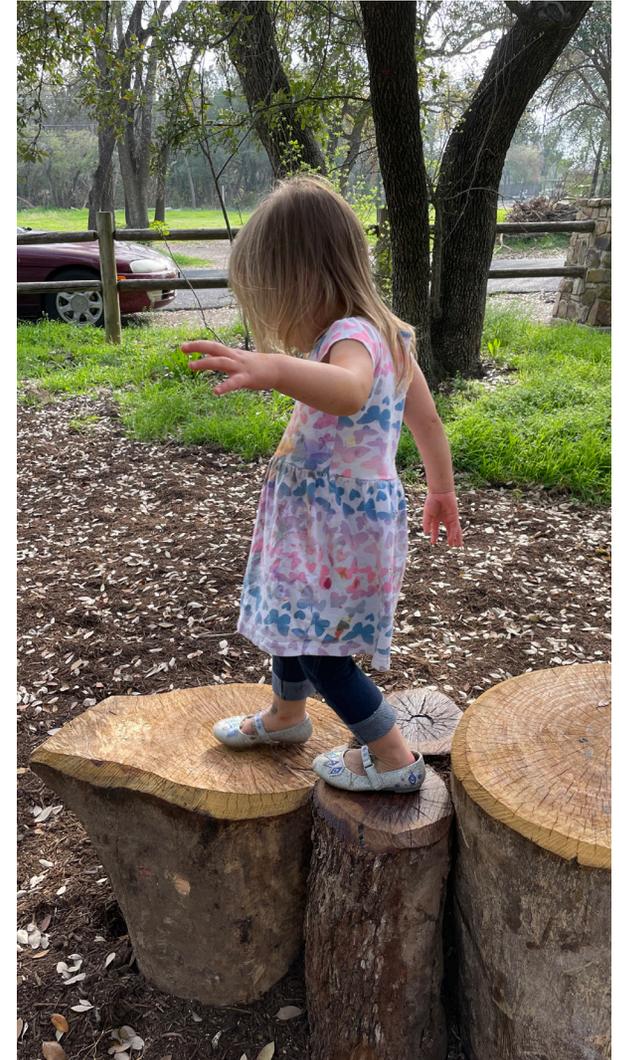
Fine Motor: Nature play spaces, especially in areas that include collecting nature materials for play, offer a variety of opportunities to build

fine motor skills and hand-eye coordination. Examples can include building fairy houses, manipulating loose parts, weaving, and collecting nature items. This is often also seen in nature-based activities like leaf hunts, nature mandalas, and arranging nature items into patterns.

Cooperative Play and Individual Play

Cooperative play involves the division of efforts among children in order to reach a common goal. Some art-based activities can be cooperative, such as painting a mural or building a sand castle. Children can work together to rake leaves, build a fort, or plant and tend a garden. This allows children to learn how to navigate negotiating with others, build social skills (teamwork, sharing, taking turns, leadership), and critical thinking skills. Cooperative play promotes gender equity and foster cooperative play between boys and girls in early childhood development.⁵²

There is great value in children having time to themselves while outdoors. Individual play encourages reflection, mindfulness, metacognition, independence, self-regulation, and



Armadillo Neighborhood Park nature play space. Photo by Austin Parks & Recreation.



Children creating mini-worlds with nature play materials at the Seaholm Kids Block Party. Photo by Austin Parks & Recreation.

helps children develop a sense of where they belong within the world. Individual play also offers opportunities for children to create their own worlds and make independent decisions about how they play and what they do during that time.

Unstructured Play

Unstructured play, such as fort building, also helps children learn about the world around them with no guidance or prescription by adults. This type of play allows children to have no fear of doing it wrong, since there is no correct method or outcome—no “right” way to use something. Unstructured play fosters critical thinking skills, decision-making, and appropriate risk-taking as children navigate creating their own rules.

Dramatic/Pretend Play

Dramatic play, or pretend play, allows children to use their imaginations and think creatively. In nature play spaces, this is often seen in the context of huts, tunnels, nests, boats, or other structures like an outdoor stage that become backdrops for children to use their

imaginations and act out scenes. Dramatic play can be independent or cooperative.

Defining the Space

Quiet Spaces and Hiding Places

Quiet spaces and hiding places come in many forms: tunnels; the enclosed areas of a tree-house or structure; a temporary fort they build themselves. Children benefit from spaces where they can retreat from highly stimulating activity while still feeling connected to the social space. In this way, quiet spaces and hiding places can provide a calm, soothing environment while still sparking wonderment and discovery. For young children, well-designed hiding spaces will feel remote to the child while still maintaining visibility for the guardian/supervisor. Incorporate sensory plants like soft grasses that are soft to the touch and bend in the wind, herbs with pleasant smells that relax the senses, or shade trees that shelter a space and children can calmly listen to the wind rustle the leaves.

Community Gathering

Intentional design can enhance nature play

as a natural gathering space. Gathering spaces offer the opportunity to bring people together. The informality and natural comfort of the space can lead to a greater sense of community. Gardening, family celebrations, play groups, or neighborhood socials are common activities in gathering spaces. For schools and childcare centers, these spaces provide safe areas to converse with parents or students. Providing shade with trees, covered shelters, and plenty of seating options adds to the appeal.

Functional Services

Access to water fountains and restrooms can be especially important for younger ages. If you do not have such features near your nature play space, this could impact how long families play in the space. Additionally, benches in shaded areas should be considered for the comfort of adult caregivers to allow children the opportunity to play longer.⁵³ Waste receptacles and maintenance are key considerations. If no funding exists to manage waste receptacles, providing Leave

No Trace messaging can be one way to encourage visitors to take their trash with them instead of leaving it on site. Include signage about pets in public play spaces to remind pet owners to keep animals on a leash and pick up any pet waste. See [Austin City Code Title 3 overview](#).

Pathways

Pathways serve a wide variety of users and can be formal, hard surfaces for wheeled toys, wheelchairs and walkers, as well as strollers for younger families, or can be informal paths between activity settings allowing for transitions that are slower, exploratory, and windy. Paths for wheeled toys are best when they're looping and have varied topography to physically challenge little bodies and build up equilibrium and bilateral development. It's best if primary pathways are accessible and wide (at least 5 feet wide with a 5% slope and 2% cross slope is a good baseline).

Wide, hard-surface paths provide accessibility and are appropriate as the primary thoroughfare through a play space.

Narrower, soft-surface trails that meander through the area or connect to nearby natural area trails can help create a sense of exploration. Pathways should have curves and turns, imitating the never-straight lines of nature. They can also be created by stepping stones, stone slabs, wood rounds of slightly varying heights, or concrete cast slabs with fossil, leaf, or track impressions.

Active Play Features

These structures are most similar to typical modern playground structures in their intent but may differ in their materials and their appearance. There are unlimited options for such structures, but they should be made of natural materials (i.e. lumber, rope, rock, etc.) and can allow for locomotor play activities, including balancing, swinging, climbing, or other physically challenging activities. It is important to note that some manufactured nature play amenities have a certification seal of approval or a manufacturer's label. This seal denotes the play feature has been certified by a playground inspection specialist and requires additional safety measures including fall



Stump cluster at Heritage Oaks. Photo by Austin Parks & Recreation.

zones, safety surfacing, and regular safety inspections.

Examples of such structures:

- Log and rope climbing structures (e.g., vertical posts)
- Nature-based play sculptures
- Structures that are built to imitate the activities of animals in the wild (ex. nest)
- Stump jump
- Fort building
- Loose parts play
- Hill/embankment slides
- Boulder climbs
- Play hollows (e.g., hollow stump)
- Stump table
- Play bridge
- Bench or creative seating
- Balance logs

Seating and Gathering

Stumps and boulders act as great seating for a nature play space. These seating areas may double as a gathering area, outdoor classroom, or as a natural barrier between activity areas. Learning spaces, such as an outdoor classroom, can provide an area to have guided adult interaction for enrichment activities/lessons/experiences with the potential to learn through and about nature. Shade should also be incorporated into any seating and gathering area for both the comfort and safety of the users.

Storage and Fences

Keeping equipment and materials close to where they are used is key to enjoying and fully engaging your outdoor learning and play settings. Storage can be clever, hidden, and ample while not taking up valuable play space or being a nightmare to organize. One option is to scatter your storage spaces throughout the play space and make them multifunctional and attractive.

A play space will often need storage for

loose parts, toys, equipment, etc. Consider incorporating other elements into the storage, such as a musical wall, an art mural, or a mirror. Also consider heights of adults and children when designing and building storage. Storage spaces can also act as a message board, either for visitors or for participants. Ensure storage housing is all-weather and sheds water.

While fences can add security enclosure, they can be costly and not always necessary depending on the nature of the site. If a fence is present, consider incorporating playful elements into the use or design (i.e. music wall, weaving, etc.). For security and safety aspects, often a fence will be placed around the entire play space with only one entry/exit point.

Nature Play Materials

Large Stationary Logs

Large logs installed for climbing can be attached to concrete foundations or set on top of a gravel base to create a gap between ground surface and play feature both to stabilize the structure and to help prevent ants and other insects. Inspect logs to ensure any

branching does not create spaces more than 3.5 inches and less than 9 inches, which can cause entrapment. The angle of climbable features should be a minimum of 30 degrees to help prevent unwanted standing/jumping.³⁸

Loose Parts and Building

If creating your own tree cookies, tree cookies should be sealed (using a clear oil-based wood stain like Cabot Australian Timber oil or similar) as soon as they are cut to help prevent splitting. The length of sticks for fort building should be at least six feet to promote cooperative play and reduce unwanted behavior (i.e., sword fighting). Building materials (sticks, bamboo, palm fronds, etc.) can be left either untrimmed or trimmed, depending on the safety concerns or benefit they provide. For example, untrimmed materials are hooked together with greater ease than trimmed sticks often making fort building feel more realistic. When palm fronds dry, they naturally provide more coverage and won't have to be replaced as often as other materials for building.

Know you'll need to regularly replace loose parts and building materials depending on



Large stationary log at Walnut Bluffs Trailhead. Photo by Austin Parks & Recreation.

how heavily they're used by children, and plan for them when budgeting. See the [loose parts harvesting guide](#) for more information.

Water, Sand, and Earth

Water is both exciting and calming. Water play teaches cause and effect, balance, pressure, and helps develop early scientific concepts like volume, displacement, and motion. It encourages social skills like cooperation and sharing, and helps build upper body strength and teach problem solving. Water play can be designed for a variety of ages with shallow splash areas for older kids, or pondless water troughs and tables that meet the needs of younger children.

When water play features are included, water conservation should be considered (such as using rainwater, if allowed). Water is often combined with earthen material like dirt or sand and can provide hours of entertainment for a wide range of ages. Small pools, puddles, and muddy areas, running water, and shallow catch basins are all possibilities for nature play features. While there

are considerable safety considerations, water is an extremely dynamic play feature, whether it is from an interactive play feature or if it is brought in specifically for programming. Digging, regardless of the material, is a universal activity for young children and is often one of the most popular areas in a nature play space. Dirt, sand, and mud can all be used and lend themselves to different types of play. It will help to designate specific digging areas within a nature play space to mitigate any unwanted digging that is likely to spill over from the designated area. Areas should also be deep enough for children to dig (8 - 18 inches), which can be created either directly in the earth or within a deep container. This helps to set boundaries for the play area and prevents material from spilling out over grass and asphalt, where it can cause slippery surfaces. The area may also be lined with logs, stumps and small boulders to create engaging boundaries. Ensure gaps are left in the boundary to ensure entry access and ADA accessibility. Providing digging tools (shovels, buckets, scoops, sieves, trucks, etc.) will also help

define the intent of the space, as well as the intuitive actions that will occur in the area.

For sand play, be sure to provide adequate drainage, which can typically be provided by having gravel beneath the sand area. Locate your sand play areas away from active play areas and provide enough room for many children to play without getting in each other's way. A 40 square foot space is a comfortable play area for groups of up to ten children. Try designing the area so there are a variety of places and activities for children in small groups (one to four) or for playing alone.⁴⁷

Coarse grain sand is helpful in large areas since it wipes off the body easily. If you are more interested in building with sand (sandcastles, molded shapes, etc.) then a finer grain, low-silica play sand can be more productive. Builders' sand is not suitable as it can contain irritants and causes stains. The sand will need to be topped up every one or two years and will need to be completely replaced every four or five years, though these frequencies depend on the nature of each individual site.⁴⁶

In a managed space, staff often prefer to keep a cover over a sand play space to keep animals and debris out of the area overnight. Select a cover that is lightweight and easy to lift, and select a breathable mesh netting rather than a tarp that can get weighed down with water and dirt. Choose covers that let in water, air, and sunlight for the best overall health and cleanliness of the sand.⁴⁵ Ensure the cover can be tightly secured both when on and off the sandbox.

Earth play can include both stationary areas (digging in the garden, mud kitchen) as well as program-based activities (worm bin, compost area). If program-based activities are included, be sure to consider any maintenance issues that could arise in managing those types of activities (tools for compost turning, keep worms in the shade and pest free, etc.).

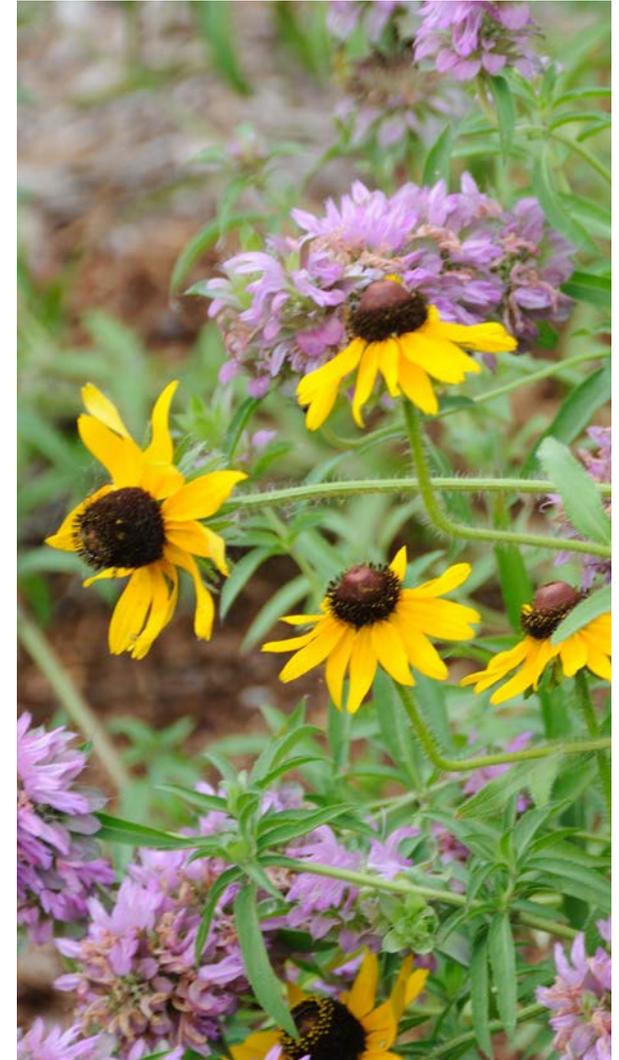
Plants and Trees

Plants provide another element for children to interact with, discover, and enjoy. While it's always important from a design aspect to pick plants that will integrate well with the space and enhance the aesthetics, it's more important to create a space for children to run and play. Vegetation that is low-maintenance and

resilient can take the beating that little hands and feet provide. Plant beds with defined borders will help protect the plants, however, steel edging is not advised due to increased injury risk. Ensure the plants can be watered with rain collection or irrigation, or select plants that require no irrigation (note: all plants will require irrigation to establish after initial planting). Plan for regularly replacing plants when budgeting to account for high levels of children interaction.

Select plants that evoke the use of all senses, considering different textures, colors, smells, seed pods that can become part of loose parts, and other benefits that support nature play. Plants also encourage discovering seasonal changes, such as watching leaves change color or observing when flowers bloom.

The **Best of Texas Plants database** is a great place to start when thinking about what species are appropriate for play. Select the purple handprint icon to bring up all plants that are child friendly. See Texas Parks and Wildlife's child friendly native plant and native tree guides for more information.



Wildflowers. Photo by Austin Parks & Recreation.

Avoid using certain plants, such as:

- Invasive species;
- Those that can cause injury or harm to individuals (*i.e.*, irritable plants like stinging nettle or poison oak, or thorny plants like hawthorn or rose);
- Those that have inedible fruiting bodies or seeds that might be harmful if ingested (*i.e.*, snowberry, pacific yew, red elderberry, mountain laurel).

