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LA 227 – Restoration of Rivers and Streams
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Abstract

Opportunities to design open space around urban creeks are uncommon due to the constraints of urban infrastructure. When space becomes available, new designs have the chance to treat the creek as an amenity for communities. One such opportunity is the new development possibility occasioned by removal of World War II-era housing along Codornices Creek, within the married student housing complex known as 'UC Village' in Albany, California. The site, along San Pablo Avenue adjacent to Codornices Creek, is owned by the University of California at Berkeley. The developer's design called for a Whole Foods Market and parking structure. It, however, suggested building a two-story garage up to the fence line and did not create a meaningful connection between the Whole Foods Market and Codornices Creek. If built, the community will lose a rare opportunity to have open space near the creek. Our re-design focuses on the creek and the possible experiences that revolve around it. By relocating the Whole Foods Market and parking structure, it is possible to create an outdoor food court that overlooks the creek and that also accommodates the 100-year floodplain. The provision of personal space attracts users down toward the creek while the installation of step pools at the San Pablo culvert allow for steelhead trout to migrate upstream. The removal of the culvert at 10th Street reduces the risk of flooding and the re-design of two nodes encourages walkability of the new development.

Introduction

A recent trend in urban stream restoration focuses much attention on connecting people with and creeks. Unfortunately, opportunities to design open space around urban creeks are rare because of urban infrastructure constraints. When space becomes available, new designs have the

chance to treat the creek as an amenity for communities and correct for mistakes made in the 1950's where creeks were covered and hidden by buildings. One such opportunity is the new development possibility along Codornices Creek in Albany, California. Codornices Creek flows westward from its origin in the Berkeley Hills to the San Francisco Bay. It flows primarily within Berkeley city limits until reaching Monterey Avenue, where it becomes the border between Albany and Berkeley. A private firm developed plans for a lot (Figure 1) owned by the University of California at Berkeley (UCB) adjacent to Codornices Creek between San Pablo Avenue and 10th Street (City of Albany Planning and Zoning Commission Study Session/Staff Report, Nov. 13, 2007). This proposal suggested that the property be developed into a Whole Foods Market and a two-story parking structure with commercial frontage along San Pablo Avenue (Figure 2). This proposal also situated the parking structure in the 100-year floodplain, and would require bank stabilization that would further channelize the neighboring reach of Codornices Creek. The proposed location of the parking structure would effectively preclude ecological restoration of the creek, cutting off its relationship with the floodplain, and would fail to take advantage of the social and ecological opportunities that a rare open space along an urban creek provides (Kondolf and Yang, 2008).

Previous plans also addressed the restoration of the creek and the habitat. UCB developed a plan ten years ago for the restoration of the creek. Then, an assessment of the creek performed between fall 2001 and summer 2003 confirmed the presence of steelhead trout (*Oncorhynchus mykiss*) downstream despite the urbanized watershed (Jennings, 2001). Kier Associates then produced the Codornices Creek Watershed Restoration Action Plan (Kier Associates, Nov. 2003) for the Urban Creeks Council in November 2007. Finally, Restoration Design Group led by

Drew Goetting elaborated on the Action Plan and came up with a Phase I channel design in 2005 (Figure 3).

Following is a discussion in support of and a re-design proposal for the stretch of Codornices Creek near the Whole Foods Market. The re-design proposal focuses on the creek and proposes a more inviting environment that highlights the potential social benefits an urban creek brings to a local community (Kondolf and Yang, 2008). Due to the urban context of the site and the culverted condition of the creek at both the upstream and downstream ends of the reach, the schematic design is intended to strike a balance between the social and ecological opportunities centered around Whole Foods Market and the steelhead population. The goal of this restoration effort is to integrate land use with public and private space in a composition that responds to a larger contextual need for open space connectivity and social amenities.

Methods

We utilized multiple methods to gain insight into the issues surrounding the site. First, we conducted interviews in the field with local residents Daniel Dole and David Shaw. They provided access to fenced-off portions of the creek, discussed the history of restoration efforts conducted on-site, spoke of the hydrological issues affecting the neighboring community, and described the political atmosphere surrounding the proposed development. We conducted an interview with Drew Goetting, principal of Restoration Design Group, LLC. Restoration Design Group prepared the 2005 Codornices Creek Master Plan and the firm is knowledgeable about the restoration concerns in the reach between San Pablo and 10th Street. In addition to these interviews, we attended the city of Albany Planning and Zoning Commission meeting on November 13, 2007 to understand the community's perspective and its concerns about the

proposed site development and its regional impact. We photo-documented existing site conditions at the site (Figures 4-7). We analyzed the organization of the proposed Whole Foods design and compared the square footage with a series of local grocery store precedents using aerial photography (Figures 8). To accomplish this, we downloaded a scaled Google map image and measured the area in Autocad. We then counted the approximate number of parking spaces from the same image. Lastly, we used a topographical survey provided by Restoration Design Group (Figure 9) to cut cross sections of the existing creek conditions (Figure 10) to evaluate existing slope conditions. Guided by the social and ecological factors of the site context, our design process took us through a series of iterations that resulted in a parti diagram (Figure 11). The diagram allowed us to map out circulation around and orientation to the creek. This diagram ultimately served as the building block for our re-design of the connection between Whole Foods Market and Codornices Creek.

Results

Interviews

Daniel Dole and David Shaw shared their perspective about the creek due to the proximity of their homes to the creek (Interview, Oct. 26th, 2007). Dole's property sits atop the southern bank near the 10th Street culvert and less than twenty-five feet from center of the channel. His home nearly flooded on several occasions. Dole emphasized that the creek cannot contain a 7-year flood due to its confined nature and the limited capacity of the 10th Street culvert. He stated that he regraded the creek bank on his property to improve the efficiency of flow entering the culvert. Regarding fish habitat, Mr. Dole reported that despite the creek's straightened condition on the reach that borders the development site, the creek still provides

healthy habitat conditions and its pools are frequented by steelhead, such as those we observed directly west of 10th Street. Habitat existed in large part because of the heavily vegetated banks. Shaw, who records Codornices Creek flow in his backyard just east of San Pablo, added that rich habitat variability exists on the reach adjacent to the proposed development site. He pointed out the plunge pool at the base of the San Pablo culvert.

