

# EXPANDING EDUCATION









A Senior Capstone Project

Presented to the Department of Landscape Architecture  
University of Florida in partial fulfillment of the requirements for the degree of  
Bachelor of Landscape Architecture

25 April 2014

Prepared for Schrader Elementary School and the  
Pasco County School Board

Advised by  
Sara Katherine "Kay" Williams





I would first like to thank the entire Landscape Architecture department and faculty at the University of Florida for all their influential knowledge and support.

In no way could this have been accomplished without those in my studio. I would have gone insane had it not been for their constant love and their much-needed distractions [such as the Mochi break we just took while I was writing this].





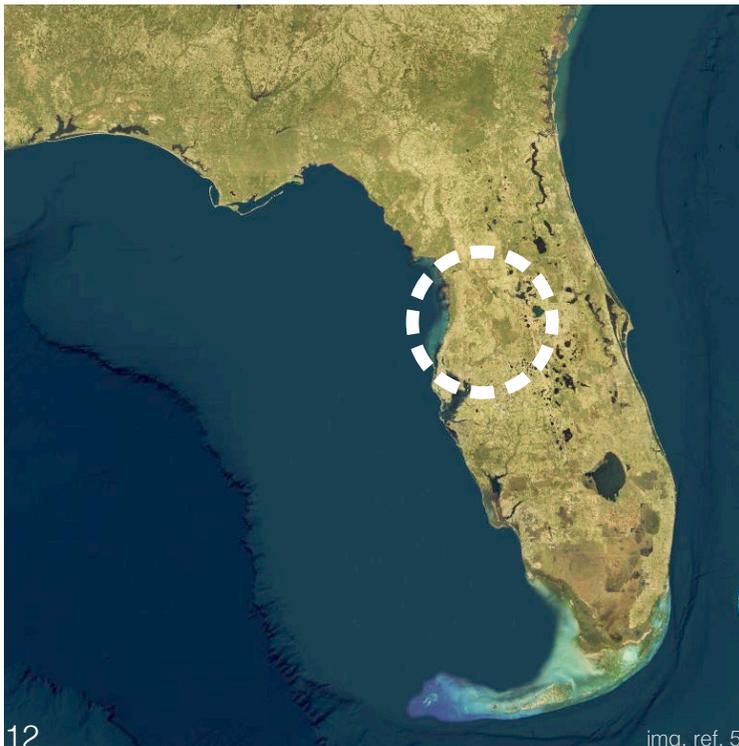
img\_ref.20

While design has implications on a wide array of matters, I have always been most fascinated by design's impact on people. Design has effect on people's interactions, decisions, and most interesting to me, development. I wanted to explore design's influence on a user group that is rarely design for, yet could arguably be the one most in need of good design. Children absorb the spaces they inhabit and do so in a way that is very different from the adult world. Using the outdoor world as an opportunity to both incorporate successful design as well as nurture child development, I hope this project will unveil the magic that surrounds us everyday.





12-17	introduction
	context/background
	students
18-23	existing proposal
	current issues
24-25	goals/objectives
26-27	proposed program
28-37	research
	case studies
	child development
38-53	analysis
	site analysis
	structure analysis
54-57	synthesis
	site synthesis
	structure synthesis
58-73	concepts
	initial concepts
	concept development
74-75	master plan
76-81	grading/modeling
82-85	planting
86-89	green infrastructure
90-117	character
118-121	appendix
122-123	resources



# INTRODUCTION

Schrader Elementary School is located in Pasco County, Florida [about 30 miles north of the City of Tampa].

The site is about 4 miles east of the coast of the Gulf of Mexico.

Bayonet Point Middle School shares the same legal boundary as Schrader Elementary School and is located directly north of the site.

Total boundary acreage is 39.17 ac.  
Schrader site acreage is approximately 20.8 ac.

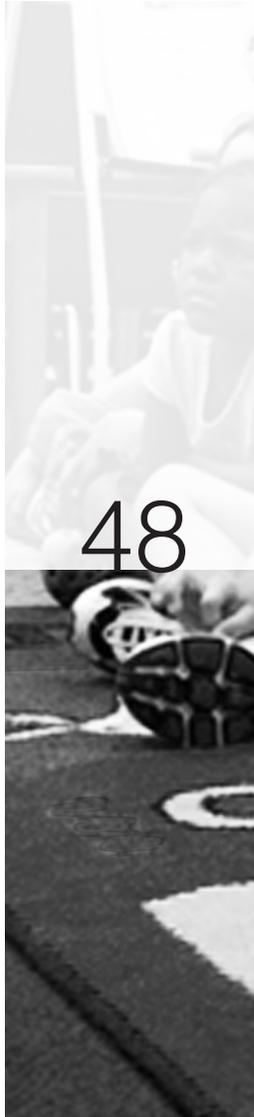


img.ref:5



img.ref:13

Schrader student PERCENTAGES



female



male



students with  
disability



78

economically disadvantaged



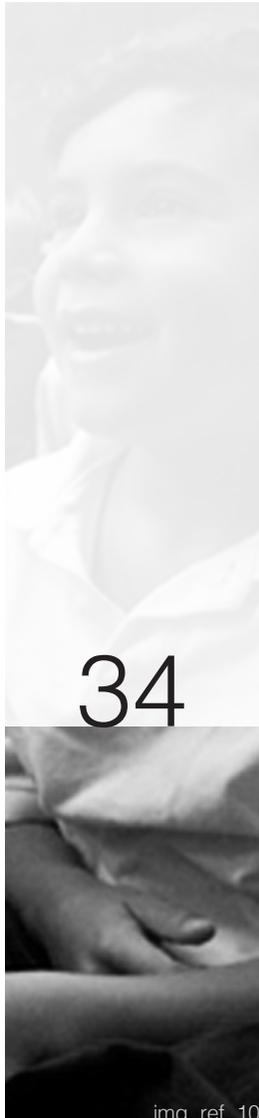
59

passed FCAT reading



49

passed FCAT math



34

passed FCAT science

img. ref. 10



# "A HOST OF ARCHITECTURAL-DESIGN PROBLEMS PLAGUE SCHRADER ELEMENTARY"



Based on 2010-2011 school year statistics, it is evident there is a high percentage of disabled children within the student body [about  $\frac{1}{4}$  of the total population]. These numbers prove evident need for accessible spaces throughout the site's design.

Another important statistic from this study is the number of children labeled as "economically disadvantaged"; this number nearly equals the entire student population. Children living in these conditions may not have access to certain experiences and opportunities that children from other circumstances are able to experience in their adolescence; therefore, the importance of providing them with a comfortable and enjoyable environment is crucial.

Student's FCAT scores also indicate a need for improving their learning environment. Schrader students were not able to meet the state objective in any of the three measured subjects [math, reading, or science]. This project aims to provide stimulating educational environments as well as use nature as a teacher to help children improve their test scores and academic achievements.



# EXISTING PROPOSAL



Following the proposed building plans for Schrader, this design will expand and emphasize the outdoor aspects of the site. While the architectural plans do propose a covered play area, this project aims to reimagine what a child thinks of when they think of “outdoor time”. While the interior plans of Williamson Dacar Associates will be greatly utilized and appreciated by the faculty and children of the school, this project will additionally create outdoor spaces for play and learning that familiarize young children with nature and provide them with an alternative to their traditional indoor learning experience. Current site plans for Schrader delineate stormwater volumes for the entire legal boundary [this includes Schrader and Bayonet Point Middle School]. While stormwater volumes were calculated for both schools, the entirety of the mitigation is currently proposed on Schrader’s portion of the site. Current plans for Schrader also include the preservation of Bayonet Point’s track. This amenity is not purposed for the elementary school children, yet is located on Schrader’s portion of the site. All of the play areas in the current design proposal are surrounded by 4ft. chain link fence and are minimal in square footage, not allowing enjoyable or stimulating play experience.

The Bayonet Point portion of the site is roughly the same acreage as Schrader’s and has a large amount of available space. The project’s proposal will move some portions of stormwater mitigation as well as the middle school track to this available area. In this project’s design there will also be proposals for alternatives to traditional fencing around small playgrounds, thereby promoting a more pleasurable play and outdoor experience.



# ISSUES



img. ref. 2

adjacent middle school

Bayonet Point Middle School program makes use of a large majority of the Schrader Elementary site.



img. ref.

track

The track [kept in current proposal] is used by the middle school students and not the elementary students.

There is available space to move track onto the middle school grounds, closer to it's user group.



### fenced playgrounds

Current architectural proposal allots 0.70 ac. of play area.

All of these spaces are surrounded by a 4 ft chain link fence.



### stormwater proposal

The required stormwater volume for the current plans incorporates the impervious surface area for both the middle and elementary school, yet all the proposed retention basins have been placed on Schrader's site.

Similar to the track, there is available space to delineate some stormwater management to the middle school site.





### Goal I

Create a dynamic interaction between students and nature beyond the bounds of the traditional classroom.

Create outdoor spaces that encourage play with the natural environment.

Increase ecological services within and surrounding the site to promote the flora and fauna species diversity.

Create a comfortable and safe climate to give users a secure perception of their environment.



### Goal II

Improve current student's standardized test scores through alternative learning methods.

Use concepts from nature to promote learning and educational goals of the standardized tests.

Create a stimulating environment that attracts students to attend school and learn.

Provide alternatives to traditional classroom learning to cater to a wider variety of students.



### Goal III

Provide an enhanced alternative to the current stormwater proposal.

Offset portions of stormwater delineation through green infrastructure technologies.

Create learning opportunities within retention areas by transforming them into interactive spaces.

play

free play  
structured play  
recreational/sports courts



learning

outdoor classrooms:  
intimate spaces  
interactive learning



# PROGRAM

social

gathering spaces  
waiting spaces  
outdoor eating/seating spaces



img\_ref\_14

stormwater

holding spaces  
educational spaces



img\_ref\_827



CASE STUDIES



img. ref. 12

Manassas Park • Buffalo Public School 90





Similar to Schrader Elementary, Manassas Park Elementary is surrounded by residential areas and a naturalistic setting. Because the site was located in a high residential area, the designers were able to implement a system of “walking stops” and “bike trains” for the neighborhood children. The demographics of Manassas Park Elementary are also similar to that of Schrader. With 26% of the student body being limited in English proficiency, 44% of students receiving free lunch, and the majority of students coming from immigrant families, the students are greatly at risk of not completing their basic education. To mitigate this problem, the designers and the school system aimed to make both the building and the site an expansion and expression of the surrounding forest ecosystem. Manassas Park Elementary was designed around the idea that people, especially children, cannot be expected to preserve or protect something they do not understand. The design optimizes the relationship between the indoors and the outdoors and challenges the

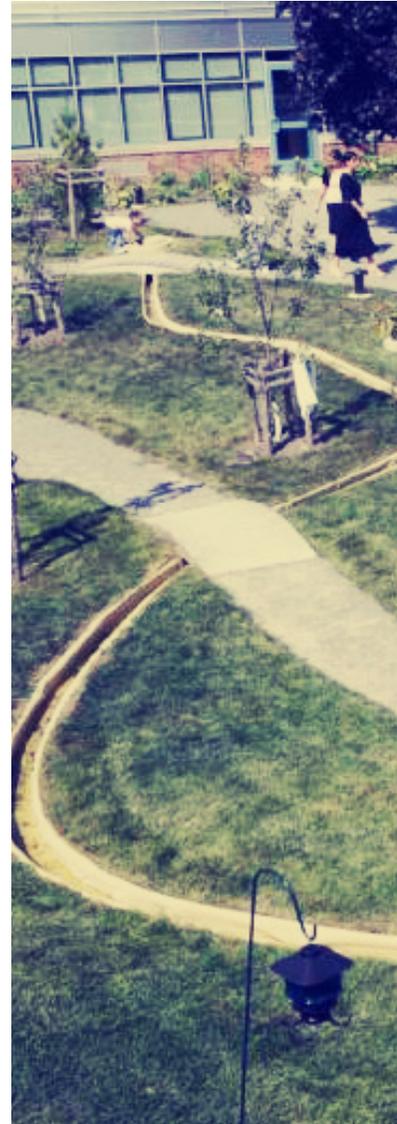
students to be knowledgeable, responsible, and creative in the ways they inhabit their space. Sustainable design has been implemented within the elementary curriculum, and design decisions were made with the expressed goal of showcasing as many teachable moments as possible. Outdoor spaces include two outdoor forest classrooms that emulate the adjacent forest, bioretention areas planted with native species, an outdoor amphitheater, and wooden stage. These spaces act as outdoor labs for studying and cultivating native plants, studying climate and weather, telling stories, and exploring native flora and fauna. There is also a comprehensive signage program that reinforces each teachable moment by highlighting green building facts, demystifying sustainable building systems, and identifying native species.

**Manassas Park Elementary School**  
Manassas Park, Virginia  
Siteworks  
2.95 Ac.



Buffalo Public School 90 is located within a harsh urban environment, and with increasing curriculum mandates the students are losing valuable time in the natural world. The objective for courtyard's design was

to meet the curriculum mandates in an outdoor environment. The design incorporated water, varying topography, naturalized and constructed gardens, open areas, and gathering spaces. The space addresses various curriculums including science,



math, music, art, geography, geology, language arts, and physical education. The space is connected by the accessible "circuit walk" that weaves between class spaces and provides opportunity for both learning and physical activity.

**Buffalo Public School 90 Courtyard**  
Buffalo, New York  
Joy Kuebler Landscape Architect, PC  
0.52 Ac.





# CHILD DEVELOPMENT



"I have to take a bath, fly a plane, and eat a coconut to get rid of these!"

"There's a little man inside of me, and when he giggles it starts."

-Children explaining their hiccups



“Things, we as adults know to be dead,  
such as unfeeling objects...children  
know to be *LIVING AND FEELING* beings”

It is difficult to successfully design for a little understood user group, especially when there are very "adult" stigmas associated with the design profession. Children are attracted to spaces that do not seem designed; therefore, this poses a difficult situation for a profession that is associated with designating form and space. Designers must understand the psychology behind the way children grow and develop, and with that knowledge they can aid in the design of fulfilling successful spaces. Children are concerned with activity within a space; therefore, it is important to incorporate elements that promote play and activity which can be translated to young children.

