Final Words

"Swimmers", Will van Overbeek

Final Words

PROCESS

Antoine Predock famously said that Austin has too much democracy for his taste. Nonetheless, his City Hall building has been a success, so he apparently, though perhaps begrudgingly, overcame his aversion. Without taking a position on the merits of his observation, it can certainly be said that public participation in highly visible Austin projects is a force to be reckoned with.

Barton Springs is, of course, one of Austin's most cherished icons, so this master plan brought out a spirited outpouring. This process has involved the public in numerous meetings, some informational and some interactive. It has posted preliminary materials in a public venue and it has posted them on a public website. It has harvested input in public settings and by e-mail. The planners have met with individuals, neighborhood groups and interest groups. They have reported to City boards and commissions, and they have reported to the City Manager and the City Council.

Yet for some, this is insufficient. In its most extreme form, staff is criticized even for meeting among themselves, without fully notifying the public. And planners are criticized if they meet with anyone without inviting the entire community. In this view, the public would be given ample notice for even the most routine fact-finding meeting. While all of this may seem extreme and beyond reasonable to the casual observer, this planning team believes that it should not be dismissed out of hand. It may, in fact, be a symptom of deeper community sentiments that the process used, however well-managed or well-intentioned, missed some important benchmarks of public expectation.

It is probably also useful to examine this process from the staff and consultants' point of view. Presumably, a master plan should represent a moment of pause, where larger considerations are contemplated, and attempts are made to knit together seeming unrelated matters into a coherent whole. Presumably, staff and consultants should work together to fashion responsible, nuanced recommendations that are respectful of the place and mindful of community sentiments. In the most favorable of circumstances, this is complicated. But under the current system, where they are thrust into an environment where trust and good intentions are not a given, the job is made more difficult. A reasonable question to ask all around is, can we do better?

OBSERVATION

This planning team believes that Barton Springs deserves a new kind of enlightened stewardship. Not for the convenience of staff or consultants, but because the place itself deserves it. Barton Springs is simply too important to leave it to a process where only the most battle-hardened proposals and battle-hardened people can survive. To return it "to its rightful glory" will take many years and the work of many committed citizens and professionals, and it will need the very best they can offer. Shouldn't the process in which they work be one that nurtures such inspiration?

A place to start might be to create a task force whose sole charge is the stewardship of this important place. It would learn the history and complexity of the place, and be prepared to offer deeply reasoned counsel. It would serve as Barton Springs' primary public client, and would be broadly composed to reach out beyond the most well-known interest groups. And because its members would be chosen for their community stature and their intelligence, they could offer everyone from the daily swimmers to the City Council, a base-level of trust in the process. This group could also seek to understand, not only the unique problems of this place, but also to place it in the larger context of park-planning thought from around the world so that lessons from afar might inspire us, too.

This suggestion is not to exclude other interested citizens from having avenues for involvement; they certainly should. But the expectation that all citizens should have the right to be involved at every single step is simply too cumbersome to be practical. Austin needs a better system. Barton Springs needs a better system.

BEYOND THIS SCOPE

Every master plan finds itself caught in a contradiction where the breadth of its ambitions collide with finite boundaries. Without boundaries, a master plan loses its value, because it is never reaches an end; but instead spins further and further into the distance. So boundaries are necessary.

Nonetheless, the process of master planning tends to be less tidy than its boundaries, so it is not uncommon for observations to emerge for matters lying just outside the study perimeter. This planning team has identified four such matters:

Move the Maintenance Yard

The maintenance yard for all of Zilker Park sits behind an 8 ft. privacy fence, perched on

the bluff overlooking Barton Creek.

The maintenance yard should be moved to more secluded place, and its current site should be converted to public use. One possible use might be a new educational center to complement the mission of "Splash!" and the interpretive plan. Other possible uses might be a small events center for intimate concerts or for outdoor weddings.

Transit Connections

Lack of parking has long been a source of frustration in the park. Charging for parking on the north side is an attempt at control, but it only creates a barrier to access without creating more parking. A longer-term solution would bring transit into the park. This would be consistent with current city planning concepts and it would make remote parking more convenient. Any park transit system should provide easy linkages to City transit services.

More Public Restrooms

The north side, where most of the public activity takes place, is under served. More public restrooms are needed to satisfy demand and to relieve pressure on the under sized Bathhouse facilities. One suitable location might be the grass area north of the playscape, a popular attraction for families with small children.

Rethink the Train Route

The miniature train tracks currently runs along the north bluff overlooking Barton Creek east of the Pool, and loops to a terminal within 50 ft. of Eliza Spring. This end of the line could be realigned with the station on the north side of the Zilker Playscape and the tracks running along the north of the maintenance yard, connecting back to its current alignment to the east in the Pecan Grove. By moving the tracks from the path along the bluff, it would allow for a wider, less constricted path bike and pedestrian circulation. Plus, it would eliminate some congestion near Eliza Spring.

The maintenance yard occupies a prime location overlooking Barton Creek. Relocating it would free its current site for a more public use. The 1937 quonset hut (left), for instance, could be used for educational purposes or for small events.

The train tracks and the 8 ft. privacy fence make this stretch of trail seem claustrophobic. Relocating the track and replacing the fence with a low stone wall (assuming a relocated maintenance yard) would make this important connection to Lady Bird Lake more appealing.

Appendix

"Pink Boys", Will van Overbeek

APPENDIX A

ORIGINAL CONSTRUCTION DOCUMENTS

As an aide to understanding the history and development of the site and structures and buildings, the project team attempted to locate original construction documents at archival repositories. While many of the original construction documents were found, there are still gaps in the record, and the search for original construction documents should continue. On the following pages, an index of drawings discovered to date is given.

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
DAMS					
Dam, Barton Springs Park	10/19/1928	Office of City Engineer: J. C. Richardson, C. G. Levander		Cross sections, elevations, details	Downstream dam, record drawing. Annotation dated 6/26/1931, showing new opening in dam. Two copies of this drawing on file.
Miscellaneous Details, Barton Springs Park	10/22/1928	Office of City Engineer: J. C. Richardson, C. G. Levander		Plan, longitudinal section, wall sections, details of children's wading pool	Children's wading pool no longer extant. Was located in the west end of the Pool.
Trap Dam and Retaining Walls, Barton Springs Park	12/28/1929	Office of City Engineer: C. G. Levander		Plan, elevation, sections, details of upstream dam	Annotated to show "as-built" conditions.
Plan of Proposed Concrete Channel Slab Extension at Barton Springs (Below Pool)	undated			Plan, section of apron extension below downstream dam	Appears to be a drawing produced by the Office of City Engineer
POOL and SPRINGS					
Details of 10 ft. Diving Platform at Barton Springs Pool	2/11/1930	Office of City Engineer: C. G. Levander		Elevation and plan views of diving platform and board, details.	

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
Contours of Barton's Springs Below Upper Dam	12/2/1930	Office of City Engineer: Osburn		Plan of west end of Pool, showing upstream dam, children's wading pool, retaining walls, rustic bridge, spot elevations and contour lines in the bottom of the Pool	
Profile, Centerline of Barton Creek, Dam to Colorado River	10/19/1933	Office of City Engineer: V. W. Pannell		Profile section through Barton Creek	It appears that the bed of the creek was regraded from the dam down to the bridge at Barton Springs Road.
Barton Springs Pool at North End of Trap Dam	2/10/1942	Office of City Engineer: J.D.L.	33	Site plan sketch in surveyor's field book	These field notes were made to record a large washed out area at the north end of the trap dam.
"	"	"	34	Elevation field notes in surveyor's field book	"
Barton Springs Park, X Sec,, Washed Area at N. End of Trap Dam for Final Quantities	3/31/1942	Office of City Engineer: G.S.E.	35	Calcualtions in surveyor's field book	"
Barton Springs Pool and Vicinity	3/26/1943	Office of City Engineer: R. Rountree, Jr.		Site plan drawing, showing tree locations, bathhouse/dance pavilion, Eliza Spring, mill concession stand, Pool, dams and children's wading pool.	Annotated to describe areas of wash out and damage, apparently from flooding.
untitled	undated (ca. 1970s)	City of Austin, Parks and Recreation Department		Site plan, showing Pool with select contour information in the Pool	
Barton Springs Pool Floodwater Bypass Improvements	11/27/1974	Travis Associates, Consulting Engineers	cover	Site plan, estimated quantities	Two sets of these drawings on file - original issue for construction and record drawing set.
Barton Springs Pool Floodwater Bypass Improvements, Concrete Box Culvert-Plan Profile	"		2	Plan, profile views of east end of bypass, record drawing	Existing Eliza Spring outlet, 24" dia reinforced concrete pipe, run thru north wall of bypass

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
Barton Springs Pool Floodwater Bypass Improvements, Concrete Box Culvert-Plan Profile	"		3	Plan, profile views of center section of bypass, record drawing	
Barton Springs Pool Floodwater Bypass Improvements, Concrete Box Culvert-Plan Profile	"		4	Plan, profile views of west end of bypass, record drawing	
Barton Springs Pool Floodwater Bypass Improvements, Cross Sections	"		5	Cross section views at various points along the length of the bypass	
Barton Springs Pool Floodwater Bypass Improvements, Cross Sections & Details	"		6	Walk drain detail, stair details, reinforcing schedule	
Barton Springs Pool Floodwater Bypass Improvements, Details	"		7	Inlet, outlet openings to bypass, trash grate details	
Barton Springs Pool Floodwater Bypass Improvements, Details	"		8	Outlet grate details, retaining walls, reinforcing schedules, ancient tree support detail, record drawing	
Barton Springs Pool Improvements	2/5/1999	PBS&J	cover		Consolidated site plan construction drawing set
Barton Springs Pool Improvements, General Notes	12/17/1998	"	2 of 10		"
Barton Springs Pool Improvements, Site Plan & Topographic Map	"	"	3 of 10		"
Barton Springs Pool Improvements, Erosion, Sedimentation Control & Tree Protection Plan	"	"	4 of 10		"
Barton Springs Pool Improvements, Construction Details	"	"	5 of 10	Steel slide gates at downstream dam details	"
Barton Springs Pool Improvements, Construction & Tree Protection Details	"	"	6 of 10	Section at "beach" area, tree protection details	"
Barton Springs Pool Improvements, Sections and Details	3/17/1999	"	7 of 10	Elevation view of dam, details of piping, pump supports	"
Barton Springs Pool Improvements, Electrical Details	4/18/1997	"	8 of 10	Pump electrical schematic, control panel details	"

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
Barton Springs Pool Improvements, Plans, Sections & Details	2/4/1999	Elliot & Hamill Architects	9 of 10	Accessibility improvements at Pool, grounds	"
Barton Springs Pool Improvements, Plans, Sections & Details	2/4/1999	Elliot & Hamill Architects	10 of 10	Accessibility improvements at Pool, grounds	"
Barton Springs Pool Improvements Phase II, Cover Sheet	2/8/2000	PBS&J	1 of 21	Cover page, site development permit application	
Barton Springs Pool Improvements Phase II, General Notes	7/30/1999	"	2 of 21	General notes	
Barton Springs Pool Improvements Phase II, General Notes	1/31/2000	"	3 of 21	General notes, continued	
Barton Springs Pool Improvements Phase II, Eliza Springs & Sunken Gardens Site Plans, Sections & Details	7/30/1999	"	4 of 21	Site plans, details of site plan improvements at the springs, per the 10a permit requirements	
Barton Springs Pool Improvements Phase II, Erosion/Sedimentation, Tree Protection & Kiosk Details	2/30/1998	"	5 of 21		
Barton Springs Pool Improvements Phase II, Robert E. Lee and Barton Hills Channel Improvements Location Map	1/31/2000	"	6 of 21	Partial site plan	
Barton Springs Pool Improvements Phase II, Robert E. Lee and Barton Hills Channel Improvements, Erosion/Sedimentation/Tree Protection/Traffic Control Plan	1/31/2000	"	7 of 21		
Barton Springs Pool Improvements Phase II, Drainage Area Map	1/31/2000	"	8 of 21		
Barton Springs Pool Improvements Phase II, Diversion Berm Plan View	1/31/2000	"	9 of 21		
Barton Springs Pool Improvements Phase II, Sidewalk/Berm construction Plan & Profile Sheet	1/31/2000	"	10 of 21		
Barton Springs Pool Improvements Phase II, Line "A", 60" Dia Storm Sewer Plan & Profile, Sta. Begin to Station End	1/31/2000	"	11 of 21		

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
Barton Springs Pool Improvements Phase II, Storm Sewer Line "B" Sta. Begin to End, Storm Sewer Line "C" Sta. Begin to End	1/31/2000	"	12 of 21		
Barton Springs Pool Improvements Phase II, Standard Project Details	1/31/2000	"	13 of 21		
Barton Springs Pool Improvements Phase II, Standard Project Details	1/31/2000	"	14 of 21		
Barton Springs Pool Improvements Phase II, Robert E. Lee Road, Diversion Berm Plan View	1/31/2000	"	15 of 21		
Barton Springs Pool Improvements Phase II, Standard Project Details, Headwall Details	1/31/2000	"	16 of 21		
Barton Springs Pool Improvements Phase II,			17 of 21	Traffic control plans, details	
Barton Springs Pool Improvements Phase II			18 of 21	Traffic control plans, details	
Barton Springs Pool Improvements Phase II			19 of 21	Traffic control plans, details	
Barton Springs Pool Improvements Phase II			20 of 21	Traffic control plans, details	
Barton Springs Pool Improvements Phase II			21 of 21	Traffic control plans, details	
SITE					
Zilker Park, Irrigation System, Site A	2/23/1973	City of Austin, Parks and Recreation Department	2 of 4	Irrigation system plan, area north of parking lot, by bandstand and Zilker Hillside Theater	
Zilker Park, Irrigation System, Site B	2/23/1973	City of Austin, Parks and Recreation Department	3 of 4	Irrigation system plan, area around Eliza Spring, concession stand, train station, picnic shelter	
Philosopher's Rock	10/3/1994	Stephen K. Domigan, Landscape Architect	1 of 1	Site plan showing area between Bathhouse and concession stand, tree locations, details for sculpture installation	Stamped: Preliminary, not for construction
BATHHOUSE					
Bathing Pavilion at Barton Springs	11/29/1922	H. F. Kuehne, Architect		First Floor Plan	
"	"	"		Second Floor Plan	

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
"	"	"		Sections, Details, Elevations	
Proposed Bathhouse, Barton Springs	undated (ca. 1938)	Driscoll and Groos Architects		Floor/Site Plan	Unbuilt
Work Sheet	4/27/1942	J. Roy White (assumed)		Site plan showing contours, tree locations, existing buildings and paving, west side	Apparently used by Recreation Department architects to prepare design studies for a new bathhouse
untitled	undated (ca. 4/27/1942)	J. Roy White (assumed)		Site plan showing contours, tree locations, existing buildings and paving, east side	Apparently used by Recreation Department architects to prepare design studies for a new bathhouse
untitled	undated (ca. 4/1942)	J. Roy White (assumed)		South exterior elevation view of bathhouse design study	Unbuilt
untitled	undated (ca. 4/1942)	J. Roy White (assumed)		Floor plan, exterior elevation sketches of bathhouse design study	Unbuilt
untitled	undated (ca. 4/1942)	J. Roy White (assumed)		South exterior elevation view of bathhouse design study	Unbuilt
Scheme "A" of Preliminary Sketches for a Proposed Bath House at Zilker Park	4/24/1942	J. Roy White, architect		Floor/site plan sketch of bathhouse, located east of "remodelled" pavilion	Unbuilt. Shown built over Eliza Spring.
Scheme "C-1" of Preliminary Sketches for a Proposed Bath House at Zilker Pakr	4/25/1942	J. Roy White, architect		Floor/site plan sketch of bathhouse, located east of "remodelled" pavilion	Unbuilt.
untitled	4/23/1942	J. Roy White (assumed)		Floor/site plan sketch of bathhouse, located east of "remodelled"pavilion	Unbuilt. Noted "N.G. (too involved!). N.G. probably means no good.
Elevation of Stadium Promenade and Bath-House from Pool	5/21/1942	J. Roy White (assumed)		South exterior elevation view of bathhouse, appears to be Scheme A	Unbuilt.