Drew Goetting, principal of Restoration Design Group, provided detailed information about the Codornices Creek restoration proposal put forth ten years ago by UCB and Waterways Restoration Institute (WRI). This included the allocation of a floodplain 75 feet from the center of the creek (Interview, Nov. 16th, 2007). As businesses and residential homes are located along the southern edge of Codornices Creek, they established the new proposed floodplain on the northern side of the creek on land occupied by the World War II-era housing units. Goetting mentioned that step pools would be necessary to navigate the final four feet scour pool located at the bottom of the culvert invert at San Pablo. This, he added, would become an interesting feature of the creek, providing local residents with a spot to watch fish in the winter moving upstream. Finally, Goetting pointed out that the 100-year floodplain would need to accommodate a flow of 1000 cubic feet per second (cfs) (Figure 12). The culvert capacity at San Pablo however carries a maximum of 600 cfs. This, he said, can't be improved upon easily without the installation of a new culvert beneath San Pablo Ave. He concluded by adding that the creek channel in its present condition has the ability to carry a two-year storm flow.

Albany Planning and Zoning Commission Meeting

The community raised a series of issues at the City of Albany Planning and Zoning Commission meeting (Meeting, Nov. 13, 2007). These comments are summarized in Table 1.1.

Developer's design

The design proposed by the developer suggested a 55,000 square foot (sq. ft.) Whole Foods Market with 250 parking spots. The City of Albany requires only one spot for every 400 sq. ft. which signifies that the Whole Foods Market is suggesting an additional 138 spots in addition to the number required by the city. The garage proposed is a two-story structure to be located directly against the fence line and within the 100-year floodplain. To call attention to the creek, the developer proposed a coffee stand at the southern end where Codornices Creek emerges from San Pablo Ave. To arrive at this location, a shopper would have to traverse the cars entering and existing the parking lot. A pedestrian corridor would run along the back of the garage next to the creek. At the intersection of 10th Street and Monroe Avenue, the developer pointed out the importance of the intersection because of the retail activities occurring on the north side of the street.

Precedents

Grocery store building footprints and number of parking spots measured from aerial photographs follow: Berkeley Bowl, located at Shattuck Avenue and Oregon Street, has a building footprint of approximately 44,000 sq ft and 105 parking spots. Whole Foods, situated at Telegraph Avenue and Ashby Avenue has a footprint of approximately 27,000 sq ft and 82 parking spots. Safeway, located at Shattuck and Rose has a footprint of approximately 28,500 sq ft and 88 parking spots. Of these three precedents, Berkeley Bowl serves a much larger area that is reflected in the scale of the store. Based on the intended user group (community or regional) for the proposed Whole Foods Market, these numbers provide an indication of approximate sizes that can help guide planning and design.

Results and Discussion

Interviews and the commission meeting revealed overwhelming concern by local community members that the proposed development posed a threat to a cohesive plan for the region and skirted the potential to embrace Codornices Creek as a social and economical amenity. Comments of this sort are harmonious with restorative efforts because both allude to a necessity to address the creek's floodplain and a corresponding setback requirement of any neighboring development. Culverts can create flooding problems upstream (Riley, 1998:360) which could explain the flooding problems experienced by Dole at the 10th Street culvert. Additionally, Goetting's comments regarding 100-year flow numbers and culvert capacity call attention to the potential need for forethought in planning and designing, not only for the capacity of the culvert, but for a potential enlargement of the culvert to convey a flow of 1000 cfs.

The members of UC Village who addressed issues of regional connectivity west of San Pablo Boulevard echoed these concerns in the Planning Commission meeting, and expressed their desire to see creeks as recreational corridors that could unite neighbors and connect the region to the proposed development and the surrounding area. While the developer responded to these ideas with the inclusion of a bike path along the creek for such use, his response didn't acknowledge that this corridor ran along the backside of a two-story garage and did not reflect an explicit awareness of the larger context, specifically the complicated issues of crossing San Pablo Avenue. The size of the proposed Whole Foods relates in scale to a regional grocery store more than a community-oriented grocery store. The provision of 250 parking spots provides an excess of 138 spots to that required by code for the proposed square footage. If a concern of the community is an increase in traffic, a grocery store and parking lot of this size will likely

exacerbate the amount of traffic near the Village. In comparison, a smaller community grocery store could encourage local residents to frequent the store on foot and attract fewer “regional” shoppers.

Conclusion

Codornices Creek is a valuable amenity to the UC Village residents and local community. It is therefore vital that the newly proposed Whole Foods Market embrace the southern edge of the lot and create an open space that connects the market and the creek. Our parti diagram reflects our design strategy - to connect Whole Foods Market shoppers and local residents with the creek and establish connections to the surrounding neighborhoods and systems of trails. It is important to emphasize that our re-design is one possible solution. Table 2.1 compares the our objectives with those of the developer. The re-design (Figure 13) reduced both the size of the Whole Foods Market to 30,000 sq. ft. and the dimensions of the parking lot to accommodate 80 cars. These are five more cars than required by the City of Albany for a 30,000 sq. ft. commercial building. Our reasoning in reducing parking is that a smaller market will allow local shoppers to walk to the store and attract fewer shoppers in vehicles.

Our re-design proposes a food court on the southern edge that brings the market out toward the creek, creating a dialogue between shoppers, corridor movement and Codornices Creek (Figure 14). In the re-design, shaded and sunny areas exist immediately outside of the store, and movable chairs and tables provide patrons of the food court an opportunity to decide where to sit as they eat their food and look out at the creek. The re-design utilizes pavers in the food court spilling out into the pedestrian walkway further tying together the overall site. The pedestrian and bike path also act as the fire access lane, providing the required twenty feet.

Within this space a small low-lying planter of perennials and grasses divides the pedestrian area from the bike area. The design provides private spaces for people seeking a more removed space. The use of natural materials such as boulders could further soften the edge between the creek and the building, becoming impromptu private space.

Moving toward the creek, the user encounters a series of viewing platforms. Of particular interest is the platform located near the San Pablo culvert. Here, designed stepping pools would provide patrons and local residents with the opportunity to see steelhead navigate the stepping pools. In terms of vegetation, an organized planting of White Alders (*Alnus rhombifolia*) hints at the idea of riparian vegetation but still provides visual access to the creek. It is important to note that the design of the northern edge between the creek and the Whole Foods Market requires occasional maintenance to remove spontaneous riparian vegetation that might cover and hide the visibility of the creek. The design also removes the 10th Street culvert and builds a bridge over the creek, allowing for the floods to more easily pass under the street.