By densely planting areas with native plants, you can evoke a sense of “wild” nature within the space. Native plants provide beneficial ecosystem services, such as attracting pollinators, providing homes and food sources for native wildlife, and increasing biodiversity and water reduction for irrigation. Children will enjoy the added benefit of observing the nature that comes along to enjoy the native plants.

Plants can also be used to define areas of the site without separating them, to separate the play space itself from the rest of the park or to screen it from nearby roads

or neighborhoods, or to create “secret,” isolated areas where kids can play separately from others. These are often the areas that are most utilized and engaging for children.

ADDITIONAL DESIGN CONSIDERATIONS

Safety

Traditional playground safety guidelines (ASTM, Childcare Regulation, and National guidelines) should be incorporated in the design of safe natural play spaces. Since nature play encompasses features that are generally outside of traditional regulations, additional safety information on features in nature play spaces is addressed below.

Risk vs. Hazard

“Risky play” is defined as thrilling and exciting forms of play that involve a risk of physical injury, such as jumping from a tall height.³¹ Engaging in healthy risky play is needed for healthy brain and body development. A hazard, on the other hand, is something that children cannot assess for

themselves and has no clear benefit, such as stepping on a piece of glass or getting snagged on a bolt.³¹ Detailed definitions and examples of each type of risky play are provided in Table 1.32.



*Using tools under supervision keeps kids safe during risky play.
Photo by Children's Discovery Center - South.*

Table: Definitions used to define categories of risky play

Risky Play Thrilling and exciting forms of play that involve a risk of physical injury. The risk can be real or perceived.		
Risky Play Categories	Definition	Example
Great heights	Danger of injury from falling	Climbing/jumping from surfaces, balancing/playing on high objects (e.g., playground equipment), hanging/swinging at great heights
High speed	Uncontrolled speed and pace that can lead to collision with something (or someone)	Swinging at high speed
Dangerous tools	Can lead to injuries and wounds	Cutting tools (e.g., knives, saws, or axes), strangling tools (e.g., ropes)
Dangerous elements	Where children can fall into or from something	Cliffs, water, fire pits, trees
Rough and Tumble Play	Where children can be harmed	Wrestling or play fighting with other children or parents
Disappear/get lost	Where children can disappear from the supervision of adults	Exploring alone, playing alone in unfamiliar environments, general independent mobility, or unsupervised play

A nature play space teaches risk assessment and reward while minimizing the risk of catastrophic injury. According to the Canadian Pediatric Society, studies show that catastrophic injuries happen more frequently on a traditional plastic and steel playground than a natural playground.³⁵

Children benefit greatly from engaging in risky play that may result in learning injuries (bumps, bruises, splinters, scrapes).³⁵ The life skills learned from learning injuries in a playspace translate to higher resiliency and better decision making when they inevitably grow up and venture out of the playspace.³⁵

While standards can have an important role in ensuring the reduction of hazards in nature play spaces that result in serious injuries, they should not be enforced in a way that tries to curtail risky play in general. Safety evaluations are one way to help determine the difference between the two and reduce hazards while encouraging developmentally beneficial risk taking. A risk assessment template can be found in the Appendix.

Regulations for Natural Play Spaces versus Traditional Playgrounds

“CPSC Public Playground Safety Handbook” and the “ASTM F1487 Standards” are the two main handbooks for traditional public playground safety, both of which are focused on manufactured equipment. Additional resources for safety guidelines in Texas include Minimum Standards for Childcare Centers and The Regulatory Framework for Outdoor Learning Environments in Texas Childcare Facilities.

ASTM F2049 denotes recommended minimum requirements for various types of fences/barriers for the protection of outdoor play spaces on public lands. The minimum requirement is 48 inches high nonclimbable fencing. Three levels of concerns should be considered for barriers: 1) hazard is less than 30 feet from play area, 2) hazard is 30 to 100 feet from play area, and 3) hazard is 100 to 200 feet from play area. Every play area less than 200 feet from a hazard will require a nonclimbable fence. Gates and other requirements will vary based on the play area location.

Some of the guidelines from existing resources for play structures can be applied to natural play spaces to provide consistency and set some minimum standards that are measurable. While nature play spaces do not have regulations in the same way that traditional playscapes do, best practices are to follow those guidelines as it relates to safety, keeping in mind the intent of the feature. Other elements in nature play spaces may fall under the description of “furniture” or “natural features” and fall outside of minimum standards set by equipment and structures guidelines. For example, natural seating may be used for play, but since the main intent is seating it does not require the same regulatory requirements. When referring to traditional playground safety standards, the primary safety concerns will likely be entrapments and use zones. Whether ASTM standards apply or not, other directives may still be applicable, including floodplain requirements or accessibility standards, and the design team needs to be aware of overlapping regulation fields.

When considering safety standards and

deciphering which standards should be applied, designers should understand the following:

- Nature play often falls into the gray zones of the standard, or can be subject to varying interpretations from inspectors. Seek to actively partner with safety and maintenance professionals to create the safest and most playful environment.
- “Intended use” is an important tenet of the standard. Understanding and communicating the intended use of each feature will help make the case for allowing maximum play value (such as a bench also serving as a balancing log).
- Natural landscape features, borders, ecological restoration, furniture, public art, and loose parts are not regulated by ASTM Playground Standards unless they encroach into the use zone of an introduced play structure with a fall height.
- The application of the standard is in the hands of the educated opinion of your certified playground safety inspector,

should this be required by your facility/ organization. Consult with them early in the process and see where they stand on natural features, as applicable.

Childcare Centers:

- Licensed childcare centers should bring in a licensing representative and work to build a relationship with that person from the beginning of a design process to ensure compliance.
 - Compliance is subject to the interpretation of the licensing representative reviewing the space, so relationship building goes a long way in collaboration and the ultimate success of a space.
 - There are not many rules in place specific to natural settings, but rules for use zones, climbing structures, entrapment hazards, surfacing, standing water, safety of equipment, and routine safety checks still apply.
 - Weather: children may go outdoors in all kinds of weather provided they are dressed appropriately. They may



Open Door Preschool. Photo by Austin Parks & Recreation.



Ron Rigsby Pocket Park. Photo by G. Bova.

not be outdoors in lightning or when there is a bad weather advisory in place.

- Policies can include providing proper weather related attire, shoes policies, policies around conducting playground safety checks, sunblock and bug spray policies, and simply stating that nature play is supported by the program and recognized as an important aspect of child's development, mental health, and wellbeing.

SAFETY CONSIDERATIONS FOR NATURE PLAY SPACES

Ground Plane Materials

While a fall could occur while playing on any type of features, such as a balance log or stump jump, only installed features intended for climbing will trigger the need for protective surfacing. For those features, protective surfacing material is one of the most important factors in reducing the likelihood of life-threatening head injuries. A fall from a critical height

onto a shock absorbing surface is less likely to cause a serious head injury than a fall onto a hard surface.

FALL HEIGHT: The vertical distance between the highest designated play surface on a piece of equipment and the protective surfacing beneath it.

USE ZONE: The surface under and around a piece of equipment onto which a child falling from or exiting from the equipment would be expected to land. These areas are also designated for unrestricted circulation around the equipment.

Use Zone Specifics:

- While several types of surfacing are allowed, it is recommended that use zones contain engineered wood fiber tested to ASTM F1292.
- The use zone should extend a minimum of 6 feet in all directions from the perimeter of an individual climbable feature, and have a maintained depth of 9 inches when compressed.

- The use zones of two stationary features that are positioned adjacent to one another may overlap if the adjacent designated play surfaces of each structure are no more than 30 inches above the protective surface and the equipment is at least 6 feet apart.
- If adjacent designated play surfaces on either feature exceed a height of 30 inches, the minimum distance between the structures should be 9 feet.
- Use zones should be free of obstacles.
- Use pervious or permeable materials for ground cover. Turf can be considered impervious or pervious, depending on special review/permitting. To avoid permitting, keep ground cover “natural.”
- Consider using natural materials and avoid toxic materials such as rubber tires that degrade and leach chemicals including zinc oxide, rubber polymers, and vulcanization chemicals into the environment.

Trees

All trees in and around the play features should be assessed by a qualified arborist. A Level 2 risk assessment should be performed prior to designing a play structure to ensure that all trees incorporated into the design are healthy, structurally sound, and free of deadwood and/or broken branches. Trees in and around the play feature should be inspected on a regular basis by a qualified arborist.

Age group

Children play differently depending on their age, so designing activity spaces that target certain age/mobility ranges can help provide a positive experience for all. Activities that encourage play across the ages, such as fort building, can also be incorporated to build cooperation, creativity, and leadership skills.

In areas where access to the play space is unlimited or enforced only by signage, the designer should recognize that since child development is fluid, parents and caregivers may select a play space slightly above or

slightly below their child’s abilities, especially for children at or near a cut-off age (e.g., 2-years old and 5-years old).

Conflicting activities

The play space should be organized into different sections to prevent injuries caused by conflicting activities and children running between activities. Active, physical activities should be separate from more passive or quiet activities. Areas for climbing structures and digging areas should be located in different sections of the play space. Different types of features have different use zones that must be maintained. Moving equipment, such as swings, should be located toward a corner, side, or edge of the play area while ensuring that the appropriate use zones around the equipment are maintained. Slide exits should be located in an uncongested area of the play space. If tunnels are incorporated, the path over the tunnel should have a barrier to discourage a child jumping off the top and accidentally landing on a child exiting the tunnel.

Sight lines

Nature play spaces should provide visibility for supervisors while still allowing for perceived hiding spaces for children. Mazes, tall grasses, or huts all allow for a child to feel like they're hidden while still allowing an adult to observe their play.

In play spaces with areas designated for different ages, the older children's area should be visible from the younger children's area to ensure that caregivers of multiple children can see older children while they are engaged in interactive play with younger ones.

Signage

Although the intended user group should be obvious from the design and scale of the features, signs and/or labels posted in the play space should give some guidance to supervisors as to the age appropriateness of the area. See additional information in the [Signage section](#).

Supervision

Designers should be aware of the type and level of supervision most appropriate for their given nature play space. Parents and supervisors should be aware that not all features are appropriate for all children who may use the play space. Supervisors should look for posted signs indicating the appropriate age of the users and direct children to features appropriate for their age. Toddlers and preschool-age children require more attentive supervision than older children; however, one should not rely on supervision alone to prevent injuries.

Climate/Inclement Weather

- Heat Exhaustion – when working in warm climates, be sure to set up play in shaded areas with easy access to water refill stations and cooler areas to rest if children become overheated. Children are less able to regulate their body temperature compared with adults, so it's important to provide adequate shade.⁵⁵ Furthermore,

children are more physically active in shaded spaces.⁵⁶

SELECTION PROCESS FOR CONTRACTORS AND DESIGNERS

If you're electing to use outside resources to help with the design and installation of the project, the key is to work with someone who understands your goals the most and that you feel comfortable working with. The process is a long one and you'll want to make sure you're ready to spend several hours with this person, or team in some cases. While there are several factors to consider when choosing whom you'll be working with, the most important is that you make a good team.

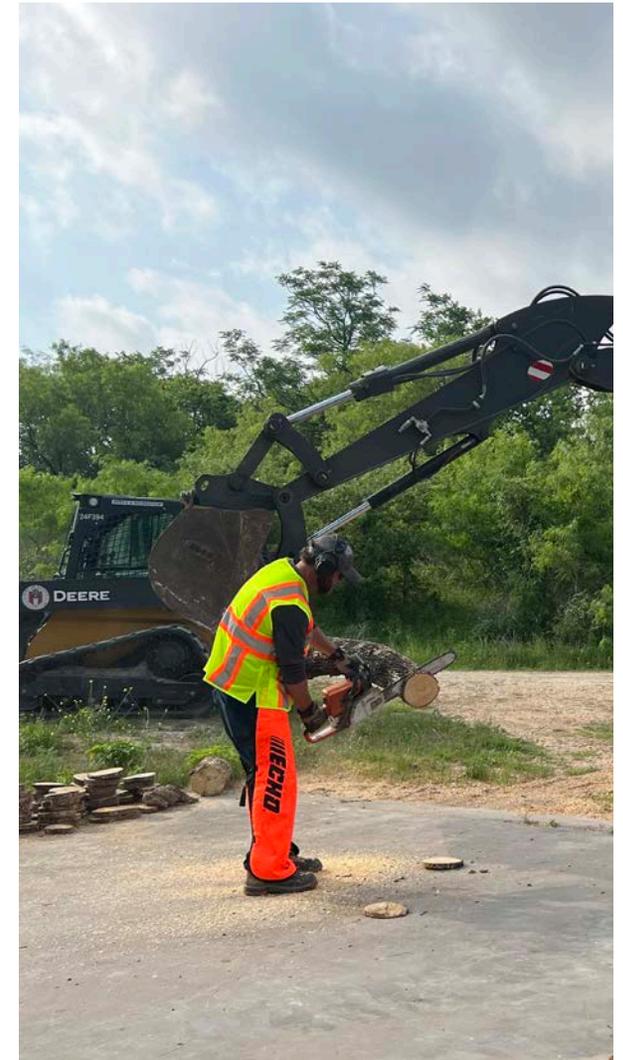
If assistance is needed with the plan, you'll want to hire a landscape designer or landscape architect and ensure they have experience in designing nature play spaces. This often includes certification in designing Early Childhood Outdoor Environments (known in Texas as OLE) as this indicates they will have studied and mastered the

information most important when designing nature playgrounds. Start by looking in your area for landscape designers or architects that have been certified in Designing Early Childhood Outdoor Environments³⁵ as they will have studied and mastered the information that is most important when designing nature playgrounds. While experience is important, the working relationship is going to be key. Interviewing a couple of designers and architects to make sure that you find one that works best with you is critical to a successful project. The designer or architect you feel best about working with may have less experience than others but may speak to your beliefs and understand your desired goals with the project better.

When you start to interview the designers and architects, ask if they have the means to also install the project for you, or can offer their services to oversee the installation of the project. You may want to consider the ease of a company that designs and installs so that you can work with one team from design to installation. If the designer does not have the means to install the work themselves, they

may have a few teams of contractors or installers that they work with on a regular basis that they would refer you to. Ask to speak to these teams before making the decisions so that you can see if they'll also be a group you'll want to work with.

When you're interviewing, you'll also want to ask for references so that you can talk to past clients and see what a long term working relationship is like with the designer and their team. You may want to ask the contractors and the references you're provided with [some questions](#).



Nature Play Team cutting trees. Photo by Austin Parks & Recreation.

07 BUDGET AND FUNDING



BUDGET AND FUNDING



BUDGETING

Budgets for nature play installations should include the following:

- Materials - logs, stumps, boulders, plants, mounting fixtures, wood sealant, mulch
- Permits - if necessary
- Site prep - may require equipment rental
- Installation - may require equipment rental
- Staff time
- Long-term maintenance - materials replacement

POST-INSTALLATION CONSIDERATIONS

The budget available for nature play sites varies hugely, depending on the size and scope of the project. Most often the focus is on initial development, as a necessary first phase of a larger project.

Once the site opens and nature play begins there is often a need to make a few post-installation adjustments. This can range from a need for additional safety or instructional signs, replacing plants that have been overly engaged with, or a need for supplemental materials based on usage patterns.

Making changes or additions post-installation can be costly and more difficult to execute, but it is not uncommon. As such, it is best practice

Photo (opposite): Design by Cassel Landscape Architects. Photo (top) Volunteers mulching. Photos by Austin Parks & Recreation.

to have a contingency plan in place. Ideally, plan to hold 10% of the budget for changes or additions needed after opening. If it is not possible to hold 10%, work with the planning team to determine how any needed changes might be handled and from where the funds will be available. If the project has a construction budget, there may be contingency funds built into the budget that can be used for post-installation changes. In some projects a feature may change or be pulled during the later stages of planning, and the funds for these features may be reserved for changes or modifications needed after opening.

For larger scale projects that involve fundraising, designers have noted that new donors often emerge after a site opens. Some people need to see the site ‘in action’ in order to understand its meaning and importance and are then inspired to add a contribution once they do so. While no one should count on this, managers who are doing fundraising may want to include a round of post-opening tours and visits to showcase the site, celebrate what is working

well with donors, and point out remaining or additional needs to establish the project as an ongoing donor opportunity.