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
Principal (North) Elevation, Pool (South) Elevation, Scheme A	undated	J. Roy White (assumed)		North and south exterior elevation views of bathhouse Scheme A	Unbuilt.
Development of Promenade and Stadium	5/20/1942	J. Roy White (assumed)		Site plan view of stadium seating and promenade south of bathhouse	Unbuilt.
untitled	4/1942	J. Roy White (assumed)		floor plan sketch for bathhouse	Unbuilt.
untitled construction document drawing set for a new bathhouse	undated (ca. 5/1942)	J. Roy White		Plot and roof plan	Unbuilt.
"	"	"		Plot and roof plan, annotated	"
"	"	"		Floor plan, schedules	"
"	"	"		Floor plan, schedules, annotated	"
"	"	"		Foundation plan	"
"	"	"		Exterior elevation views (north, west, south, east) of bathhouse and stadium seating	"
"	"	"		Detail plans, wall sections	"
"	"	"		Wall sections, details	"
"	"	"		Wall sections, details	"
"	"	"		Building sections	"
"	"	"		Detail plans, wall sections, details	"
Alterations and Additions to Barton Springs Bathhouse	6/23/1942	J. Roy White, architect	1 of 1	Detail plan, exterior elevation, details of addition to the north side of the existing bathhouse	
Details for Installation of an Electric Fan in Barton Springs Bathhouse	8/1/1942	J. Roy White, architect	1 of 1	Longitudinal section, elevation, detail of fan and duct added to existing bathhouse	

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
untitled sketch	4/9/1943	J. Roy White (assumed)		Site plan sketch of area between proposed bathhouse and mill concession, north of Eliza Spring, showing contours, tree locations, proposed paving revisions	Unbuilt. Annotation: "scheme finally approved, June 1943"
Plot Plan, Barton Springs Bathhouse and Pavilion	undated (ca. 1943)	J. Roy White (assumed)		Site plan drawing showing proposed bathhouse, remodelled pavilion, proposed parking revisions.	Unbuilt
Scheme "B"	10/4/1943	J. Roy White (assumed)		Floor plan sketch of remodelled dance hall pavilion	Unbuilt
untitled construction drawing set for remodelled dance pavilion	undated (ca. 10/1943)	J. Roy White		Foundation plan	Unbuilt
"	"	"		Floor plan, schedules, wall section	"
"	"	"		Exterior elevations, building sections	"
"	"	"		Roof plan, site plan, details	"
untitled sketch	undated (ca. 1943)	J. Roy White (assumed)		Plan, section sketches of remodelled dance pavilion	Unbuilt
untitled notes	undated (ca. 1943)	J. Roy White (assumed)		Hand-written notes, questions, comparing several schemes for remodelled dance pavilion	Unbuilt.
Zilker Springs Bathhouse	1945	Dan Driscoll, architect	cover	Cover page	Zilker Springs Bathhouse, City of Austin, Texas, Plans Prepared by City Engineering Department
Zilker Springs Bathhouse, Plot Plan	"	"	1	Site plan, topography, grading, tree locations, site details	"
Zilker Springs Bathhouse, Plot Plan of Present Conditions	"	"	1A	Site plan, topography, tree locations	"

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
Zilker Springs Bathhouse, Foundation Plan	"	"	2	Foundation plan, roof framing plan, curb inlet details	"
Zilker Springs Bathhouse, Floor Plan	"	"	3	Floor plan, roof plan, schedules	"
Zilker Springs Bathhouse, Elevations	"	"	4	Exterior elevations, building sections	"
Zilker Springs Bathhouse, Structural	"	"	5	Reinforcing schedules, sections, details	"
Zilker Springs Bathhouse, Details	"	"	6	Interior elevations, interior details, louver and basket room details	"
Zilker Springs Bathhouse, Details	"	"	7	Door, window details, cabinet details, spectator's gallery details	"
Zilker Springs Bathhouse, Details	"	"	8	Women's dressing details, service window and ticket window details	"
Zilker Springs Bathhouse, Electrical	"	"	9	Power, lighting plan	"
Zilker Springs Bathhouse, Plumbing	"	"	10	Plumbing plan	"
Zilker Park Bathhouse Remodel	5/6/1986	Interior Consultants, Incorporated	cover	General notes, schedules, legends	Remodel basket rooms, service office and original entry for use as exhibit, meeting, office, gift shop space
"	"	"	A1	Floor plan, notes	"
"	"	"	A2	Reflected ceiling plan	"
"	"	"	A3	Building section, cabinet, display details	"
"	"	"	A4	Partition, door, cabinet details	"
Adaptive Use Facility Plan: Renovation Schematic	6/15/1995	Active Learning Resources	1 of 1	Floor plan, notes, of renovated classroom, gallery, exhibit space.	Unbuilt. Noted Not for Construction.
Accessibility Modifications at Zilker Pool and Bathhouse	12/16/1996	Elliott & Hamill Architects	A-1	Site key map	Accessibility improvements to building and site
"	"	"	A-2	Building key plan	"
"	"	"	A-3	Detail plan, Central area of parking lot	"

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
"	"	"	A-4	Detail plan, S.E. end of parking lot	"
"	"	"	A-5	Curb ramp details	"
"	"	"	A-6	Paving transition detail	"
"	"	"	A-7	Curb details	"
"	"	"	A-8	Cane detection device detail plan	"
"	"	"	A-9	Plan, ramp no. 1	"
"	"	"	A-10	Plan, ramp no. 3	"
"	"	"	A-11	Plan, ramp no. 4	"
"	"	"	A-12	Plan, ramp no. 5	"
"	"	"	A-13	Plan, section, ramp no. 6	"
"	"	"	A-14	Plans, ramp, stairs, drinking fountain	"
"	"	"	A-15	Plans, ramp, stair	"
"	"	"	A-16	Plans, stairs	"
"	"	"	A-17	Gate details	"
"	"	"	A-18	Plans, entry ramp	"
"	"	"	A-19	Details, cabinets	"
"	"	"	A-20	Plan, women's public toilet	"
"	"	"	A-21	Plan, women's toilet	"
"	"	"	A-22	Plan, women's new accessible shower	"
"	"	"	A-23	Plan, men's public toilet	"
"	"	"	A-24	Plan, men's toilet and accessible shower	"
"	"	"	A-25	Details, ramp	"
"	"	"	A-26	Details, stair	"
"	"	"	A-27	Details, stair	"
"	"	"	A-27a	Section, stair	"
"	"	"	A-28	Details, ramp	"

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
"	"	"	A-29	Details, railing	"
"	"	"	A-30	Details, lavatory	"
"	"	"	A-31	Details, urinal	"
"	"	"	A-32	Details, water closets	"
"	"	"	A-33	Details, accessible shower	"
"	"	"	A-34	Details, drinking fountain	"
"	"	"	A-35	Key plan, sign locations	"
"	"	"	A-36	Sign schedule	"
Barton Springs Bathhouse Open Air Shower Drains	12/1999	Parks and Recreation Department	1 of 3	Men's shower drain	
"	"	"	2 of 3	Women's shower drain	
"	"	"	3 of 3	Shower drain riser diagram	
CONCESSION STAND					
Concession Stand for Barton Springs, Austin, Texas, Plans	4/19/1929	H. F. Kuehne, Architect	1	Foundation plan, floor plan, schedules, service window details	
Concession Stand for Barton Springs, Austin, Texas, Elevations	"	"	2	Exterior elevations, window details, mill wheel details	
Study No. 1, Concession Stand at Barton Springs	undated (ca. 1959)	Paul R. Roesele	1	Exterior elevations, site plan	
Concession Building at Zilker Springs	9/22/1959	Paul R. Roesele	1 of 7	Plot Plan	Eliza Spring is called Zilker Springs
"	9/15/1959	"	2 of 7	Foundation plan, details, exterior elevation, building section, door and window schedule	
"	9/16/1959	"	3 of 7	Floor plan, exterior elevations	
"	9/25/1959	"	4 of 7	Wall section, cabinet details, service window details, door details, finish schedule	
"	10/29/1959	"	5 of 7	Electrical plan, structural details	
"	2/8/1960	B. Segall, Jr., Consulting Engineer	6 0f 7	Electrical plan, notes fixture schedules	

TITLE	*DATE*	*AUTHOR*	*SHEET NO.*	*SUBJECT*	*NOTES*
"	2/8/1960	B. Segall, Jr., Consulting Engineer	7 of 7	Air conditioning plan	
CARETAKER'S COTTAGE					
A Stone Residence for Barton Springs, Austin, Texas, Plans	4/19/1929	H. F. Kuehne, Architect	1	Floor plan, foundation plan, schedules	
A Stone Residence for Barton Springs, Austin, Texas, Plans	"	"	2	Exterior elevations	
A Stone Residence for Barton Springs, Austin, Texas, Details	"	"	3	Wall sections, door and window details, cabinet details, fireplace details	
BALL COURT					
Scheme "C"	5/27/1943	J. Roy White (assumed)		Front, side exterior elevations of the ballcourt	
"	"	"		Floor plan, building section of the ballcourt	

Appendix B

CONSULTANT REPORTS

In addition to information written into the main body of the report, members of the master plan consultant team provided reports on topics related to their respective areas of expertise. These reports are included here for additional information and detail.

JASTER-QUINTANILLA

Barton Springs/Sunken Garden Evaluation of Existing Retaining Walls
August 15, 2007

The existing retaining walls and tree wells, constructed of masonry in the 1930s, are well constructed but have seen the wear of growing trees, vegetation, and eroding soil. The large tree well to the east of the Sunken Garden has two vertical separations of at least 6" width spanning the full height of the well (see Photos 1-2). The separated portion of the well is approximately 8" out of plumb, and leaning toward the basin. The retaining wall to the west and below this tree well has numerous vertical cracks, and is approximately 10" out of plumb (see Photo 3). The retaining wall just west of the basin and north of the medium sized tree well also has numerous separations and is exceeding 1'-0" out of plumb, and leaning toward the spring (see Photos 4-5). The impact of soil settlement can be seen inside each of the stairs to each level of the Sunken Garden, where the main retaining walls have separated from the perpendicular stair walls (see Photos 7-9).

Photo 1: Large tree well east of spring

Due to the multiple cracks and separations observed in the walls that are currently greater than 3" out of plumb, and that retaining walls have separated for adjoining stairs, it is recommended that many walls and tree wells be replaced with new stone walls. Plan XS-1 indicates the locations where walls were observed to be a minimum of 3" out of plumb and/or contain significant vertical separations. Walls separated from adjoining stairs are also indicated and recommended to be repaired. Section XS-2 and schedule XS-3 depict a recommended method of replacement of the failing walls. Existing masonry should be disassembled and replaced after the construction of the new concrete retaining wall.