To embrace the intersection of 10th Street and Monroe Avenue, rows of Plum trees converge (Figure 15) and frame a biowale system along 10th Street that treats runoff from the Market, the parking lot, and the street. This water is collected in a basin and allowed to infiltrate the ground.(Figure 16). The emergence of Codornices Creek from the San Pablo Avenue culvert is the second node drawing people into the site. The site allows for people to view the creek and also provides a sheltered rack for bikers stopping to rest, shop, and/or buy something to eat.

Our re-design emphasizes Codornices Creek and builds around it. The creek has the potential to create a strong community bounded by the social interactions that occur along the creek (Figures 17,18). Development along Codornices Creek can provide open space that encourages social interactions and that values habitat. At the very least, UCB and the developer

have the responsibility to plan, design, and build a forward thinking Whole Foods Market that assigns a high value to Codornices Creek, embracing it and its role in binding the residents of Albany together.

References Cited

Jennings, M.R. 2001. Memorandum report of September 13, 2001 to Mr. Jim Martin, Environmental Collaborative, Emeryville, re May 1, 2001 Draft Lower Codornices Creek Improvements Plan for Berkeley/Albany, particularly findings and recommendations re presence and prospective care of aquatic species of concern. Rana Sources, Davis, CA 5p.

Kondolf, Mathias G. and Yang Chia-Ning. 2008. Planning River Restoration Projects: Social and Cultural Dimensions. River Restoration: Managing the Uncertainty in Restoring Physical Habitat. John Wiley & Sons, Ltd.

Kier Associates. November 2003. Codornices Creek Watershed Restoration Action Plan.

City of Albany Planning and Zoning Commission Study Session/Staff Report. November 13, 2007.

Riley, Ann L. 1998. Restoring Streams in Cities: A Guide for Planners, Policy Makers, and Citizens. Island Press, Washington D.C.

Interviews and Meetings

City of Albany Planning and Zoning Commission Meeting. November 13, 2007.

Daniel Dole interview. October 28, 2007.

Drew Goetting interview. Restoration Design Group. November. 16, 2007.

Susan Schwartz phone interview and email correspondence. November 27 and 30, 2007.

Table 1.1 Concerns Voiced at Community Meeting

Speaker	Issue Raised in Meeting
Susan Schwartz: President of Friends of the Five Creeks	<ul style="list-style-type: none"> • raised issue with the setback of the parking structure • supported creek as community amenity • cited possibility that a food court facing the creek would create a sales tax opportunity for Albany
Daniel Dole: Owner of property directly adjacent to southern creek bank	<ul style="list-style-type: none"> • noted that development plan ignores the University and Waterways Restoration Institute’s original restoration master plan that stipulates an 80-100’ setback for creek migration and flood event management • cited a general lack of parking for surrounding community activity
Members of UC Village: a housing development west of the Whole Foods Market development site	<ul style="list-style-type: none"> • voiced concerns about a lack of a comprehensive plan that provided neighborhood connectivity • noted that a market of the proposed size would increase traffic and pose a safety problem for the many children of the surrounding community • viewed creek as having potential to unite larger region
Other Concerns	<ul style="list-style-type: none"> • concern that parking structure backed up against creek would increase the amount of homeless encampments • a general shared concern regarding increased traffic • the proposed development would be out of scale with the surrounding community

Table 2.1 Design Comparison

Objectives	Developer’s Design	Re-design Proposal
Strengthen community	Cuts off creek from community appreciation	Provides community space along creek
	Proposes development of regional scale market	Proposes Whole Foods Market more in scale with community size and need
	Design focuses on Monroe Ave. for E-W connectivity	Design focuses on both Creek right-of-way and Monroe Ave for E-W connectivity
	Promotes auto-reliance	Promotes pedestrian friendly shopping
	No consideration of safety along creek	Promotes neighborhood eyes on the creek.
Open space	No provision of community open space	Proposes 80-100’ buffer on north side of creek: floodplain and pedestrian path connecting to neighboring park space
	No consideration of quality of space along creek	Provides a multiplicity of outdoor spaces
Reduce flooding	Proposes development in 100yr floodplain – detaches creek from floodplain	Restores floodplain in the form of 80-100’ buffer
	Potential for increased channelization	Frees creek from incising condition
	Proposes pedestrian bridge at tenth street and elimination of culvert	Proposes pedestrian bridge at tenth street and elimination of culvert
Relationship between Whole Foods Market and creek	Proposes a 2-story garage along creek	Embraces creek as extension of market space
	Doesn’t invite shoppers to engage creek	Emphasizes visual and physical connection to creek
Fish Passage	DNA	Design proposes step pools at San Pablo Culvert to assist fish passage

Figure 1: Context map showing portion of Codornices Creek between San Pablo Avenue and 10th Street and the location of the proposed Whole Foods Market location. (source: Google Maps)



Figure 2: Proposed design of Whole Foods Market and two-story parking garage next to Codornices Creek.