A large portion of a child's activity stems from their play behavior. Child development has shown that play is associated with an increase in imagination, and with imagination comes creativity and knowledge. Stimulating a child's imaginative thoughts is essential to successful design as they have a very different way of processing thoughts and feelings than an adult. Young children are not able to fully use logical thinking; therefore, their thinking is dominated by their perceptions of physical features. What adults take for granted as "normal cause and effect" appears illogical to children, and in order for their minds to bridge the gap in these situations they employ a cognitive process known as associative [or sometimes referred to magical] thinking. This type of thinking is an important aspect in childhood development and can be stimulated through objects known as "pivot tools". Pivot tools can be anything children use to create their own imaginary world, "magic landscapes can be little hidden nooks, gardens with flowering shrubs and plants where the fairies dance, caves and dens where the invisible people live" [Hendricks]. In congruence with using pivot tools, children are attracted to the elements of the earth [fire, water, soils, etc.], thus they need to be immersed into these elements of nature at a young age to stimulate their socialization with their natural surroundings.

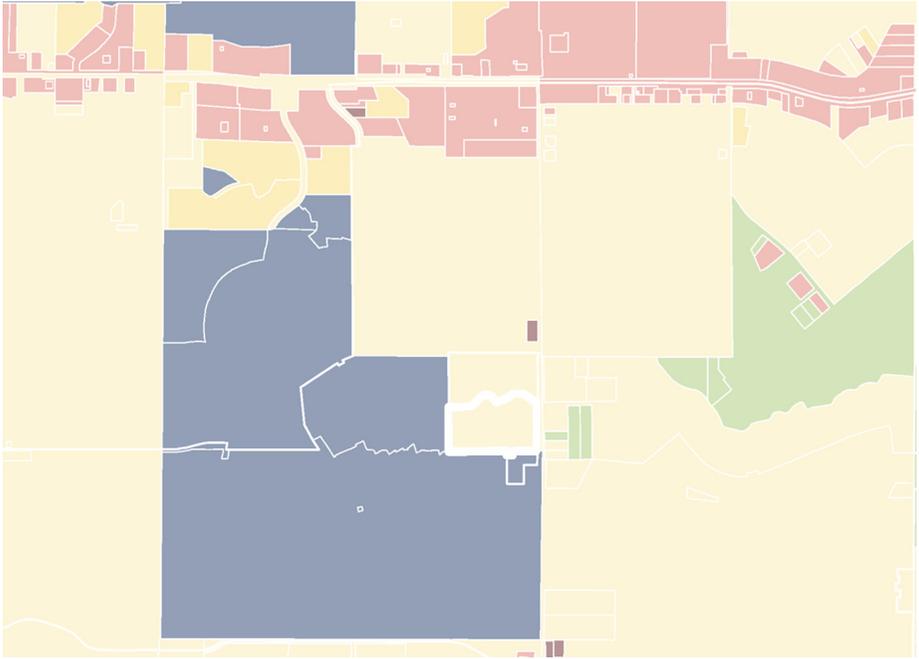
Successful children's design should be a delicate mix of manufactured elements as well as natural form. Designs should contain a multitude of sub spaces where children can conduct various activities, rather than being limited to only structures or recreational fields. Playgrounds are seen as places to learn how to be social humans and allow children the opportunity for role-play. "The advantage of playing is that you can test out actions and emotions that would be too dangerous to act out in real life" [Hendricks]. Children must experience situations with fellow children, adults, teachers, nature, etc. in play and recreational environments so that they can learn from those experiences when they enter adult environments.



# SITE ANALYSIS

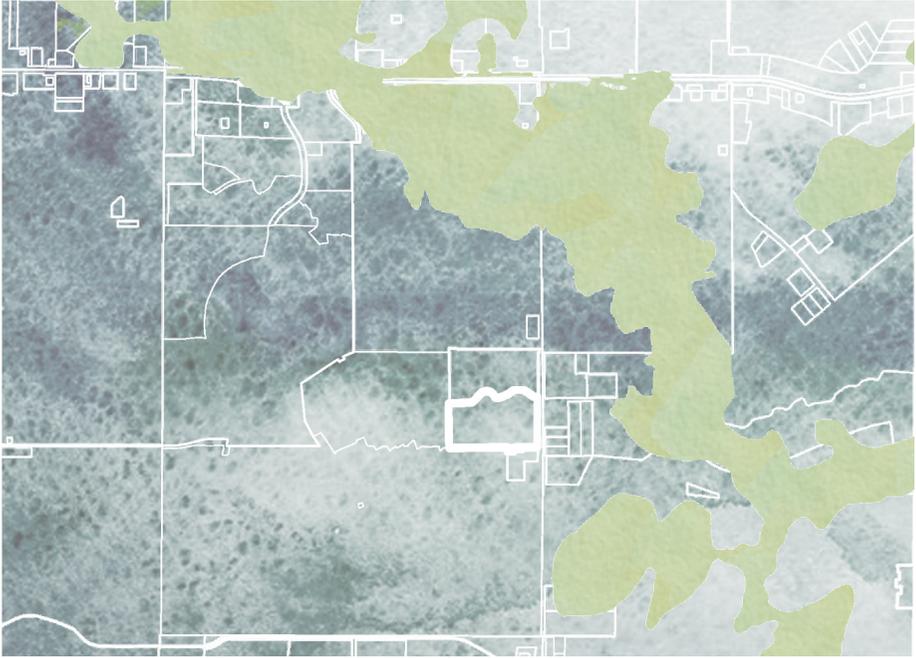
land use  
flood zone  
hydrology  
slope  
soils





Land Use Map

- Agricultural
- Agricultural Residential
- Commerical
- Residential  
Multifamily Dwellings
- Residential  
Single Family Detached Dwellings
- Planned Unit Development  
Single Family Detached Dwellings
- Professional Office



### Flood Zone Map

-  Zone AE: High Risk Area  
Areas subject to inundation by the 1-percent-annual-chance flood event.
-  Zone X: Moderate Risk Area  
Moderate risk areas within the 0.2-percent-annual-chance floodplain in the 0.2-percent-annual-chance floodplain.



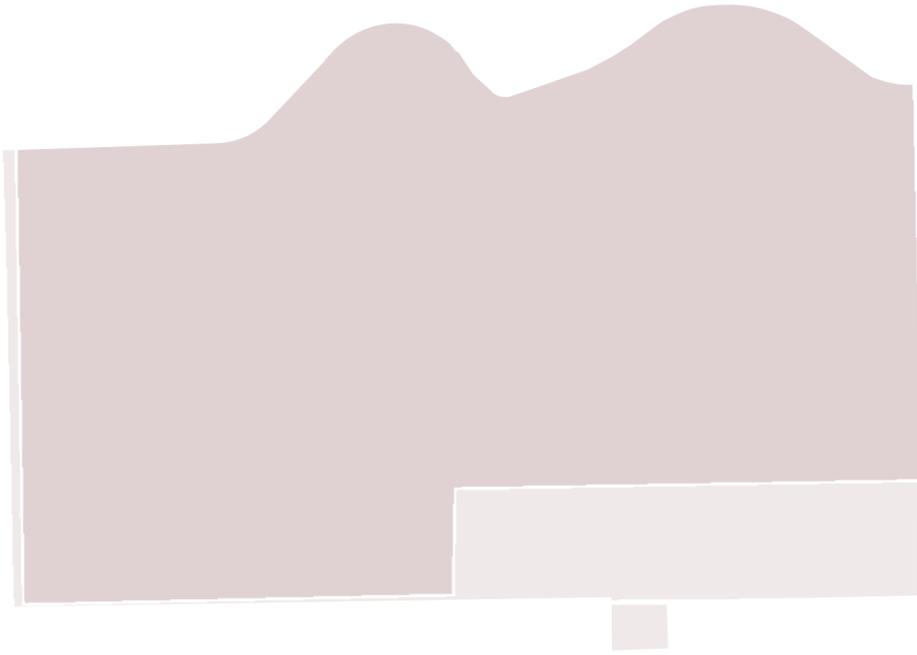
Hydrology

-  2ft contours
-  runoff direction



Slope

- 20% or more
- 10% - 20%
- 5% - 10%
- 5% or less



### Soils

- Quartzipsamments: Sandy Freely Drained
- Candler Fine Sand: Sandy Excessively Drained

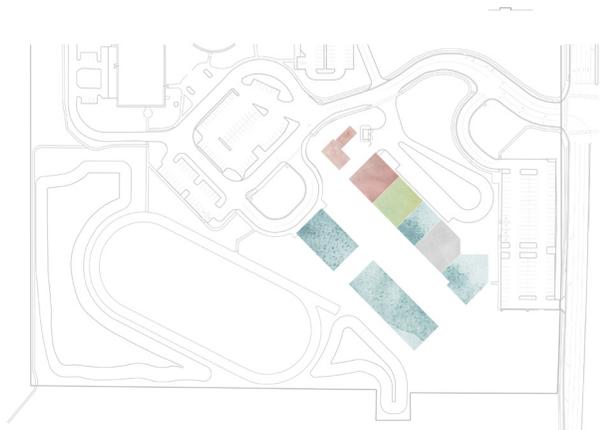


# STRUCTURE ANALYSIS

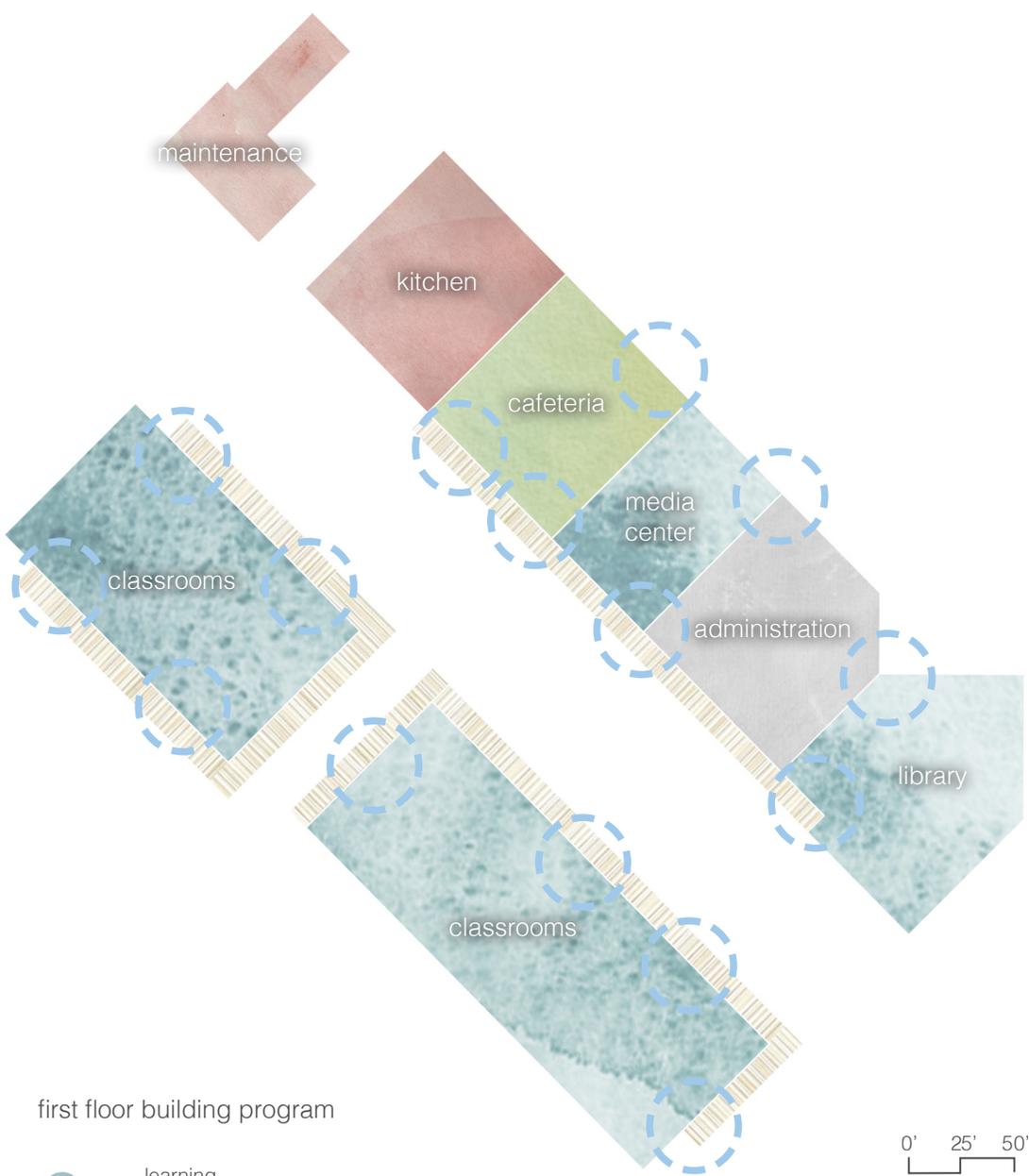
program  
elevations  
shadow study







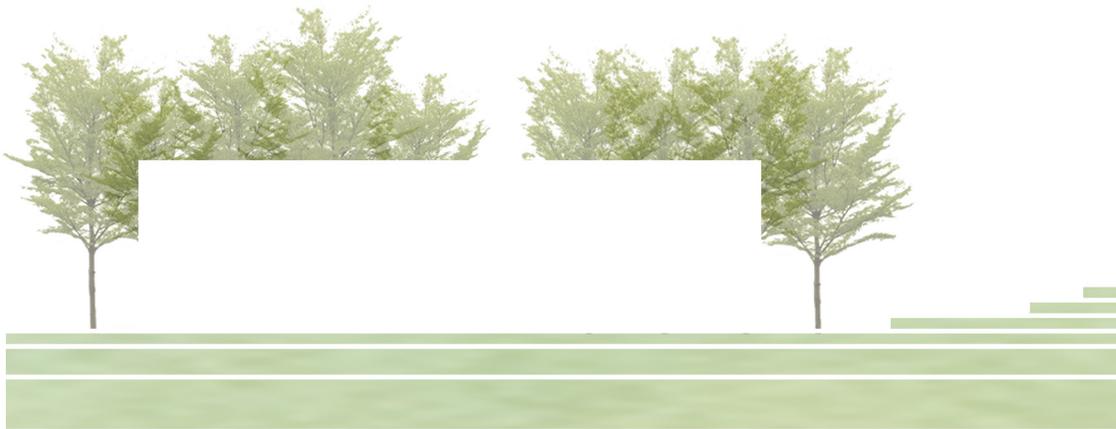
The proposed buildings have a variety of uses. The main building to the east includes the main entrance to the school as well as a cafeteria, media center, library, and office administration. The two buildings to the southwest house two levels of indoor classrooms.