COMMUNITY CONNECTIONS

Reach out to the community who will most often be using the space, if appropriate for the audience. Parents in a school, residents in a neighborhood, or educational/childcare groups may be interested in donating funds to support a space they’ll frequent. Other examples include:

- In kind donations of design or landscaping services from neighborhood connections.
- School PTAs often have access to mini-grants or may use general funds for projects at school sites.
- Soliciting neighboring businesses who wish to demonstrate their community impact.

CITY FUNDING RESOURCES

- [Austin Water Rebates](#) - Customers of Austin Water or a qualifying water provider can receive rebates and incentives by taking steps to conserve water.
- [Bright Green Futures Grant](#) - funds school-based sustainability projects, up to \$3,000 per project.
- [Neighborhood Partnering Program](#) - the City helps local groups fund, develop, and construct their small to medium-sized projects on City-owned property. In turn, local groups help with “cost-sharing” and project maintenance.
- [Urban Forest Grant](#) - funds stewardship activities like tree planting, tree care, education, and disease control projects. Available to community groups and non-profit partners.
- [Urban Forest Funding Portal](#) - similar to the Urban Forest Grant, but available to City of Austin departments. This is not

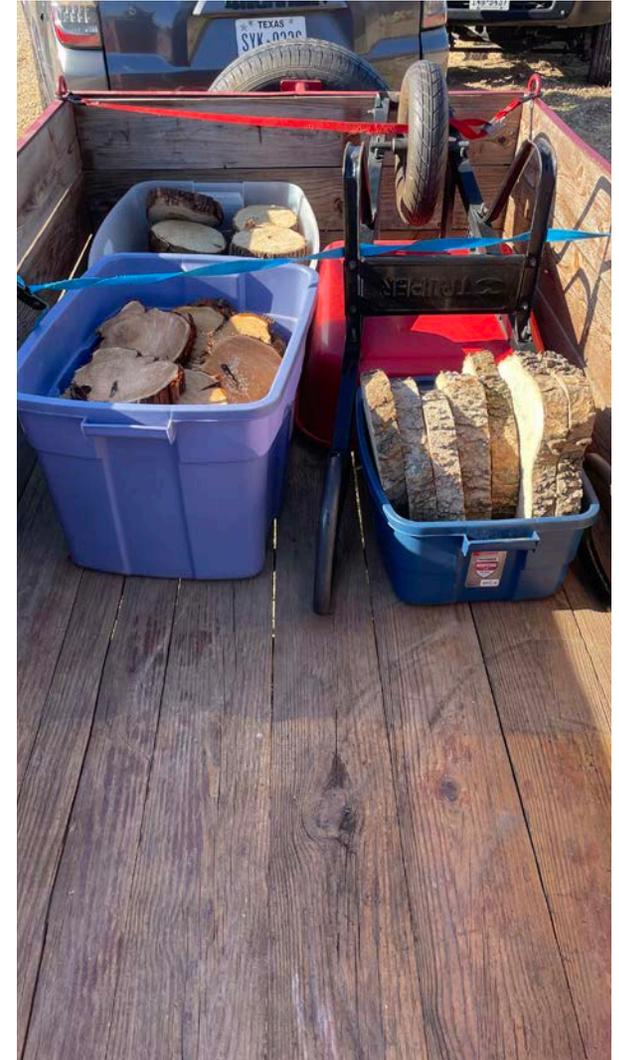
a grant. Funding may be made available for qualified projects.

- [Wood Reclamation Day](#) - on the first Friday of the month, the public is welcome to take home large logs out at John Trevino Jr. Metro Park. Community members are responsible for all loading and hauling of wood, and parks staff can cut logs down to size if needed. Check the [City of Austin website](#) for details.

COMMUNITY PARTNER FUNDING RESOURCES

- [Austin Community Foundation Community Grants Program](#) - year-round grant opportunity for local nonprofits working in eight impact areas.
- [Austin Parks Foundation](#) - offer varying levels of grant funding aimed at supporting large, community-initiated, physical park improvement projects, as well as design consultations and place-making.

- [St. David's Foundation](#) - a variety of grants aimed at targeting specific health challenges.
- [Texas Children in Nature Network Grants](#) - ongoing curation of grants related to connecting children to nature.
- physical park improvement projects, as well as design consultations and place-making. [Texas Parks & Wildlife CO-OP Grant](#) - provides funding to tax-exempt organizations for programming that engages under-served populations in TPWD mission-oriented outdoor recreation, conservation and environmental education activities.



Partners receive natural materials during APR's wood reclamation day on the third Friday of the month. Photo by Austin Parks & Recreation

08 MATERIAL PROCUREMENT



MATERIALS PROCUREMENT

Design of nature play spaces depends heavily on the availability of natural resources, and designers will have to find materials and design with what they have local access to. This process is more iterative than traditional playscape design and may more closely resemble a design-build model, where the designer will work with the contractor to select and fit pieces on site to meet the project's design intent.

Photo (opposite): Nature play materials set aside for reuse at a land development project; Photo (top): Nature play materials salvaged from land development projects. Photos by Austin Parks & Recreation.



MATERIALS

Logs and Stumps

Logs will ideally be created from native hardwood and decay-resistant species, such as oak and ashe juniper. Softer woods can be used, but they will decay more quickly, and will be prone to cracking and splintering more easily. Bark may be left on, but it is advised that log cuts have chamfered edges (create a uniform 45 degree angle cut all the way around the main cut) that can be sanded to alleviate sharp edges and sealed with a natural wood sealer, such as Cabot Australian Timber Oil or similar. Protrusions where small branches attach to the main log can also be cut flush, sanded and sealed.

Branches and Bamboo Poles

Smaller tree branches for fort-building can be created from almost any species of tree, including invasives. Branches should have smaller twigs removed. Bamboo poles can be also harvested for fort-building, and it is up to the discretion of the site supervisor on if the leafy branches are removed or left on. Tree branches and bamboo poles will decay fairly quickly and will need to be replaced regularly.

Blocks

Blocks for building can be made in various sizes and shapes from dimensional lumber or natural wood pieces. Sharp edges can be smoothed with a sander, and the blocks can be sealed with a natural sealer to increase their longevity. Blocks can decay and leave

the site more quickly than bigger wood pieces, and quantities should be regularly checked and replaced as needed.

Stone

Stone can be used for seating, climbing, and built objects. Limestone blocks are typically a rectangular quarried rock and can have some cut (smooth) faces and some natural (rough) faces. They are good for seating and more formal design elements. Limestone boulders are uncut, with natural, rounded edges good for climbing and naturalistic designs.

PROCUREMENT

Wood for City Projects

Austin Parks & Recreation's Urban Forestry unit manages a large amount of land throughout the city, with various City departments responsible for urban forestry management. The Tree and Vegetation Removal Contract includes language that all outlines how contractors can donate material for future nature play projects.

City departments also manage the urban forest through a shared contract for tree removal. Contractors can be enlisted to provide the wood from scheduled tree removals for nature play projects. The process is initiated by the sponsoring City department. When the department SPOC (single point of contact) judges that a tree to be removed meets the nature play preferred standards for materials, they contact the APR nature play representative to review the tree, write a scope for removal and delivery, and coordinate with departmental purchasing staff.

Wood for Other Projects or Organizations

For non-City projects, materials can be sourced both for a fee and free of charge. Parent groups, PTAs, buy-nothing groups, Next Door, and trees that fall at people's personal homes are all great places to start for small-scale projects (stump jumps, natural building materials, etc.).

The key to procuring logs is to be creative, be ready to transport, and to have storage available. While the logs can be placed outside



Loose parts play items at Rainey Street Trailhead. Photo by Austin Parks & Recreation.

while the project is underway, you'll need to make sure that the area where they are being stored is not going to interfere with the work being done, and large enough of a space that you can move the logs around while you are building. The log that is needed next isn't always going to be the one on the top of the pile. If you are thinking of moving logs yourself, you will also need to plan carefully. These often need more substantive, specialized transport.

The APR nature play team hosts monthly open houses the third Friday of each month. Members of the Cities Connecting Children to Nature Austin network are welcome to come and select logs, boulders, stumps, and tree cookies for nature play and outdoor learning projects throughout the greater Austin metro area. NOTE: Partners operating on City-owned land must obtain project approval and permission from their City Single Point of Contact (SPOC) before selecting and picking up any materials.

The APR [wood reclamation day](#) offers the public a monthly opportunity to pick up larger pieces of reclaimed wood. Community

members must sign on-site liability waivers and are responsible for all loading and hauling of wood, though park staff can cut logs down to size as needed.

Another source for logs are local companies that handle woody debris. There are several businesses in Austin and the surrounding areas that receive brush and turn it into mulch for future use. It can be worth calling them to see if they could be on the lookout or allow you to come by to watch for brush that comes in so that you can select what you think would work best for your project. For mulch, [ChipDrop](#) finds local tree companies working in your area and notifies them that you would like some wood chips or logs (or both). The next time their truck is full they can pull up your information and deliver the wood chips straight to your driveway.

Stone, Gravel, and Surfacing Materials

Stone may be harvested from the site, brought in from a nearby construction site where it is a waste material, or purchased from a supplier or quarry. Central Texas

quarries primarily sell local limestone in colors ranging from white to grey to reddish-yellow, and are a good choice for supply if your project will require a large amount of stone. These limestones will have varying hardnesses and weathering characteristics. If your design requires specific standards, check with your stone supplier or quarry to ensure the stone you specify will meet them.

For larger or more complex installations, contractors may be able to provide better pricing than if you were to source the items yourself. If you are working with a contractor, they should be able to provide you with pricing options for each of the materials associated with your project. Local landscape suppliers can also help in sourcing materials for your nature play space. While many will not carry everything you will need, they will be your best option for items like soils, ground covers such as gravel or mulch, and any other rock you may need for retaining walls or pavers.

Plants and Sod

If your project includes new plantings, local nurseries can assist you with sourcing these. Designers should use only native or adaptive plants that are accustomed to heat and drought. Native species are also generally hardy enough to tolerate being played on and/or around. Source plants about a week before you want them at site for installation to ensure the species you want are available. If your project site does not have water, you'll need to make sure that you have a plan for procuring that as well. Water will be needed at all stages of the installation, not just once plants arrive. If the site does not have water easily accessible, and an irrigation system is not going to be installed, you'll want to make sure that you work out a plan to have a water tank available at site that will be regularly filled until plants become established. Depending on the season they are planted, sod establishment typically takes three to six months, perennials are established after roughly one year, and trees require three years of supplemental water to get established.



Covered box for soil play at Maripossa Montessori; Photo (opposite): nature play construction at Heritage Oaks Neighborhood Park Photos by Austin Parks & Recreation.

09 SIGNAGE



SIGNAGE



TYPES OF SIGNAGE

There are several categories of signage that can be present in nature play spaces, including identification, interpretive, wayfinding, safety, and temporary signage. While each of these sign categories support the overall visitor experience, the only signage that is required at nature play sites is identification and safety signage. All signage should be thoughtful and necessary to expand the experience of the space.

Identification

Identification signs name and explicitly label features as Nature Play Spaces. They make a nature play space recognizable as an intentional and distinct feature, and help orient users within the overall landscape. Within

a system that contains multiple nature play spaces, it's important to be able to distinguish one from another verbally. This can be important for establishing a sense of place, navigation, as well as safety (i.e. reporting a location in an emergency). Nature Play Spaces often require more explicit identification than traditional playscapes due to their inherent integration with their natural landscape context.

Safety Signage

Safety signs promote positive interactions in a Nature Play Space, while communicating the inherent risk involved in all types of play.

Things to consider when creating Safety Signage:

- Communicate an assumption of risk, for example: Have fun and play safe! Be aware that all play has inherent risk. (or “Play at your own risk”)
- Use clear and simple words on signs - try to stay at 8th grade reading level.
- Communicate supervisory recommendations, for example: This area is not monitored. Adults are responsible for supervising children in their care while in the Nature Play Space.
- Communicate any rules that must be followed, for example: Park rules extend to the Nature Play Space; No glass bottles; Dogs must be on leash; etc...
- Icons are welcoming and helpful when a sign is not offered in a person’s native language.
- While it’s important to communicate rules and risk, use language that’s encouraging, rather than focusing only on the “Dont’s.”
- Safety messaging can also be incorporated into interpretive signs and vice versa.

Interpretive Signage

Interpretive signage is intended to inspire the audience to engage in nature play using images and icons to connect the visitor to the environment and nature play activities. Interpretive signage should provoke the audience to connect with nature, encourage conservation, and envision themselves as a part of the natural world.

Things to consider when creating Interpretive Signage:

- Identify the Nature Play Space in an inviting way, for example: “Welcome to the _____ Nature Play Space!”
- Share times that the area is open, if applicable.
- Interpretive signs should encourage curiosity, exploration and discovery in an unstructured learning environment.
- Interpretative signs can be included as a “jumping off point” for self directed play and interaction.
- Language should be tailored to the user and be simple, clear and thematic. Move away from explanatory language

to language that invites imagination and personal investigation.

- Communication boards can provide additional opportunities for connection.

Wayfinding Signage

Wayfinding signage serves to orient the visitor and defines the boundaries of the nature play space while supporting a positive and safe experience as visitors navigate through the area. While we want to encourage self-exploration and curiosity within our nature play spaces, wayfinding signage is needed to provide structure and safety, allowing visitors (and first responders) to effectively move through a space.

Things to consider when creating Wayfinding Signage:

- Identify the space and the associated resources and activities available.
- Wayfinding signage should carry a uniform look that is easily identifiable.
- The way we identify the resources and activities throughout the designated Nature Play Space can promote

appropriate interactions (i.e. Jumping Rocks vs. Building Rocks).

- If the entire site is not viewable at one time, consider including a sign with a map of the site near entrances and throughout the space.

Temporary Signage

Temporary signage can communicate specific events or changes in services to your nature play space (such as broken equipment). We also acknowledge that nature play may not always be a permanent installation within your site. Temporary signage will encompass the other forms of signage when this is the case. Timelines for temporary signage should be determined based on circumstances and scope.

Things to consider when creating Temporary Signage:

- As with all signage in nature play, using natural materials in temporary signage design can support further connection to place.

- With temporary signage, it is important to utilize the principles and practices of [Leave No Trace](#).
- Temporary signage is not a substitution for permanent signage.

FOR CITY OF AUSTIN SITES

City of Austin sites looking to incorporate nature play spaces should refer to the Austin Parks and Recreation Department Signage Manual, APR Signage and Wayfinding Guidelines, and APR Interpretive Signage Guidelines, for information on design specifications (available upon [request](#)).

BEST PRACTICES FOR SIGNAGE

Nature play signage will be most successful when considered early in the overall Nature Play Space development process. Signage should compliment the design of the nature play site while reflecting the community being served by considering the users' ages, abilities, language, and cultural norms. A standardized approach to sign production can reduce confusion and aid a positive

experience within the site while reducing costs.

Scalability

- While signage is important for communicating intended use, ensure that the number of signs doesn't overwhelm visitors. The focus of the area should remain on the play and the natural world. Too many signs can make safe practices and intended use hard to understand.
- Sign production costs vary greatly depending on the materials. Consider what will work best for your budget, location, and audience.

Materials

- As much as possible, materials used for signage should reflect the natural environment that surrounds the nature play space. This holds particularly true for interpretive signage. Use natural materials that connect to other elements of the site.

Accessibility

- Ensure signs are appropriate for users. Consider the unique needs of users, including age, ability, language, and cultural background.
- Consider including non-text-based signs with graphics or universal symbols. Signs with simple text or even single words can be used to encourage play or suggest activity. This can provide added assistance for young children and other non-readers and can bridge other accessibility constraints.
- When choosing photos, ensure that they represent the communities served. Photos of a diverse group of people engaging in intended activities can demonstrate appropriate use across language barriers. Such photos can also encourage participation from diverse communities.
- Organize information hierarchically. Use headers and lead with important information.

- Use left justification, when possible, to make information easier to read.
- Sans-serif fonts are preferred, as they are easier to read for most. Avoid ornamental fonts.
- Limit the amount of text that is all capitalized.
- Text should be set against a background with high contrast. Use light text on a dark background or vice versa.
- Some white backgrounds can create glare and may want to be avoided or carefully placed to mitigate sun exposure.
- Use discretion when deciding text size. Ensure that adequate space is given between characters, words, lines, and paragraphs.
- Text should never be stretched or skewed to fit a space.

Language Access

Ensure signs are present in all languages appropriate to the audiences you serve. Remember: All parts of Austin have significant





Nature Exploration Area sign from CCCN San Francisco.

language diversity with Spanish as the most common language behind English.