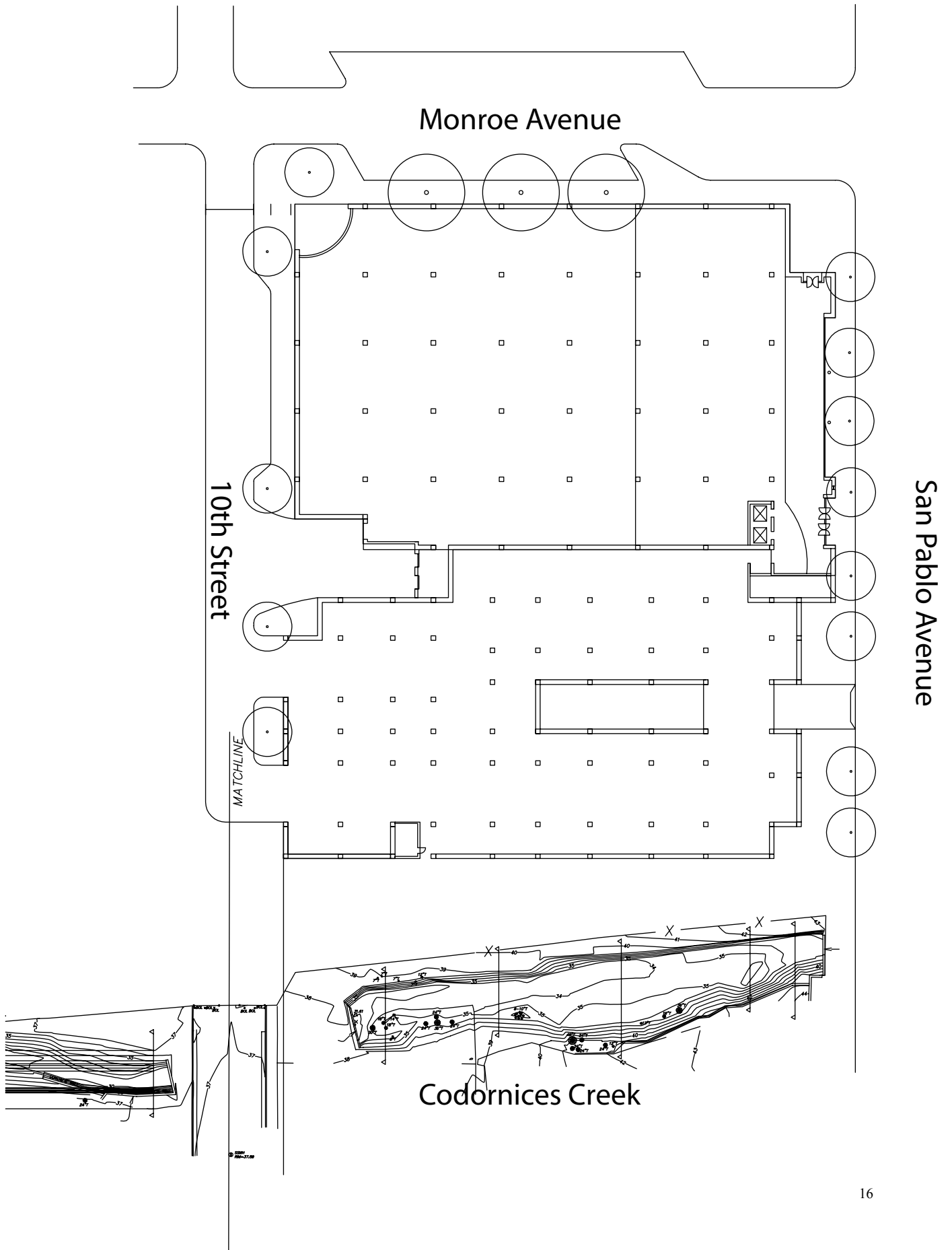
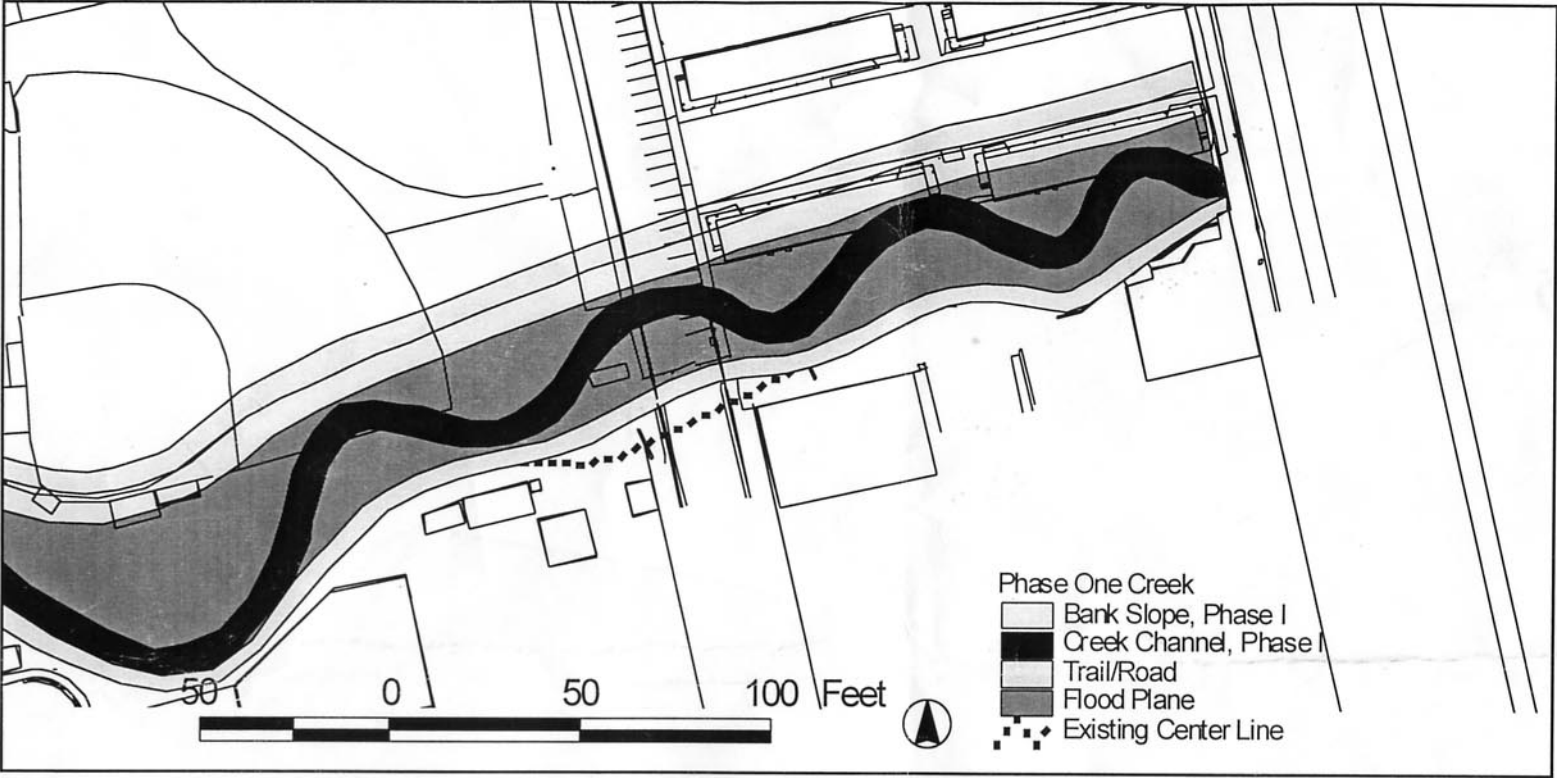


Figure 3: Restoration Design Group's conceptual channel design for Codornices Creek from 9th Street to San Pablo Avenue.