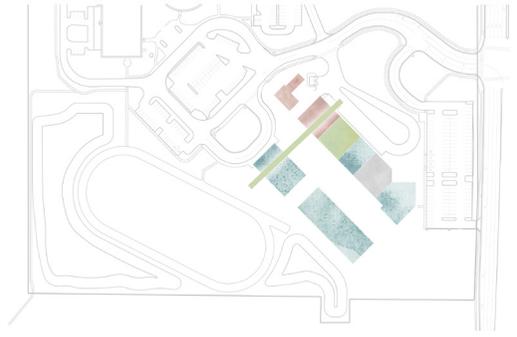
first floor building program

- learning
- social
- administration
- maintenance
- student access points



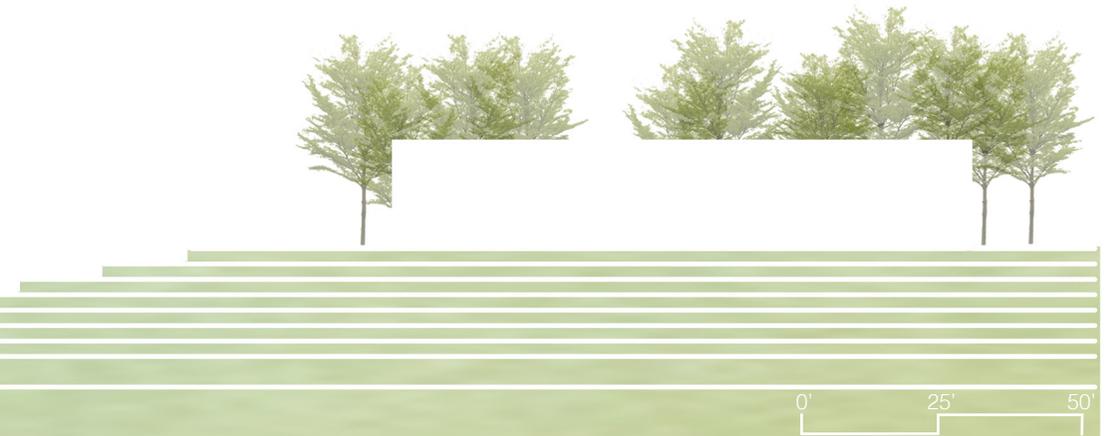


two story classroom building



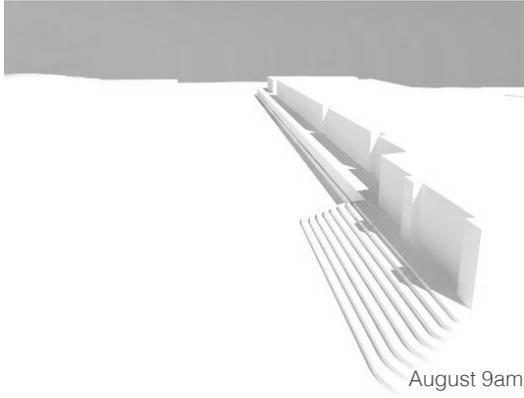
A large elevation change takes place between the two proposed building footprints. The above section illustrates the placements of the buildings at existing elevation levels.

## buildings & topography

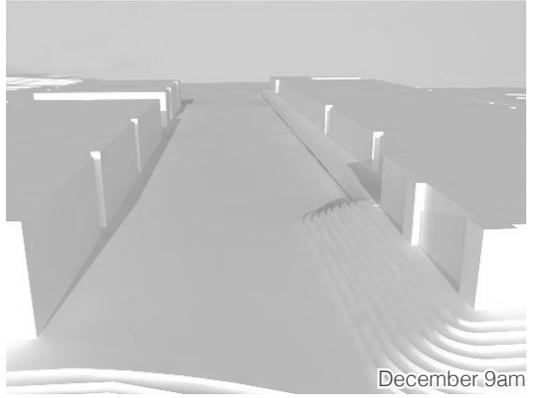


existing topography  
dividing buildings

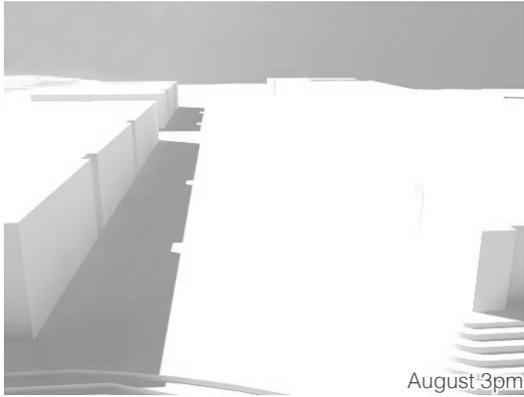
one story multipurpose building  
and school's main entrance



August 9am



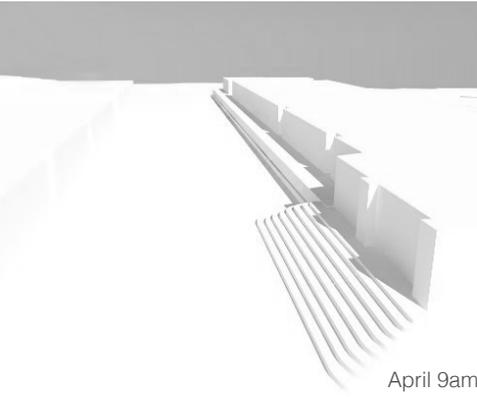
December 9am



August 3pm



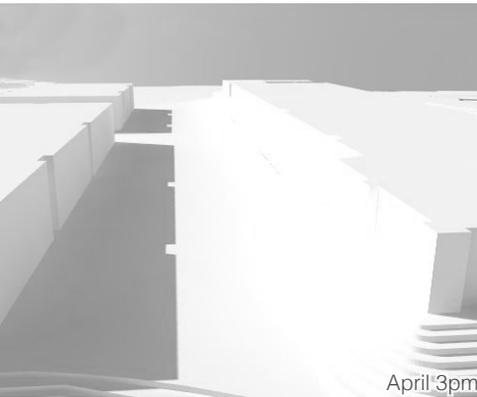
December 3pm



April 9am

## shadow study

With no existing vegetation retained on the site, the shadow study focused on the proposed building footprints. Shadow study was conducted during the two times of day students are most likely to be outdoors [the beginning of school and end of school] and during three various points within the school year [August, December and April]. The following perspectives face north and analyze the courtyard between the two buildings.



April 3pm

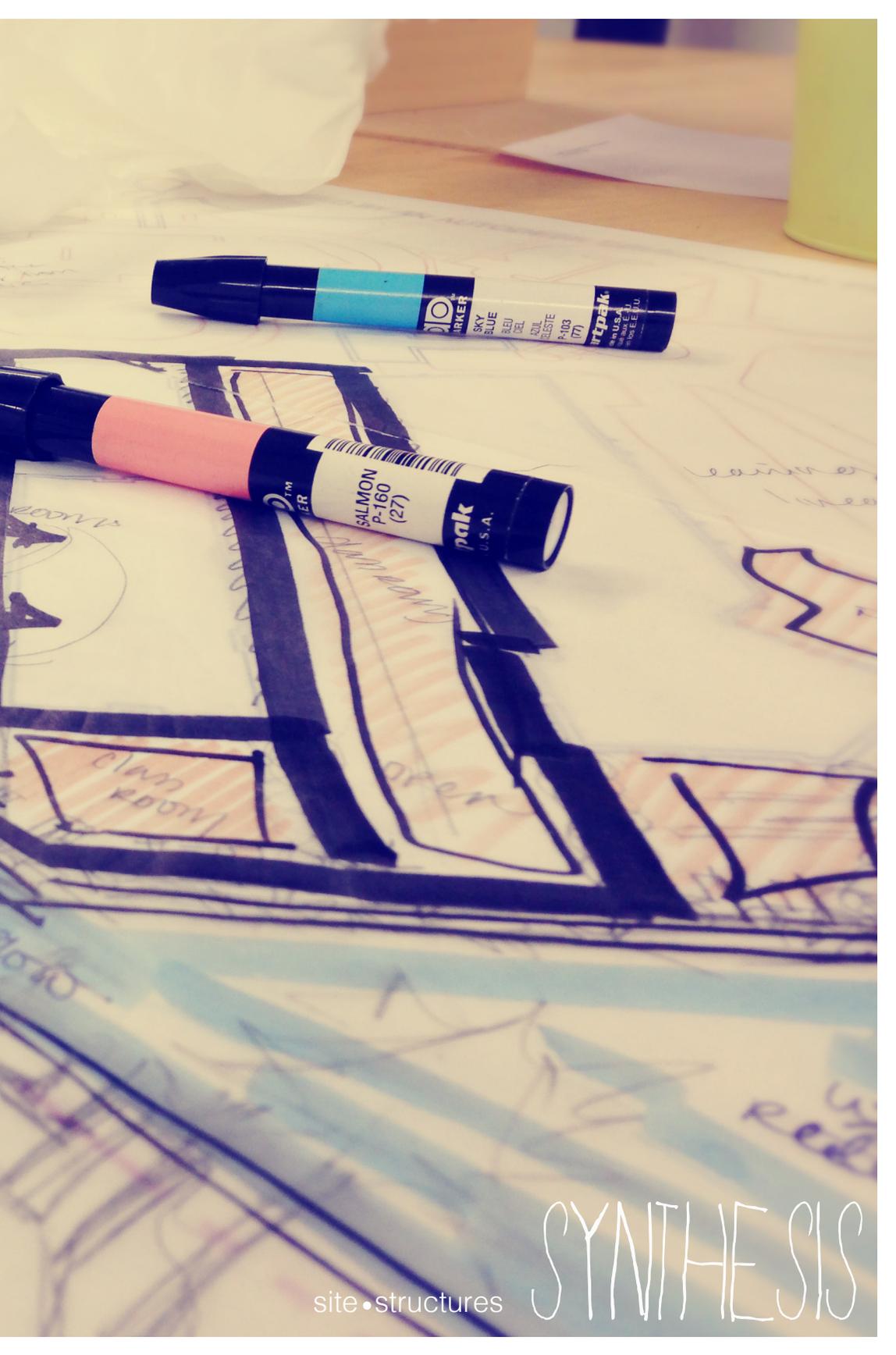


MARKER  
OLIVE  
P-31  
(139)  
P-31  
(139)  
P-31  
(139)

Handwritten notes and labels on the drawing, including "Road", "Water", and "Building".

BRUNNEN

Water over



MARKER SKY BLUE  
BLEU CIEL  
AZUL CIELO  
P-103 (7)  
itpak  
MADE IN U.S.A.

MARKER SALMON P-160 (27)  
itpak U.S.A.