Photo 2: Large tree well east of spring

Photo 3: Retaining wall west and below large tree well

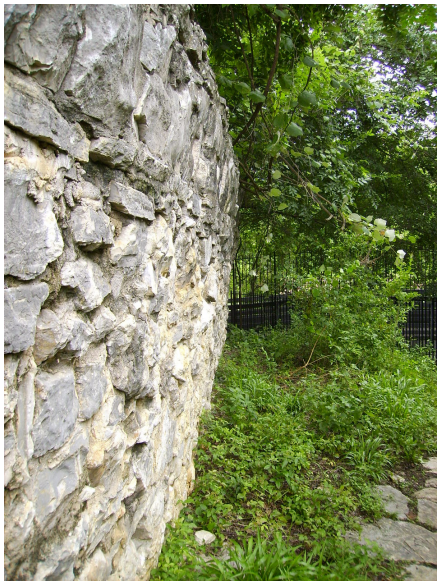
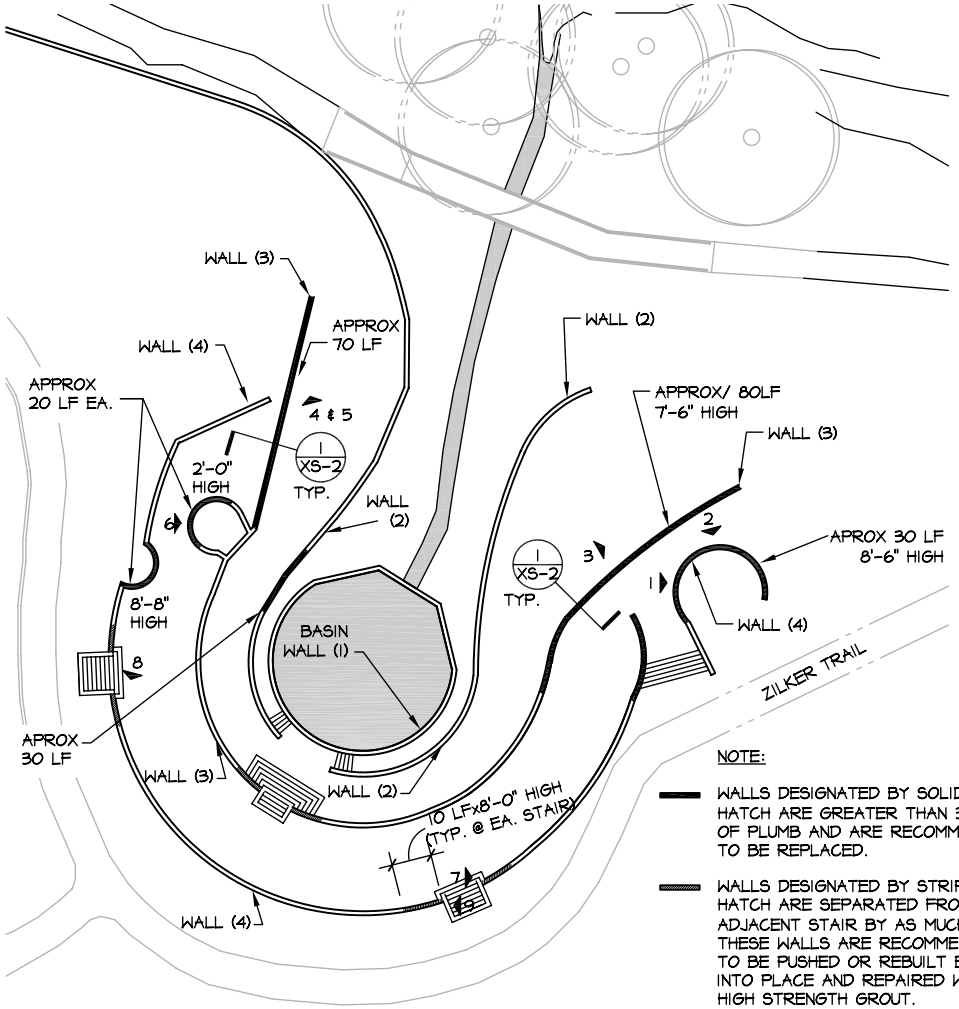


Photo 4: Retaining wall below medium tree well and west of spring

Photo 5: Retaining wall below medium tree well and west of spring

Photo 6: Medium tree well west of the spring



NOTE:

WALLS DESIGNATED BY SOLID HATCH ARE GREATER THAN 3" OUT OF PLUMB AND ARE RECOMMENDED TO BE REPLACED.

WALLS DESIGNATED BY STRIPED HATCH ARE SEPARATED FROM THE ADJACENT STAIR BY AS MUCH AS 2". THESE WALLS ARE RECOMMENDED TO BE PUSHED OR REBUILT BACK INTO PLACE AND REPAIRED WITH HIGH STRENGTH GROUT.

1 INDICATES PHOTO LOCATION

BARTON SPRINGS SUNKEN GARDEN RETAINING WALLS

SCALE: NONE

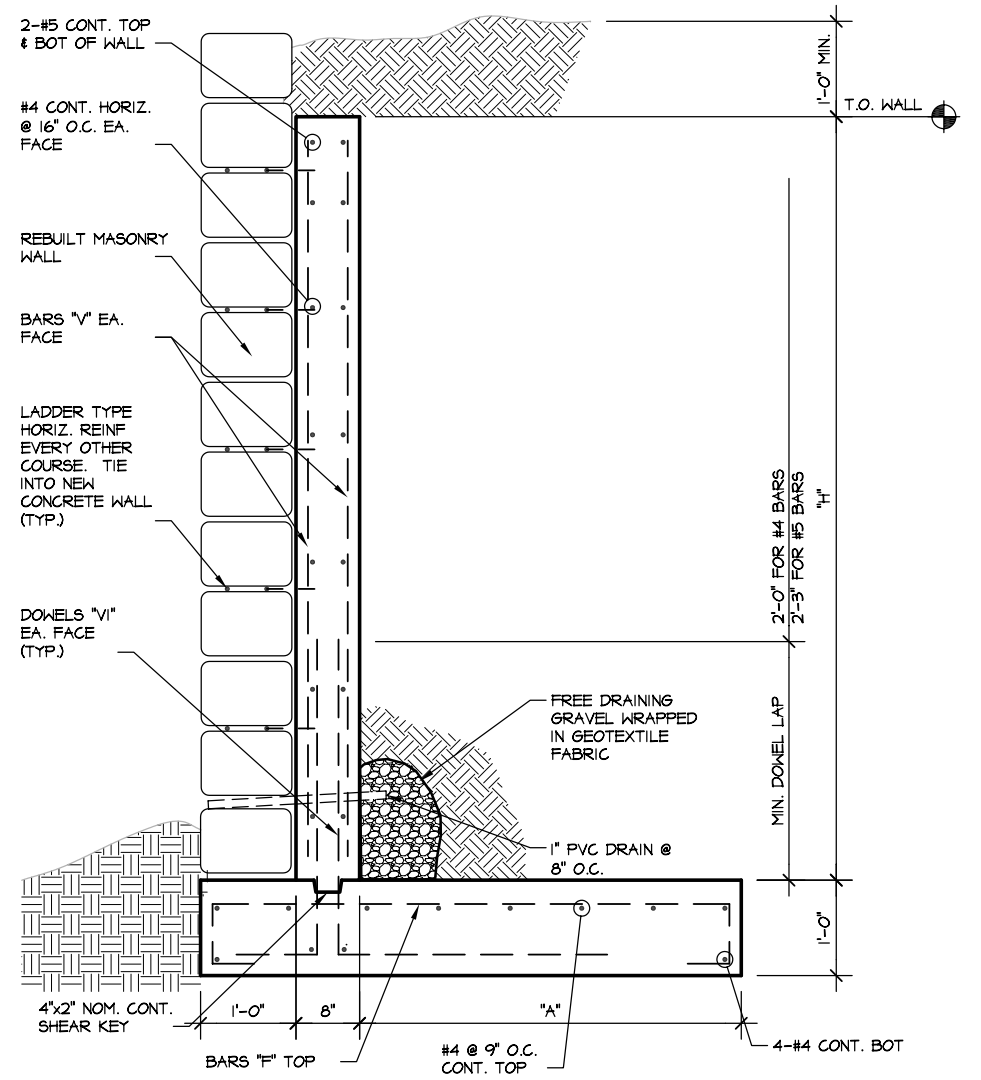
JASTER-QUINTANILLA & ASSOCIATES, INC
CONSULTING ENGINEERS
1608 WEST SIXTH ▫ SUITE 100 ▫ AUSTIN, TX 78703
512 474-9094 FAX 512 474-9179

J-Q JOB NO.: 6079580

PROJECT	BARTON SPRINGS POOL & BATHHOUSE MASTER PLAN		
CLIENT	LIMBACHER & GODFREY ARCHITECTS		
REF.	REV.	DATE 08/15/07	SHEET XS-1

Photo 7: Inside wall of a typical stair.

Photo 8: Inside wall of a typical stair.



TYPICAL RETAINING WALL REPLACEMENT

JASTER-QUINTANILLA & ASSOCIATES, INC CONSULTING ENGINEERS 1608 WEST SIXTH ▫ SUITE 100 ▫ AUSTIN, TX 78703 512 474-9094 FAX 512 474-9179	J-Q JOB NO.: 6079580	PROJECT: BARTON SPRINGS POOL & BATHHOUSE MASTER PLAN		
		CLIENT: LIMBACHER & GODFREY ARCHITECTS		
	REF.	REV.	DATE: 08/15/07	SHEET: XS-2

RETAINING WALL SCHEDULE					
"H"	"A"	"V" BARS	"VI" BARS	"F" BARS	NOTES
≤ 6'	2'-6"	#4 @ 12" O.C.	#5 X 8" 8" @ 12" O.C.	#5 X 8" 8" @12" O.C.	
≤ 8'	3'-0"	#4 @ 9" O.C.	#5 X 8" 8" @ 12" O.C.	#5 X 8" 8" @12" O.C.	
≤ 10'	3'-6"	#5 @ 9" O.C.	#5 X 8" 8" @ 12" O.C.	#5 X 8" 8" @12" O.C.	

RETAINING WALL SCHEDULE

Photo 9: Inside wall of a typical stair.

J-Q JOB NO.: 6079580

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PROJECT	BARTON SPRINGS POOL & BATHHOUSE MASTER PLAN		
CLIENT	LIMBACHER & GODFREY ARCHITECTS		
REF.	REV.	DATE 08/15/07	SHEET XS-3

BARTON SPRINGS BATHHOUSE
ROOF EVALUATION
JULY 27, 2007

Barton Springs Bathhouse

SCOPE

We have conducted an examination of existing roofs to determine their general condition, and provide recommendations. Opinions, comments, and recommendations expressed below are based on available information, and may require subsequent revision.

SUMMARY

Roofs include modified bitumen low-sloped area, composition shingles, and sloped metal. Roofs include various penetrations such as vent pipes, drains, scuppers, conduit and refrigerant lines, etc. Roofs are in fair to poor condition with numerous deficiencies noted. We recommend replacement as the best long-term solution. We suggest addressing limited number of deficiencies until roof replacement can be designed, funded, and scheduled.

A. Low-sloped roofs are white granular-surfaced modified bitumen sheet set in hot asphalt.

B. There is one small area of sloped exposed fastener metal panel system over a canopy on the northeast portion of the Facility.

C. There is one area of sloped composition shingle roofing over an area near the east center section of the Facility.

OBSERVATIONS & COMMENTS

A. General: Items below were found during a cursory review (non-destructive evaluation). Important items, such as actual attachment techniques used to fasten roof, were not observed during this review. If additional items are discovered in future site visits, they would need to be added to below list.

B. Drainage: Drainage is achieved by varying slopes to roof drains in certain locations, to the roof edge in other locations, and to scuppers in still other locations. The slopes vary from 2 percent to 12.5 percent in area considered low-sloped and approximately 33 percent at shingle and metal roof areas. Drainage is poor at most low-sloped roofs.

C. Drainage: Certain roof areas are bordered by parapet walls that vary in height from a few inches to over three feet. These areas are drained by roof drains but

Certain roof areas are bordered by parapet walls that vary in height from a few inches to over three feet. These areas are drained by roof drains, but do not include overflow drainage provision.

Blistering of roof membrane noted in several areas.

do not include overflow drainage provision. Blockage of roof drains in these areas could result in a catastrophic failure.

D. Drainage: Roof drains in most locations are semi-blocked with debris resulting in slow drainage and standing water on the roofs. In addition, the roof drains do not include sumps which will likely result in some standing water remaining after debris has been removed.

E. Drainage: Other locations are drained by slope to the roof edge and the water is collected in gutters and directed down by downspouts. The roof debris has filled the gutters and semi blocked most of the downspouts.

F. Roof: Blistering of the roof membrane was noted in several locations. Blistering is typically a function of water vapor infiltrating the roof system, becoming trapped, heating and expanding which results in separation of the roof assembly.

G. Roof: Crazing of the granular surface of the modified bitumen roof was noted throughout the Facility. Crazing is typically the result of the sheet losing some of the oils. As crazing continues it will open the sheet exposing the reinforcing scrim layer resulting in accelerated deterioration of the sheet.

H. Roof: Scraping of the membrane is occurring in certain locations. Trees have overgrown the Facility roofs in certain locations and are scraping the surface of the membrane.

I. Roof: Membrane base flashings are loose and voided in certain locations. This condition is allowing water into the roof system and likely manifesting as leaks inside the Facility.

J. Roof: Solar panels have been installed on the roofs. The mounts for these panels are installed directly over, and bolted through the roof membrane without flashings.

K. Roof: There is debris on the roofs in several locations. The Facility is surrounded by large trees which are depositing debris on the roofs. The debris is impeding drainage flow, causing accelerated deterioration of the roof membrane, and allowing growth on the roofs.

L. Roof Equipment: Electrical junction boxes and conduit have been placed directly on the roof membrane. In certain locations electrical junction boxes are in stand-

ing water. Supports for electrical boxes have been set directly on the roof surface. One vent top has been removed exposing the interior to the elements.

M. Roof Equipment Penetrations: Most penetrations for roof top equipment electrical and refrigerant lines are voided and open. Some have hood assemblies which are elevated above the penetration likely allowing water to enter.

N. Parapet Walls: Certain parapet walls are capped with metal flashings. The metal flashing in these locations has been anchored through the top of the flashing and fastener penetrations are voided. In addition, fastener spacing is random ranging from approximately 18 inches to over 30 inches on center.

O. Parapet Walls: Certain parapet walls are capped with coping stones. Mortar joints at the coping stones are deteriorated.

P. Windows: Certain locations include above roof windows. Window frames are rusted, and exterior seals are deteriorated.

Q. Flashing: Certain locations include counter flashings at rise walls. Those metal flashings are voided in several locations.

R. Metal Roof: There is one small location of sloped metal roofing on the Project. The metal roof is in fair condition with limited maintenance actions required.

S. Composition Shingle Roof: There is one area of sloped composition shingles on the Project. The shingles are deteriorated. In addition, the transition area of this roof to the main Facility is deteriorated with mastic repair attempts evident.

T. Open Air Dressing Areas: The open air dressing areas include exposed concrete roof areas. The exposed concrete is in fair to good condition. There is limited cracking evident and the surface of most surface areas are stained.

RECOMMENDATIONS

A. Due to the general condition of the modified bitumen roofs and the composition shingle roof and the scope of repairs necessary we recommend replacement as the best long-term solution. We recommend installing overflow drainage provisions where required as soon as possible. We recommend accomplishing temporary repairs to address current and future leakage until such time as the replacement Project can be designed, funded, and accomplished.

B. We recommend remedial repairs at the sloped metal roof.

Certain locations include counter flashings at rise walls. Those metal flashings are voided in several locations.

Most penetrations for roof top equipment electrical and refrigerant lines are voided and open.

C. We recommend addressing the drainage issues in two phases. We recommend installing overflow drainage provisions where they are required immediately. This work should be accomplished to compliment the roof replacement work that would follow. The second phase would be when the roof replacement work is designed we recommend including provisions to address the current slow drainage such as sumps at drains, and crickets between drains. In addition, we suggest including gutter screens in the roof replacement design to help keep debris out of gutters and downspouts.

D. There are several roof replacement options available for this Project. We suggest those options should be explored during the design development phase of the Project and a replacement that fits the Facility selected. The current modified bitumen system with certain refinements such as adhesive in lieu of asphalt installation, and reflective surfacing is a good system for this area.