Figures 4-7: Existing site conditions



Figure 4: Codornices Creek emerging from the culvert at San Pablo Avenue (photo taken from the sidewalk looking downstream).



Figure 5: View of Codornices Creek looking toward San Pablo Avenue.



Figure 6: Overgrown vegetation on the north side of Codornices Creek.



Figure 7: Codornices Creek entering the 10th Street Culvert.

Figure 8: Supermarket precedents in the East Bay

Berkeley Bowl - located at Shattuck and Oregon



Whole Foods - located at Telegraph and Ashby



Safeway - located at Shattuck and Rose



Figure 9: Existing topography of Codornices Creek.

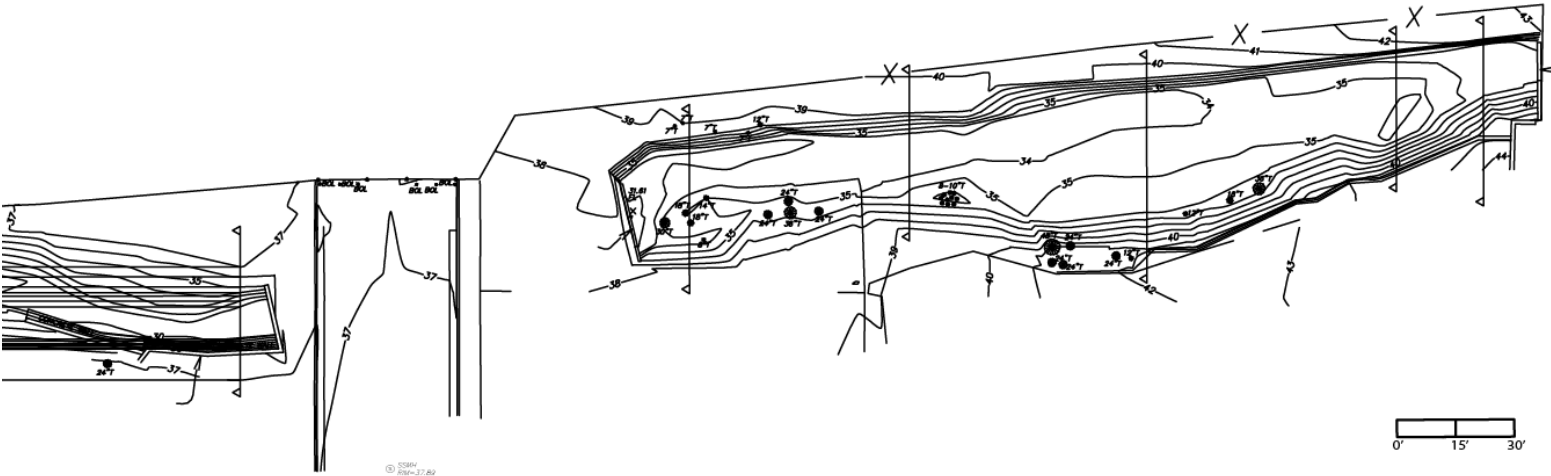
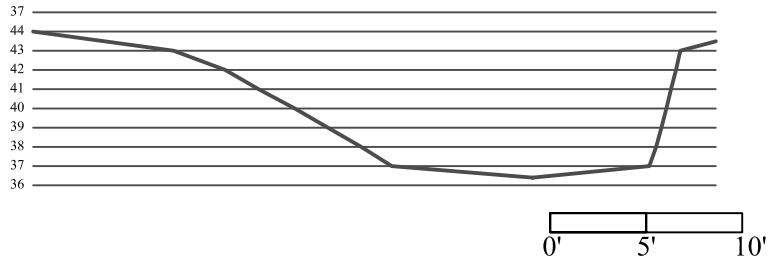
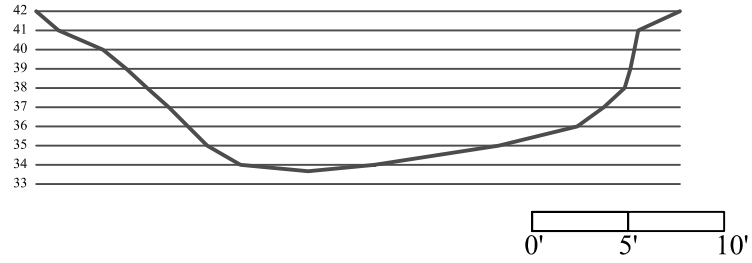


Figure 10: Sections of existing Codornices Creek conditions

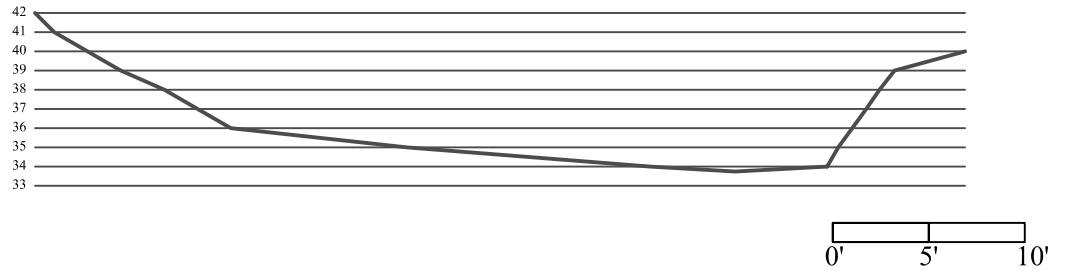
Existing Condition Section A-A'



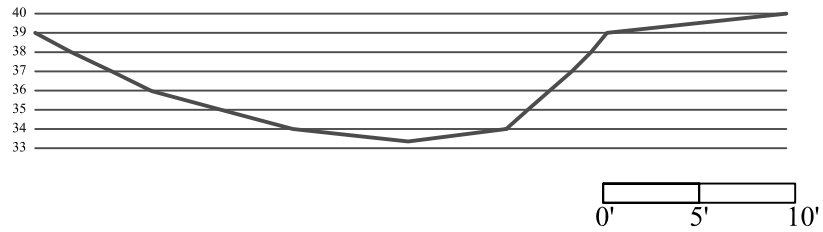
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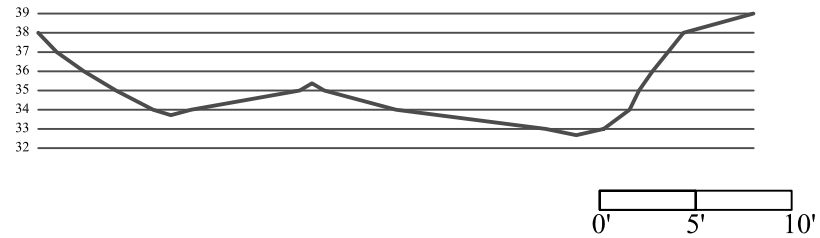
Existing Condition Section C-C'