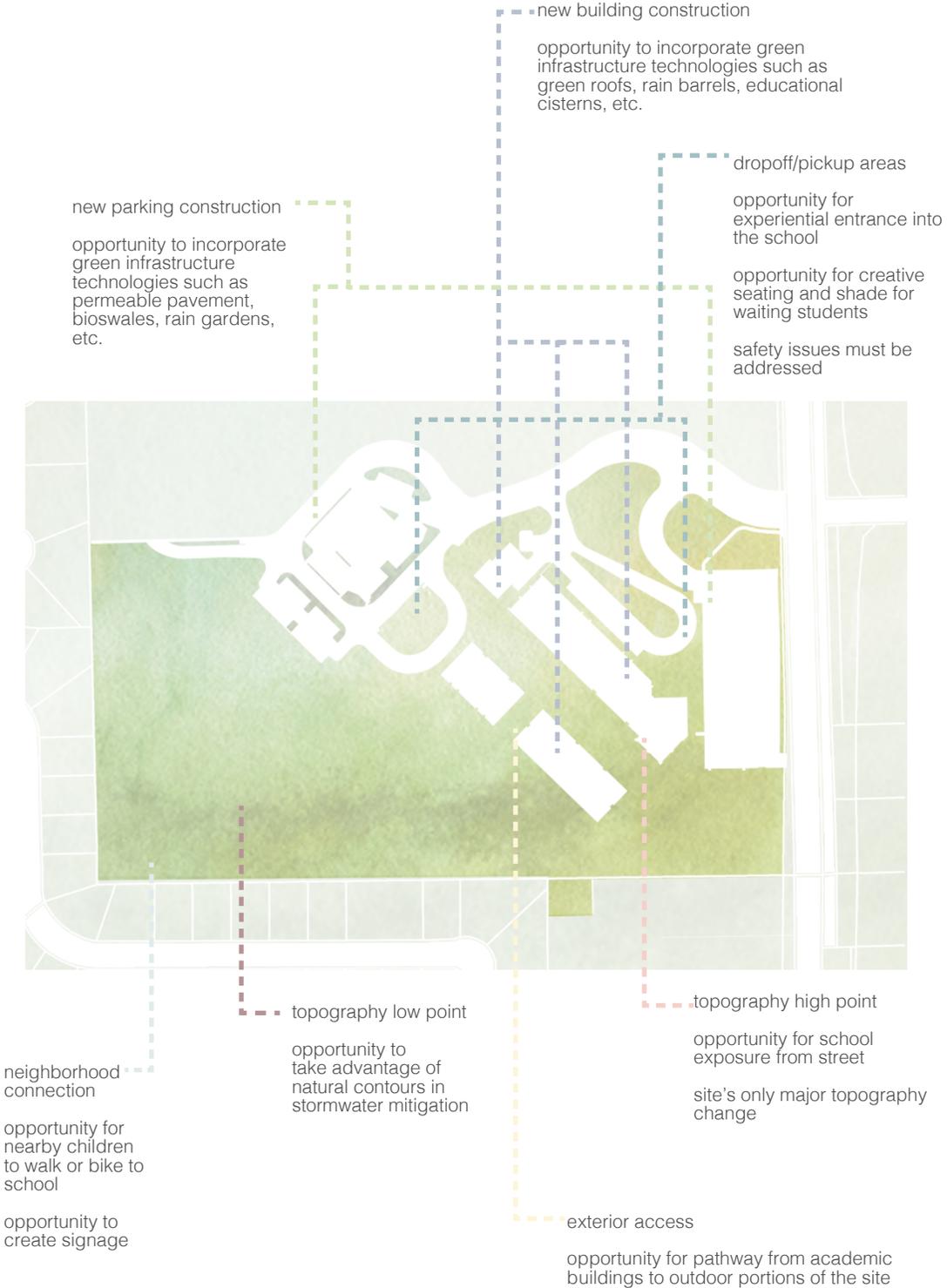
class room

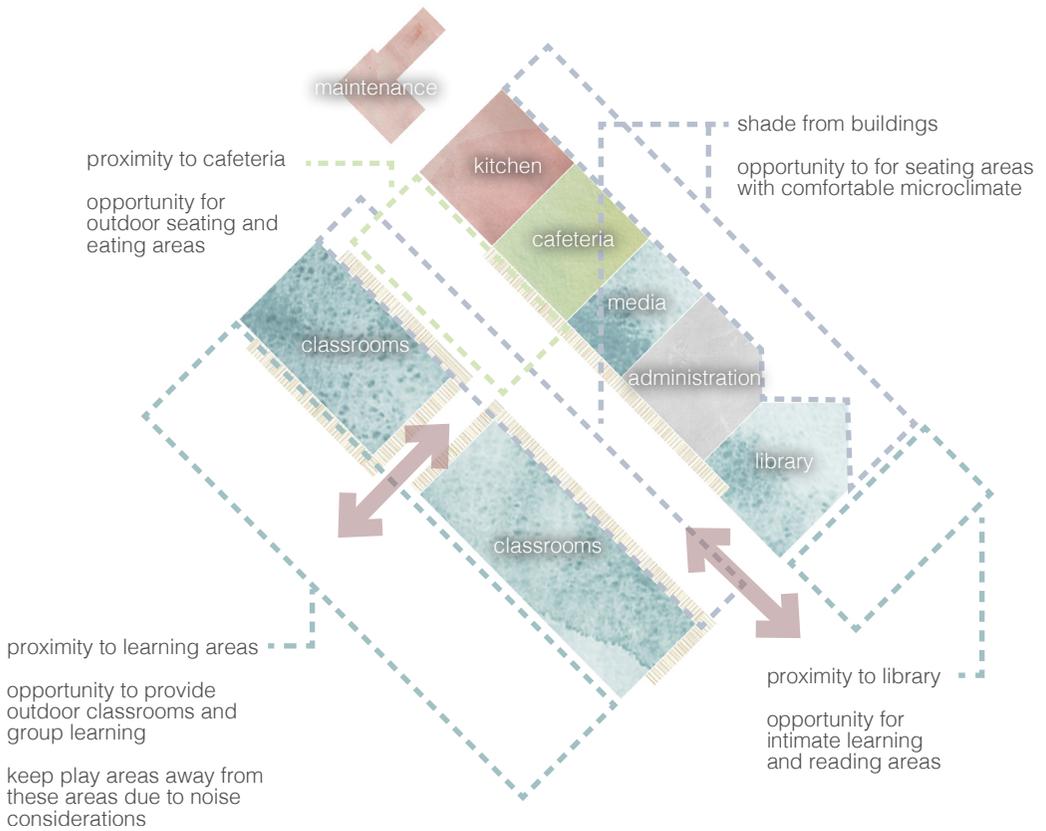
green

SYNTHESIS

site • structures

site synthesis





building synthesis



play extensive  
education extensive  
stormwater extensive

# CONCEPTS



# PLAY EXTENSIVE CONCEPT





## PROS

- lots of areas for different types of play: structured, topography changes, etc.
- stormwater retention buffers play and learning areas from parking vehicular circulation areas

## CONS

- some stormwater must be moved offsite to adjacent middle school
- educational areas are kept exclusively close to the buildings

The first concept explores the project's first goal, play, to its full extent. The circulation patterns and stormwater pond remain in a more natural shape, emphasizing the playful-ness of the design. Educational areas are specified solely around building structures while the remainder of the site is focused towards play areas and stormwater mitigation. This concept allows for a multitude of play spaces including structured and natural play. The shape of the stormwater pond buffers classrooms and outdoor learning areas from the play areas to the west.





## PROS

- educational forest provides students with a naturalistic setting within a developed environment
- stormwater retention acts as a buffer from parking and driveways
- stormwater barrier walls and seat walls provide opportunity

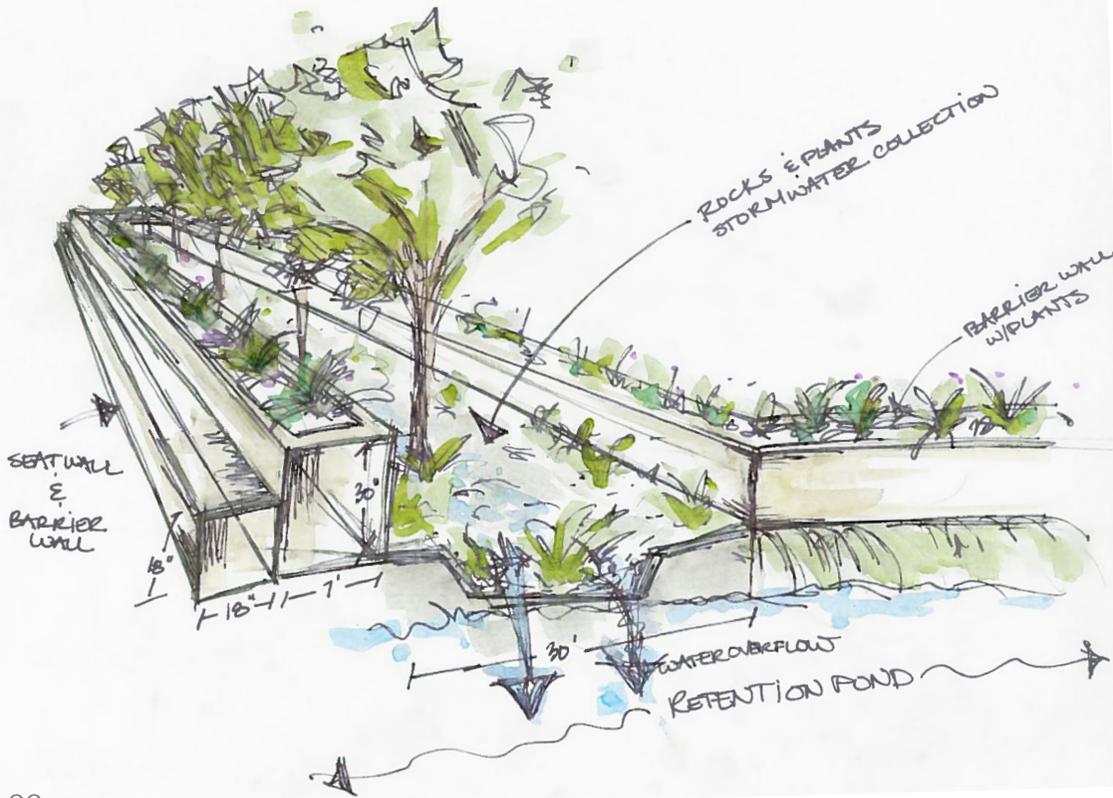
## CONS

- some stormwater must be moved offsite to adjacent middle school
- possible safety concern with retaining walls and seatwalls around retention areas
- possible safety concern regarding seclusion of educational forest



# EDUCATION EXTENSIVE CONCEPT





The second concept explores the project's second goal, education, more fully. The circulation patterns that dictate this design are more linear than the previous concept and instead allow exploration within the subspaces. The stormwater ponds in this design are also more linear and are held with retaining walls rather than through natural form. These retaining walls allow for observation into the space, but do not incorporate any other experiential learning in regards to stormwater. The walls surrounding stormwater areas additionally provide seating and intimate spaces for individual learning or reading. Play areas are delineated, but much less of total site area is dedicated towards this. Additionally, there is an educational forest which provides the children with an experiential, yet safe interaction with the natural world. Stepping from these linear, paved paths, the children enter into winding trails within the forest. A wood deck sits adjacent to the forest allowing for group demonstrations and learnings that parallel their forest experiences.

# STORMWATER EXTENSIVE CONCEPT





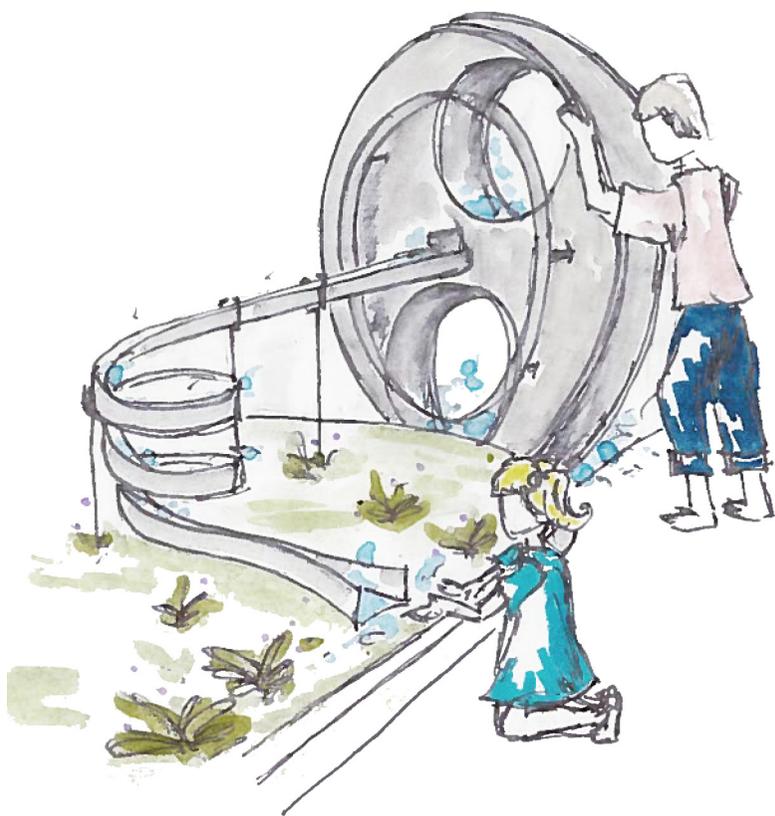
## PROS

- keeps all stormwater onsite
- slope of retention reduced
- no fence/wall needed to surround retention
- allows learning opportunities within retention areas
- follows original stormwater pond dimensions [with additions]

## CONS

- allots less room for other program elements
- retention separates school from surrounding neighborhood
- learning/play elements not as well buffered from parking and roadway areas

The final concept explores the project's final goal, stormwater interaction, most extensively. This concept stays most true to the original footprint of stormwater retention proposed by Williamson Dacar Associates. This concept holds the most runoff of any of the concepts, with the single pond surrounding the southern and western borders of the site entirely. This design allows for optimal interaction with stormwater ponds and it provides opportunity for a series of boardwalks within the ponds. Because this design delineates the most square footage for stormwater management, there is not as much available space for play and educational spaces as the previous concepts.



WATER PLAY  
WHEEL



NATURAL FLORIDA  
LIMESTONE?

# CONCEPT EVALUATION

Evaluation of the concepts led to the realization that while all separate goals were important, many of the proposed spaces allowed for overlapping of the various goals. For instance, stormwater management areas still would provide educational opportunity just as an educational demonstration area could act as a play stage for children to act out their fantasies. Upon this realization, the final master plan for Schrader Elementary School combined elements of all three concepts to achieve the desired design goals.



**Amphitheatre**

Seating/stage for drama plays, demonstrations, and events.

**Student Gardens**

Individual gardening plots for the different grades to grow their own plants.

**High Canopy Forest**

Educational forest for individual exploration as well as group demonstration on central deck.

**Embankment Slides**

Embankment slides and sand pit with complementary steps and accessible ramps.

**Viking's Den**

Exploratory earth mounds and paths revealing hidden adventurers.

**Submerged Play Area**

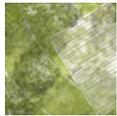
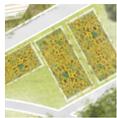
Play structure area within a man-made depression with overlook for teachers and other students.

**Wind Sticks**

Field of bendable sticks that move with the wind and produce various shadow patterns.

**Stepped Planting Beds**

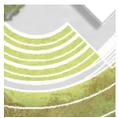
Educational stepped planters illustrating green infrastructure technologies.