- Use short sentences and paragraphs. Aim to have all content at or below an 8th grade reading level. (The [Hemingway app](#) or [Grammarly](#) can help you to do so.)

Questions to ask while planning signage at your site

- Is the signage we are designing appropriate for the intended use of the site?
- Is the signage we are designing appropriate for and inclusive of the communities we anticipate visiting our nature play space?
- Have we included an appropriate number of safety signs that communicate rules and risk?
- Does our signage help to answer the following questions?
 - What do we want the audience to know and learn?
 - What do we want the audience to do?
 - How do we want the audience to feel?

10 INSTALLATION



INSTALLATION



INSTALLATION - TECHNIQUES

Loose Parts (Movable Elements)

- Example: Rainey Street Trailhead
- Weight/diameter standards: unattached stumps should be under 3 feet tall and the stump width should exceed the height
- Parts library: Maintain inventory system for loose components
- Management requirement: Active maintenance and supervision protocols are essential

Boulder vs. Wood Installation

Boulders

- Stability: For proper anchoring, bury 4 inches when within Critical Root Zone CRZ, or 4 inches to $\frac{1}{3}$ of boulder height typically, ensure that boulder is level with grade.
- Height limit: Maximum 3 feet with a fall zone, <30 inches tall without a fall zone.
- Proportions: Should not be taller than they are wide.
- Base preparation: Bury directly into ground instead of using a gravel base.

Wood Elements

- Edge treatment: All edges must be chamfered and sealed.

Photo (opposite): Nature play team; Photo (top): Nature play team. Photos by Austin Parks & Recreation.

- Stability: For proper anchoring, bury 4 inches when within CRZ, or 4 to 18 inches maximum typically; Horizontally fasten vertical logs using structural screws if installed in clusters ([refer to details](#)).
- Bark preservation: Leave bark intact except where logs contact each other.
- Height limit: Maximum 4 feet with a fall zone, <36 inches tall without a fall zone.
- Surface: Do not sand or smooth; maintain natural texture.

SAFETY SPACING REQUIREMENTS

General Spacing: Spacing can contribute to the experience of the feature. For example, ~18 inches spacing provides room to reach for the next feature vs. 36 inches spacing which may require leaping or jumping to the next feature.

- Log placement: Space to prevent foot and/or finger entrapment between elements.,

- Avoid or fill gaps between 5/16 - 1 inches to prevent finger entrapment.
- Avoid or fill gaps between 3 ½ - 9 inches to prevent head/foot/torso entrapment.
- Hole specifications for limestone boulders:
 - Smaller than golf ball diameter, or
 - Larger than frisbee diameter.

Head and Neck Entrapment Prevention

- Boulder spacing: Less than 3 ½ inches OR greater than 9 inches between elements
 - Fill gaps between 5/16 - 1 inches to prevent finger entrapment
- Branch angles:
 - Crotch connections must have less than 1.8 inches OR greater than 9 inches between opposing surfaces

- Branch angles must exceed 55 degrees
- Open ends should face down in inverted V-shape
- Remove problematic branches when necessary

MULCHING AND SURFACE DEFINITION

- Coverage: Apply 4 inches of double-ground mulch across entire site
- Perimeter zones:
 - Standard areas: 3 - 6 feet around the play area perimeter.
 - Fall zones: 6 feet minimum around elevated elements.
- Obstacle accommodation: Account for existing trees, blocks, and site features.
- Border definition: Use shovel-cut edges or ashe juniper/oak edging materials.
- Preferred mulch: Double-ground mulch recommended over EWF (Engineered Wood Fiber)

WOOD TREATMENT AND MAINTENANCE

- Initial sealing: Seal all cut edges immediately after installation
 - Ongoing maintenance: Re-seal every 6 months.
 - Edge specifications:
 - All cut log edges at 45-degree angle.
 - Vertical log tops chamfered at 45 degrees.
 - Recommended sealant: Cabot Australian Timber Oil (natural shade) or similar product
- Height and safety stabilization needs.
 - Elements outside of the CRZ (Critical Root Zone).
 - Elements distant from CWQZ (Critical Water Quality Zone) or floodplain.
- Environmental consideration: Weigh carbon cost of concrete against frequency of material replacement.

ANCHORING AND CONCRETE FOOTINGS

- Installation depth: All anchoring devices below ground level and beneath protective surfacing
- Concrete requirements: Use concrete base/strapping for:

SAND PLAY AREAS

- Depth specifications:
 - Maximum depth: 24 inches
 - Ideal depth: 12 to 18 inches

EMBANKMENT SLIDES

- Surface material planning: Consider material durability on both sides of the slide to prevent hazardous wear patterns.
- Site selection: Choose areas with adequate sunlight for vegetation growth.



Nature Play signage at the Rainey Street Trailhead. Photo by The Trail Conservancy.



Sand play area - KinderCare at Bergstrom Tech. Photo by Austin Parks & Recreation.

- Ground cover: Use child-safe native plants to prevent erosion; avoid bare dirt surfaces.
- Slope specifications:
 - Maximum angle: 30 to 35 degrees.
 - ASTM F 1487 recommends under 30 degrees for young children.
- Construction details:
 - Match slope under slide to slide shape for minimal gaps.
 - Provide 6 foot use zone at slide end.
 - Create a stone or timber walking path for larger slides.
 - Install a low entry platform with bars or hand grips for stability and slide anchoring.
- Take nearby trees/blocks/other obstacles into account.
- Use defined borders:
 - Shovel cut or
 - Ashe juniper/oak edging.

1 MAINTENANCE



MAINTENANCE

Nature play spaces require minimal daily maintenance while remaining safe and functional. In fact, reducing maintenance in certain areas can enhance children's play experience and connection with nature. Rather than keeping everything neat and sterile, deliberately leave select areas "messy" with leaves, twigs, loose parts, and longer grass.

Success depends on involving all stakeholders—including maintenance staff—throughout the design and construction process. The maintenance team must understand and embrace this "low-maintenance" philosophy, as they're ultimately responsible for preserving the space's intended character. Early involvement ensures everyone appreciates how these natural, less-manicured areas serve the project's long-term goals.

Photo (opposite): Volunteers mulching. Photo (top) Volunteers mulching. Photos by Austin Parks & Recreation.



MAINTENANCE INSPECTIONS AND ISSUES

A comprehensive maintenance program should be developed for all nature play spaces. All features should be inspected for excessive wear, deterioration, and any potential hazards. One possible procedure is the use of checklists. However, inspections alone do not constitute a comprehensive maintenance program. Any problems found during the inspection should be noted and fixed as soon as possible.

Common routine inspection and maintenance issues include:

- Unsafe connections such as loose bolts, missing end caps, cracks, etc.
- Loose anchoring
- Hazardous or dangerous debris and trash
- Insect damage
- Stinging insect or hazardous wildlife habitat within the play area
- Fall zone surfacing (replenishing or redistribution)
- Hazardous user modifications (such as ropes tied to parts)
- Vandalism
- Worn, loose, damaged, or missing parts
- Severe wood splitting on support structures or rot
- Rusted or corroded metals
- Plant replacements or removal as needed



Degradation of stump at Walnut Creek Metro Park. Photo (opposite): Digging space at Faith Lutheran Child Development Center. Photos by Austin Parks & Recreation.

- Loose parts replenishment as needed

Accumulation of loose parts (sticks, mounds) over time which inhibit play

REPAIRS

- Design and Maintenance teams need to agree on the usable life of features (example: stump from a stump jump that starts to deteriorate. Stump could be moved out of the play space and used as a teaching element to observe how that item deteriorates). Teams should work together to decide if a feature needs to be replaced or removed entirely.
- Designs that incorporate fixed foundations can remain in place while the attached logs and stumps are removed and replaced at the end of their usable life.
- Cutting or sanding any emerging splits and sealing with a natural wood sealer can keep natural logs, stumps and other wood play pieces in good condition until replacement becomes necessary.

- Vandalism should be addressed on a case-by-case basis with the Maintenance team.

LIABILITY

- Consult your insurance policy and update before construction of a nature play space, if necessary.
- Include [proper signage](#).
- Records of all maintenance inspections and repairs should be retained.
- When any inspection is performed, the person performing it should sign and date the form used.
- A record of any accident or injury reported to have occurred in the nature play space should be retained, as applicable.

SAFETY INSPECTIONS

Sand play

In a managed area, visually check a sand area daily before intended use. Sand should



Children playing with loose parts at a community event at the Seaholm Intake Facility. Photo by Austin Parks & Recreation.

be raked regularly (e.g. daily or weekly) to ensure unwanted materials are properly disposed of. Unwanted holes should also be filled as they are noticed (refer to Operations and Maintenance checklist for further details). If sand has migrated out of the play space and onto a surrounding non-porous surface, it should be swept back to prevent slips and falls.

Remove sand toys and props when not in use. Consider covering a sand box with a weighted sand cover. Replace sand every 2 years or as needed.

Earth play

Research has shown that dirt contains microscopic bacteria called *Mycobacterium vaccae* which stimulates the immune system and increases the levels of serotonin in our brains, an endorphin that soothes, calms, and helps us to relax. Scientists say regular exposure to the bacteria may help reduce a child's vulnerability to depression. Exposure to dirt and the germs within it also works to prime a child's immune system to prevent allergies.⁴⁸

In urban or redevelopment areas, existing site soil can be tested prior to creating a nature play space to ensure it has not been contaminated with heavy metals or other harmful contaminants. See the [City of Austin's Brownfield Revitalization Office webpage](#) for more information.

If purchasing soil, read the label carefully to make sure there are no hazardous chemicals or fertilizers included in the mixture. This can most often be a concern with creating garden beds, as natural earth play usually only involves the dirt found on site. Care should also be taken during activity-based earth play (worm bin, compost turning, etc.) where there is an increased risk interacting with unwanted materials. Like sand areas, unwanted holes should be filled as they are noticed (refer to Operations and Maintenance checklist for further details).

Tree Pieces

- Sharp points: Be sure there are no sharp places on logs from where the branch was broken off.

- Tops of logs: Can have a beveled edge option if concern about sharp edges; beveling can also prolong the life of a log.
- Decay will happen with all pieces over time. Pieces that are connected with metal or other sharp connectors should be checked regularly for decay at the connection points to prevent injury.
- Trips/Falls: Consider traffic flow when placing low branches and logs.
- Entrapment: The crotch of a tree (angle of connection for branches on a tree) can present an entrapment hazard if distance between any interior opposing surface is less than 3.5 inches. For secured stump jumps, ensure distance between stumps is kept at less than 3.5 inches (fill gaps between 5/16 - 1 inches with mulch, sand, or caulking material to prevent finger entrapment) or greater than 9 inches, with a maximum of 18 inches between stumps.

- Balance beams should be no higher than:
 - Toddlers: not recommended;
 - Preschool-age: 12 inches;
 - School-age: 16 inches.

Rocks/Boulders

- Fall potential: General rule of thumb is if you can climb up without assistance, you can climb down/jump off without assistance. Since rocks and boulders are typically classified as either seating or landscape features, they do not require a use zone and associated protective surfacing material.
- Head entrapment: Distance between boulders must be less than 3.5 inches or greater than 9 inches.
- Sharp points: Install with most blunt edges above the grade, file or sand down any sharp points.
- Hole specifications: Smaller than golf ball diameter or larger than frisbee diameter

Loose Parts

- Sharp points: If this becomes a concern, filing or sanding down any sharp points on sticks, bamboo poles, and other related items can help mitigate possible injury.
- Decay will happen with all pieces over time. Pieces that are connected with metal or other sharp connectors should be checked regularly for decay at the connection points to prevent injury.
- Trips/Falls: Consider including a storage bin to house loose parts or have staff reset a space after it's used to help mitigate possible trips and falls.
- Normal use and possible injury: As children use loose parts, they could unintentionally injure another child (e.g., if a child is building a fort, moves a long stick, and accidentally hits another child during that construction). Should mitigation of accidental injury be necessary, it will need to occur via management of the space (i.e., parents, teachers, etc.).

- Kids throwing items, misused: General use of loose parts could elicit unwanted behavior, such as throwing items, intentional breaking items, sword play, etc. Mitigation of unwanted behavior will need to occur via management of the space (i.e., parents, teachers, etc.).

Moving Parts

- Ropes/Nets (balance between boulders): Ropes should not be able to be looped back on themselves or other ropes, cables, or chains to create a circle with a 5 inch or greater perimeter.

Used Tires

- As tires wear down, steel can start to poke through the rubber. Steel-belted radials should be closely examined regularly to ensure that there are no exposed steel belts/wires.
- Child Care Licensing does not permit the use of steel radial tires.
- Care should be taken so that the tire does not collect water, unwanted insects/

critters, or debris; for example, providing drainage holes on the underside of the tire would reduce water collection.

- Secure tire climbing structures at both ends with anchoring devices and join each tire with flexible rope or cables that will not cause friction or wear. Ensure that the tires cannot swing together and pinch fingers or hands.

Embankment Slides

- Monitor access areas for erosion.

Water

- Drowning: Children can drown in as little as two inches of water.³⁶
- Pooling: Mosquitoes are a common problem in Central Texas and care should be taken to mitigate the collection of mosquitoes. Any spaces designed to temporarily hold water, such as a rain garden, must have the water dissipate within 48 hours of collection. For features that are designed to permanently hold water, such as a pond, Wester Mosquito



Sandbox at ACC Lab School. Photo by Austin Parks & Recreation.



Natural wood degradation from nature play features at Wooldridge Elementary School Park. Photo by Austin Parks & Recreation.

fish (*Gambusia affinis*) or other efforts should be added. Anywhere water could unintentionally pool, such as tires or loose parts, should be regularly emptied.

- Cisterns and rain barrels: When non-potable water is part of the design, check local regulations for contact requirements (e.g., if water can be used to water a vegetable garden bed).
- Any water features including piping should be prepped before a freezing weather event by insulating pipes and spigots and disconnecting and draining hoses.

Trees

- Unsafe branches/limbs: Ensure low-hanging branches are not over play features or in paths, with at least 7 foot vertical distance between branches and play structure. Prune dead branches near play spaces to avoid risk of falling limbs. Be sure to check with City code on what is allowed by non-city staff for tree maintenance.

- Decay: If using a living tree/branch as part of a play feature (e.g., to connect features to or draping tarp over for shelter), ensure the branch is healthy and the connection to the trunk is strong.

Plants

- Avoid adding plants that can cause injury or harm to individuals (e.g., thorny plants like hawthorn or prickly pear cactus) and regularly check the play area for native plants that may cause irritation or injury (i.e. stinging nettle or poison ivy).
- Avoid adding plants that have inedible fruiting bodies or seeds that might be harmful if ingested (e.g., snowberry, Pacific yew, red elderberry, mountain laurel). If native poisonous plants are naturally occurring on your site, design the nature play space to avoid these areas, and parents, teachers, and others should be aware of how children are interacting with those plants.
- Prune plants so that there are sightlines into the nature play space.

Sharing Space with Wildlife

- **Bees/Wasps:** The addition of pollinator plants could attract bees and other insects. Nature play structures can also provide an ideal home for these insects. Regular checks for stinging insects should be a part of the maintenance checklist.
- **Fire Ants:** Decaying wood, irrigation boxes or similar structures, and wood mulch can all be inviting to fire ants. Regular checks for ant mounds should be a part of the maintenance checklist. If you choose to remove the ants, choose natural methods such as boiling water or treatments that are toxic only to ants.
- **Snakes and Scorpions:** Loose parts, when left in the same space for an extended period of time, can invite certain pests; loose parts storage units can also provide a similar home. Moving loose parts regularly, including disassembling forts, can help prevent pests from making a home in that space.

MAINTENANCE SUPPORT

Corporate and Non-profit Volunteer Networks

An often-overlooked path to maintenance support can be found in an existing volunteer network. Corporate groups can be a great source of funding outside of grants, but many prefer to support the efforts of their employees and will only donate to groups with which their employees are already actively engaged. Working with non-profit partners can connect community groups with corporate volunteers that work in their neighborhood. Connecting with non-profit organizations like Austin Parks Foundation, Keep Austin Beautiful, United Way, the Texas Master Naturalists, and others that mobilize a large network of volunteers are a good place to start.

The idea of nature play is inherently “unmanaged.” In essence, children are playing on their own, using their imagination, and interacting with nature in a free-form way. Still, aspects of management that help ensure safety and provide ideas for maximizing play with different

groups/types of children should be considered. This section provides suggestions and guidance for managing nature play from a programmatic standpoint: planning for it, structuring it, managing group play, and specific time limits that do not allow for completely open and free play. Evaluation of nature play spaces is also discussed, as evaluation is part of managing a play space to ensure it remains functional and successful.