Existing Condition Section D-D'



Existing Condition Section E-E'



Existing Condition Section F-F'

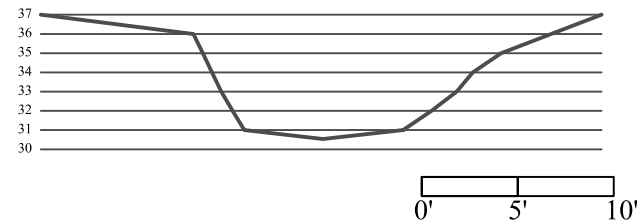


Figure 11: Parti diagram of re-design proposal

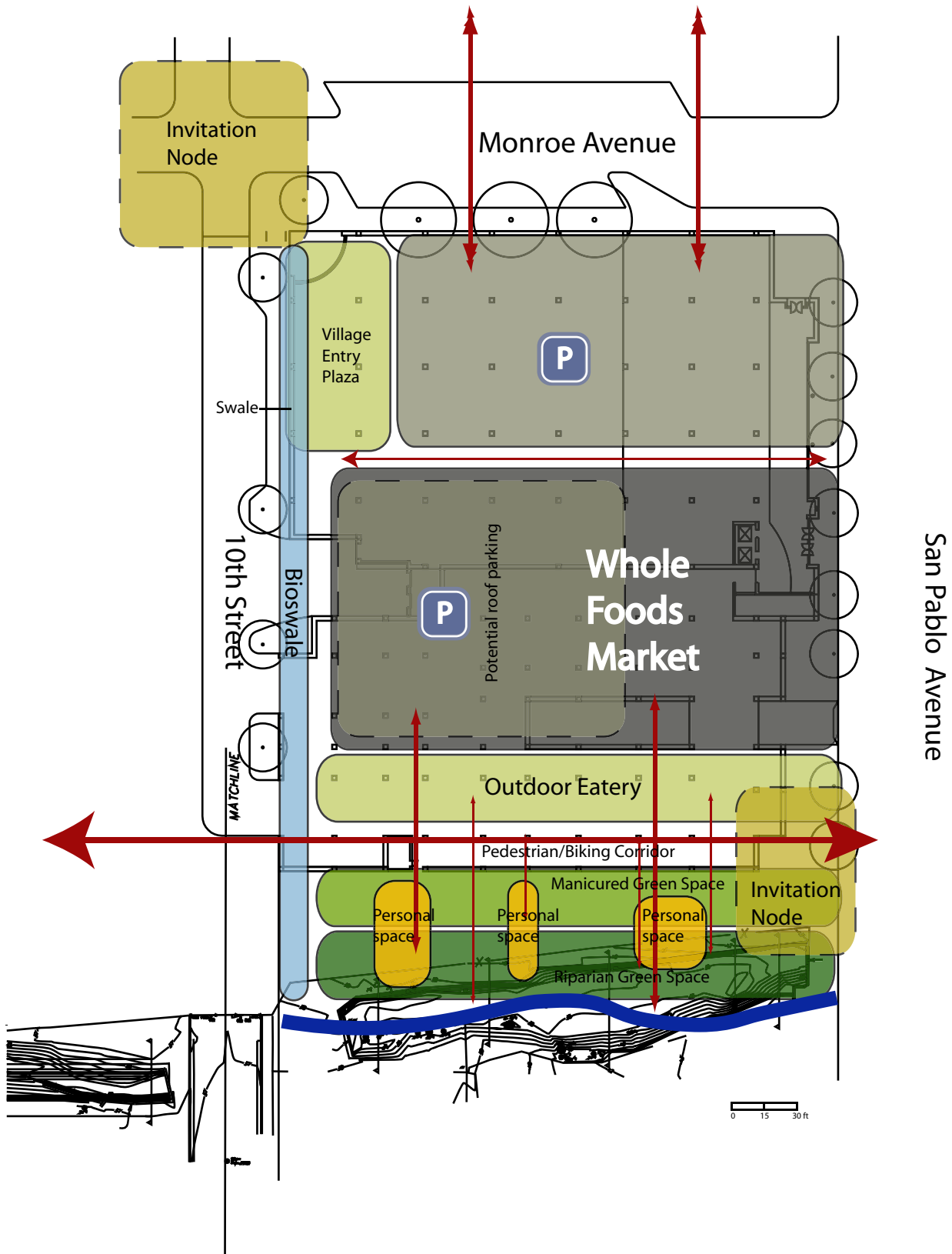


Figure 12: Proposed condition in WRI Flood Control Plan for the 100 year flood.