# MASTER PLAN

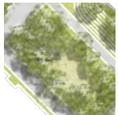
The final master plan for Schrader Elementary School incorporates pieces of all three concepts. Instead of delineating areas as "play", "educational", or "stormwater" areas, subspaces were created [and in many instances, they fulfilled two or all three of the desired goals]. The proposed subspaces are highlighted below:



**Observational Seating**  
Amphitheatre-type seating overlooking retention area.



**Retention Pond Overlook**  
Educational deck overlooking wet areas of retention pond housing local flora and fauna.



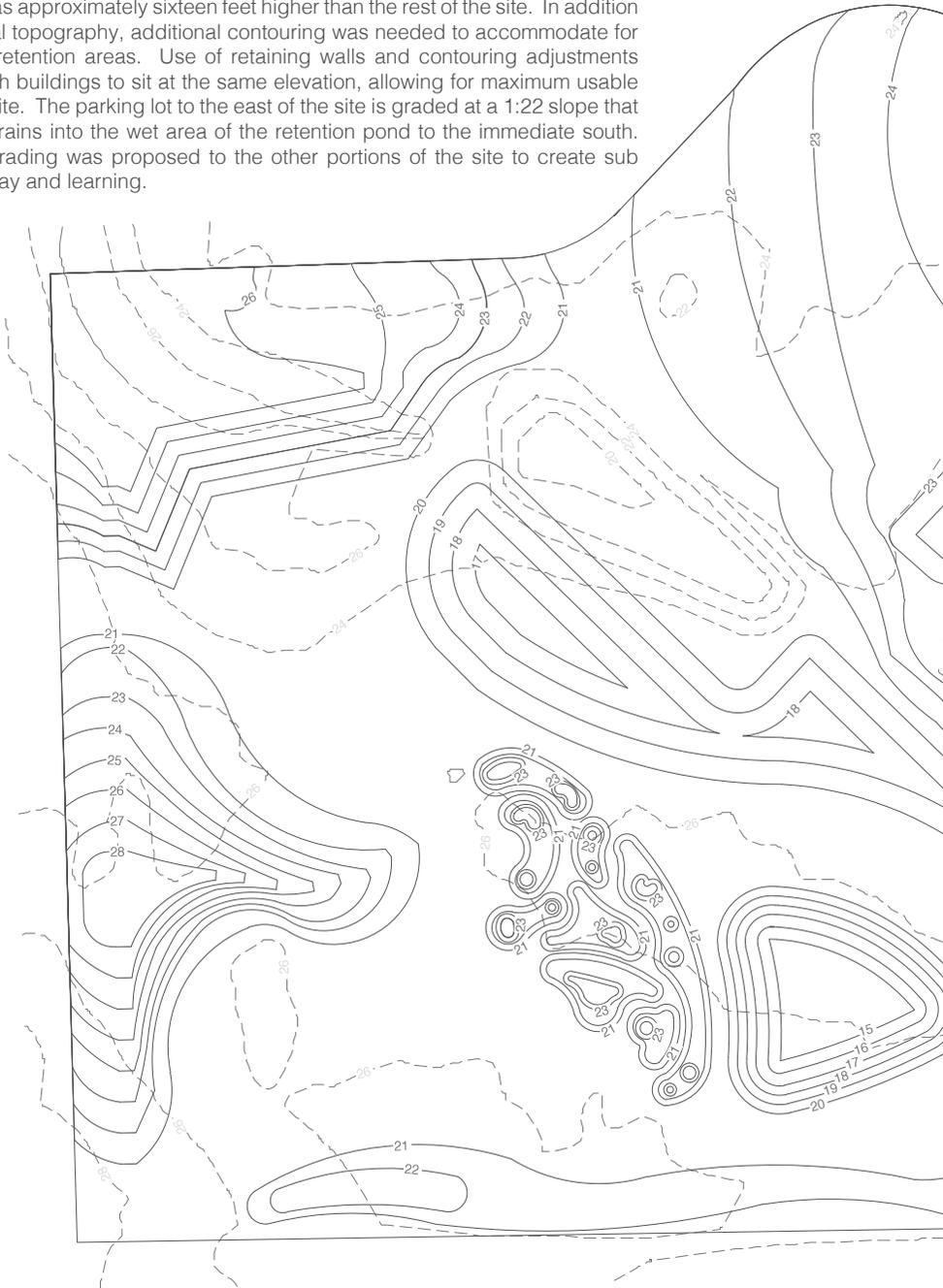
**Outdoor Classrooms**  
Intimate spaces between structures with accomodating planting privacy and seating for outdoor learning.



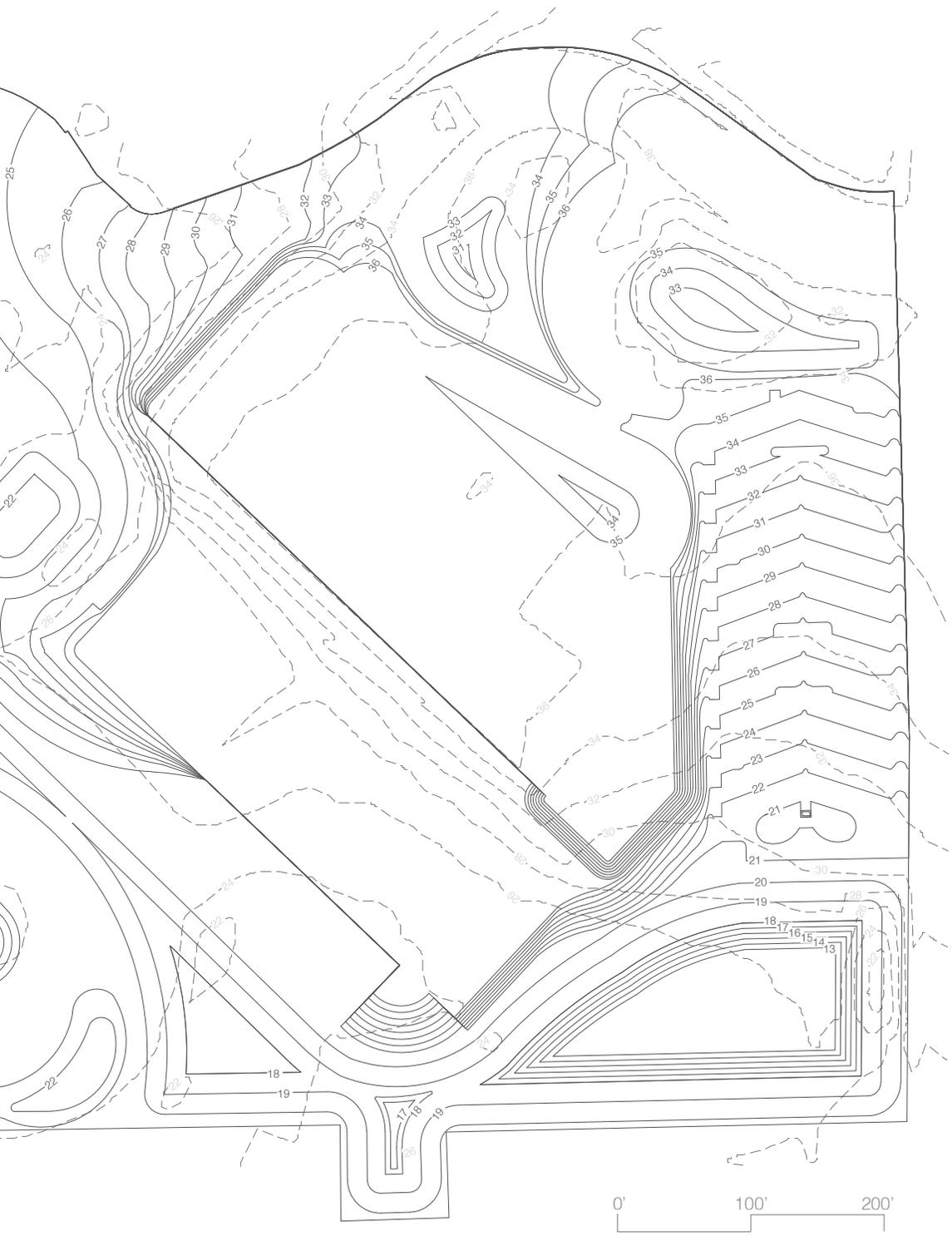
**Drop Off/Pick Up Area**  
Comfortable microclimate drop off/pick up area for both private automobile and school bus circulation.

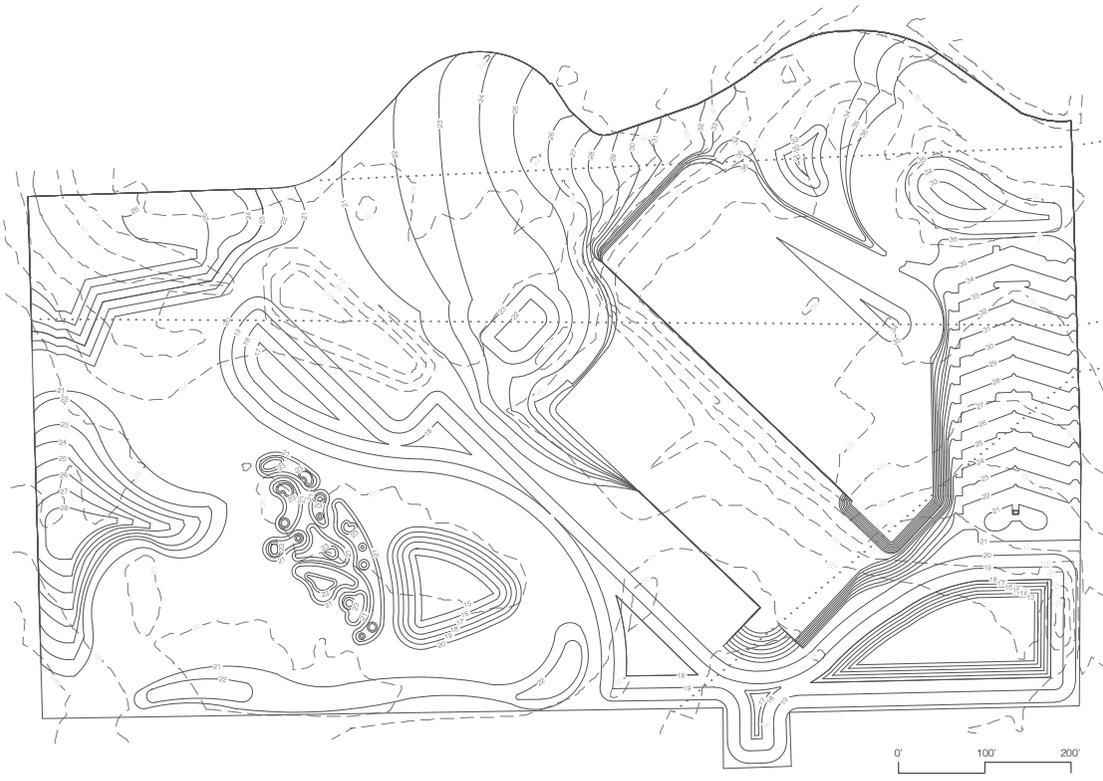
# GRADING PLAN

The grading of the site was especially challenging. Although only miles from the Gulf of Mexico, the site sat on a relatively drastic elevation change: the northeast corner of the site was approximately sixteen feet higher than the rest of the site. In addition to the natural topography, additional contouring was needed to accommodate for stormwater retention areas. Use of retaining walls and contouring adjustments allow for both buildings to sit at the same elevation, allowing for maximum usable area of the site. The parking lot to the east of the site is graded at a 1:22 slope that eventually drains into the wet area of the retention pond to the immediate south. Additional grading was proposed to the other portions of the site to create sub spaces of play and learning.