12 MANAGEMENT



MANAGEMENT



USER EXPERIENCE AND PROGRAM PLAN

Structured and Unstructured Programming

Nature play spaces can be planned to offer a variety of play experiences: structured/ guided or unstructured/self-guided. A brief explanation of each and the benefits they offer is described below, though a more thorough study of the literature is suggested if you are designing a play space.

Structured or Guided Play

Guided play involves play shaped or guided by adults or some sort of learning or curriculum from a leader or educator, and typically has a goal. This may occur by setting rules or guiding play through cues, suggestions, or

comments by an adult or leader. Guided play occurs with individual children or with groups of children. Guided play enhances mastery of specific learning goals through a planned experience, focused on learning goals. Guided play with groups of children also offers opportunity for the development of social skills such as cooperative play, negotiation, and tolerance.

Unstructured or Self-Guided Play

Unstructured or self-guided play, also called free play, is open-ended play without specific learning objectives. A great deal of learning occurs when children are able to make their own choices – about what to do, what materials to use, and how they will interact with the materials and surrounding setting. Unstructured play allows children the freedom

Photo (opposite): Digging space at Faith Lutheran Child Development Center. Photo (top): Storage at All Austin Co-op. Photos by Austin Parks & Recreation.

to explore, create and discover without pre-determined rules or guidelines. This type of play fosters cognitive development as well as social and emotional development, as it allows children to guide their own play and create their own rules.

Benefits of unstructured play include:

- **Creativity and imagination:** Because there are no fixed rules to follow, children can make their own games and guidelines. This opportunity to create and use imagination is an important aspect of cognitive development.
- **Problem-solving abilities:** Children work together during unstructured play to solve problems, like who takes the first turn in a game, or creating rules as a group for a newly imagined game. While activities should still be supervised, children should be allowed time to work together on problems before the teacher or parent steps in to help resolve a conflict or question, or redirect unsafe choices.

- **Social skills:** Unstructured play encourages social skills and teamwork. Children take turns, learn to listen and share, develop imaginary scenarios and make decisions together. Because they are the ones driving play, they have the chance to learn on their own among friends.

Some cues and guidance can also benefit unstructured play. An example of cues to stimulate creative, unstructured play: A group of sticks is laid out with a chalkboard or other temporary sign (or simply a verbal cue) saying “What can you build with these?” Cue is not specific or instructive: It doesn’t tell the child to build a house or anything specific, but rather just encourages them to use their imagination to build/construct something, and gives them permission to do so.

Rules of the Road: Leave No Trace

Nature play spaces are inherently outdoors and open. As with any outdoor park or open space used by the public, people can leave an imprint through wear and tear and what they leave behind. Participants, whether individuals



Natural dye painting created during programming from Earth Native Wilderness School at Walnut Creek Metro Park. Photo by Austin Parks & Recreation.

or groups, will generate some trash, and it will be important to plan for how trash and other by-products will be handled.

If trash cans are provided, is regular trash pick-up planned, arranged, and paid for? In open spaces and many parks, where regular trash pick-up is not budgeted or practical, the philosophy of [Leave No Trace \(LNT\)](#) is used. LNT encourages living lightly on the land and caring for it—an important aspect of nature play. Noting and caring about the impact we have on the land and space around us is a wonderful concept to incorporate into nature play; that is, it's great to play in nature, but we also have a responsibility to help take care of it. LNT encourages people to take trash, pet waste, and leftover food with you.

Loose Parts Play Guidance

Loose parts play involves many “pieces” of nature: small logs, tree cookies, acorns, and other small natural objects. If left lying around, the loose parts play area can become quite messy. If children have created or built structures, it is likely okay to

leave them for others to enjoy, add to, redesign, or make “their own.” Additional “parts” that may be left, though, should be placed back in the loose parts bin or area for housing materials so that the site is left looking refreshed and ready for the next kids to be inspired. See *Loose Parts Appendix* for more detail.

Resetting the space and replenishing items in the loose parts play area is another important aspect to define. Depending on the space and staffing (whether paid staff or volunteers), someone should check the space and “reset it,” putting loose parts back in their assigned areas and replenishing worn or depleted materials. In busy nature play spaces, this may need to be done daily, but assigning someone responsible to check the space at least 2 or 3 times per week is recommended. In spaces with primarily large elements, such as logs and stumps, this frequency may not be necessary.

PROMOTION AND COMMUNITY OUTREACH TO ACTIVATE SPACE

Once the new nature play is installed and ready for use, promoting the new space for activation will be key for its use and long-term success. Below are guidelines to promote and activate the space.

Pre-Launch Outreach

As the space approaches completion and opening, take the following steps:

- **Reconnect with Planning Partners:** Reach back out to community groups, parent organizations, nonprofits, schools, or individuals who were involved in the planning, design, and implementation. Invite them to brainstorm how to best get the word out. When appropriate, having a sneak peek or early-use opportunity could encourage more buzz.
- **Partner with Local Media:** Work with local news outlets, parenting blogs, neighborhood newsletters, and podcasts to do short features

or interviews. For all public spaces, please contact Parks and Recreation [Communications and Engagement Unit](#) prior to reaching out to media.

- **Post “Coming Soon” Signs and Website:** As the site is being installed, share signs with information about anticipated opening and link to a webpage with more information. Webpage information should stay up-to-date.

Launch Phase

- **Host a Grand Opening Celebration:** Partner with neighborhood leaders and organizations to host a community-friendly opening event. Including nature-based activity stations, scavenger hunts, and storytelling can give the space a boost and a story for families to continue long after. Make sure any celebration is shared ahead of time with community leaders, organizations, and neighbors.
- **Share Widely on Social Media:** Announce the new space with

high-quality photos and videos on multiple platforms. Share examples of how to use the space for guided and unstructured play.

- **Flyers and Signage:** Posting flyers in businesses nearby can create interest. Temporary and permanent signage will cue visitors on how to use the space. QR codes with more information should be available on all signs.
- **Engage Key Community Groups:** Neighborhood groups, such as associations and HOAs can be important partners, as well as schools and youth-serving organizations. Offering mini-tours or professional development for educators can spark more interest and activation.

Ongoing Promotion and Activation

Once the “newness” subsides, ongoing promotion will be important for activation. Some strategies to encourage ongoing activation include:

- **Maintain the Webpage with Guidance:** The webpage should not only have the address and information about nature play but also opportunities for self-guided and passive activation. This could include rotating monthly challenges or scavenger hunts, downloadable family guides or teacher toolkits, and informal gatherings.
- **Informal Events and Gatherings:** Schedule informal gatherings around storytime in nature, art, nature games, bug counts, or other fun ideas.
- **Develop Community Ownership and Volunteering:** Partnering with nearby organizations can lead to increased stewardship, neighborhood connections, and healthier opportunities for all.

Other Important Elements for Promotion and Activation

- **Equity and Accessibility Considerations:** Make sure your engagement is inclusive, seeking to connect with people who may not have

access to or time to check standard or expected media. Language access and outreach should be part of pre-launch, launch, and ongoing activities.

- **Feedback and Sharing Back:** QR-codes can provide information and ask for information that can provide additional understanding of needs for future activation. This can also help track usage or participation to assist with future activations and outreach.
- Promotion and activation should be linked to evaluation at each level.

EVALUATION

Evaluation is simply a way to know what progress is being made towards stated goals. For the purposes of this guide, evaluation of a nature play space is focused on the design and use of the space, not potential programming that will occur in the space. As an iterative process, evaluation should be conducted throughout the creation and ultimate use of the space, making any necessary changes along the way and

then reassessing the effectiveness of those changes. Developing a group or committee can be helpful in designing evaluation methods and determining what needs to be evaluated.

Phases of Evaluation in Project Development⁴²

The field of evaluation describes three types relative to when the evaluation occurs: front end, formative, and summative.

Front-end evaluation is conducted in advance of a project and helps inform the development of the project. Examples include surveys, interviews, case studies and observations of other existing sites. Front end evaluation is typically the lowest cost, simply because adapting a plan is much less costly than making changes after construction is complete and the site is opened. The more advance planning, or front end evaluation, that can take place, the better as the end result will be more researched and informed.

Formative evaluation occurs while a project

is under development and is used to make changes to improve the design of a program or exhibit before it is implemented. Formative evaluation often leads to modifications in a design or can be additions to the design based on discoveries that occur during the process.

Summative evaluation occurs, as the name implies, after a project is complete and opened. Examples include changes due to safety considerations, additions based on needs discovered after the exhibit opens, or simply the assessment of the exhibit 'in action' to determine the extent to which it is meeting the intended needs and goals. Summative evaluation is also used as a tool to improve or enhance ongoing and future activities based on assessment of current/ existing use.

Data Types of Evaluation

Evaluation is typically divided into two categories: quantitative and qualitative.

Quantitative evaluation is thought of as "numbers based." Factors being evaluated

offer numerical data upon which decisions may be based. This includes the simplest of data about program participants such as user count/audits, and also frequently includes demographics about who is using the space, such as age, grade levels, zip codes, socio-economic data, frequency of use, or other data points that provide an indication of how a program/nature play space is being used. Increasingly, demographic assessments include equity of service. Zip codes of participants may be one good data point for equity assessments.

Surveys are effective tools when conducting quantitative evaluations. Surveys can take many shapes and forms and can be used to gather both quantitative and qualitative data. A specific survey tool that is available is the System for Observing Play and Recreation in Communities (SOPARC). This is a validated direct observation tool for assessing park and recreation areas that includes park users' physical activity levels, gender, activity modes/types, and estimated age and ethnicity groupings.

Qualitative evaluation has historically been thought of as making meaning or assessing

through stories. Qualitative evaluation includes many tools and techniques including analysis of journal entries or other writing or drawings made by participants, participant interviews, observation of play (which can yield both quantitative as well as qualitative data), teacher/leader/parent interviews, and case studies of individuals, groups/cohorts, sites or community-based studies of programs. Qualitative evaluation is effective when trying to paint a more descriptive picture of a program and its benefits. It can yield essential information and context that may be missed through quantitative-only assessments.

It should be noted that both quantitative and qualitative evaluation are valid and can be used successfully, and that tools from both realms are often integrated into assessment tools. The focus should not be on which type is "better" but rather which tools from either type are most helpful in answering the desired evaluation questions or goals.

Evaluation of the Play Space

In programming, evaluation is often thought of as a way to assess the participants and the learning or other benefits they gain from

a program, including the assessment of the physical space. This includes regular and required periodic assessments of the physical aspects for possible replacement. Physical aspects such as pathways, fences, and wear and tear can serve as signs of success but also as a note for possible repair or replacement.

Evaluation of the space can also be used to learn about accessibility of spaces. Are users finding and using the space as intended? How is the space actually being used? As intended or not? Does the space encourage play? What types of interaction tend to occur (i.e., child:child, adult:child, group or individual play)? Much can be learned from observation of the play space, and much of this data is quantifiable as it is frequency or categorical data.

Qualitative data can also be collected concerning themes like the quality of play. Are users engaging in complex play, or do they master the task or become bored after just a few minutes? What are the types of play in which they engage? Physical games like climbing and exploring, imaginative/creative play such as creating fairy homes or role-playing? How does their play differ from more traditional



Children from First Untitled Methodist Church using the city's Loose Parts Lending Kit. Photo by Austin Parks & Recreation. Photo (opposite): Sanchez Elementary School.

playground structures? This is a rich area for looking at types/categories of play as a way to differentiate and assess the value of nature play spaces as compared to traditional playgrounds.

Note about evaluation: Any formal evaluation must follow guidelines for consent to participate as part of the code of ethics of human subjects research. Observations, in particular, must follow any guidelines on consent - Informed consent means telling individuals about your evaluation and asking whether they are willing to participate.⁴⁴

Frequency of Evaluation

Frequency of evaluations will vary based on the site, program, goals, or requirements of sponsors. Initial evaluations in the first year of a play space opening should be more frequent—could be weekly for the first month, and then lessen to monthly, quarterly, or once or twice per year. Care should be taken in scheduling evaluations to make sure they are planned to cover a broad range of play experiences. For example, include some evaluations on weekdays as well as weekends, when the participants, groups, and types/level of play are likely to be very different. A random chart

can be used to assign evaluations randomly, but opportunistic planning is also valid. This might look like 2 to 3 weekend dates, 2 to 3 weekday dates, and also include them when specific programs or group visits are known to be occurring.

Frequency and type will also vary based on whether the nature play space is located in an open park or a managed space such as a daycare or other programmed space. These will likely have more regular management, and will have regular “eyes” on the space as teachers/leaders are in the space with groups of children.

13 APPENDIX



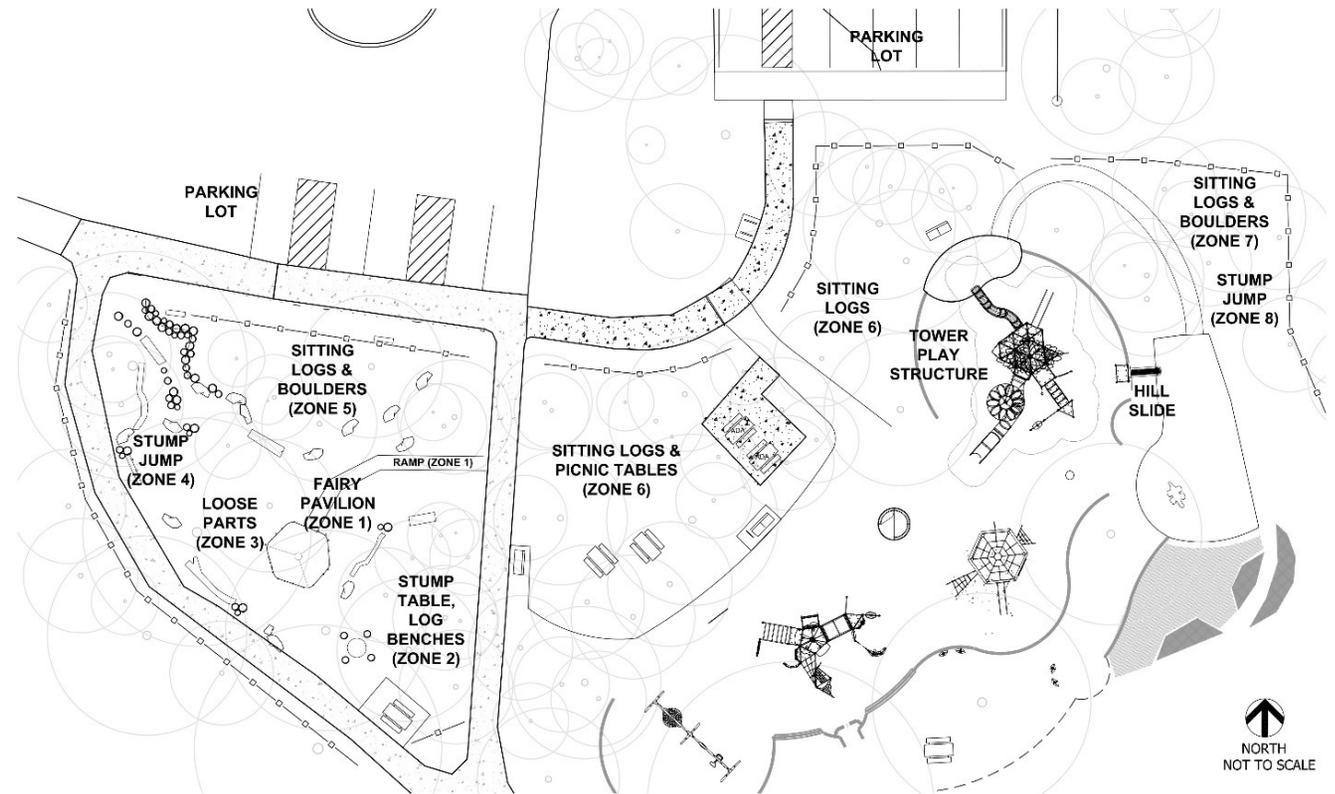
APPENDIX A

MAINTENANCE SAFETY CHECKLIST FOR FAIRY PAVILION & NATURE PLAY FEATURES AT WALNUT CREEK MP

For use by Austin Parks & Recreation maintenance and playground safety staff during regular reviews of nature play features. While they do not necessarily fall under playground safety standards, nature play features should be checked regularly for compliance with general safety measures and practices.