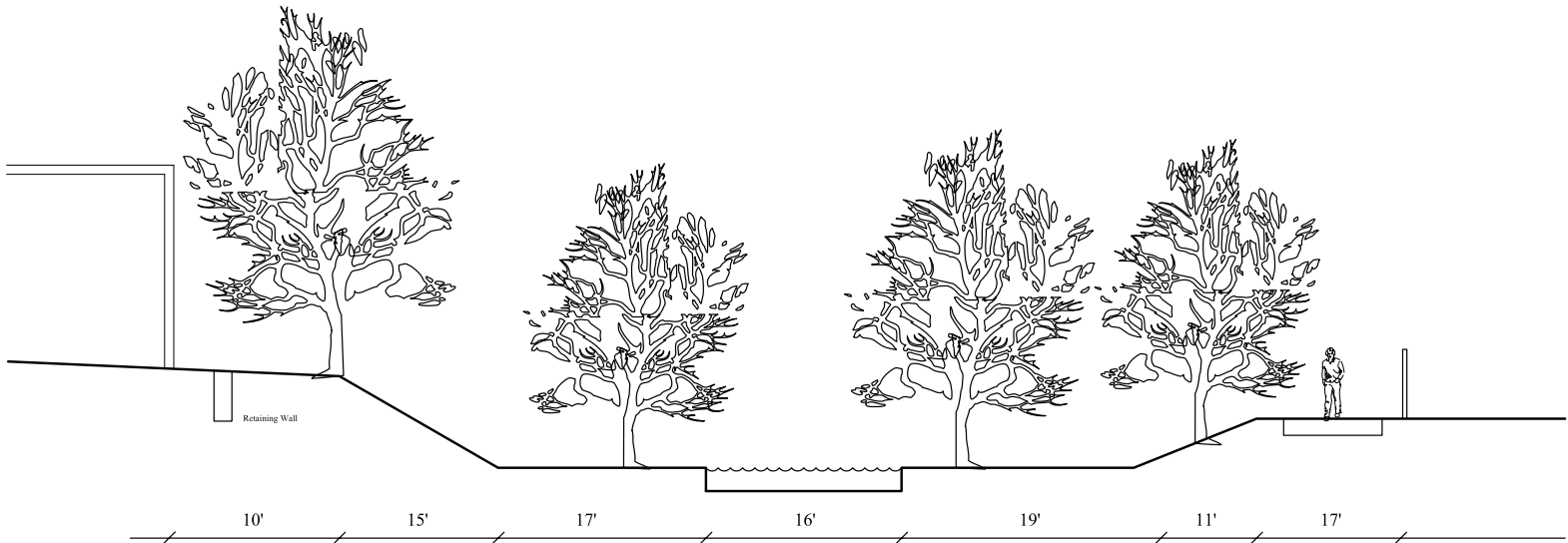


Figure 13: Redesign proposal for Whole Foods Market next to Codornices Creek.



Figure 14: Section of the redesign proposal through Codornices Creek, the pedestrian corridor, and the Whole Foods Market food court.

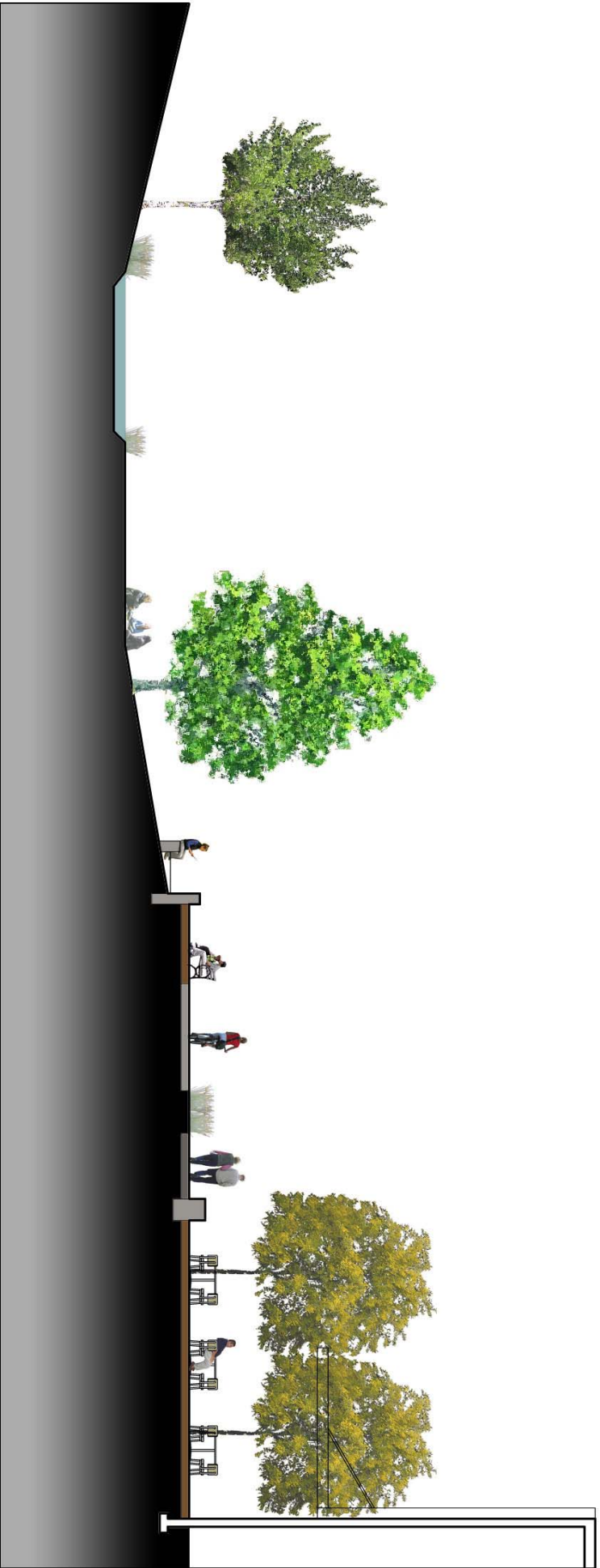


Figure 15: Section through bioswale along 10th Street.