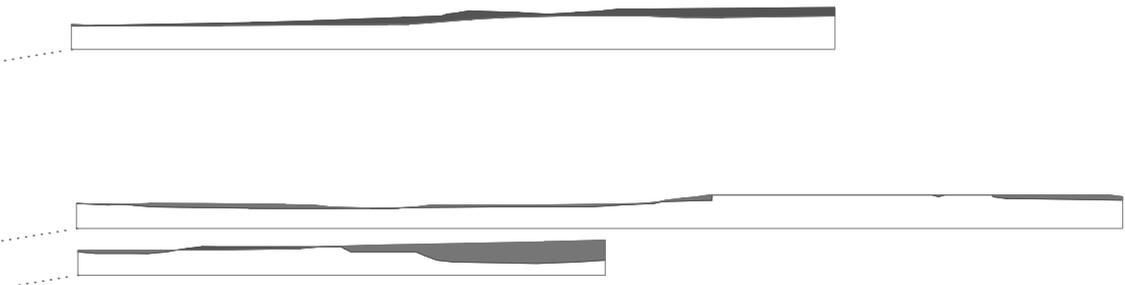


- proposed contours
- - - - - existing contours

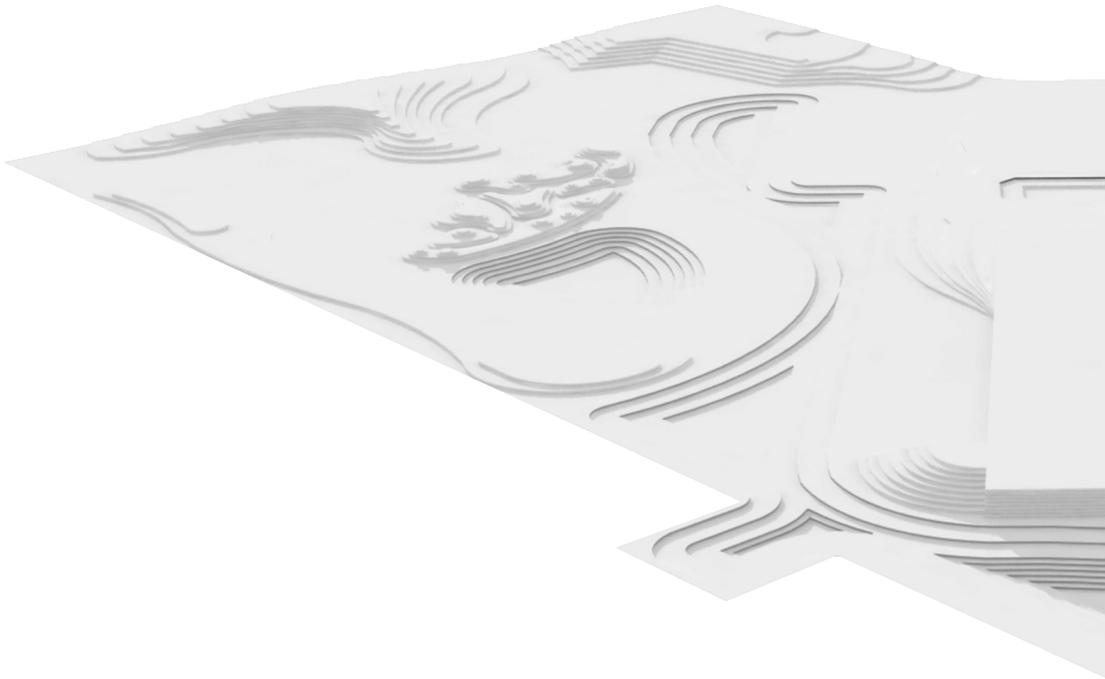




cut/fill

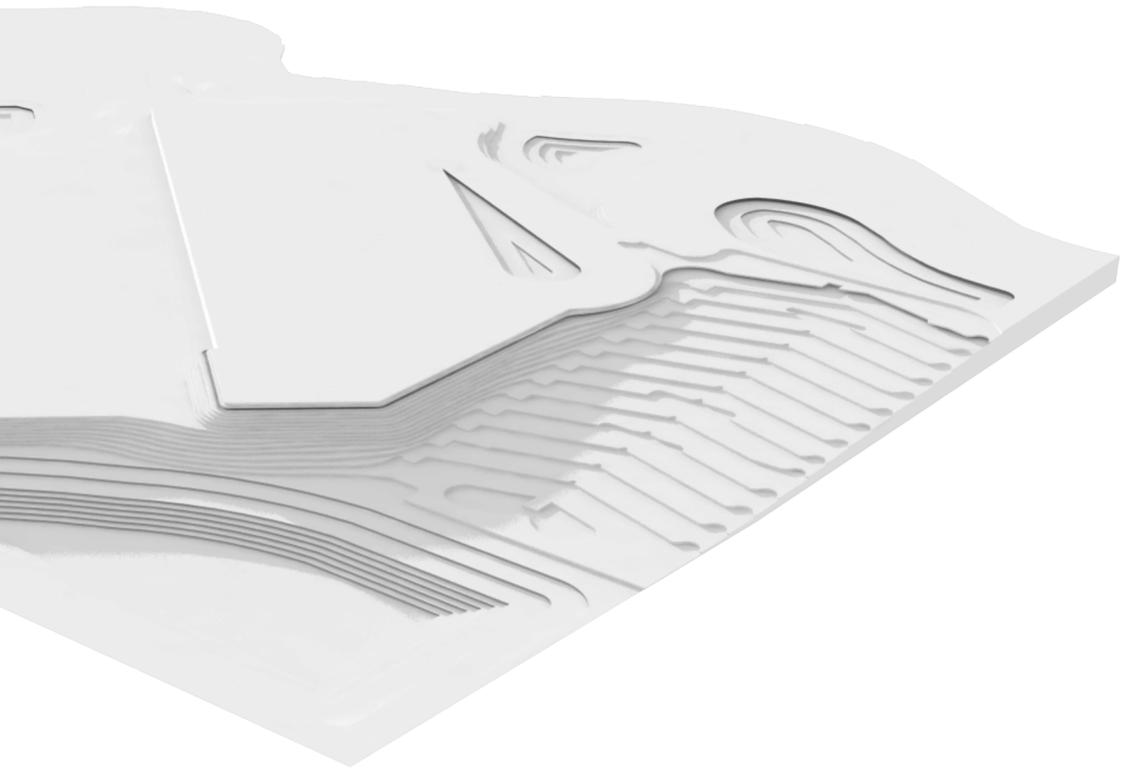


- proposed contours
- - - - - existing contours
- ..... section cuts



# MODELING

Plan view and southeastern isometric perspective of final grading plan for site.



# PLANTING PROPOSAL

*Myrica cerifera*: Wax Myrtle

*Muhlenbergia capillaris*: Muhly Grass

*Spartina bakeri*: Sand Cordgrass

*Juncus effusus*: Soft Rush



## Stormwater Pond Plant Palette

*Sabal palmetto*: Cabbage Palm

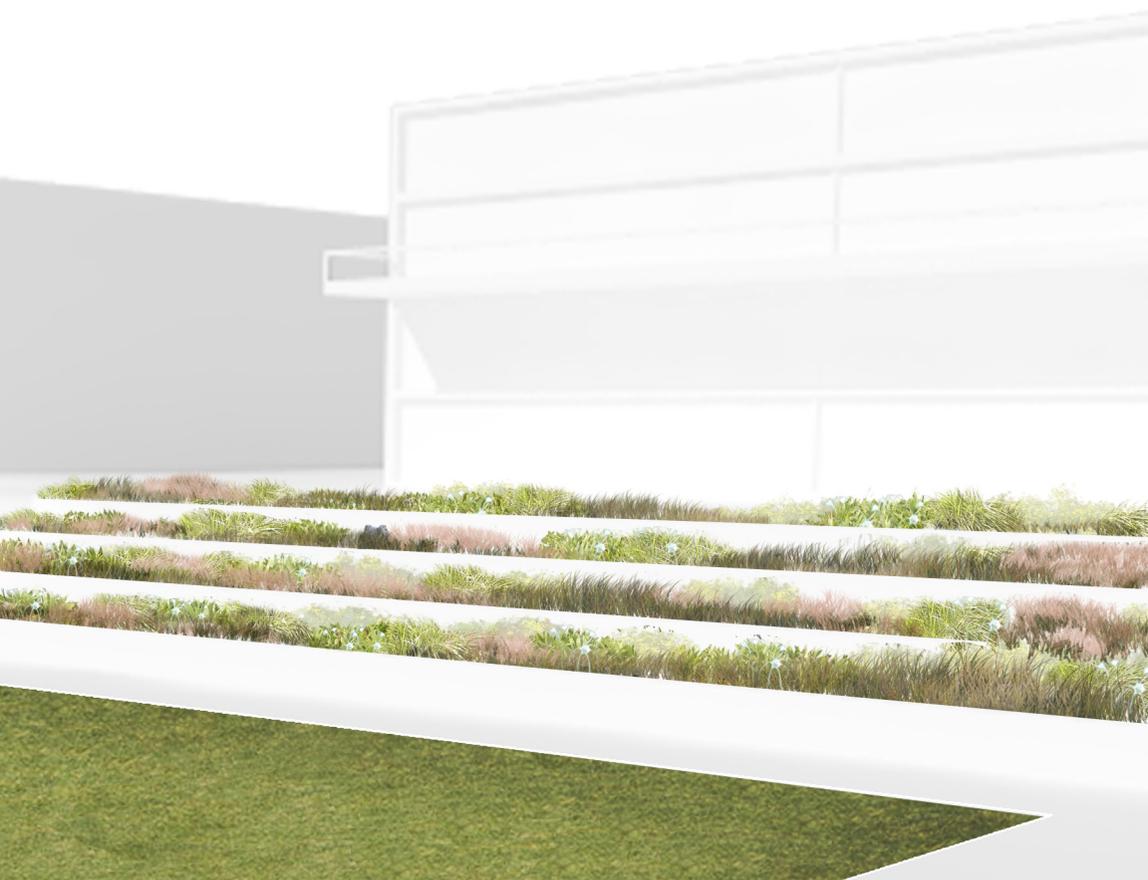
*Pinus elliottii*: Slash Pine

*Gordonia lasianthus*: Loblolly Bay





## Stepped Rain Garden Plant Palette



- Muhlenbergia capillaris*: Muhly Grass
- Paspalum floridanum*: Florida Paspalum
- Tripsacum floridanum*: Dwarf Fakahatchee
- Hymenocallis palmeri*: Spider Lily
- Coreopsis leavenworthii*: Common Tickseed

# GREEN INFRASTRUCTURE IMPLEMENTATION

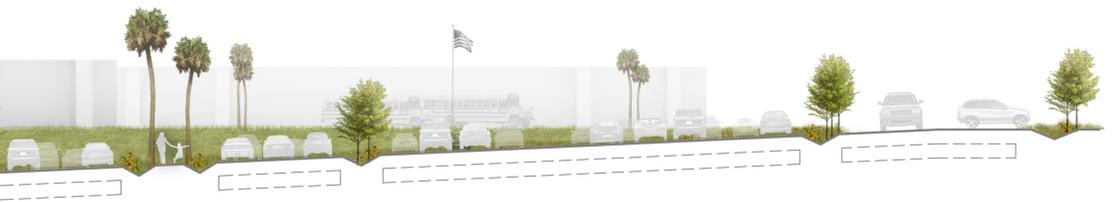


**Stormwater Pond**  
Pond holds approximately 388,898 cubic feet of stormwater and is at a 4:1 ratio at its steepest. Pond will detain the majority of stormwater capture and will hold water throughout most of the year.

**Observation Deck**  
Deck will act as an additional outdoor classroom and will allow safe accessibility to the adjacent stormwater pond.

**Curb Inlet**  
The curb inlet at the base of the parking lot will collect any runoff not diverted through bioswales throughout the parking lot. Once collected through inlet, runoff will be transferred to the nearby stormwater pond per underground pipe.

**Sub Surface Infiltration/ Exfiltration Systems**  
Below ground infiltration/ exfiltration systems work congruently with pervious paving to allow for a more controlled capture and discharge of stormwater. These systems especially help to retain the first flush of runoff and provide a purer groundwater recharge. Storing the system underground provides the additional benefit of reducing land required for stormwater mitigation.



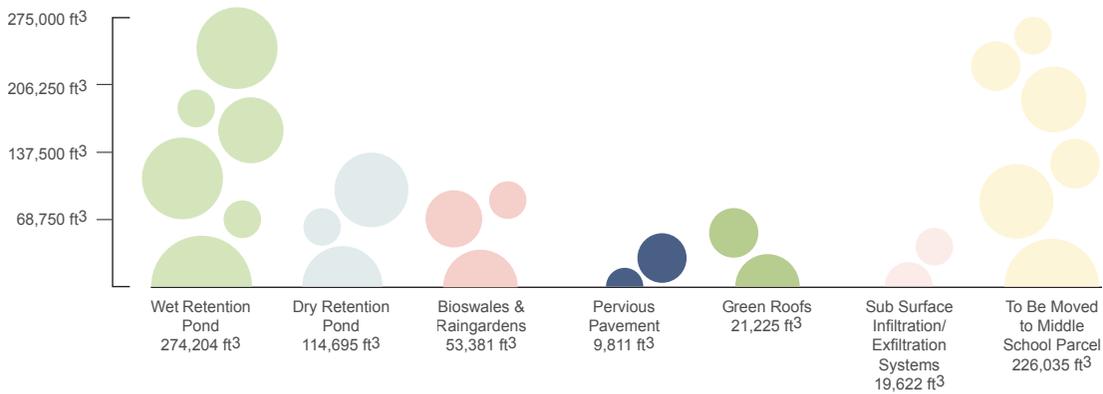
**Pedestrian Walk**  
 Pedestrian walk within the 117 space parking lot provides a safe entrance into the school rather than walking through a complete automobile environment.

**Parking Bay Islands**  
 Parking islands meet Pasco County land development regulations, which require an 8 foot bay every 10 stalls. Each island also incorporates a planted bioswale to slow runoff before it reaches the downhill stormwater pond.

**Pervious Pavement**  
 Pervious pavement will be installed for all new parking lots and drives. Assuming a 15% porosity rate, the pervious pavement will be able to capture approximately 9,811 cubic feet of runoff.

Because the existing proposal accommodates stormwater mitigation for both Schrader Elementary School and Bayonet Point Middle School solely within Schrader's boundary lines, there is quite a large holding requirement: 718,973ft<sup>3</sup>. The design aims to capture as much volume as possible before resorting to moving some volumes offsite to adjacent Bayonet Point. To manage current stormwater volumes the following capture technologies [in order of volume capture] will be implemented: wet retention ponds, dry retention ponds, parking bioswales and rain gardens, pervious paving, green roofs on proposed structures, and sub surface infiltration/exfiltration systems. The combinations of these working technologies allow Schrader to capture over half of the proposed holding requirement: holding approximately 492,035ft<sup>3</sup>.<sup>1</sup>

<sup>1</sup> Capture volume calculations assume pervious paving with 15% porosity and 4" depth and green roofs with 4" depth of grass and herb vegetation retaining approximately 71% of initial rainfall.

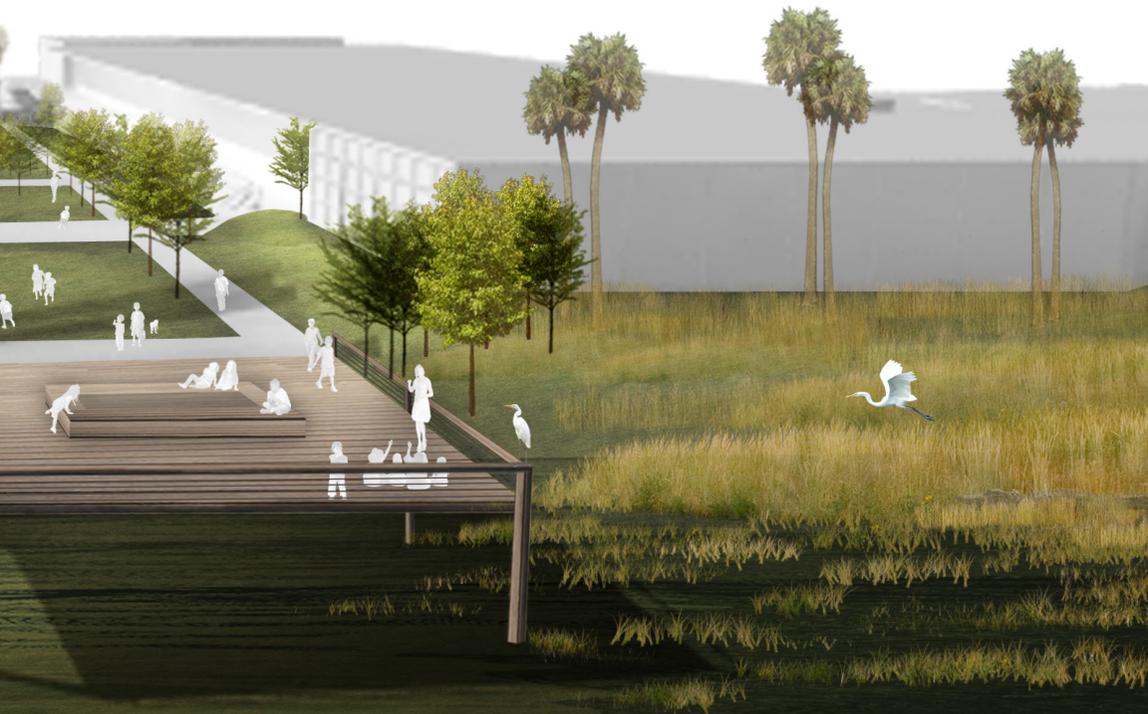




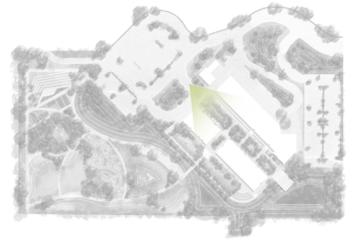
# CHARACTER



Perspective facing north. Shows view of wet retention area, educational observation deck, and courtyard between building structures.







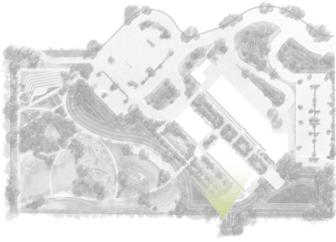
Perspective facing south. Shows courtyard between structures. These areas provide group seating and gathering opportunities for both students and faculty.