E. We recommend trimming the trees and vines that are currently resting on the roof.

F. The mounting of solar panels, electrical boxes, and other equipment should be addressed during the roof replacement design. As well as metal flashings, penetrations, and walls.

G. We recommend addressing the parapet wall caps during the roof replacement operation.

H. We recommend accomplishing remedial repairs such as fastener replacement, and flashing attachment at the sloped metal roof during the roof replacement operations.

I. The concrete roof areas at the open air dressing areas are not considered a water proofing concern but could be coated to provide a more pleasing appearance. Those options could be explored during the design development phase of the Project.

J. We recommend addressing the above roof windows during the roof replacement operations. The small windows over side areas could be replaced or refurbished and the window assembly over the main entrance should be sealed.

PRELIMINARY ESTIMATE OF PROBABLE COSTS

A. There are many roof replacement options available which can be explored and priced during the design development portion of the Project. For general budget-

ing purposes the amounts listed below are for a two ply modified bitumen system over board insulation. The insulation thickness should be sufficient to meet the current resistance value requirements. The add alternate portion below indicates upgrading the system to a reflective surface. The repair amount listed is for immediate repairs to address current leakage, and includes installing overflow scuppers at various locations. The amounts listed below are for general budgeting purposes and will need to be revised during the design development portion of the Project.

B. Estimates of Probable Construction Cost

C. Estimates of probable construction cost above reflect repairs to above roof windows and coping stones at parapet walls, but do not include replacement of win-

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Dredging is the engineer's term for removing the gravel bar.

DREDGING

I. INTRODUCTION

The dredging process involves five primary processes which are discussed in subsequent sections:

1. Remove silts, sands, gravels, sediments, and debris all mixed with water (i.e. the unfiltered dredged material) from the pond.
2. Transport the unfiltered dredged material to filtration hoppers.
3. Filter the water (filtrate) from the dredged solid material.
4. Dispose of the filtrate.
5. Dispose of the filtered dredged material.

At the Barton Springs Pool, it is estimated that there are between 1200 to 1500 cubic yards of solids to be removed (i.e. dredged) from the submerged bottom surfaces of the pond; 600 to 750 cubic yards of volume are estimated to be less than 5 inches in size, and 600 to 750 cubic yards of volume are estimated to be over 5 inches in size, up to about one foot in diameter.

The last dredging operation of the pond took place during the winter of 2007 using a suction dredging method. The suction dredging did not use a cutter head assembly, so only the smaller solids (i.e. less than 3 inches) were removed. Larger rocks were removed by hand. It is estimated that 650 cubic yards of dredged materials were removed. Recent flooding on Barton Creek has likely deposited additional materials that need to be removed.

II. RESTRICTIONS TO THE DREDGING PROCESS

The following restrictions were considered in assessing the feasibility of various dredging options:

- Minimize disturbance of the existing aquatic habitat, especially salamander habitat.
- Minimize disruption of the public's use of the Pool and surrounding park areas and facilities; therefore, all construction staging and activities take place on the south side of the Pool (except the barge might be deployed from the west end of the Pool).
- Minimize disturbance to the Pool facilities and to the park areas surrounding the Pool.
- Minimize point source discharges of unfiltered water.
- Proper containment and disposal of filtrate and filtered dredged materials.
- Obtaining proper permits and approvals for the dredging operations.

III. REMOVAL OF SILTS, SANDS, GRAVEL, ROCKS AND DEBRIS

The removal of silts, sands, gravel, rocks, and debris (all mixed with Pool water) involves two primary alternative methods: (1) suction, or (2) scraping. Suction dredging involves siphoning the solids and water up through a tube, similar to a vacuum cleaner. If the solids are too large for suction, a cutter head can be used at the suction tube to grind the solids into smaller particles. Rocks will slow the grinding process and cause considerable wear and tear on the equipment. Scrape dredging involves picking up the solids by mechanical means, such as using a bucket mounted on a backhoe or crane. Due to the size and volume of the materials to be removed, at least initially, scrape dredging is considered to be the most feasible method to dredge. The use of vacuum dredging might be feasible for subsequent dredging if materials that remain after the initial scrape dredging or are deposited after the initial scrape dredging have predominant sizes below 3 inches.

Two alternative methods for the initial scrape dredging appear feasible for the Pool: using a standard backhoe excavator or using a clamshell bucket mounted on a crane.

Backhoe Dredging: The backhoe would be mounted on a barge, floating in the middle of the pond. The backhoe would need a horizontal reach of at least 50 feet to the south bank of the Pool. The backhoe and barge would be serviced by a work boat. Since the backhoe is hydraulically driven, substantial secondary oil containment systems, including oil booms, would need to be installed. The dredging of materials would be performed by excavating

the materials from the pond. The backhoe would swing each load over to the bank and dump the unfiltered dredged materials into a filtration hopper or into the transport system that takes the materials to the filtration hopper.

Clamshell Dredging: A clamshell bucket would be operated by a dragline crane. The crane would move along the south hill of the Pool, with a horizontal reach of at least 200 feet. Due to restraints in siting the dragline crane and its overhead clearance requirements, clamshell dredging does not appear to be as feasible as backhoe dredging.

Aquatic turbidity curtains would be installed around the peripheries of the aquatic habitats to help reduce turbidity and the deposition of silts and sediments onto the habitat surfaces during the dredging process.

IV. TRANSPORT THE UNFILTERED DREDGED MATERIAL TO FILTRATION HOPPER

The unfiltered dredged material must be transported from the dredge bucket to the filtration hopper. If the filtration hopper is located on the south bank of the Pool and the hopper is mobile, then the backhoe or dragline should be able to dump each load directly into the hopper, without intermediate transport. If the filtration hopper is not mobile along the south bank, then intermediate transport of the dredged materials from the dredge bucket to the filtration hopper is needed. If the hopper can not be located on the south bank of the Pool, but must be located on top of the south hill, then intermediate transport of the unfiltered dredged materials will be needed. The filtration hopper would not be located on the bank of the Pool if:

- The weight of the loaded hopper is too much for the concrete walkway and/or Pool retaining wall.
- The weight of vehicles transporting the loaded hopper to the top of the hill is too much for the concrete walkway and/or Pool retaining wall.

If the filtration hopper is located on top of the south hill, then the unfiltered dredged materials can be transported to the hopper by crane, vehicles, or conveyor belt.

Vehicle Transport: Vehicle transport is the most versatile and common method to haul the materials to the hopper. There are a variety of vehicles that could be used to haul the materials up the hill from the bank of the pond. However, the use of vehicles to haul the materials will require a reliable haul road, the construction and use of which may result in considerable disturbance to the park area surrounding the Pool. Also, it is not known if ei-

ther the existing concrete walkways or retaining walls can support loaded vehicles running along the bank of the Pool.

Conveyor Belt Transport: A conveyor belt system could be installed from the south bank of the pond and routed up the hill to the hopper in a manner similar to sand and gravel handling facilities. However, the conveyor would need its own containment system to contain materials spillage from the belt and unfiltered water flowing from the materials on the belt. Also, some type of intermediate transport would be required to get the materials from the dredge bucket to the conveyor belt. A materials hopper to feed the dredged materials onto the conveyor would be required; the hopper would need to be located on the south bank where the ground surface could support the loaded hopper. Conveyors are not commonly rentable equipment; it is likely that a specialty company would need to be hired to provide the conveyor.

Crane Transport: Crane transport would have the least impact to the Pool and surrounding park area. A crane could be situated at an intermediate point on the south hill between the south Pool bank and the filtration hopper and would need about 150 feet of horizontal reach to pick up each load of unfiltered dredged material and swing the load around to the filtration hopper.

V. FILTER THE DREDGED MATERIAL

The purpose of the filtration hopper would be to filter the water from the solids. The water quality requirements for the discharged filtered water (i.e. the filtrate) will dictate the fineness of the filter medium to be used. A filtration hopper can be simply an industrial waste hopper (or concrete bucket) that is lined with a filter medium, such as filter cloth, with a discharge assembly in the bottom of the hopper to discharge the filtrate. The unfiltered dredged material is loaded into the top of the hopper over the filter medium, and the water filters from the solids by gravity.

VI. DISCHARGE OF FILTRATE

Depending upon the quality and chemical composition of the filtrate, the filtrate could be discharged: back into Barton Creek downstream of the Pool, or into a nearby storm drain system, or into a nearby wastewater collection system, or irrigated onto open fields. Water quality regulations may dictate the receiving body of the discharged filtrate.

VII. DISPOSAL OF FILTERED DREDGED MATERIALS

As long as the filtered dredged materials do not contain hazardous compounds, the materi-

als will likely be classified as a Class [classification] waste for disposal purposes. The material should be disposed at a licensed waste disposal facility. Testing of the chemical composition of the materials might be needed to confirm the waste classification of the materials.

VIII. SUCTION DREDGING

As mentioned above, suction dredging might be feasible for subsequent dredging if materials that remain after the initial scrape dredging or are deposited after the initial scrape dredging have predominant sizes below 3 inches. The process of suction dredging would likely be similar to the process used for the suction dredging performed during the winter of 2007:

- A work barge with suction pumps would be located in the Pool. A diver would operate the suction head.
- A discharge line, routed from the work barge pumps to the top of the south hill, would discharge the dredged materials into the filtration hopper.
- The filtering of the material and disposal of the dredged material and filtered water (filtrate) would be performed in a similar manner as discussed above for scrape dredging.

IX. ENVIRONMENTAL PROTECTION AND PERMITS

Dredging may have environmental impacts. The following was taken from Wikipedia:

"Dredging can create disturbance to aquatic ecosystems, often with adverse impacts. In addition, dredge spoils may contain toxic chemicals that may have an adverse effect on the disposal area; furthermore, the process of dredging often dislodges chemicals residing in benthic substrates and injects them into the water column."

"The activity of dredging can create the following principal impacts to the environment:

- Release of toxic chemicals (including heavy metals and PCB) from bottom sediments into the water column.
- Short term increases in turbidity, which can affect aquatic species metabolism and interfere with spawning.
- Secondary effects from water column contamination of uptake of heavy metals, DDT and other persistent organic toxins, via food chain uptake and subsequent concentrations of these toxins in higher organisms including humans.

- Secondary impacts to marsh productivity from sedimentation.
- Tertiary impacts to avafauna which may prey upon contaminated aquatic organisms.
- Secondary impacts to aquatic and benthic organisms' metabolism and mortality.
- Possible contamination of dredge spoil sites."
- In order to address environmental impacts by the dredging operations the following features have been included in the cost estimates (see Section X below):
- Turbidity curtains around the Pool's aquatic habitats.
- Secondary containment systems (e.g. oil booms) within the Pool where there is equipment on or near the Pool.
- Temporary erosion and sediment controls where ground surfaces are disturbed by construction and where surface runoff might be laden with sediments.
- Filtration hoppers.
- Disposal of filtered dredged materials.
- Dredging of the Pool might require the following permits and approvals:
- City of Austin site development permit.
- TCEQ Edwards Aquifer Recharge Zone permit.
- State Land Office sand and gravel permit.
- U.S. Fish and Wildlife approval.
- Solid waste disposal permit.
- TCEQ point source pollution control permit.
- TCEQ non-point source pollution control permit
- U.S. Army Corps of Engineers Section 404 Permit (possibly a Nationwide Permit).

X. SCHEDULE

It would take approximately 4 weeks to perform the scrape dredging work: 2 weeks to dredge, plus 2 weeks for on-site mobilization and demobilization. Establishment of any required re-vegetation to restore the site will take a longer period of time.

It would take approximately 3 to 4 weeks to perform subsequent suction dredging.

Notes on Project Delivery Method for Dredging Operation: Contracting Method

The dredging report assumes that the professional services and construction contracting will follow the City's normal CIP process. However, the City has the option to perform the engineering/bidding/contracting with internal staff, as it did the last time. If the City uses its own staff, then the City might want to hire an outside consultant to QC its bid documents. The City also has its own internal environmental staff, so it might use its own environmental staff to perform the required environmental assessments. Otherwise an outside environmental consulting firm would be hired. The environmental scientist (city staff or consultant) would need to be involved during the design stage and stay involved throughout the construction phase, so the environmental scientist needs to be independent of the contractor. If the City does not use its own internal environmental staff, then the environmental scientist can be hired directly by the City or hired by the prime consulting engineer (if the City hires a consulting engineer to prepare the dredging construction documents).

Technical Specifications

The development of the technical specifications and accompanying construction plans and bid and construction contracting documents (all together called the Project Manual) can be developed by City staff or by a consultant; that is a City decision. The specifications that go into the Project Manual will be comprised of City standard specifications and special tailored provisions and specifications for the dredging that are not covered by the standard specifications. To a great degree, the special provisions will be performance specifications (e.g. the means and methods of dredging will not be specified, but the performance of the dredging will be specified, such as remove 99%? of existing loose materials within the pool, do not disturb certain areas within the pool, do not damage the dam, retaining walls, and sidewalks, cranes and hoppers must be situated only within certain areas, etc.). During dredging, tests must be run on the dredged materials to confirm that they do not contain contaminants and to confirm their waste classification for proper disposal or for re-cycled use. These tests will be run under the guidance of the environmental scientist. The environmental scientist also coordinates the paperwork required of the City as "owners" of the waste to document the ultimate disposal (or re-cycled use) of the waste. The required tests are included in the specifications and either the City or the contractor has the tests run (however it is specified).

Because the gravel bar removal operation is the most aggressive task contemplated by this master plan, and because it is so unusual for Barton Springs (requiring both delicacy and significant mechanical power), these notes were prepared to anwer certain questions about the technical aspects of writing and administering this contract.

Construction Services

If an engineering consultant is hired, then the consultant can provide construction-phase services; however, the dredging operation will be small enough that the contractor should provide the CM services, not the City or the engineering consultant. The City has sufficient capabilities to provide inspectors for the construction. If needed, the engineering consultant can supplement the City inspection staff. Quality control tests will be performed by the contractor (e.g. waste classification tests). Quality assurance tests might be performed by the City if needed. As mentioned above, the construction-phase services will also involve the services of an environmental scientist. If for LEED- certification purposes the dredged materials are re-cycled for re-use, then additional tests will probably be required to insure that the re-cycled materials are properly used (e.g. to re-construct eroded sections along the Lady Bird Johnson Lake path).