PLAYGROUND FEATURES TO BE CHECKED:

- Fairy Pavilion + walkway ramp (Zone 1)
- Stump table and cut log benches (Zone 2)
- Loose parts play zone (Zone 3)
- Stump jump (Zone 4)
- Sitting logs and boulders (Zone 5)
- Sitting logs in picnic table area (Zone 6)
- Sitting logs and limestone blocks by slide tower (Zone 7)
- Stump jump by slide tower (Zone 8)



NATURE PLAY AREA
WALNUT CREEK METRO PARK

<p style="text-align: center;">ZONE 1 Fairy Pavilion + Walkway Ramp</p>	<p style="text-align: center;">ZONE 2 Stump table + cut log benches</p>	<p style="text-align: center;">ZONE 3 Loose parts play area (cedar logs, bamboo poles, wood blocks, assorted items)</p>
<ul style="list-style-type: none"> <input type="checkbox"/> Protruding objects/snags <input type="checkbox"/> Cans on roofline are flat/ no sharp edges <input type="checkbox"/> Openings/Entrapments <input type="checkbox"/> Bees/Wasps/Ants/other nuisance wildlife <input type="checkbox"/> Decay/split wood/ structural issues <input type="checkbox"/> Sharp objects <input type="checkbox"/> Standing water <input type="checkbox"/> Other 	<ul style="list-style-type: none"> <input type="checkbox"/> Protruding objects/snags <input type="checkbox"/> Standing water <input type="checkbox"/> Mulch at base of stump <input type="checkbox"/> Bees/Wasps/Ants/other nuisance wildlife <input type="checkbox"/> Decay/split wood/ structural issues <input type="checkbox"/> Sharp objects <input type="checkbox"/> Stump secure at base <input type="checkbox"/> Other 	<ul style="list-style-type: none"> <input type="checkbox"/> Protruding objects/snags <input type="checkbox"/> Standing water <input type="checkbox"/> Enclosed spaces/ potential entrapments <input type="checkbox"/> Decay/split wood/ structural issues <input type="checkbox"/> Sharp objects <input type="checkbox"/> Nuisance wildlife <input type="checkbox"/> Other
<p>Notes:</p> <hr/> <hr/> <hr/>	<p>Notes:</p> <hr/> <hr/> <hr/>	<p>Notes:</p> <hr/> <hr/> <hr/>

<p style="text-align: center;">ZONE 4 Stump jump</p>	<p style="text-align: center;">ZONE 5 Sitting logs + boulders</p>	<p style="text-align: center;">ZONE 6 Sitting logs in picnic table area</p>
<p><input type="checkbox"/> Protruding objects/snags</p> <p><input type="checkbox"/> Standing water</p> <p><input type="checkbox"/> Mulch at base of stump</p> <p><input type="checkbox"/> Bees/Wasps/Ants/other nuisance wildlife</p> <p><input type="checkbox"/> Decay/split wood/ structural issues</p> <p><input type="checkbox"/> Sharp objects</p> <p><input type="checkbox"/> Stump secure at base</p> <p><input type="checkbox"/> Other</p>	<p><input type="checkbox"/> Protruding objects/snags</p> <p><input type="checkbox"/> Standing water</p> <p><input type="checkbox"/> Mulch at base of log/boulder</p> <p><input type="checkbox"/> Bees/Wasps/Ants/other nuisance wildlife</p> <p><input type="checkbox"/> Decay/split wood/ structural issues</p> <p><input type="checkbox"/> Sharp objects</p> <p><input type="checkbox"/> Boulder/log secure at base</p> <p><input type="checkbox"/> Other</p>	<p><input type="checkbox"/> Protruding objects/snags</p> <p><input type="checkbox"/> Standing water</p> <p><input type="checkbox"/> Mulch at base of stump</p> <p><input type="checkbox"/> Bees/Wasps/Ants/other nuisance wildlife</p> <p><input type="checkbox"/> Decay/split wood/ structural issues</p> <p><input type="checkbox"/> Sharp objects</p> <p><input type="checkbox"/> Stump secure at base</p> <p><input type="checkbox"/> Other</p>
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<p style="text-align: center;">ZONE 7</p> <p style="text-align: center;">Sitting logs + limestone blocks by slide tower</p>	<p style="text-align: center;">ZONE 8</p> <p style="text-align: center;">Stump jump by slide tower</p>
<p><input type="checkbox"/> Protruding objects/snags</p> <p><input type="checkbox"/> Standing water</p> <p><input type="checkbox"/> Mulch at base of log/boulder</p> <p><input type="checkbox"/> Bees/Wasps/Ants/other nuisance wildlife</p> <p><input type="checkbox"/> Decay/split wood/ structural issues</p> <p><input type="checkbox"/> Sharp objects</p> <p><input type="checkbox"/> Boulder/log secure at base</p> <p><input type="checkbox"/> Other</p>	<p><input type="checkbox"/> Protruding objects/snags</p> <p><input type="checkbox"/> Standing water</p> <p><input type="checkbox"/> Mulch at base of stump</p> <p><input type="checkbox"/> Bees/Wasps/Ants/other nuisance wildlife</p> <p><input type="checkbox"/> Decay/split wood/ structural issues</p> <p><input type="checkbox"/> Sharp objects</p> <p><input type="checkbox"/> Stump secure at base</p> <p><input type="checkbox"/> Other</p>
<p>Notes:</p> <hr/> <hr/> <hr/>	<p>Notes:</p> <hr/> <hr/> <hr/>

APPENDIX B

CONTRACTOR VETTING QUESTIONS

A couple of key questions you may want to ask the references you're provided:	
How was their overall performance?	
Were they communicative all along the way and were you assigned one point of contact through the entire project? Having one person to talk to from beginning to end is a great way of keeping lines of communication open and takes significant stress off of you as the client.	
Did they keep a clean and tidy jobsite?	
Did they deliver as promised, were timelines generally met, did everything work as it should, were there any issues during the course of the work that they felt could've been improved upon?	
Would the reference use the designer / architect / installer again?	
Could you come and see the work that was installed?	
Were there any warranty issues that came up after installation and how did the company handle that?	
Can their team handle all aspects of the installation, from irrigation to planting and clean-up, or will they be bringing in sub-contractors for any portion of the work? And, if they are bringing in sub-contractors, ask them why?	

**A list of questions that may be helpful to
ask of the contractors:**

How many of these have you designed and how many have you successfully installed?	
When did you start doing these and why?	
Is there someone who will be my direct point of contact through the entire process?	
Are you insured and can you provide me with proof of insurance?	
What is the anticipated timeline for starting our design and about how long will it take to complete the design?	
This will vary between designers, but the more edits there are, the more time it will take. So make sure you either know what you want for sure, or find someone who can translate your ideas to concept well.	

APPENDIX C

LOOSE PARTS

LOOSE PARTS NATURE PLAY

Loose Parts Nature Play is...

Unstructured outdoor play with a variety of natural materials, such as bamboo poles, tree cookies, shells, rocks, fossils, and more! This kind of play has been proven to promote creativity and imagination; is excellent physical activity; promotes cooperation and reduces stress; can improve focus, attention, motor skills and coordination. Overall it is great fun and fosters connection to nature.



Be a facilitator

- Create inviting environment: display items in an interesting way for participants.
- Use the items to make whatever your group can come up with! Get creative & think outside the box.
- Encourage & support: try to let the participants do the thinking & making. Ask them questions, have them explain their work, & encourage them to try on their own.



Suggested Rules

- Be careful not to hurt yourself or others
- No weapons
- Share materials
- Someone will take your creation down when you leave





Loose Parts Nature Play: Suggested Materials

- Acorns
- Seed pods
- Flowers
- Pine cones
- Bark
- Misc. plant parts
- Shells
- Rocks
- Fossils
- Bones, cleaned
- Sand or soil
- Small sticks, 4" - 8" long
- Leaves, collect day-of
- Grasses, collect day-of
- Bamboo poles, trimmed, 3' - 8' long
- Wood poles, trimmed, 3' - 8' long
- Palm fronds, trimmed
- Tree cookies, various sizes
- Rocks with numbers, letters, or facial features painted on them
- Stick-lets
- Paracord or other rope, cut into sections
- Animal figurines or stuffed animals
- Small containers to group materials
- Fabric, sheets or tarps



APPENDIX D

COBOR POSTERS

AUSTIN CHILDREN'S **OUTDOOR BILL of RIGHTS**

WHEREAS: Studies show that children who learn and play in nature are healthier, happier and perform better in school.

WHEREAS: Children who have safe access to parks, zoos, nature centers, lakes and rivers, and other public outdoor spaces are more resilient, have higher self-esteem, are more confident, are better problem solvers and are more creative.

WHEREAS: All children of all ages, backgrounds, and abilities should feel welcome at all of Austin's parks, pools, trails, waterways and open spaces.

WHEREAS: Communities in disadvantaged areas with access to nature benefit from greater health equity with lower rates of mortality and disease.

WHEREAS: Children who develop a positive relationship with nature are more likely to become tomorrow's stewards of our natural heritage.

WHEREAS: Through its parks, trails, waterways, open spaces, and other natural spaces, Austin provides a wide variety of quality outdoor opportunities.

THEREFORE: We support this Children's Outdoor Bill of Rights in which children of all ages, backgrounds, and abilities have the right to:

**Climb a tree • Catch a fish • Picnic in a park • Hike a trail • Ride a bike
Splash in the creek or river • Discover plants and wildlife
Play in the sand and mud • Gaze at the night sky • Chase a firefly
Plant a seed and watch it grow • Harvest and eat a fruit or vegetable**



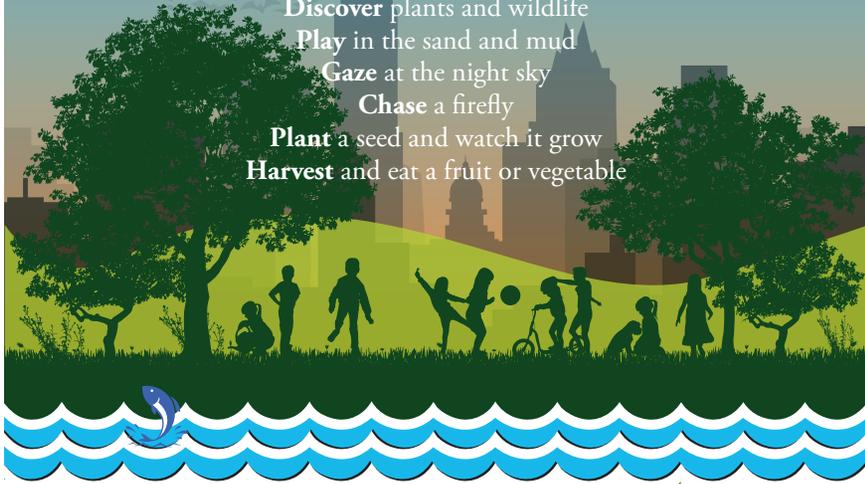
Children in Nature
Collaborative of Austin



AUSTIN CHILDREN'S
**OUTDOOR
 BILL of RIGHTS**

In which every child has the right to:

- Climb** a tree
- Catch** a fish
- Picnic** in a park
- Hike** a trail
- Ride** a bike
- Splash** in a creek or river
- Discover** plants and wildlife
- Play** in the sand and mud
- Gaze** at the night sky
- Chase** a firefly
- Plant** a seed and watch it grow
- Harvest** and eat a fruit or vegetable



Understanding that research shows children who learn and play in nature are healthier, happier and perform better in school, we enthusiastically support this Children's Outdoor Bill of Rights.

Learn more at www.austintexas.gov/cccn



**Declaración de derechos
 de los niños de Austin**

al aire libre

en la cual cada niño tiene derecho a:

- Subirse** a un árbol
- Atrapar** un pez
- Irse** de día de campo
- Irse** de excursión
- Andar** en bicicleta
- Salpicar** en un arroyo
- Descubrir** la flora y fauna
- Jugar** en la arena y el lodo
- Contemplar** el cielo nocturno
- Perseguir** una luciérnaga
- Plantar** una semilla y verla crecer
- Cosechar** y comer una fruta o verdura



Entendiendo que las investigaciones demuestran que los niños que juegan y aprenden en la naturaleza son más saludables, más felices y se desempeñan mejor en la escuela, apoyamos con entusiasmo esta Declaración de los Derechos del Niño al Aire Libre.

www.austintexas.gov/cccn



APPENDIX E

RECLAIMED WOOD SPECIFICATIONS

Nature Play Reclaimed Wood Specifications

<p>Tree cookies for loose parts areas</p>	<p>Species: Oak, elm, cedar, cypress, ash, mulberry, others (native preferred)</p> <p>Size: 8" diameter plus, smaller stems and branches removed, bark on, freshly cut, 1" thick (if you are able to cut)</p>	
<p>Large logs for horizontal borders, balance logs, seating</p>	<p>Species: oak (preferred), osage orange, young cypress, elm, sycamore</p> <p>Size: 12" diameter plus (larger is better), 6' – 15' long; smaller stems and branches removed, freshly cut, bark on, prefer pieces that are curved or otherwise interesting, can keep larger limbs attached if possible</p>	

Nature Play Reclaimed Wood Specifications (continued)

Large logs
for vertical
borders, stump
jumps, climbing
features, tables,
seating

Species: oak (preferred), osage
orange, young cypress, cedar,
juniper, elm, sycamore

Size: 8" diameter plus, lengths
2'–5'; smaller stems and branches
removed, freshly cut, bark on, can
keep larger limbs attached
if possible



APPENDIX F

RISK ASSESSMENT - SITE

RISK ASSESSMENT AIDE MEMOIR

RISK ASSESSMENT - SITE

Location: _____ Date: _____

Hazard Description	
Severity (without control measures)	
Who could be harmed?	
Risk Control Measures	
Currently in Place	
Likelihood (with control measures)	
Risk Level	
Action Required	
Actioned (date, signature)	

*When calculating the risk level of a location, it is important to be aware of and refer to the Risk Assessment Aide Memoir.
Adapted from Playful Pedagogy training from the North Carolina Zoo.*

RISK ASSESSMENT AIDE MEMOIR

Hazard Severity	Examples of Type of Injury
Low	Scratch, bruise, minor cut, minor burn. Normal play possible after first aid treatment.
Medium	Burns, severe cuts, minor fractures (fingers and toes), strains, sprains, temporarily disabling back injuries. Accident results in loss of time less than 3-day injury.
High	Permanent disability, amputations (e.g. loss of finger), other fractures, over 3-day injury, multiple injuries, fatalities.

Likelihood of Occurrence	Example
Not likely	Harm will seldom occur. So unlikely, the probability of occurrence is close to zero.
Possible	Harm could occur frequently.
Likely	Harm is certain or near certain to occur. Repeated occurrences are expected. If conditions continue an accident or incident is almost certain to occur.

Express the level of risk associated with identified hazards by multiplying the hazard severity by the likelihood of the hazard occurring. Consult the risk matrix, to express the risk level:

Risk			
Likelihood → Hazard Severity ↓	Not likely	Possible	Likely
Low	Very low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	Very high

RISK ASSESSMENT AIDE MEMOIR (CONTINUED)

Risk Level	Action
Very Low	No action is required, though assessment must be recorded.
Low	No additional controls are required. Consideration may be given to a more cost-effective solution or improvement that imposes no additional cost burden. Monitoring is required to ensure that the controls are maintained.
Medium	Efforts should be made to reduce the risk, but the costs of prevention should be carefully measured and limited. Risk reduction measures should be implemented within a defined time period. Where moderate risk is associated with extremely harmful consequences, further assessment may be necessary to establish more precisely the likelihood of harm as a basis for determining the need for improved control measures.
High	Play should not start until the risk has been reduced. Considerable resources may have to be allocated to reduce the risk. Where the risk involves play in progress, urgent action should be taken.
Very High	Play should not begin or continue until the risk has been reduced. If it is not possible to reduce risk even with unlimited resources, play must remain prohibited.

Adapted from Playful Pedagogy training from the North Carolina Zoo.

APPENDIX G

TREE COOKIE RECIPE

HOW TO MAKE TREE COOKIES

Adapted from Project Learning Tree at the Minnesota Department of Natural Resources

Use this “recipe” to make tree cookies that not only look good but will also hold up in the classroom for years. **DO ALL THE STEPS!**

Tree cookie size varies. For classroom use, the best cookies are about ½ to 1-inch thick, and 3–6 inches in diameter.