Perspective facing outdoors. Shows how green infrastructure technologies can continue teaching even when it is not an opportune time to step outside.



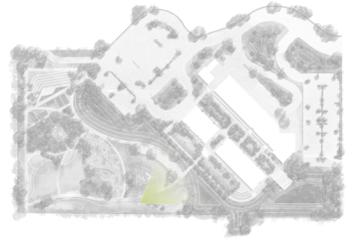


Perspective facing north. Shows observational seating looking onto retention area. Stepped rain garden planters are situation behind seating and provide educational opportunity for students both inside and outside the building.







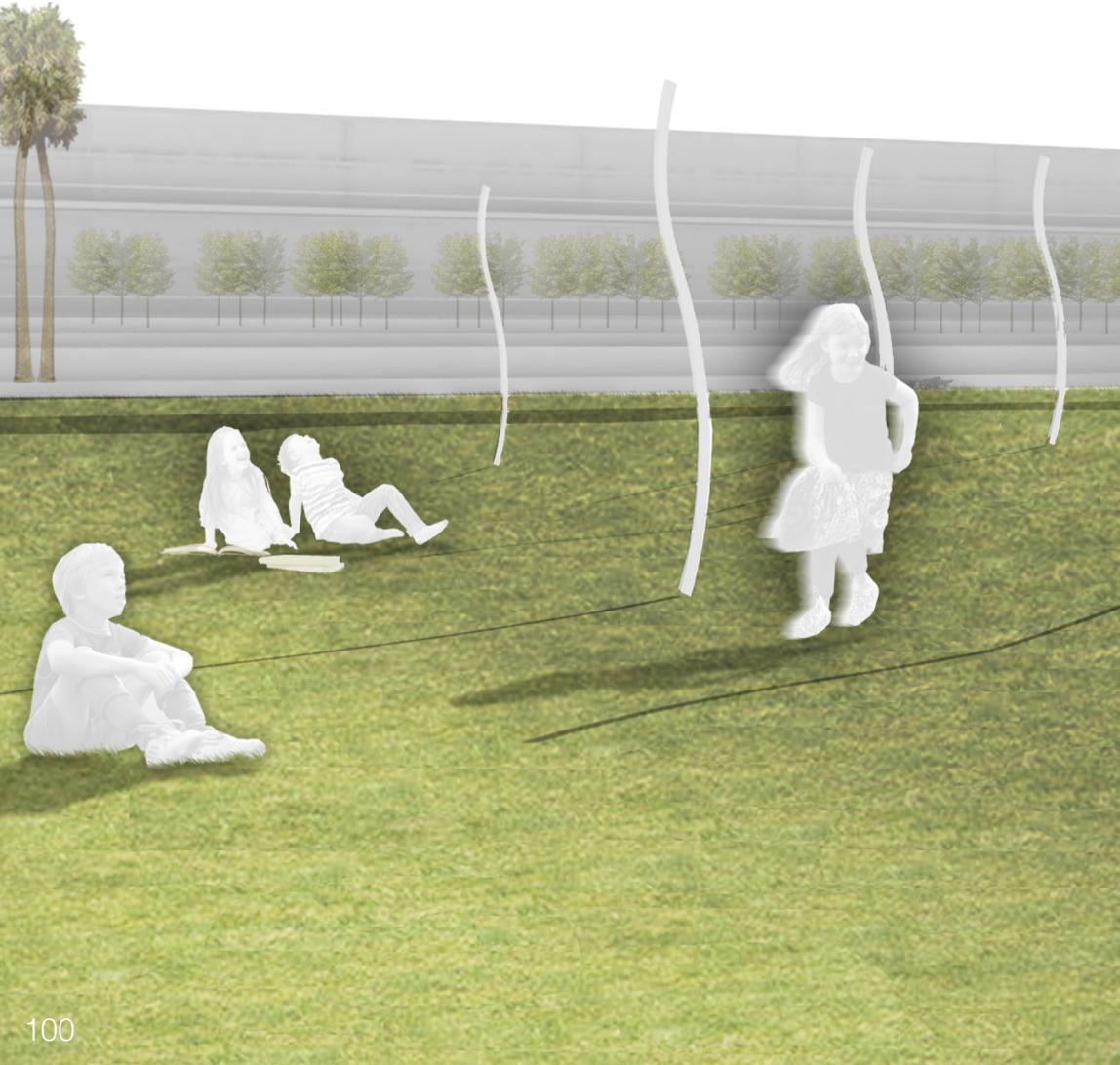


Perspective facing east. Shows bridge area crossing over the drier areas of the retention area and the west end of the site's connection with the building structures.





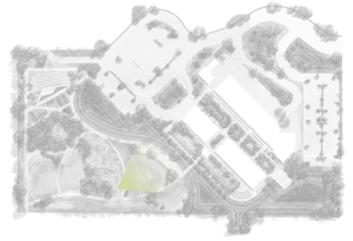
Perspective facing southeast. One example of the use of "pivot tools". These bendable sticks installed into the ground bend and dance as the wind blows while their shadows also grow and move.



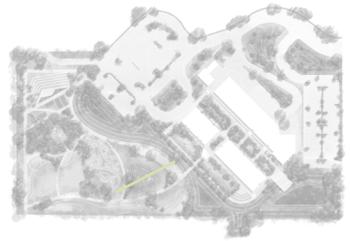




Perspective facing east. Shows sunken play structure playground surrounded by sloped grass area. Also included are concrete mounds for play and imagination as well as shade structure placed on safety overlook.

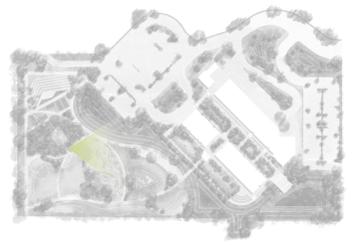






Section facing north. Shows sunken play ground and elevated observation overlook.





Perspective facing east. Shows imaginative grassy play mounds allowing children to stimulate their own ideas of play. Hidden within the mounds are stone Viking statues, speaking to the school's mascot, the Schrader Raiders.

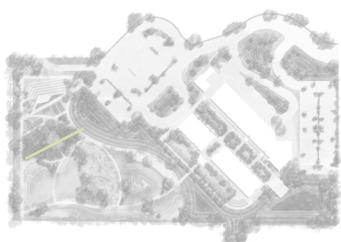




Perspective facing north. Shows embankment slides, steps, and ramps met at ADA standards. Also shown is educational, high-canopy forest allowing for educational opportunity and adventure.







Section facing north. Shows high-canopy educational forest and learning deck for demonstration and teaching activities.

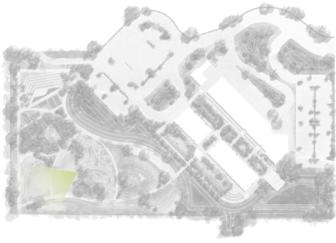




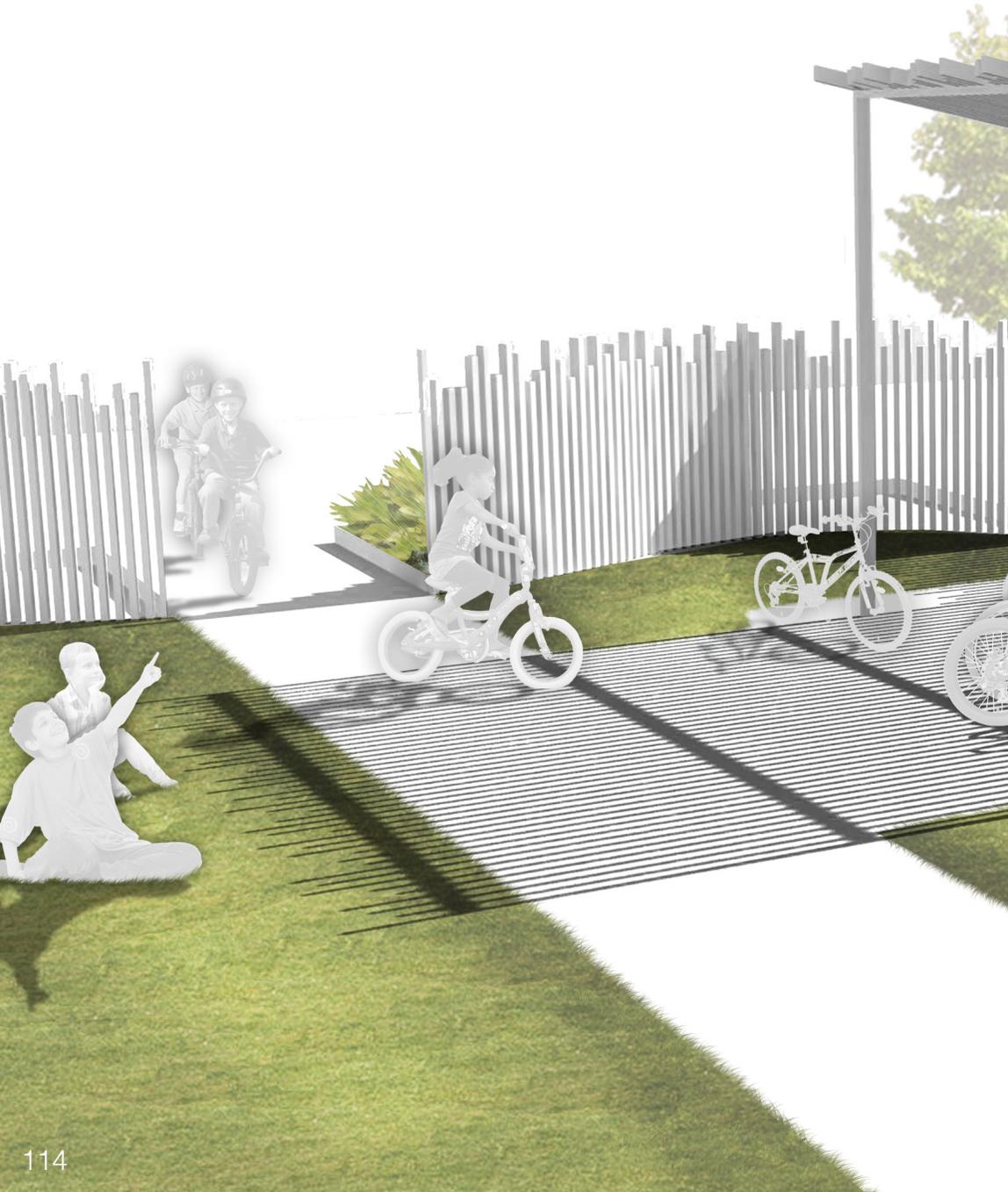


Perspective facing southeast. Shows stepped outdoor amphitheater that can be used for drama plays as well as educational demonstrations. Also shown are class garden plots.





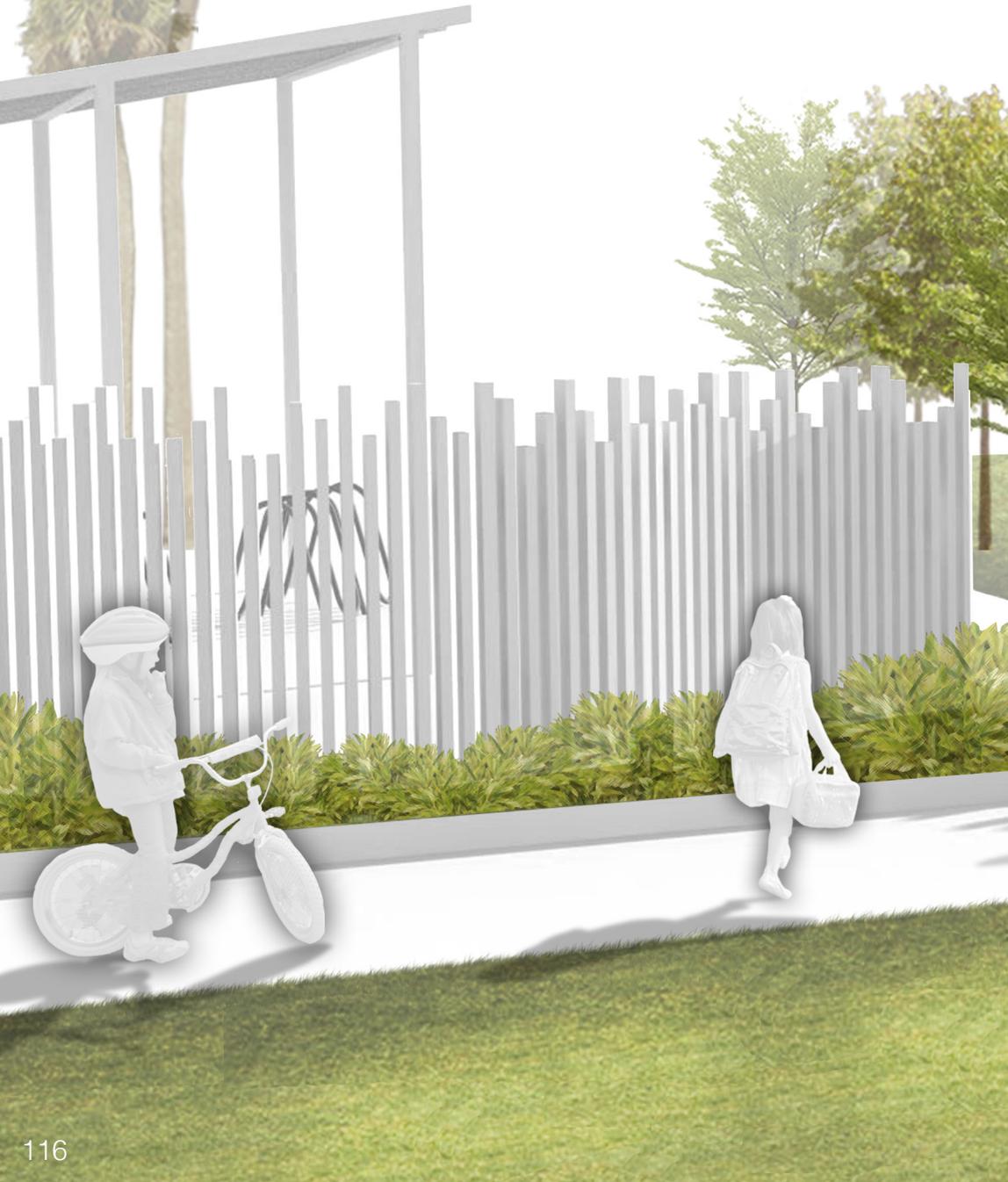
Perspective facing west. Shows connection to adjacent neighborhood in southwest corner of site. Shows creative fencing alternative as well as shaded bike rack design, promoting environmental alternatives for arriving to school.