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BYPASS TUNNEL TRASH SCREEN AND DEBRIS BARRIER

I. INTRODUCTION

During flood events on Barton Creek, the trash screen for the inlet to the 6ft by 10ft bypass tunnel gets clogged with debris, reducing the capacity of the flow bypass system. The clogging of the trash screen is significant enough to increase the frequency of creek flows overtopping the upstream dam. The trash screen has been damaged to the point that the public is able to climb through the bent structural members and access the interior of the tunnel. The trash screen needs to be replaced to improve the hydraulic capacity of the tunnel, to prevent unauthorized access into the tunnel, and to improve the maintainability of the screen.

During flooding events, flood flows along Barton Creek overtop the crest of the upstream Pool dam and deposit debris, silts, sands, gravel, and rocks within the Pool area. Some means of catching the material before being deposited within the Pool is desirable for maintenance purposes.

II. BYPASS TUNNEL TRASH SCREEN

The primary purposes of the trash screen at the inlet of the bypass tunnel are to serve as a barrier to prevent the public from accessing the interior of the tunnel from the inlet end of the tunnel and to prevent debris from clogging the interior of the tunnel. Impact and corrosion damage to the structural members of the screen prevent the screen from effectively fulfilling either primary purpose, and the damage is sufficient to warrant complete replacement of the screen.

A replacement screen was sized for cost estimating purposes to consist of inclined pipes with 4-inch clear spacing between each pipe. The pipe screen would be similar to a Tx-DOT traffic safety device used on culverts. The total area of clear opening between the

screen's pipes was sized to be at least 4 times the cross-sectional flow area of the bypass tunnel (i.e. 4 times 60sf) to account for frictional losses and 50% clogging of the screen. To provide for 240 square feet of effective flow area through the pipe screen, the screen would extend 18 feet away for the inlet face of the tunnel.

III. DEBRIS BARRIER

The construction of a barrier upstream of the upstream dam to trap sand/gravel/rock would probably not be effective. Currently, the existing upstream dam traps very little material against its upstream face, so it is likely that an upstream barrier would not be any more effective in trapping soil and rock material.

A debris barrier cable could be installed to span the width of the creek upstream of the upstream dam. The horizontal barrier cable would float on the rising creek water surface with the aid of floating barrier buoys. The cable, along with vertical chains attached to the cable at one end and to the creek bed at the other end, would snag some percentage of the floating debris before reaching the Pool dam and bypass trash screen. The impact from floating debris and the lateral thrust of flowing water against the snagged debris would exert high lateral pressures against the cable and chains, so each end of the cable would be anchored by a reinforced concrete drilled pier.

The primary disadvantages of the debris barrier include:

- The barrier, especially the barrier buoys, would be subject to vandalism.
- The barrier buoys would be susceptible to debris damage.
- Debris would need to be removed from the barrier on a frequent basis so as not to form a debris dam that could adversely influence upstream flood levels.
- The barrier cable would be subject to oxidation (i.e. rusting). A stainless steel cable could be used in lieu of a normal steel cable; however, the stainless steel cable would not be as strong.
- The connectors between the chains and the cable and between the cable and the end pier anchors would be susceptible to breaking under high impact loading and hydraulic thrust.

IV. SCHEDULE

It would take approximately 1 to 2 months to fabricate the new bypass tunnel trash screen and another 1 month to install it.

It would take approximately one month to install a cable barrier across the creek channel upstream of the upstream dam.

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REPAIRS TO BYPASS TUNNEL CONSTRUCTION JOINTS

I. INTRODUCTION

The vertical construction joints within the bypass tunnel are exhibiting signs of distress, including cracking and spalling. At some locations, the spalling has exposed the reinforcing steel at the joints. The joints need to be repaired to restore the concrete's integrity and to provide adequate coverage over the reinforcing steel.

II. JOINT REPAIR

The cracked and spalled concrete along each joint should be removed to sound concrete and to such a depth to completely expose the first reinforcing bar parallel to the joint. The existing exposed reinforcing bar can be used to anchor the repair grout to the repair section without having to use anchors or dowels. A pumpable non-shrink, non-metallic grout can be used to restore the concrete sections.

III. SCHEDULE

It would take approximately 4 months to complete the repairs, assuming there are virtually no flows within Barton Creek: 1 month for mobilization, 2 months for repairs, and 1 month for de-mobilization and site restoration.

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BATHYMETRIC AND LAND SURVEYS

I. SCOPE

A. Survey Barton Creek floodplain upstream of the upstream dam

1. Use City of Austin (COA) and/or Lower Colorado River Authority (LCRA) existing GIS database for topographic and aerial photographic information for the hydrologic and hydraulic analyses of the watershed for the design of the dam and site improvements. GIS data should encompass the entire contributing watershed of Barton Creek upstream of the Pool.

2. Perform field surveys, tied to the Texas State Plane Coordinate System and to City GPS horizontal and vertical controls, using normal GPS survey methods at critical hydraulic control points along Barton Creek within the anticipated 100-year backwater created by raising the crest of the upstream dam to confirm and supplement the existing GIS data; to delineate floodplains, land rights tied to specific ground elevations, critical environmental features, critical water quality zones; to provide detailed topography at the existing upstream dam site for design of improvements at 1-ft contour intervals on 50-ft grid; to locate the alignments and grades of existing above-ground and buried infrastructure and utilities that might be impacted by the improvements. Locations of field surveys will depend upon final design and land rights acquisition requirements.

B. Survey the locations, dimensions and grades of dam and Pool structural features, including the upstream dam, bypass tunnel, walkways along the Pool, retaining walls, and appurtenances using normal GPS survey methods. Tie survey to the Texas State Plane Coordinate System and to the City's GPS horizontal and vertical

controls.

C. Survey within the Pool area its terrain and habitat, tied to the Texas State Plane Coordinate System and to the City's GPS horizontal and vertical controls, to include:

    1. Topographic survey of terrain and habitat exposed above Pool level using normal GPS survey methods at 1ft-ft contour intervals on 50-ft grid pattern.

    2. Bathymetric survey of terrain and habitat topography and features submerged by the Pool using one or a combination of the following methods: (i) using a GPS-linked sounding survey using survey rod from wading positions and from a boat (where too deep to wade), (ii) using a GPS-linked sonar from a manned or remote-controlled boat. Survey at 1-ft contour intervals on 50-ft grid pattern.

    3. Bathymetric survey of selected habitat areas within the Pool to better define the boundaries and physical characteristics of the habitats. Survey at 1-ft contour interval at 25-ft grid patterns.

D. Survey the "south woods" above the south bank of the Pool, tied to the Texas State Plane Coordinate System and to the City's GPS horizontal and vertical controls, to include:

    1. Topographic survey using standard GPS survey methods at 1-ft contour intevals on 50-ft grid pattern.

    2. Tree survey of locations, trunk diameters and tree species of trees with diameters of 4 inches or greater. Tag all trees.

E. Survey Barton Creek Floodplain downstream of the downstream dam

    1. Use COA and/or LCRA existing GIS database for topographic and aerial photographic information to be used for the hydrologic and hydraulic analyses of the watershed runoff and of the discharge from the Pool for the design of the dam and site improvements. GIS data should encompass the entire contributing watershed of Barton Creek from the Pool downstream to the Colorado River.

    2. Perform field surveys using normal GPS survey methods, tied to the Texas State Plane Coordinate System and to the City's GPS horizontal and vertical

controls, at critical hydraulic control points along Barton Creek from the dam downstream to the Colorado River to confirm and supplement the existing GIS data; to delineate floodplains, land rights tied to specific ground elevations, critical environmental features, critical water quality zones; to provide detailed topography at the existing downstream dam site for design of dam improvements; to provide detailed topography at the proposed downstream dam site for design of dam improvements at 1-ft contour intervals at 50-ft grid patterns; to located the alignments and grades of existing above-ground and buried infrastructure and utilities that might be impacted by the improvements. Locations of field surveys will depend upon final design and land rights acquisition requirements.

3. Set permanent benchmarks on the Eliza Spring and Sunken Garden concrete structures. Tie benchmarks to the Texas State Plane Coordinate System and to the City's existing GPS horizontal and vertical controls.

F. Survey to locate existing property and easement lines along Barton Creek, extending from the upstream extent of the 100-year backwater created by the improvements to the pond dam(s) to the downstream extent of improvements to the existing dam or to spring run from Sunken Garden, whichever is further downstream.

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ALGAE REMOVAL

1. INTRODUCTION

Floating algae is creating a nuisance within the Pool up to about eight months out of the year. Prevailing winds usually drive the algae to the south bank of the Pool. The City desires a temporary or permanent system whereby the algae can be collected and removed from the pond with a method that is not labor intensive and that minimizes disruption of the public's use of the Pool. The City reported success with a temporary half pipe system

mounted to the south retaining wall. The following sections describe temporary and permanent systems to remove algae.

I. TEMPORARY ALGAE REMOVAL SYSTEMS

A. DEWATERING BAG

A dewatering bag system to remove algae consists of a portable, gasoline-powered trash pump and a filtration sock (dewatering bag) on the discharge end of the pump. Algae is siphoned from the Pool surface through the suction pipe of the pump and is filtered from the water as the water flows through the filtering cloth of the dewatering bag. This method is commonly used on construction sites to filter turbid water. The filtered water (i.e. the filtrate) is allowed to flow back into the Pool or is discharged into Barton Creek downstream of the Pool's dam. Point source pollution control regulations may dictate the receiving body of the filtered water. To minimize the labor requirements of moving the pump, the hoses, and the dewatering bag, up to four portable systems are provided to be located anywhere along the banks of the Pool.

The dewatering bag system requires maintenance of the pump its gasoline generator power source, requires set up and dismantling of the system for each use, and requires disposal and replacement of the dewatering bag after each use. However, this system has the lowest initial cost to implement.

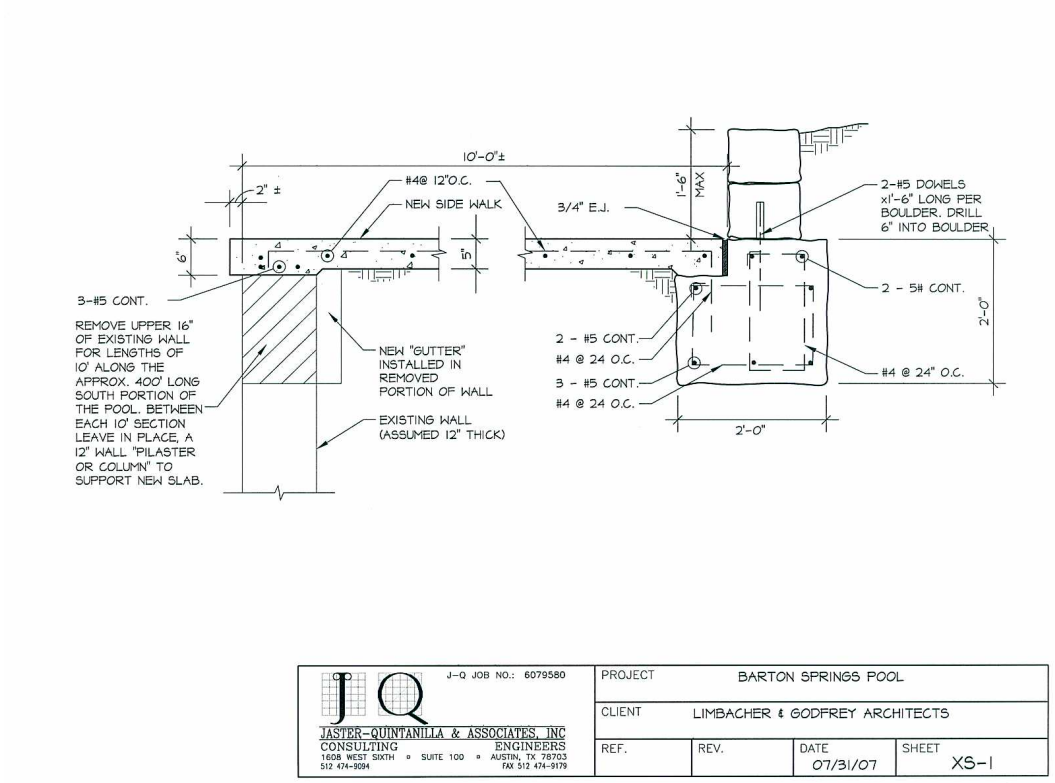
B. TEMPORARY SKIMMER SYSTEM

A temporary skimmer system to remove algae consists of 350 feet of a removable/adjustable gutter that is temporarily mounted by brackets along the south bank of the Pool. The gutter is a pipe with openings along its crown to allow water to flow into the gutter. The gutter can be dismantled and removed by City staff hand labor from the support brackets without the use of a crane. The removable support brackets are attached to the south bank wall by threaded inserts. Algae is removed from the Pool as the algae-laden water flows into the gutter and is directed by gravity flow or by pump to a filtering screen and then discharged either back into the Pool or into Barton Creek downstream of the Pool's dam. Point source pollution control regulations may dictate the receiving body of the filtered water. As water levels fluctuate within the Pool, the gutter level can be vertically adjusted at each support bracket to maintain a sufficient flow of water (with algae) into the gutter.

In the course of planning team discussions, questions were raised about the structural capacity of the sidewalk along the south edge of the Pool. Typically, sidewalks are designed to a 200 pounds/sq. ft. standard. But for sidewalks near the water's edge like this one, the soils below them are frequently washed out, leaving them considerably more fragile. In a conversation with a contractor experienced in these situations, 56 pounds/sq. ft. was offered as a reasonable planning assumption. The following excerpt from an August 15, 2007 e-mail is a response from Byron Hicks, P.E. to an inquiry about reasonable planning assumptions for bearing capacity, and in particular, does 56 pounds/sq. ft. seem reasonable:

> *Some of the typical roll-off dumpsters are about 8'-0" wide by 22'-0" long, and contain four separate point loads. Yes, we can distribute the loading for each hopper by utilizing wooden skids or large plates at the point loads. This should be OK on the south sidewalk.*

Thank you,
Byron Hicks, P.E.
Jaster-Quintanilla, Structural Engineers



A permanent algae skimmer was one of the concepts the planning team was asked to explore. Because of cost and the disruption to pool operations the construction would cause, this idea was not further pursued.

The temporary skimmer system requires the initial fabrication and installation of the support brackets, slotted pipe, structural inserts for the brackets, filtering system, and discharge system. Each installation and dismantling of the pipe sections may be difficult without lifting equipment. The structural integrity of the south bank wall must be confirmed to be able to receive the structural inserts for the support brackets. This system requires dismantling after each use. The initial fabrication and installation cost of this system is less than the cost of a permanent skimmer system, but has a greater cost than the dewatering bag system.