1. **Select a Species.** Select species that have nice, dark annual rings, such as pines, spruces, firs, walnut, and buckthorn. Conifers and Christmas trees (spruce, fir, cedar, pines) provide wood that is soft, easy to cut and sand, and display nice rings. Deciduous trees that show nice rings include oaks, ashes, maples, elms, cherry, and walnut. Both trunks and thick branches contain annual rings. Some of the most interesting cookies have rings that show a variety of growth patterns, or fire scars, or wounds.
2. **Cut the Tree.** Use a large tooth pruning saw (available at hardware stores) to cut the tree at the base and trim off the branches. Then cut the main tree stem into log segments three or four feet in length and transport them back to work on.
3. **Dry the Logs.** Set the logs or thick branches in a dry, well-ventilated place until sufficiently dried, usually a couple months, depending on the size. Better, if you have access to a lumber kiln, dry the log. Just ask the yard supervisor to stick the tree cookie logs in with the lumber being dried. After three or four days in the kiln, the logs should be sufficiently dry and feel much lighter.

A note about cracking...
By nature, wood often cracks when it dries, and that is just fine for this project! However, if you desire the perfect “uncracked” cookie, there is a lot of discussion about achieving this. The best way to prevent cracking is to cut cookies from a dried, not green, log or branch. The smaller the cookie, the less likely cracking will occur. Some say that cookies are less likely to crack if they are cut at an angle so that the edges are slightly sloped. Others say it’s better to cut cookies from dried limbs, as the grain is often tighter in the limbs than in the main stem.

1. **Slice the Logs.** Slice the logs or thick branches as thin as the wood allows (typically ½ to 1-inch thick). Use a large-tooth pruning saw or a motor-driven saw such as a radial arm saw.
2. **Dry the Cookies.** If you dried your cookies as logs, skip this part. Otherwise, drying is crucial! If cookies are not dried properly, they will attract mold and fungus. Store your cut cookies in a dry, well-ventilated surface under low humidity for three to ten days. Turn them over daily to allow both sides to dry. Placing them on a driveway on a sunny day also works well. Air movement is more critical than the amount of sun. If you need faster results, it is possible to very carefully and slowly dry them in an oven set on “warm” (200 degrees or less). This should be done under close monitoring and supervision. Place the cookies on a cookie sheet or foil and allow to slowly dry for three to five hours, turning cookies over occasionally.
3. **Sand the Cookies.** Properly dried cookies may be sanded by hand or with a mechanical table mounted belt sander. Sand first with course paper

and finish with medium paper. Sand the cookies until you can count the annual rings easily.

4. **Almost Done.** To stand up to the rigors of classroom life, brush, dip, or spray each cookie with a coat of clear varnish or polyurethane.
5. **Label.** It’s an added educational benefit if you can tell the students what kind of tree this cookie came from! Write the species’ name on a piece of masking tape and stick it to the final product. Common names like “white oak” or Latin names like “Quercus alba” are ok.
6. **Deliver the Cookies.** Put the cookies in a box and label them with the species names (if known), location of harvest, and your name. Then, drop the cookies off at any DNR office or field station. Tell a DNR staff person on site that the cookies are for Laura Duffey in the Central Office (651-259-5263 or 888-646-6367 or laura.duffey@state.mn.us)

Some cookie-makers soak freshly-cut cookies in a solution of 2 pounds of sugar for every gallon of water for at least two days. Use a non-metal container and hold the wood down with rocks to submerge. Cookies larger than 3 inches in diameter and ½- inch thick need more time. Stir the solution daily. After soaking, put in a well-ventilated place to dry (1 week).

Finally, you can get a similar result if you soak fresh-cut cookies in polyethylene glycol (PEG) when the wood is still green. PEG draws the water out and replaces it with the PEG—a waxy material. It takes a few days to dry and the wood becomes a little heavier. PEG looks and feels like paraffin wax. Dissolve it in an equal amount of hot water, then soak the wood in it for about a month, making sure the wood is totally submerged. PEG is sold under the name of “MiraLAX” (it’s used for constipation). It can be expensive. However, you can get a coupon for it online at the MiraLAX website and find it at Target.

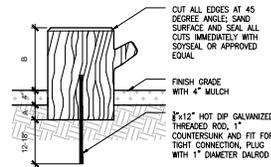
APPENDIX H

NATURE PLAY DETAILS

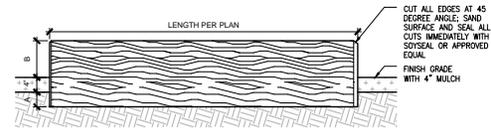
NATURE FEATURE DETAILS

NOTES:

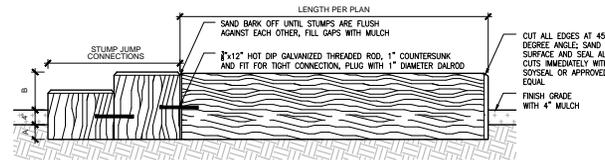
- A: WITHIN CRZ, CUT 4" MAX INTO GRADE; IN OTHER LOCATIONS BURY 1/3 OF FEATURE'S HEIGHT INTO GRADE
- B: 29" OR SHORTER DO NOT REQUIRE FALL ZONE
- C: ANY FEATURE 30" OR TALLER REQUIRES A 6' (72") FALL ZONE FROM ANYTHING 29" OR SHORTER; ANY FEATURE 30" OR TALLER REQUIRES A 9' (108") FALL ZONE FROM ANYTHING 30" OR TALLER
- D: OVERALL, AVOID GAPS OR OPENING LESS THAN 4" IN DIAMETER
- E: OVERALL, CUT ALL EDGES AT 45 DEGREE ANGLE; SAND SURFACE AND SEAL ALL CUTS IMMEDIATELY WITH SOYSEAL OR APPROVED EQUAL
- F: OVERALL, FINISH GRADE WITH 4" MULCH



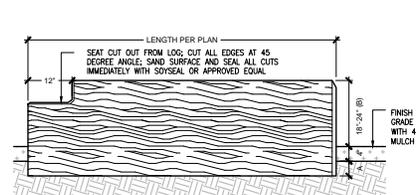
1 LOG STUMP
SCALE: 3/8"=1'-0"



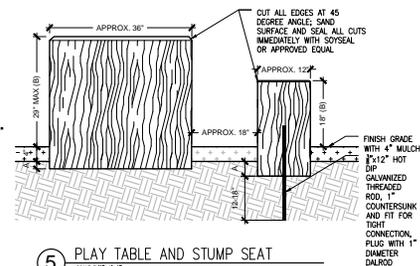
2 BALANCE LOG
SCALE: 3/8"=1'-0"



3 STUMP JUMP/LOG CONNECTION
SCALE: 3/8"=1'-0"



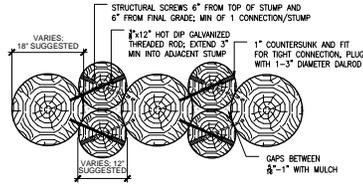
4 SCOOT LOG
SCALE: 3/8"=1'-0"



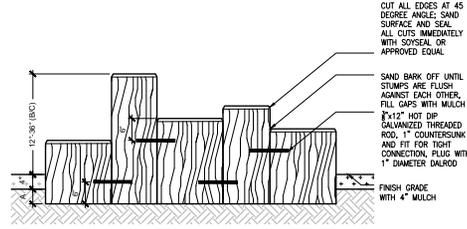
5 PLAY TABLE AND STUMP SEAT
SCALE: 3/8"=1'-0"

NOTES:

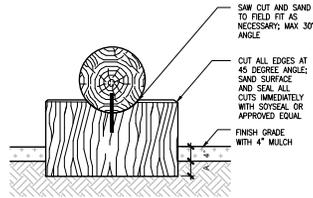
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- F: OVERALL, FINISH GRADE WITH 4" MULCH



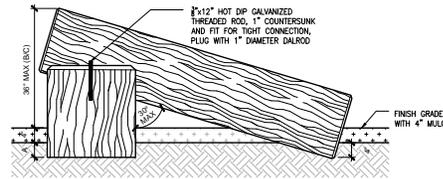
6 STUMP JUMP PLAN
SCALE: 3/8"=1'-0"



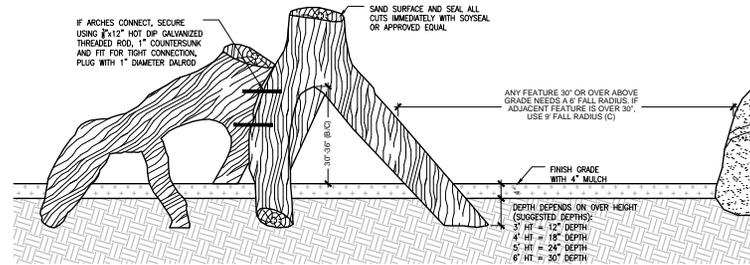
6 STUMP JUMP SECTION
SCALE: 3/8"=1'-0"



7 RAMP LOG CONNECTION
SCALE: 3/8"=1'-0"



7 RAMP LOG CONNECTION - CONTINUED
SCALE: 3/8"=1'-0"

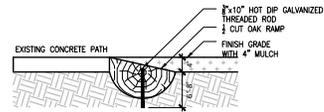


8 LOG ARCHES
SCALE: 3/8"=1'-0"

NOTE: BECAUSE SOIL DISTURBANCE IS MORE THAN 4" IN DEPTH, AVOID CRZ/CONSULT ARBORIST

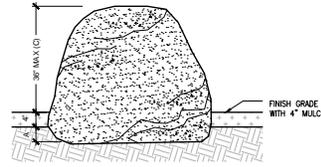
NOTES:

- A: WITHIN CRZ, CUT 4" MAX INTO GRADE; IN OTHER LOCATIONS BURY 1/3 OF FEATURE'S HEIGHT INTO GRADE
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- F: OVERALL, FINISH GRADE WITH 4" MULCH

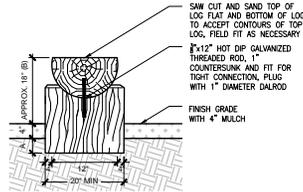


9 LOG RAMP
SCALE: 3/8"=1'-0"

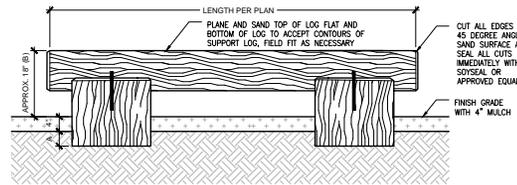
NOTE: BECAUSE SOIL DISTURBANCE IS MORE THAN 4" IN DEPTH, AVOID CRZ/CONSULT ARBORIST



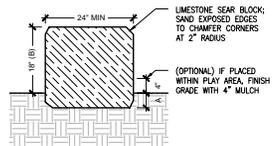
10 BOULDERS
SCALE: 3/8"=1'-0"



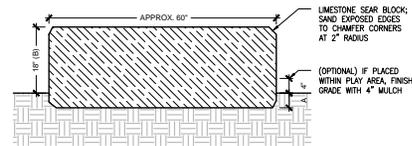
11 LOG BENCH
SCALE: 3/8"=1'-0"