Perspective facing north. Shows connection with the neighborhood to the southwest of site.





# APPENDIX

## School, District, and State Accountability Report:

Racial/Ethnic Group	Number of Students Enrolled in October		School %		District %		State %	
	Female	Male	2010-11	2009-10	2010-11	2009-10	2010-11	2009-10
WHITE	206	239	79.7	81.9	68.3	71.1	43.2	44.4
BLACK OR AFRICAN AMERICAN	3	3	1.1	1.7	5.6	5.5	22.9	23.0
HISPANIC / LATINO	43	35	14.0	8.3	19.0	16.4	27.9	26.2
ASIAN	3	3	1.1	2.0	2.4	2.4	2.5	2.6
NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER		1	0.2				0.1	
AMERICAN INDIAN OR ALASKA NATIVE		4	0.7	0.5	0.5	0.4	0.4	0.3
TWO OR MORE RACES	10	8	3.2	5.6	4.0	4.2	3.0	3.4
DISABLED	47	61	19.4	21.4	16.1	16.6	13.7	14.1
ECONOMICALLY DISADVANTAGED	200	232	77.4	78.3	51.5	50.1	56.0	53.5
ELL	13	12	4.5	2.8	5.6	5.8	11.7	11.6
MIGRANT					0.1	0.1	0.5	0.5
FEMALE	265		47.5	49.9	48.5	48.4	48.8	48.7
MALE		293	52.5	50.1	51.5	51.6	51.3	51.3
TOTAL		558	100.0	100.0	100.0	100.0	100.0	100.0

Reading Assessment Results (Sunshine State Standards and Alternate Assessments)									
Percent of Students Scoring 3 and Above									
	School %			District %			State %		
	2010-11 Results	State Objective	% Not Tested	2010-11 Results	State Objective	% Not Tested	2010-11 Results	State Objective	% Not Tested
ALL STUDENTS	59	79	0	63	79	1	62	79	2
WHITE	62	79	0	65	79	1	73	79	2
BLACK OR AFRICAN AMERICAN	N	79	N	47	79	1	44	79	2
HISPANIC / LATINO	N	79	0	57	79	0	59	79	2
ASIAN	N	79	N	78	79	0	78	79	1
NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER	N	79	N	N	79	N	N	79	N
AMERICAN INDIAN OR ALASKA NATIVE	N	79	N	56	79	0	61	79	2
TWO OR MORE RACES*	N	79	N	63	79	1	69	79	2
DISABLED	19	79	0	35	79	2	35	79	3
ECONOMICALLY DISADVANTAGED	55	79	0	53	79	1	53	79	2
ELL	N	79	N	38	79	0	42	79	2
MIGRANT*	N	79	N	N	79	2	39	79	3
FEMALE*	60	79	0	66	79	1	65	79	2
MALE*	58	79	0	60	79	1	60	79	2

\* Indicates subgroups not included as separate sub-populations in the Adequate Yearly Progress (AYP) calculation.  
Note: An 'N' indicates that no test results were reported.

Mathematics Assessment Results (Sunshine State Standards and Alternate Assessments)									
Percent of Students Scoring 3 and Above									
	School %			District %			State %		
	2010-11 Results	State Objective	% Not Tested	2010-11 Results	State Objective	% Not Tested	2010-11 Results	State Objective	% Not Tested
ALL STUDENTS	49	80	0	65	80	1	68	80	2
WHITE	53	80	0	67	80	1	78	80	2
BLACK OR AFRICAN AMERICAN	N	80	N	50	80	1	51	80	2
HISPANIC / LATINO	N	80	0	60	80	1	66	80	2
ASIAN	N	80	N	86	80	0	88	80	1
NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER	N	80	N	N	80	N	N	80	0
AMERICAN INDIAN OR ALASKA NATIVE	N	80	N	58	80	1	68	80	2
TWO OR MORE RACES*	N	80	N	68	80	1	73	80	2
DISABLED	25	80	0	38	80	2	41	80	3
ECONOMICALLY DISADVANTAGED	43	80	0	54	80	1	59	80	2
ELL	N	80	N	42	80	0	53	80	2
MIGRANT*	N	80	N	N	80	0	55	80	3
FEMALE*	49	80	0	65	80	1	68	80	2
MALE*	49	80	0	66	80	1	68	80	2

\* Indicates subgroups not included as separate sub-populations in the Adequate Yearly Progress (AYP) calculation. Note: An 'N' indicates that no test results were reported.

Science Assessment Results (Sunshine State Standards and Alternate Assessments)									
Percent of Students Scoring 3 and Above									
	School %			District %			State %		
	2010-11 Results	State Objective	% Not Tested	2010-11 Results	State Objective	% Not Tested	2010-11 Results	State Objective	% Not Tested
ALL STUDENTS	34	N/A	1	46	N/A	3	47	N/A	4
WHITE	42	N/A	N/A	49	N/A	3	59	N/A	4
BLACK OR AFRICAN AMERICAN	N	N/A	N	26	N/A	4	26	N/A	5
HISPANIC / LATINO	N	N/A	N	37	N/A	3	41	N/A	3
ASIAN	N	N/A	N	65	N/A	1	65	N/A	2
NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER	N	N/A	N	N	N/A	N	N	N/A	N
AMERICAN INDIAN OR ALASKA NATIVE	N	N/A	N	38	N/A	4	45	N/A	4
TWO OR MORE RACES*	N	N/A	N	52	N/A	2	54	N/A	3
DISABLED	N	N/A	N	26	N/A	5	26	N/A	7
ECONOMICALLY DISADVANTAGED	30	N/A	0	36	N/A	4	35	N/A	4
ELL	N	N/A	N	15	N/A	3	20	N/A	4
MIGRANT*	N	N/A	N	N	N/A	N	23	N/A	5
FEMALE*	31	N/A	2	43	N/A	3	44	N/A	3
MALE*	38	N/A	0	49	N/A	3	50	N/A	4

\* Indicates subgroups not included as separate sub-populations in the Adequate Yearly Progress (AYP) calculation. Note: An 'N' indicates that no test results were reported.

At this time, a state objective is not specified for science achievement.

Williamson Dacar Associates Site & Building Plans:





# REFERENCES

- Dymont, Janet E. (2005) Green School Grounds as Sites for Outdoor Learning: Barriers and Opportunities, *International Research in Geographical and Environmental Education*, 14:1, 28-45, DOI:10.1080/09500790508668328
- "Funny Things Kids Say." RSS. N.p., n.d. Web. 11 Feb. 2014. <<http://www.lilsugar.com/Funny-Things-Kids-Say-12520784>>.
- "Helping Teachers to Use Their School's Backyard as an Outdoor Classroom: A Report on the Watershed Learning Center Program." Taylor and Francis. N.p., n.d. Web. 23 Apr. 2014. <<http://www.tandfonline.com/doi/abs/10.1080/00958960309600591#.U1fu9uZdVBA>>.
- Hendricks, Barbara E. *Designing for Play*. Aldershot, England: Ashgate, 2001. Print.
- "Land Development Code." Pasco County, FL. Pasco County, n.d. Web. 26 Sept. 2013. <<http://www.pascocountyfl.net/index.aspx?NID=756>>.
- Louv, Richard. *Last Child in the Woods: Saving Our Children from Nature-deficit Disorder*. Chapel Hill, NC: Algonquin of Chapel Hill, 2005. Print.
- "Low Impact Development (LID) Urban Design Tools." Low Impact Development (LID) Urban Design Tools. N.p., n.d. Web. 23 Apr. 2014. <<http://www.lid-stormwater.net/>>.
- Montessori, Maria, and Anne E. George. *The Montessori Method*. New York: Schocken, 1964. Print.
- "Nature For Kids." Nature For Kids. N.p., n.d. Web. 23 Apr. 2014. <<http://natureforkids.net/outdoor-quotes/>>.
- "Pasco County Comprehensive Plan." Pasco County, FL. Pasco County, n.d. Web. 26 Sept. 2013. <<http://www.pascocountyfl.net/index.aspx?NID=756>>.
- "Pervious Pavement Design." :: Pervious Pavement. N.p., n.d. Web. 23 Apr. 2014. <<http://www.perviouspavement.org/design/hydrologicaldesign.html>>.
- "Schrader Elementary School." Florida Department of Education, n.d. Web. 26 Sept. 2013. <[http://doeweb-prd.doe.state.fl.us/eds/nclbpar/year1011/nclb1011.cfm?dist\\_schl=51\\_0341](http://doeweb-prd.doe.state.fl.us/eds/nclbpar/year1011/nclb1011.cfm?dist_schl=51_0341)>.
- Snider. Berryhill, T. (2013, November 7). Personal Interview.
- Snider. Tharin, G. (2013, November 7). Personal Interview.
- Strom, Steven, and Kurt Nathan. *Site Engineering for Landscape Architects*. Westport, CT: AVI Pub., 1985. Print.
- "TEACHERS." Scholastic Teachers. N.p., n.d. Web. 11 Feb. 2014. <<http://www.scholastic.com/teachers/article/ages-stages-how-children-use-magical-thinking>>.
- Waller, Tim (2006). "Don't Come Too Close to My Octopus Tree":
- Recording and Evaluating Young Children's Perspectives of Outdoor Learning." *Children, Youth and Environments* 16(2): 75-104. 23 April 2013. <http://www.colorado.edu/journals/cye>.
- "What's New at Playworld Systems." Commercial Playground Equipment Manufacturer. N.p., n.d. Web. 23 Apr. 2014. <<http://playworldsystems.com/>>.

## Image Reference Guide:

1. "Buffalo Public School 90, Dr Charles R. Drew Early Childhood Science Magnet: Learning Courtyard | Asla.org." Buffalo Public School 90, Dr Charles R. Drew Early Childhood Science Magnet: Learning Courtyard | Asla.org. N.p., n.d. Web. 10 Feb. 2014. <<http://www.asla.org/ppn/Article.aspx?id=23516>>.
2. "Contact Ardmore Middle School at 580-223-2475." Ardmore City Schools. N.p., n.d. Web. 10 Feb. 2014. <<http://www.ardmoreschools.org/ams>>.
3. "Contest Designed to Facilitate Outdoor Learning in Schools." Contest Designed to Facilitate Outdoor Learning in Schools. N.p., n.d. Web. 10 Feb. 2014. <<http://envirodad.com/contest-designed-to-facilitate-outdoor-learning-in-schools/>>.
4. "Destinations, Dreams and Dogs - International Adventure with a Fast-track Family (& Dogs) of Old World Values, Adopting the Russian-Italian-American Good Life on the Go...!" Destinations, Dreams and Dogs. N.p., n.d. Web. 10 Feb. 2014. <<http://www.destinationsdreamsanddogs.com/tests-trials/>>.
5. "Earth." Google. N.p., n.d. Web. 11 Feb. 2014. <<http://www.google.com/earth/>>.
6. "Environmental Education." Environmental Education. N.p., n.d. Web. 10 Feb. 2014. <<https://www.forestfoundation.org/environmental-education-aff>>.
7. "February 8, 2013 Kids Jokes." KSOOAM 1140 Live Local and Breaking News from Sioux Falls South Dakota. N.p., n.d. Web. 11 Feb. 2014. <<http://ksoo.com/february-8-2013-kids-jokes/>>.
8. "GreenWorks." GreenWorks. N.p., n.d. Web. 10 Feb. 2014. <<http://greenworkspc.com/category/stormwater/page/2/>>.
9. "How Do I Create a Track Recruiting Video?" NCSA Athletic Recruiting Blog RSS. N.p., n.d. Web. 11 Feb. 2014. <<http://www.ncsasports.org/blog/2012/10/24/create-track-recruiting-video/>>.
10. "How to Help Your Kids Learn More Effectively." Change Your Life The Change Blog. N.p., n.d. Web. 11 Feb. 2014. <<http://www.thechangeblog.com/how-to-help-your-kids-learn-more-effectively/>>.
11. "LEGO®." LEGO.com Home. N.p., n.d. Web. 11 Feb. 2014. <<http://www.lego.com/en-us/>>.
12. "Manassas Park Elementary School LandscapeManassas Park, VA." ASLA 2011 Professional Awards. N.p., n.d. Web. 10 Feb. 2014. <<http://www.asla.org/2011awards/456.html>>.
13. "Playscapes." Playscapes. N.p., n.d. Web. 10 Feb. 2014. <<http://www.play-scapes.com/play-design/natural-playgrounds/outdoor-learning-environment-for-ps-19-queens-ny-ken-smith/>>.
14. "Vengeance for My Daughter Will Be Mine! Melt Down the Monkey Bars!" Slate Magazine. N.p., n.d. Web. 10 Feb. 2014. <[http://www.slate.com/articles/life/family/2012/10/how\\_dangerous\\_are\\_monkey\\_bars\\_risky\\_play\\_and\\_the\\_case\\_for\\_banning\\_unsafe.html?google\\_editors\\_picks=true](http://www.slate.com/articles/life/family/2012/10/how_dangerous_are_monkey_bars_risky_play_and_the_case_for_banning_unsafe.html?google_editors_picks=true)>.
15. "WordPress.com." WordPress.com. N.p., n.d. Web. 23 Apr. 2014. <<http://en.wordpress.com/typo/?subdomain=servemenoe>>.
20. "Writing, Reading, and Life." Writing Reading and Life. N.p., n.d. Web. 10 Feb. 2014. <<http://writingreadingandlife.com/2012/12/01/saturday-prompt-6/fenced-in-playground/>>.







“As a child, one has that magical capacity to move among the many eras of the earth; to see the land as an animal does; to experience the sky from the perspective of a flower or a bee; to feel the earth quiver and breathe beneath us; to know a hundred different smells of mud and listen unselfconsciously to the sougning of the trees”

-Valerie Andrews