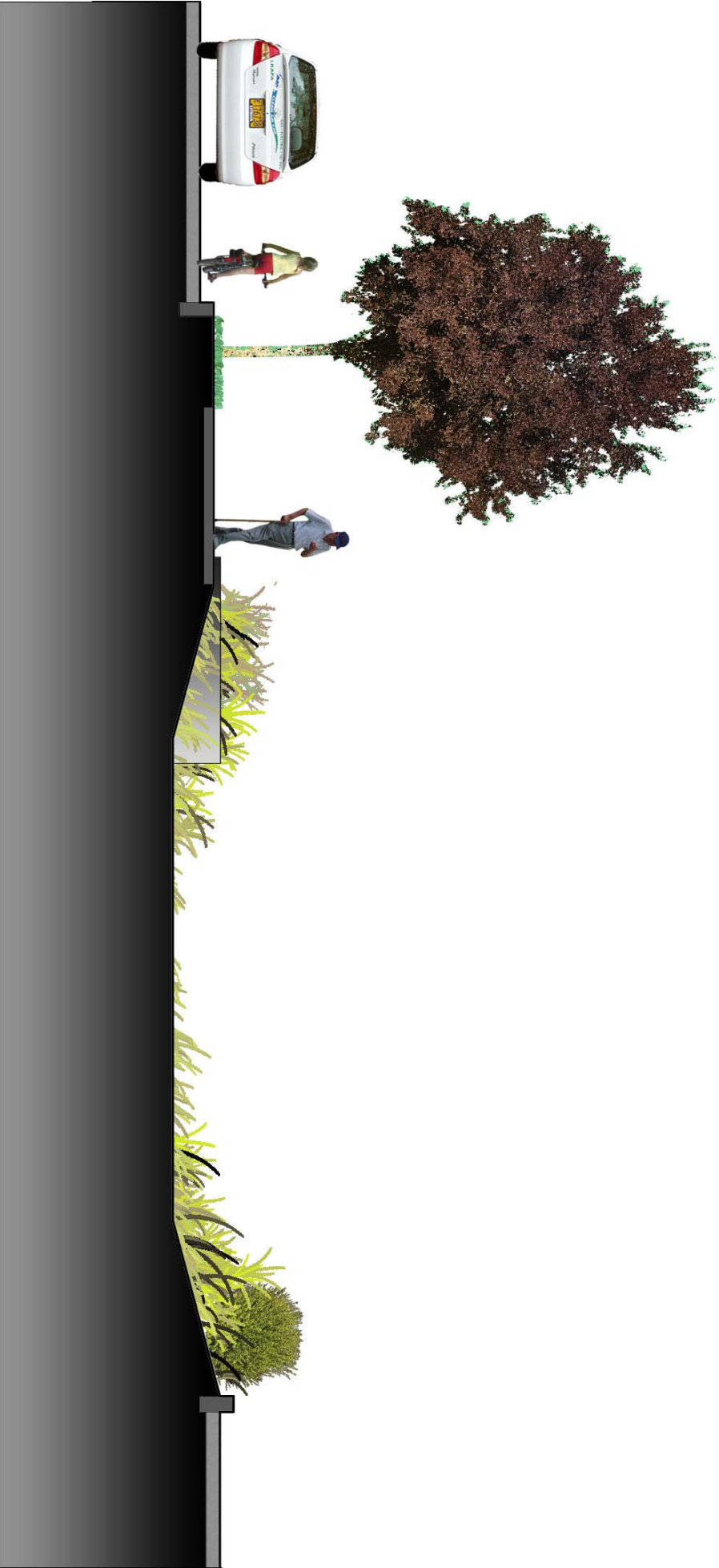


Figure 16: Section through cherry tree allee along Monroe Avenue

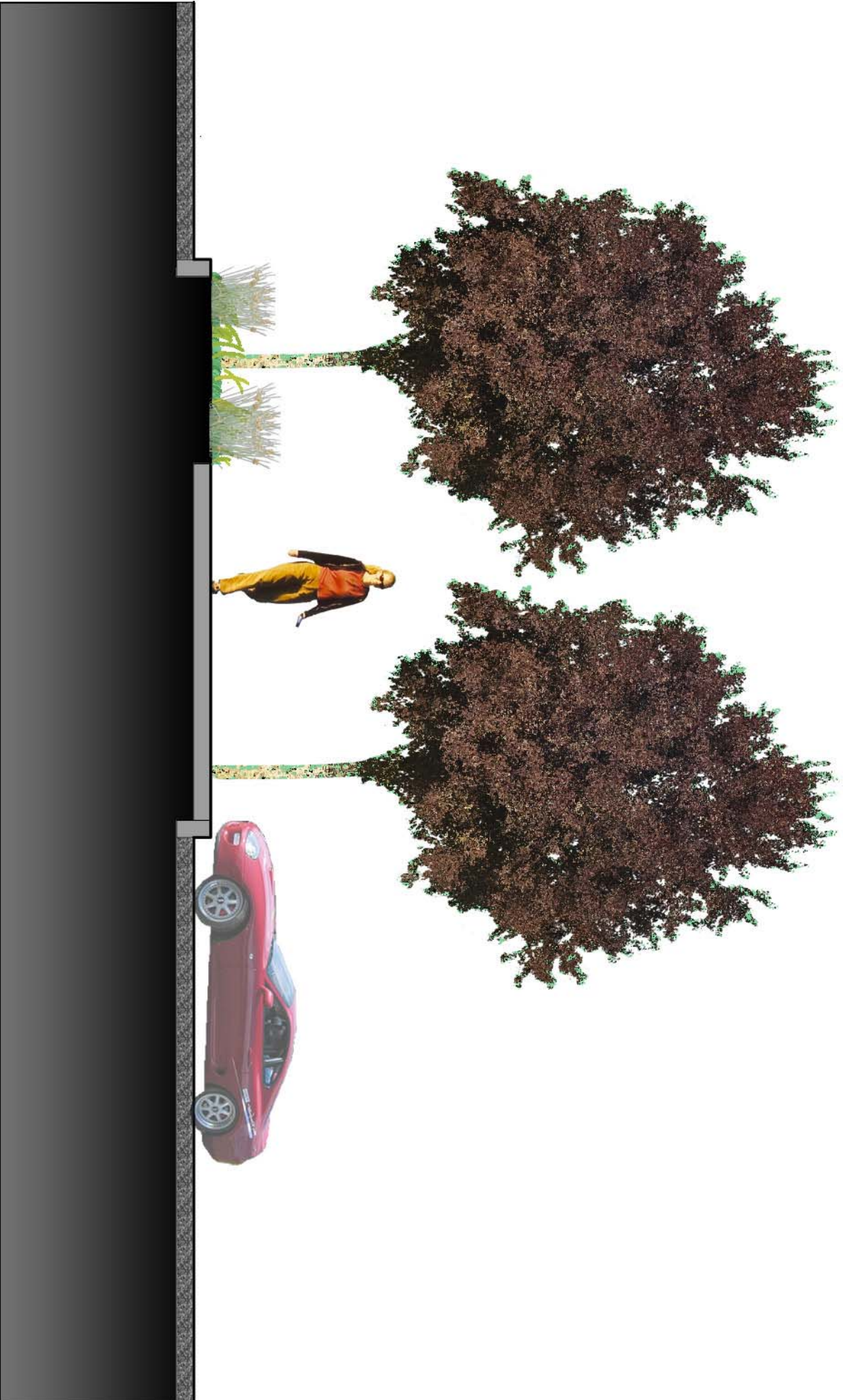


Figure 17: Perspective along pedestrian corridor looking toward 10th Street



Figure 18 Perspective of San Pablo Avenue entrance along Codornices Creek corridor