II. PERMANENT ALGAE REMOVAL SYSTEM

The permanent skimmer system consists of 350 feet of a stainless steel trough that is mounted underneath the south bank walkway deck (see the Jaster-Quintanilla section).

The trough is configured to allow fluctuations in Pool levels up to about 4 to 6 inches below normal level. The flows within the trough are directed by gravity flow to a filtering screen and then discharged either back into the Pool or into Barton Creek downstream of the Pool. Point source pollution control regulations may dictate the receiving body of the filtered water.

The permanent skimmer system is configured based upon the following general principals:

a. Wind drives the floating algae over to the south bank to the gutter.

b. The gutter will have ½" to 1" diameter openings in a vertical plate against which the Pool's water surface will lap. The openings must be small enough so that the flow rate through the holes is not so great that the gutter behind the vertical plate overflows. The vertical plate with holes must have sufficient height (about 5' to 6") so that most normal Pool water levels will always be in contact with the plate.

c. Even though the holes in the vertical plate will be small enough to limit the flow rate into the gutter, the velocity of flow going through the holes must be fast enough so that the algae will either be sucked through the holes into the gutter or will be filtered on the face of the vertical plate.

In order to install the permanent stainless steel trough, 350 feet of the existing south bank concrete deck, rock retaining wall, and top 16 inches of Pool wall must be removed. The new reinforced concrete deck would cantilever over the trough, thereby hiding the trough under the outer lip of the deck. After constructing the new 10 foot wide deck walkway, the 18-inch high rock retaining wall would be rebuilt back in place.

The permanent skimmer system is the most costly of the algae removal systems and requires the greatest amount of modifications and alterations to the Pool's south bank wall. Since this system is a permanent system, it will not require removal after each use.

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Recirculation along North Bank Estimated Costs

Recirculation	*444,500*
Subtotal	*444,500*
Contingency (25%)	*111,125*
TOTAL	*$555,625*

These estimated costs include construction costs, professional fees, administrative and soft costs and a factor for price escalation.

A careful reading of the bullet points in this report reveals that the solution described does not provide recirculation for the entire "Beach" area. In a subsequent communication, the report's author describes the kinds of challenges this idea is likely to face:

The flow rate that can be discharged from the spring over to the north bank is limited by the flow rate coming out of the spring (to some degree), but mostly by the pipe sizes from the pump to the north bank area. I assumed a flexible 3-inch diameter pipe would be used if it is laid across the bottom of the Pool. Assuming a pumped flow velocity of 20 feet per second (which is too high) being pushed through the pipe, only 1cfs can be pumped through the pipe. In reality we would probably design the 3-inch pipe to carry a velocity of only 10fps, which would result in a flow rate of only 0.5cfs. A 6-inch diameter pipe could carry about 2cfs (900gpm) at a velocity of 10fps, but 2cfs is still not enough flow to cover the 8,200sf area (410ft by 20ft). I suspect that the flow rate needed to cover the 8,200sf area with at least 1/2fps velocity spring water might approach, or even exceed the flow rate of the spring.

John King, PE

RECIRCULATION ALONG NORTH BANK HABITAT

I. INTRODUCTION

The City desires to re-circulate water from the deep portion of the Pool to the submerged habitat along the north bank of the Pool to simulate stream flow as reasonably as possible.

II. ASSUMPTIONS

The following assumptions were the basis of the cost estimate to provide re-circulation flows:

- The source of water for re-circulation purposes would come from the deep part of the Pool at its southeast corner. Water would be pumped by up to 3 submersible pumps at a total rate of about 2cfs (880gpm).
- Water would be pumped through a flexible 6-inch pipe over to the north bank area and connected to a 6-inch dia. steel header pipe. The diameter and length of the two 6-inch dia. pipes and the maximum allowable flow velocity in the pipes (about 10fps) would control the pumping rate (i.e. 880gpm).
- 20 flexible 1.5-inch dia. hoses would be connected on one end to the header pipe and on the other end to 20 submerged spray nozzles. The flow rate through each hose and nozzle would be about 0.1cfs (i.e. 44gpm).
- The maximum discharge velocity at the opening of each spray nozzle would be about 5fps so as not to scour the gravel surface.
- The minimum flow velocity would be 1/2fps, which would define the outer limits of the effectiveness of each spray nozzle simulating flowing stream water. At a flow rate of 0.1cfs (44gpm) this effective flow area would extend about 3 feet out in front of each nozzle, covering an area of about 2.3 square feet per nozzle with flow velocities between ½ to 5fps.

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TURBIDITY REMOVAL

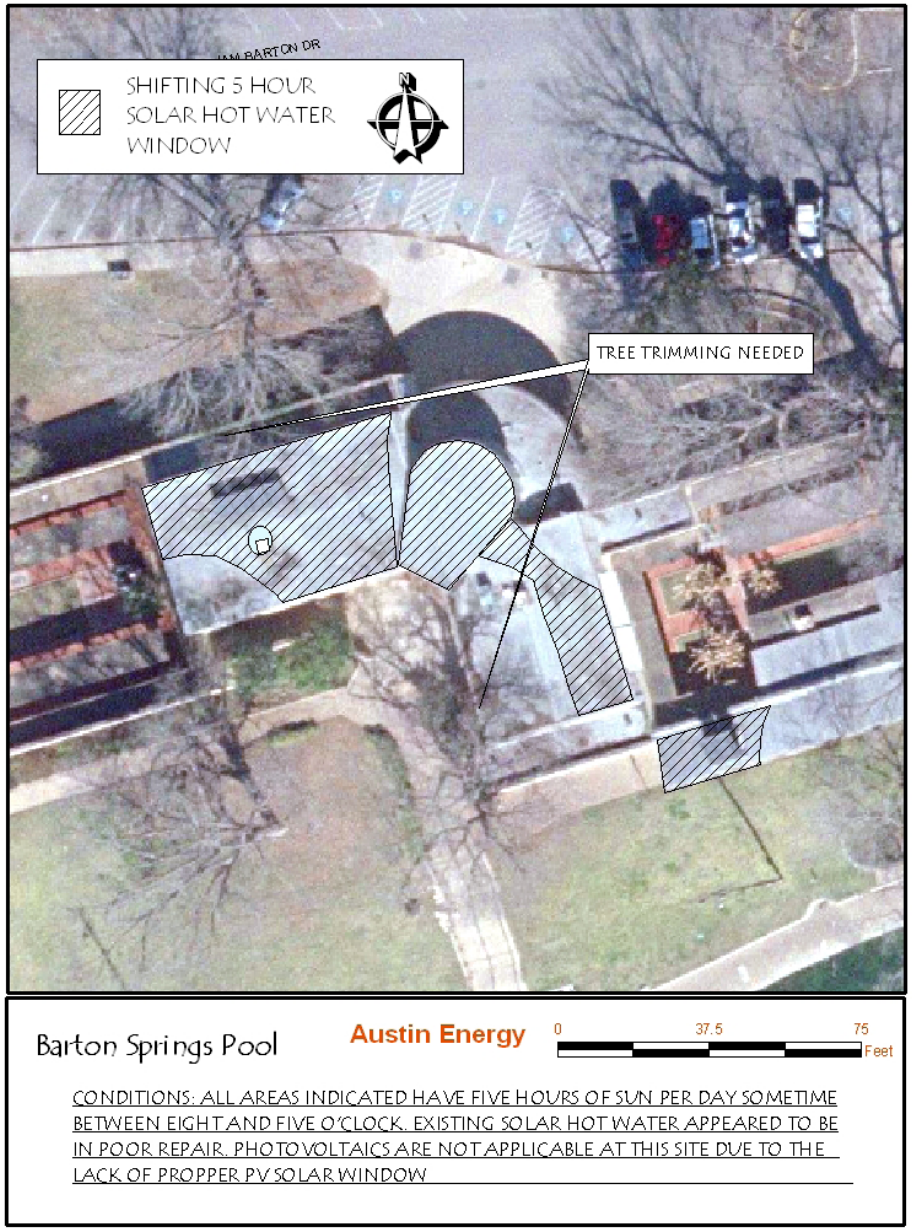
1. INTRODUCTION

Following a flood, City staff uses high pressure fire hoses and brooms to clean the shallow end of the Pool. The turbid, muddy water within the Pool is concentrated within a confined area and a trash pump is used to pump the turbid water from the Pool into the deck drains. The discharge of the turbid water creates a potential point-source pollution discharge into Barton Creek downstream of the Pool's dam. It can take up to 20 hours to discharge about 240,000 gallons of turbid water from the Pool with the City's existing resources. The following section discusses a temporary system that can be used by the City to filter the turbid water before it is discharged into Barton Creek within one day.

II. DEWATERING BAG

A dewatering bag system to filter turbid Pool water consists of a portable, gasoline-powered trash pump and a filtration sock (dewatering bag) on the discharge end of the pump. Turbid Pool water is siphoned from the Pool through the suction pipe of the pump and is filtered from the water as the water flows through the filtering cloth of the dewatering bag. This method is commonly used on construction sites to filter turbid water. The filtered water (i.e. the filtrate) is allowed to flow back into the Pool or is discharged into Barton Creek downstream of the Pool's dam. Point source pollution control regulations may dictate the receiving body of the filtered water. To minimize the labor requirements of moving the pump, the hoses, and the dewatering bag and to minimize the time required to discharge 240,000 gallons of turbid water (i.e. discharge the volume within one day), four portable systems (each with 150gpm capacity) are provided.

The dewatering bag system requires maintenance of the pump and its gasoline generator power source, requires set up and dismantling of the system for each use, and requires disposal and replacement of the dewatering bag after each use.



This document was prepared by Austin Energy. AE is a public entity, and not a consultant to this team. Nonetheless, their analysis provides useful background information for planning purposes, so is included here. The diagram indicates potential locations for rooftop solar collectors. Note the influence of nearby trees.

In a July 18, 2007 e-mail, Austin Energy also supplied the planning team with the following analysis:

We figure that each square foot of solar water heating collector can furnish approximately 400 gallons of hot water per year, or on average 1.09 gallon per day. The summer will of course be higher than the annual average and the winter lower. During June through August the average would be about 1.4 gallons per day per square foot of collector. So if you could use all 3400 square feet for solar collectors, figure a little over 4000 gallons per day of 140 F water.
Mark Kapner
Senior Strategy Engineer
Strategic Planning Group
Austin Energy

Tom Green & Company Engineers, Inc.

Barton Springs Pool Bathhouse Master Plan
Austin, Texas
Feasibility Study Phase MEP Systems Description
December 21, 2007

A. General:

1. Presented herein are descriptions of current concepts for the mechanical, electrical, and plumbing (MEP) systems for the Bathhouse and Pool area renovation. These represent our current understandings of the overall project scope and systems approaches.
2. In general, the existing building will be remodeled and brought up to current codes to accomplish at least two purposes: restoration and renovation of a historically significant "landmark" structure; and revitalization for current and anticipated uses in a sustainable, energy conserving, and water conserving manner.
3. This preliminary report is intended as a platform for discussion and review so that MEP design evolution and convergence can proceed.
4. Recommendations for MEP system are based on information obtained from City Utility maps, conversations with Parks and Utility company personnel, and limited site observations. No record documentation on the existing facility was available.

B. Applicable Standards and Codes:

1. International Building Code – 2003 Edition
2.* Uniform Mechanical Code – 2003 Edition with City of Austin Local Amendments
3.* Uniform Plumbing Code – 2003 Edition with City of Austin Local Amendments
4. International Energy Conservation Code – 2003 Edition
5. International Fire Code – 2003 Edition with Appendixes B, C, D, and E

6. NFPA 13 – Installation of Sprinkler Systems
7. NFPA 54 – Natural Fuel Gas Code
8. NFPA 70 – National Electrical Code - 2005 Edition with Appendixes A through E
9. NFPA 90A & 90B – Standards For Installation of HVAC Systems, 2002 Edition

* International Mechanical and Plumbing Codes are being considered for adoption by the City of Austin. If such is accomplished or clearly scheduled at the onset of design, the applicable codes will be adjusted for design phases of the project.

C. Mechanical Systems Description:

1. Heating, Ventilating, and Air Conditioning (HVAC) Systems: Various system types have been considered for this facility. These considerations have included sustainability features inherent within the systems. These considerations have also recognized that mechanical cooling and heating components will serve only a small part of the overall facility, and that special performance needs (such as dehumidifying large quantities of ventilation air) are not likely to be encountered.

   Two primary candidates have emerged from these systems considerations. The following are descriptions of the characteristics of each candidate, including overview discussions of pertinent advantages and disadvantages of each.

   a. Air Source Heat Pumps (ASHP): This system is a conventional approach. It consists of an indoor heat pump unit with backup electric heat and a remotely located air-cooled outdoor heat pump unit (condensing unit). Units are available with dual compressors or two stage compressors and with variable speed indoor fans. These features provide improved load matching and energy savings. Indoor units will require mechanical rooms or accessible attic/ceiling space for mounting. External low velocity filter enclosures will be provided where space can be made available.

      A system "desuperheater" option can also be applied that provides domestic water pre-heating form the compressor waste heat. This option also improves the cooling operation efficiency of the air-cooled heat pumps.

      A single unit may serve several rooms of the Bathhouse that have common use and/or exterior exposures. Ductwork may be routed in ceiling spaces/furr

downs or as exposed double wall ductwork. An accessible remote area will be required for each outdoor unit.

This system type has an energy efficiency rating (EER) of up to 14 (a seasonal energy efficiency rating –SEER- of up to 21). It is one of the lower first cost options.

b. Ground Coupled Heat Pumps (GCHP): This system is somewhat less conventional than the ASHP system. GCHPs consist of an indoor unit with an integral compressor and a water-cooled condenser. The condenser has refrigerant on one side and re-circulated water on the other. The recirculated water uses the ground for its heat sink. Therefore, the outdoor units (condensing units) do not exist in this system.

   Instead, the heat exchange part of the outdoor units (condensing units) is replaced with piping in the ground (hence the term "ground coupled"). Although other forms of this ground-coupled piping can be used, the normal and more economical form is to use boreholes.

   The boreholes are basically wells approximately 280 feet deep and 15 to 20 feet apart, in which a piping loop is installed from the top to bottom and back to the top. Hence, the piping is a closed system, not extracting water from nor pumping water into the ground. The void spaces in the borehole around the pipe are filled with a material to allow the ground to absorb or reject heat as required. This fill material also serves as a well plug to prevent communication through the borehole from one strata to another. Approximately ten to fifteen boreholes would be needed for this system.