11 LOG BENCH - CONTINUED
SCALE: 3/8"=1'-0"



12 LIMESTONE BLOCK BENCH
SCALE: 3/8"=1'-0"



12 LIMESTONE BLOCK BENCH - CONTINUED
SCALE: 3/8"=1'-0"

APPENDIX I

SITE PLAN EXAMPLES

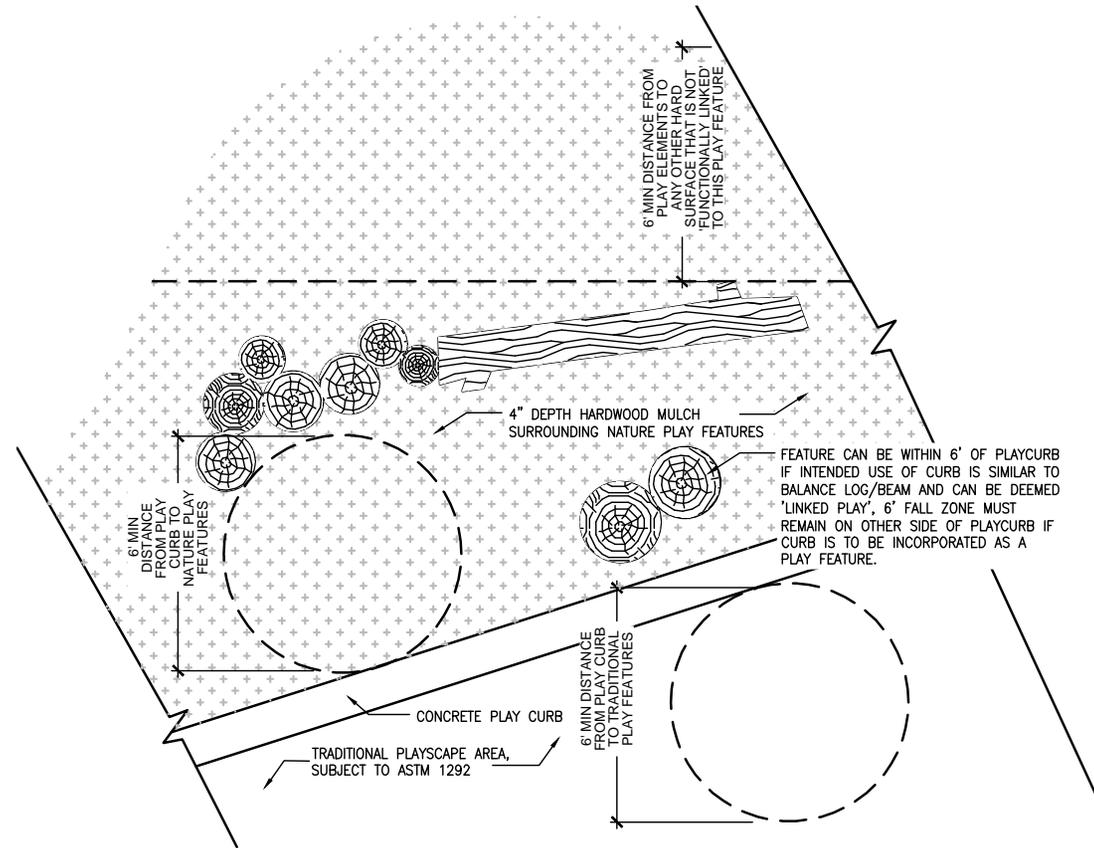
1. METZ PARK

2. HERITAGE OAKS

3. AISD OWL CENTER

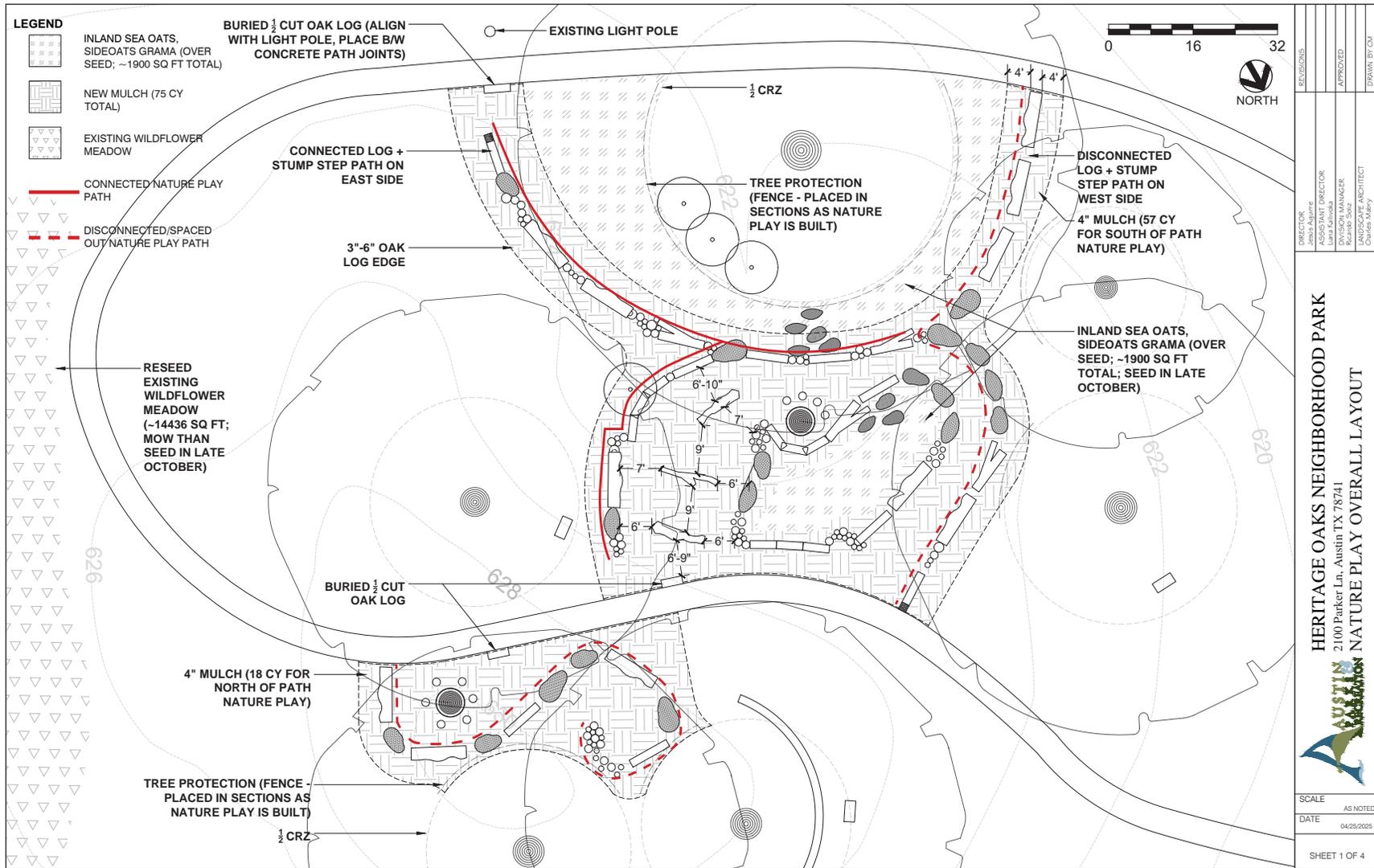
4. ODOM

METZ PARK

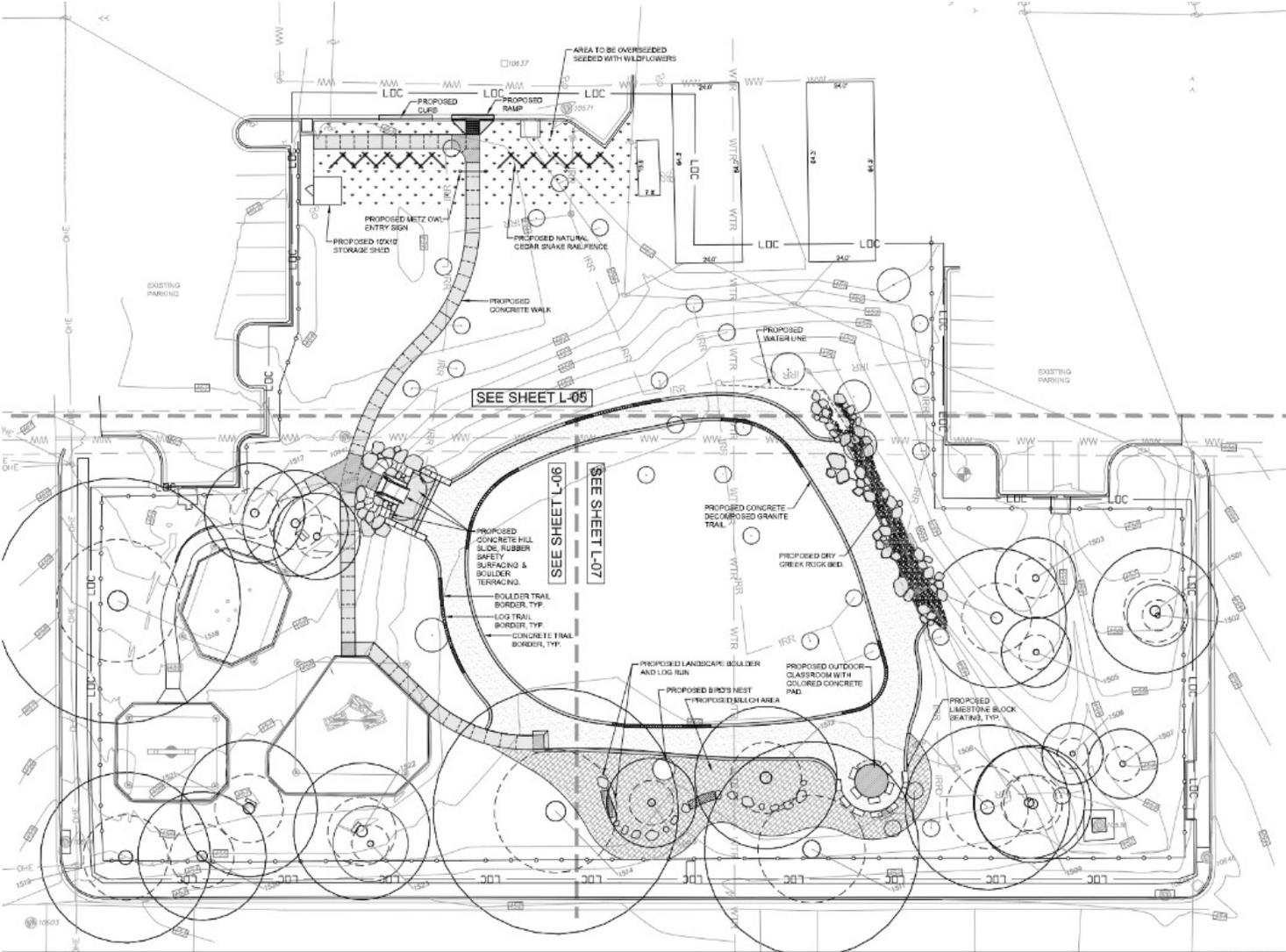


13 NATURE PLAY ADJ. TO TRADITIONAL PLAY
SCALE: NTS

HERITAGE OAKS



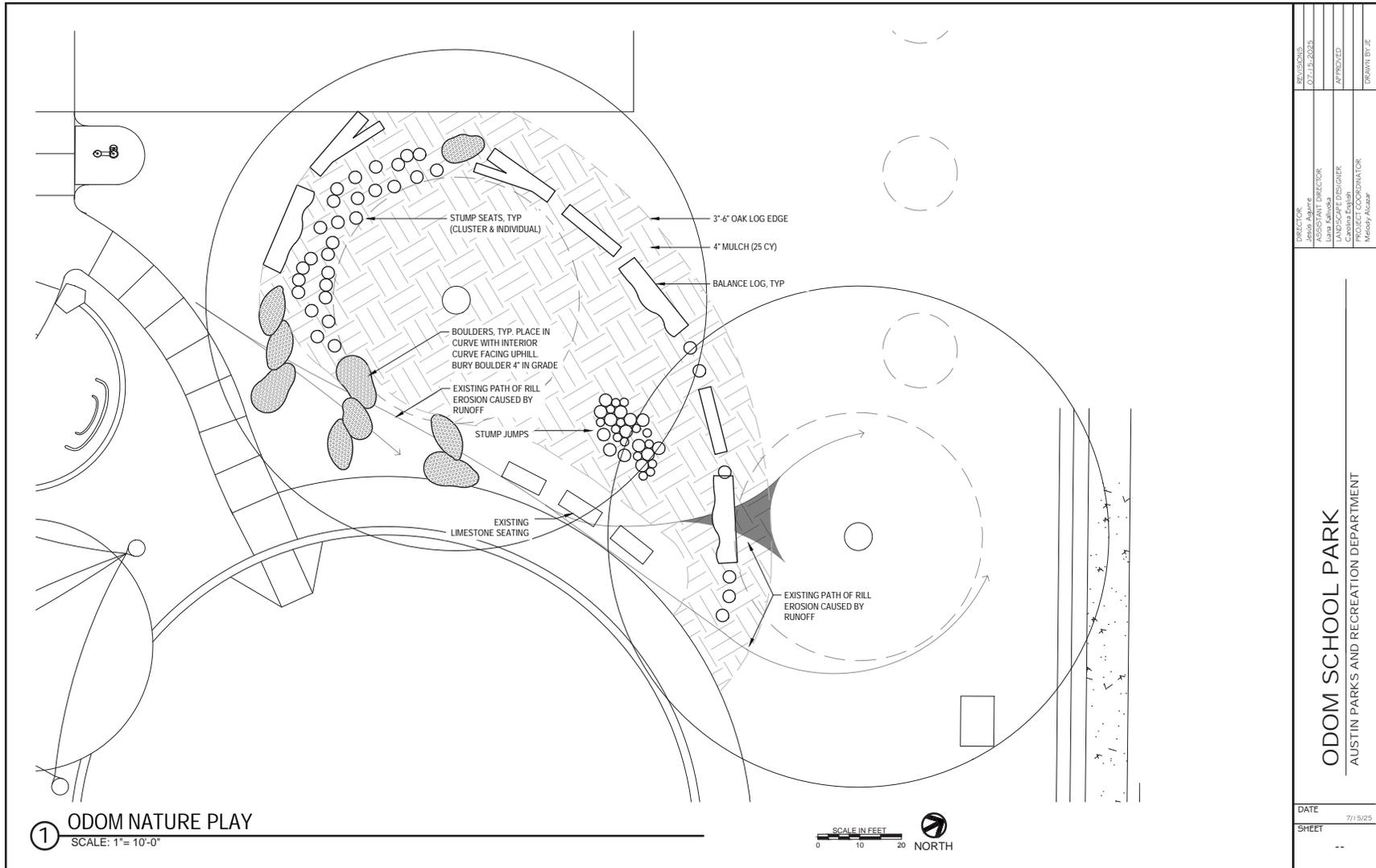
AI SD OWL CENTER



OVERALL IMPROVEMENT PLAN

SCALE: 1"=20'-0"

ODOM



14 GLOSSARY



CRITICAL ROOT ZONE: the area around a tree that must be protected to ensure its survival. The CRZ is a circle around the tree with a radius in feet equal to the diameter in inches of the trunk. The CRZ is not the extent of the tree's root system, which often extends three to four times farther than the canopy of the tree.

ECOLOGICAL RESTORATION: the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.

FALL HEIGHT: the vertical distance between the highest designated play surface on a piece of equipment and the protective surfacing beneath it.

FORMATIVE EVALUATION: provides information on how well a program or exhibit functions, or how well it communicates its intended messages. Formative evaluation occurs while a project is under development and is used to make changes to improve the design of a program or exhibit before it is implemented.

FRONT-END EVALUATION: provides background for future planning and is a way to determine a visitor's prior knowledge/experience and expectations.

GREEN SCHOOLYARD: school grounds that include an outdoor classroom, active habitat and/or vegetable gardens, rainwater collection and at least four other green features, such as nature play, nature trail, pond, solar, chickens, orchard, etc.

GREEN SCHOOL PARK: green schoolyard that is open, accessible, and activated for the public during out of school time.

HAZARD: something that is unknown to the child, such as another kid about to jump, or a snag on a bolt.

INFORMED CONSENT: telling individuals about your evaluation and asking whether they are willing to participate.

INTENDED USE: used in reference to how a play structure is categorized, it references the primary goal of a structure (climbing vs. sitting, etc.)

LOOSE PARTS: natural or synthetic found, bought, or upcycled materials--acorns, hardware, egg cartons, fabric scraps, stones, aluminum foil, etc.--that children can move, manipulate, control, and change within their play.³⁷

NATURE DEFICIENCY or NATURE-DEFICIT DISORDER: the negative effects of spending less time in nature, particularly for children, including diminished use of senses, attention difficulties, obesity, and higher rates of physical and emotional illness.⁵⁹

NATURE PLAY: any type of play that involves the interaction with or use of objects that nature provides.

NATURE PLAY SPACE: a defined area for all ages and abilities, which encourages creative and unstructured play while exploring natural materials.

PLAYFUL BORDERS: interactive landscaping edges that define an area and invite play and exploration.

QUANTITATIVE RESEARCH: used to quantify the problem by way of generating numerical data or data that can be transformed into usable statistics. It is used to quantify attitudes, opinions, behaviors, and other defined variables—and generalize results from a larger sample population.

QUALITATIVE RESEARCH: primarily exploratory research. It is used to gain an understanding of underlying reasons, opinions, and motivations. This data is usually gathered using conversational methods such as interviews or focus groups.

RISKY PLAY: thrilling and exciting forms of play that involve a risk of physical injury.

SHOVEL-CUT EDGES: a method of creating separation between two areas consisting of different materials (i.e. lawn and mulch) that uses a shovel. You may vertically press a shovel or spade a few inches into the ground and angle or move the mulch/soil in towards the nature play space to create a clean edge between the two.

SUMMATIVE EVALUATION: determines the impact of a project after it's completed.

Summative evaluation is often used to improve future activities through an understanding of existing programs.

UNIVERSAL DESIGN: the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability.

USE ZONE: the surface under and around a piece of equipment onto which a child falling from or exiting from the equipment would be expected to land. These areas are also designated for unrestricted circulation around the equipment.



Photo by Austin Parks & Recreation. Photo (opposite): Will Smith Zoo School at the San Antonio Zoo.

NATURE PLAY GUIDES

- Denver Parks & Recreation | [Nature Play in the Built Environment: Design Standards and Guidelines](#)
- Evergreen | [Landscape and Child Development: A Design Guide for Early Years-Kindergarten Play-Learning Environments](#)
- National Wildlife Federation | [Nature Play at Home: A Guide for Boosting Your Children's Healthy Development and Creativity](#)
- Natural Learning Initiative | [Resources](#)
- [Natural Start Alliance | A Parents' Guide to Nature Play](#)
- San Francisco Children & Nature | [San Francisco Nature Exploration Area Playbook](#)
- Tualatin Hills Park & Recreation District (Oregon) | [Nature Play Space Guidelines](#)
- WeConservePA | [Nature Play: Nurturing Children and Strengthening](#)



Kids with beets.. Photo by Austin Parks & Recreation.

15 RESOURCES



- Children & Nature Network | [Dignity of Risk article](#)
- Encyclopedia on Early Child Development | [Creating Inclusive Naturalized Outdoor Play Environments](#)
- Green Schoolyards America | [Inclusive Design](#)
- Seattle Play Garden | [Inclusion Toolkit](#)
- Texas Department of Licensing and Regulation | [Architectural Barriers Texas Accessibility Standards \(TAS\) - Appendix](#)

MAINTENANCE

- Play England | [Nature Play Maintenance Guide](#)
- The Outdoor Playbook | [Paving and Ground Surfaces](#)
- Wood Sealant | [Cabot Australian Timber Oil](#) (natural) or similar product

BENEFITS OF NATURE PLAY

- Children & Nature Network | [Academic Outcomes](#)

- Children & Nature Network | [Nature Play Can Encourage Care for the Earth](#)
- Children & Nature Network | [Health & Wellness](#)
- Natural Learning Initiative | [Adding Value to Early Childhood Outdoor Play and Learning Environments](#)
- We Conserve PA | [Nature Play](#)

PLANTS

- Best of Texas | [Plant Database](#)
- City of Austin | [Grow Green Plant Guide](#)
- Lynne Boddy | [Fungi and Trees: Their Complex Relationships](#) (2021)
- Playcore | [Plants for Play Database](#)
- Robin Moore | [Plants for Play: A Plant Selection Guide for Children's Outdoor Environments](#), Paperback (1993)
- Texas Parks & Wildlife Department | [Child Friendly Plant Flyer](#)

INTERPRETATION AND GRAPHICS

- City of Austin | [Digital Style Guide](#)
- National Association for Interpretation | [Non-profit organization dedicated to advancing the profession of heritage interpretation](#)
- National Parks Service | [Common Learning Portal](#)
- [plainlanguage.gov](#) | [U.S. Government's Plain Language Action and Information Network](#)
- Society for Experiential Graphic Design | [Signage Requirements in the 2010 Standards for Accessible Design](#)
- Vera Institute of Justice | [Creating Accessible Print Materials](#)

EQUITY

- Center for American Progress | [The Nature Gap: Confronting Racial and Economic Disparities in the Destruction and Protection of Nature in America](#)

- Children & Nature Network | [Anti-racism in the Outdoors: Resources related to inclusion, diversity, equity & access](#)

OTHER

- Bienenstock Natural Playgrounds | [Developer of natural playgrounds](#)
- Natural Playgrounds | [Developer of natural playgrounds](#)
- Playcore | [Playground developer](#)
- Texas Children in Nature Network | [State-wide coalition](#)

Photo (opposite): Will Smith Zoo School.

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Sandbox at ACC Lab School. Photo (opposite): Kids at Pease park. Photo by Pease Park Conservancy