   Permits for drilling the boreholes are required to be obtained from the Barton Springs/Edwards Aquifer Conservation District. Although permits have not been obtained at this time, it is not expected that the District would disallow drilling of boreholes. Based on available information from the Barton Springs/Edwards Aquifer Conservation District, and local bore-hole drillers experienced with drilling in the area, we have reasonable confidence that vertical bore holes are achievable without environmental impact.

   The GCHP indoor units are potentially noisier than ASHP systems due to the compressor being located in the indoor blower unit. A small hum or buzz of the compressor is often noticeable through the unit casing. Therefore, design

would need to consider unit locations and would need to implement features to address sound concerns. This issue is not expected to be a major concern in this facility.

The GCHP system can achieve EER ratings up to 24, provided sufficient boreholes are included. This system can also be purchased with an optional desuperheater heat exchanger at the indoor unit to preheat domestic water. Due primarily to the boreholes and the related piping and (small) pumps, the GCHP system is a higher first cost system than the ACHP system. Depending on site and geological conditions, this added cost is roughly $1,500 to $2,500 per ton of cooling.

For GCHP systems, the added costs of both design and construction are typically counterbalanced by their higher efficiencies. Given this balance and the Owner's stated preference for the GCHP system, it is judged that the GCHP system is preferable to the ASHP system for this project. If the energy savings features of this GCHP system (rather than the feature of not having outdoor condensing units) are of primary concern, appropriate energy modeling should be performed in the Schematic Design phase to confirm acceptable energy performance and payback.

2. Pretreated Outside Air/Dehumidification systems: A pretreatment system for outside air (ventilation air) may be advisable to acceptably pressurize the building during cooling seasons. If so, a small dedicated outdoor air system to cool and dehumidify ventilation air should be included. The need for this system will be partly dependent on the number of doors and operable windows in the conditioned space, the expected frequency of doors operation (opening, closing), and other air sealing conditions in the building envelope. This outdoor air system could be arranged to use a heat sink (air or ground) consistent with the overall system.

3. Air Distribution: Air distribution will consist of rigid sheetmetal ducts with external duct insulation and flexible ducts for concealed installations. If exposed ducts are needed, double wall ductwork will be used. Acoustical liner will be utilized in select ductwork for sound attenuation.

4. Exhaust air will be drawn from bathrooms using ceiling and/or roof mounted exhaust fans. Electronic/programmable time clocks with manual overrides will control on/off operation. If natural ventilation of restrooms can achieve the required

ventilation, exhaust fans will not be required.

5. Thermostats will be programmable electronic type with remote sensing if needed for the particular application. Direct digital controls (DDC) are not expected to be needed for this facility.

D. Electrical Systems Descriptions:

1. Bathhouse:

   a. The existing 480 volt, 350 amp electrical service to the Bathhouse is of adequate size to serve the building. However, the service must be relocated to accommodate the new outdoor women's toilets. The equipment has also served most of it's useful life. For these reasons and to extend the life of the completed project, the feeder and panels will be replaced and relocated. Conduit/wiring within the building will also be replaced, as it is old and haphazardly routed .

   b. Lighting on and with-in the building and will be replaced with current technology energy efficient lighting.

2. Site:

   a. The existing overhead wiring around the Pool will be removed and replaced with underground wiring. (This wiring currently serves two Pool lighting circuits and one Pool cleaning circuit, as well as the old emergency communication system).

   b. To facilitate the removal of overhead wiring, a new electric service will be brought to the south side of the Pool from Robert E Lee Street (600 ft) to serve south side lighting and power. This service will be sized at 300 amps, 120/208 volts, 3 phase to allow the addition of a small south side bathhouse in the future.

   c. At seven pole locations on the north side of the Pool and four locations on the south side, additional/new underground circuits will be provided for pool cleaning equipment. Two 50 amp 3 phase circuits and six 30 amp 3 phase circuits will be provided at each pole. All will be ground fault protected.

   d. To provide electric service for a new high pressure cleaning pump, the existing Bathhouse service disconnect at the concession building will be replaced with

a panelboard. A circuit will be taken underground from the panelboard to the pump location.

e. New tree mounted downlighting will be provided for the new accessible path to the Pool from the south side entrance.

f. Existing pole mounted lighting for the Pool will be replaced by Austin Energy. Hinged metal poles are recommended to allow maintenance without Parks Department personnel having to climb poles.

g. Tree mounted downlighting will be provided at the Zilker ponds and at the Sunken Gardens to allow safer stair travel.

h. A new wireless emergency communication system will be provided at the Bathhouse and lifeguard locations for use of Pool lifeguards.

E. Plumbing Systems Description

1. Utilities

a. General: Site utilities to the building will include sanitary sewer, natural gas and city water for domestic, landscape irrigation, pool cleaning and fire protection services. These utilities are to be provided as part of the civil construction to a coordination point near the building, typically to a point five feet from the building line.

b. Sanitary Sewer: The existing sanitary sewer piping will, in general, be abandoned in place. A new 6" building sanitary sewer will connect to a city manhole located in the parking lot approximately 50' north of the building (near the northwest corner). It is anticipated that this manhole will have to be rebuilt and that the 6" branch from it to the City sanitary main will have to be replaced. The City sanitary main is a 42" line located in the parking lot and in William Barton Drive.

c. Storm Sewer: Current Utility maps do not indicate any storm sewer system on site, although there are curb inlets in the parking lot and a diverter valve on the outdoor shower drains, indicating that there is a private storm sewer system. Neither a new city system nor an expansion of the existing system is anticipated or planned at this time. (See also rainwater collection system description below.)

d. City Water: The existing 4" service will be capped at the service tap. New 6" city water service will connect to the 6" city main located in the parking lot directly north of the building. This combined main will provide water for fire protection and domestic services. (A separate tap will be provided for landscape irrigation service, designed by others.) Metering will be as described in "E.2.d" below. (The approximate load is 250 GPM for fire protection, 130 GPM for domestic, including water for drinking fountains located on site.) Below grade piping will be ductile iron pipe.

e. Fuel gas (natural gas): There is currently no fuel gas service on the property. New fuel gas service is to be provided by the serving utility (Texas Gas). The load is roughly 300 CFH (allowance of 200 CFH for the building water heating and 100 CFH for future). This preliminary estimate does not include the concession stand load, as that facility is not within the scope of this feasibility study.

2. Interior Plumbing Systems

a. General: Evaluation of modern plumbing systems include not only aesthetics and convenience but also water conservation, energy conservation, maintenance, protecting the health of the public and the individual, and how the selection of materials impact the environment.

b. Sanitary Waste and Vent Systems: The existing sanitary waste and vent system below slab will be abandoned in place except where new waste piping will be run, and then the existing will be removed. The existing above slab waste and vent system will be removed. New fixtures will be connected to a new building drainage, waste and vent system. Sanitary waste and vent piping within the building will be hubbed cast iron pipe below grade and no-hub cast iron pipe above grade.

The current intent for the building is to have only the water closets, urinals, and mop sink to be connected to the sanitary waste and vent system. All lavatories, drinking fountains (within the building), and showers will be connected to a new greywater system (see system description below). The overflow from the greywater system will be connected to the sanitary sewer outside the building.

c. Storm/Roof Drainage Systems: Currently there is a combination of roof

drains to a private storm sewer system and sloped roofs to surface drainage. Currently the open air showers have a diverter valve that are controlled by a weather indicator, in that when it rains, a signal is sent to divert the water going through the drain to be diverted to the private storm sewer system. It is recommended that a rainwater collection system be considered for the building. (Refer also to section E.2.h for more information.)

d. Domestic Water System: The existing domestic cold water system will be disconnected upstream of the existing meter and capped. New domestic cold water system will connect to the water service utility indicated in part "E.1.d". A new 2" domestic water meter will be located in a ground vault outside of the building. The new building service will be routed from the meter vault to the building. Since static pressure is assumed to be above 80 psig, a pressure reducing station will be needed at the building entry. All existing domestic water piping in the building will be replaced (or, if not accessible, abandoned).

   It is presumed at this time that the building is not located in a flood plain. If it is later determined that the building is located in a flood plain, then a reduced pressure zone backflow preventer will be provided on the domestic water service.

   Cold water distribution piping will be type "L" copper with lead free solder joints insulated with ½" fiberglass insulation (2" if subject to freezing temperatures). Some means of freeze protection will need to be provided, and this feature will be developed as part of the design. Presumed methods will included locating piping in heated enclosures/chases, heat tracing, drain-down, and insulation with or without other passive measures.

e. Fuel Gas (Natural Gas) System: Natural gas will be required for domestic water heating and for possible future needs. Preliminary location for the water heater is in the existing mechanical room. The fuel gas piping system will be constructed of schedule 40 black steel pipe.

f. Plumbing Fixtures: Existing fixtures will be removed and new fixtures provided. Fixtures and equipment will be connected to domestic water systems and will be provided with backflow/back siphonage protection using air gaps, backflow preventers (double check or reduced pressure as required) or vacuum breakers.

Water closets will be wall mounted low consumption (1.6 GPF) flush valve type. Stainless steel type are recommended for durability and for greater resistance to damage due to freezing.

Urinals will be low consumption (0.5 GPF) flush valve operated type. Stainless steel type are recommended for freeze protection and for durability and for greater resistance to damage due to freezing.

Lavatories will have 0.5 GPM metering operated faucets. Cold and hot water will be provided to lavatories. A point of use mixing valve will be required at each lavatory. P-traps will be insulated for freeze protection. Heat tracing may be considered.

Shower heads will be low flow (1.5 to 1.75 GPM). Shower valves will be pressure and temperature balancing type with fail safe to cold, and high-level limit stops set at 110 degrees F. Provisions for draining shower columns will be provided for freeze protection.

g. Water Heaters: It should be anticipated that the water heaters would provide a minimum of 140 degrees F hot water. This temperature is needed for confident protection from bacterial influences.

   The existing water heating source is a combination of a small (single panel) and old solar water heating system with an electric storage tank water heater supplementing during periods when solar heating cannot meet demand. This system will be replaced with a higher efficiency solar water heating system supplemented by heat recovery from HVAC system desuperheaters. A high efficiency gas water heater will be provided for periods when solar heating and heat recovery cannot meet demand. The water heater will be a gas-fired condensing type with relatively high capacity (199MBH input).

h. Landscape Irrigation: The existing landscaping irrigation system will be replaced. Existing drinking fountains will be removed from the existing system and will be provided with a separate potable water source.

   A rainwater collection system planned as a supplemental irrigation water source. The cistern would be located underground at the site of the recently-abandoned lift station and/or in cisterns located in the Men's and Women's Dressing areas. Size and configuration of a rainwater collection and distribu-

tion system will require further study.

i. Pool Washdown System: The existing pool cleaning process uses both Pool and City water, and high pressure sprays to clean the Pool bottom and sides. The spring flow is diverted and the Pool is, in general, drained during this process. The environmentally sensitive areas of the Pool are separated and protected during the spray cleaning.

   Once the spray cleaning is complete, the Pool is rinsed using water pumped from the upstream side of the dam. Portable pumps and fire hoses are used for this rinsing. When the source water for the pumps becomes too cloudy to be used as rinse water, city water is used to complete the rinsing process.

   The new cleaning system will provide for permanent pump(s), pipes, valves, and connections as needed to accommodate the rinsing process without the need for portable pumps and extended length hoses. The new, permanent pump(s) will be skid mounted in a new small pumphouse on the site. An underground pump discharge manifold with 2 1/2" hose connections on roughly 50' intervals along the Pool length is anticipated. The new cleaning system will also seek means of further minimizing the need for city water in the rinsing process. Ductile iron pipe is expected to be used for the permanent piping.

   A new 4" water connection will extend to the washdown system to serve as the city source rinse water. Two 4" extensions will route to the 6" city supply in the parking lot north of the building. Coordination with the City water department is required to determine exact location and water meter size.

j. Fire Protection Systems: Currently there is not a fire suppression system. Due to the historic significance of the structure, it is recommended that an automatic wet pipe fire sprinkler system be provided for all enclosed/heated spaces. (This recommendation is included in the opinions of probable costs offered in a section/exhibit below). The sprinkler control valve would be located within the Exhibit area.

   Below grade piping will be ductile iron pipe. Above grade piping will be schedule 40 black steel.

k. Greywater System: A Greywater system will be provided for flush water (water closets and urinals) and possibly for landscaping irrigation. Greywater will be

collected from the lavatories, drinking fountains (within the building) and the showers. Drainage piping from these fixtures will be piped to a small septic tank. This water is pumped through an appropriate treatment system and stored in a holding tank. The treated water is piped back into the building to the flushvalves at the water closets and urinals. The holding tank has a make-up domestic water line for back-up. Overflow from the holding tank is piped to the sanitary sewer. The septic tank and small lift station will be located underground on the west side of the building, while the holding tank, pump, and treatment system will be located remotely, north of the Zilker Hillside Theater. Preliminary sizing indicates that the holding tank will need to be approximately 6,000 gallon.

INITIAL TREE ASSESSMENT

The goal of the initial tree assessment was to evaluate the kind and condition of the trees in the Barton Springs area in order to have a clearer idea of the general condition of the tree canopy. It was not intended to provide conclusive information about the condition of any particular tree; but rather was intended as a planning tool, to establish how much attention the existing trees needed, and, generally, how many additional trees might need to be planted.

A professional tree survey, locating and identifying all the trees in the project area, does not exist. Some trees in the Sandbox Grove area had been tagged as part of another project. However, the base plan prepared for the project team by LGA included most trees, and the rest were located using aerial photos. After that, each tree was assigned an identifier: "Front01" for the first tree identified in front of the Bathhouse. No identifying tags were affixed to the trees. Each tree was then measured at about 4' above ground to establish its caliper size. The team Landscape Architect then assessed each tree, on a one through five rating scale, with one being a tree in excellent condition, of a type that can be expected to survive in good condition for many years, and five being a tree that appeared to be severely compromised and that should be considered for removal. The classifications are as follows:

1 Great condition, long life expected

2 Good condition, of a variety that may not have a long life, or may tend to become hazardous

3 Compromising factors apparent, that can be expected to effect longevity or tendency to become hazardous

4 Should be assessed, to minimize the potential for hazard

5 Compromising damage apparent

That assessment was then confirmed, tree by tree, with Certified Arborist Chris Poth of the

Tree Clinic. It is important to note that both the initial survey and the confirming survey were done from the ground, visually, using no special equipment.

An appropriate next step would be a Hazard Tree Assessment, in which the mechanical stability of the trunk and scaffold branches are assessed. This assessment would be appropriate for all trees in areas of heavy pedestrian activity, and especially for all of the older pecans. Another appropriate assessment technique would be a Root Crown Examination, for any significant tree that will have any modification - such as paving, excavation, or utility work - undertaken beneath its canopy. In general, because of the size and visibility of the project, further assessment and evaluation of the trees at Barton Springs should be undertaken by a nationally known expert.

CONDITION OF EXISTING SHADE TREES

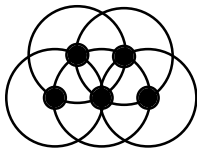
IDENTIFICATION	*KIND*	*SIZE*	*CONDITION*	*NOTES*
Front 01	Pecan	32”	4	
Front 02	Yaupon	6”	1	2-2” trunks
Front 03	Pecan	34”	4	
Front 04	Pecan	29.5”	4	
Front 05	Pecan	26”	4	
Front 06	Pecan	16”	3	
Front 07	Pecan	4”	2	
Front 08	Pecan	10”	2	
Front 09	Pecan	31”	4	
Front 10	Pecan	4”	3	
Front 11	Pecan	8”	2	
Front 12	Pecan	6”	4	
Front 13	Pecan	6”	3	
Front 14	Cottonwood	45”	4	
Front 15	Chinese Tallow	12”	3	
Front 16	Yaupon	6”	1	3-6” trunks
Front 17	Pecan	8”	4	
Front 18	Crepe Myrtle	5”	4	
Front 19	Pecan	11”	2	

IDENTIFICATION	*KIND*	*SIZE*	*CONDITION*	*NOTES*
Front 20	Chinese Tallow	26”	4	
Front 21	Crepe Myrtle	4”	3	3-4” trunks
Front 22	Pecan	12”	3	
Front 23	Crepe Myrtle	5”	1	7-5” trunks
Front 24	Crepe Myrtle	4”	1	3-4” trunks
Front 25	Pecan	22”	3	
North Creek 01	Pecan	24”	4	
North Creek 02	Pecan	42”	4	
North Creek 03	American Elm	6”	4	
North Creek 04	American Elm	8”	3	
North Creek 05	Hackberry	6”	4	
North Creek 06	Pecan	30”	4	
North Creek 07	American Elm	6”	4	
North Creek 08	American Elm	12”	4	
North Creek 09	American Elm	14”	4	3 trunk tree
North Creek 10	Hackberry	8”	4	
North Creek 11	American Elm	10”	4	3 trunk tree
North Creek 12	Cottonwood	20”	4	
North Creek 13	Sycamore	10”	3	
North Pool 01	Pecan	34”	3	Survey 156
North Pool 02	Pecan	2”	4	Weedeater damage
North Pool 03	Pecan	8”	3	
North Pool 04	Pecan	6”	3	
North Pool 05	Pecan	8”	3	
North Pool 06	Pecan	6”	4	
North Pool 07	Maple	4”	3	Weedeater damage
North Pool 08	Pecan	36”	3	
North Pool 09	Cninquapin Oak	6”	4	
North Pool 10	Pecan	32”	3	
North Pool 11	Walnut	14”	2	

IDENTIFICATION	*KIND*	*SIZE*	*CONDITION*	*NOTES*
North Pool 12	American Elm	44”	4	
North Pool 13	Elm	4”	4	
North Pool 14	Pecan	1”	2	
North Pool 15	Pecan	2”	2	
North Pool 16	Pecan	1”	1	
North Pool 17	Pecan	1”	1	
North Pool 18	Pecan	30”	3	
North Pool 19	Pecan	40”	5	
North Pool 20	Pecan	19”	2	
South Entry 01	Pecan	42”	3	
South Entry 02	Pecan	31”	4	
South Entry 03	Pecan	31”	3	
South Entry 04	Pecan	31”	3	
South Entry 05	Pecan	38”	3	
South Entry 06	Pecan	31”	3	
South Entry 07	Pecan	28”	3	
South Entry 08	Live Oak	10”	2	
South Entry 09	Monterrey Oak	8”	1	
South Entry 10	Burr Oak	8”	2	
South Entry 11	Live Oak	6”	1	
South Entry 12	Live Oak	6”	1	
South Garden 01	Pecan	35”	3	
South Garden 02	American Elm	34”	4	
South Garden 03	Cottonwood	33”	3	
South Garden 04	Pecan	30”	4	
South Garden 05	Pecan	37”	4	
South Garden 06	Pecan	30”	3	
South Garden 07	Pecan	23”	5	
South Garden 08	American Elm	8”	3	
South Pool 01	Cottonwood	25”	4	

IDENTIFICATION	*KIND*	*SIZE*	*CONDITION*	*NOTES*
South Pool 02	Cottonwood	38”	3	
South Pool 03	Cottonwood	24”	5	
South Pool 04	Pecan	14”	3	
South Pool 05	Pecan	16”	3	
South Pool 06	Pecan	10”	3	
South Pool 07	Chinquapin Oak	2”	1	
South Pool 08	Pecan	24”	2	
South Pool 09	Pecan	37”	2	
South Pool 10	Cedar	35”	1	Registered
South Pool 11	Pecan	34”	4	
South Pool 12	Pecan	38”	2	
South Pool 13	Pecan	20”	3	
South Pool 14	Pecan	23”	3	
South Pool 15	Pecan	35”	2	
South Pool 16	Pecan	32”	3	
South Pool 17	Mimosa	24”	5	
South Pool 18	Pecan	48”	4	
South Pool 19	Pecan	35”	2	
South Pool 20	Pecan	34”	3	
South Pool 21	Pecan	30”	3	
South Pool 22	Pecan	33”	3	
South Pool 23	Pecan	10”	4	
South Pool 24	Hackberry	12”	5	
South Pool 25	Mimosa	2”	4	
South Pool 26	Burr Oak	2”	2	
South Pool 27	Pecan	2”	2	
South Pool 28	Pecan	2”	2	
South Pool 29	Chinquapin Oak	6”	1	
South Side 01	Pecan	56”	4	
South Side 02	Mulberry	12”	4	

IDENTIFICATION	*KIND*	*SIZE*	*CONDITION*	*NOTES*
South Side 03	Elm	12”	3	
South Side 04	Pecan	34”	3	
South Side 05	Pecan	42”	3	
South Side 06	Pecan	26”	3	
South Side 07	Pecan	37”	3	
South Side 08	Pecan	33”	3	
South Side 09	Pecan	32”	3	
South Side 10	Pecan	28”	3	
South Side 11	Pecan	17”	4	
South Side 12	Pecan	36”	3	
South Side 13	Cottonwood	18”	5	
South Side 14	Live Oak	10”	1	
South Side 15	Hackberry	6”	5	2 trunk tree
South Side 16	Pecan	42”	3	
South Side 17	Pecan	19”	2	
South Side 18	Pecan	37”	4	
South Side 19	Pecan	50”	3	



"Professional Irrigation Design and Consultation"

SRI and ASSOCIATES

July 17, 2007

Re: Barton Springs Site Visit - July 3, 2007

I met on site with Carolyn Kelley, L.A., Angel and Lark who both work with the City of Austin. Angel and Lark are responsible for the maintenance of the irrigation system in the Pool and park area. The main purpose of the meeting was to identify the limits of the irrigation within our scope of work. Then, we wanted to know from talking and observing how functional the existing systems are. We also wanted to identify existing water sources.

Irrigation as-build plans were requested. The only plans received were some original drawings Sheets 2 and 3. Sheet 2 shows the hill side theater area irrigation and Sheet 3 shows the play ground area, down around Eliza Spring and up to the back side of the concession building. Our assumption is that the hill side (Sheet 2) irrigation appears to be somewhat similar to the original design. The irrigation system shown on Sheet 3 in the play ground and Eliza Spring area appears not to exist any more. This is what I was told. We know that the playscape area has been redesigned and rebuilt. Our assumption at this point is that the irrigation system was abandoned at that time of construction of the new playscape.

The systems are operated by automatic irrigation controllers. The controllers remain off and do not have a preset automated schedule of operation. Angel and Lark are instructed by Dick Finnigan when to turn on the controllers. They are operated semi-automatically. A complete cycle (group of sections on that controller) come on and in sequence irrigate. Once the cycle is complete, then another cycle doesn't automatically come on but rather needs someone manually to start the cycle. This process is due to the frequent schedule of events that happen in this area of the park.

The source of water for the irrigation systems inside the Pool, hillside theater area and the parking lot area above comes from two water meters. We looked at the 4" water meter on the south side of the Pool area near the parking area on that side. It appeared to be a 4"

meter. From that water meter, a 4" line supplies water to the south side areas outside of the Pool area and inside of the south side Pool area. It continues, attached to the dam crossing over to the north side of the Pool. They then believe it comes up into the playground area and at that point it continues up into the hillside and parking lot areas above the Pool parking lot. There is an isolation valve near the train track inside the playground area, which when cut off, turns off the area on the north side of the Pool. This valve does not shut down all the way. It apparently can't be repaired because Angel and Lark have never been able to locate the meter up in the parking lot north of the playscape. When the south meter is cut off they still have water in the 4" main line. Therefore, the assumption is made (with a fair degree of certainty) that the main lines are connected and somehow being fed by the two meters. This mainline also is reported to feed the drinking fountains and bath house and the McBeth Recreation Center. Let me note that the water feeding the drinking fountains and the bath house should be potable water. The irrigation main line water is not potable water. This is a code violation and should be corrected immediately.

From the isolation valve in the playground area, a 4" main line feeds into the north side of the Pool. This main line continues inside along the bottom of the hill and feeds several automatic irrigation control valves operating the irrigation in this area. It also feeds (4) four fire hose connections. At the west end of the Pool the main line turns and goes up the hill (north). Originally, the 4" main line served one last section inside the Pool, the area west of the Bathhouse outside the Pool, and all the irrigation in front of the Bathhouse and in the plaza area over to the concession stand. We were told that when the sidewalk on the west end was put in to meet ADA requirements, the irrigation main line was redone in this area, and no longer continues outside the Pool fence. Inside the Pool area, the very last (west end) rotor section is not providing head to head coverage. Angel stated that the main line was downsized to 2" prior to this last section valve. There is an apparent restriction in the main line because you can hear it. The sound appears to be coming from the point where the 4" main reduces down to a 2" main.

The irrigation controller (Hunter Pro "C" – 12 station) is located inside a room on the corner of the building. We observed the operation of several of the rotor heads on the north side of the Pool. The head spacing appeared to be appropriate providing head to head coverage. The pressure was very good, possibly above the head pressure needed. There were spray heads located down on the far east of the hill up on top. These were mixed between plastic and mostly brass pop-up heads. I was told that the planting beds along the back of the building had no irrigation system in them.

As we came around the west end of the building on the side and into the front, I was told that at one time there were two sections that operated in this area. It was also noted that the drip sections in the planting beds around the front of the bath house were not operating. Angel stated again that when the sidewalk was installed on the west end, the irrigation main line did not get extended under the sidewalk and reconnected to the main line providing water to these two side sections and the drip sections in the planting beds. I was told that there is no existing irrigation system around the concession stand area and over into the Eliza Spring Area.

On a previous site visit we had the opportunity to talk with the manager of the hill side theater. When asking him about the irrigation schedule he stated he had never seen it work and as far as he knew it didn't. When we met in this area with Angel and Lark, they both said that the controller (Rain Dial Irritrol Plus – 12 Station) was not automated and they operated only when requested. When we located the irrigation controller, we found it behind some shelves, covered up. We had to move the shelves out to get to the controller. It therefore appears that this system doesn't operate very often. I was told that most of the time repairs were made due to large mowers and/or vehicle traffic on the grass area causing damage to the system. I observed some of the sections operating. They were all rotor heads and the head spacing seemed to be appropriate with the heads providing head to head coverage. The pressure was very good, possibly above the required head pressure needed. I was told that the main line (2 ½") runs along the middle of the hillside. Most of the valves, if not all, are 2" in size covered with some sort of a valve box. The last row of heads near the top of the hill are approximately forty feet from the rock ledge areas on top of the hill. Thus, there are dry spots along the top edge of the hill and within the rock ledge areas. There is no irrigation on top of the rock ledge that irrigate into this area. The area at the very far west end of the hill where the drive curves up and out of the parking lot we are told has had no irrigation since it was installed. It was also stated that there is an area above the stage that has irrigation that does not come on. They have not been able to locate a section valve to repair.

We then proceeded over to the south side of the Pool area. We didn't get to turn on any sections inside the Pool due to rain. We located the 4" water meter which feeds from the south side. We also located a 2" meter which provides water to the football field. The football field, if maintained, is maintained by volunteers of the league. There is a controller on a telephone pole near the field which operates the irrigation. There is a baseball field on the east side of the parking lot which also is maintained by the league volunteers and has its own separate irrigation system. I have been told that this system has not been operating for

at least the past 5 years.

The 4" main line proceeds down and crosses the dam. There is a point of connection for the 2 ½" main line inside the fence on the south side of the Pool with a 2" isolation valve just inside the chain link fence. There are Toro valve-in-head sprinklers installed in the south Pool area. I was told that the heads provide head to head coverage. The irrigation controller (Hunter Pro "C") which operates these heads is located in the guard shack.

I was told that the open field area between the street and up to the fence of the Pool once had Quick Coupler Valves which were used with impact heads. The irrigation in this area is not functional at this time. It is not clear why: perhaps the main line was capped off and there is no longer water in this area.

In summation, we have identified which areas do not have any irrigation; which areas have existing irrigation that is non-functional at present; and in spot checking, which areas seem to have a functioning irrigation system. We do know that for the most part the irrigation systems installed were installed from a range of twenty to thirty or more years ago.

The controllers operate on a semi-automatic schedule. Maintenance is scheduled out of need and not on routine schedules. Most of the maintenance issues are repairing broken off solenoids, broken heads, and broken pipes usually caused by vehicular and/or large maintenance equipment. We also were made aware of the fact that several years ago they had up to twelve or more people on staff who were capable of working on the sprinkler systems. There are presently two people on staff that work on the irrigation systems.

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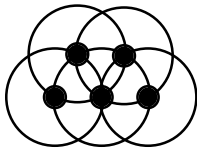

"Professional Irrigation Design and Consultation"

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IRRIGATION

Existing Irrigation

Irrigation is a requirement for planting in Austin. It can be someone holding a hose or an automatic irrigation system, but plants here only occasionally survive planting without supplemental water. In the Barton Springs area, with its heavy use and attendant soil compaction, few seedlings of existing vegetation become established. Most vegetation that becomes established without irrigation in the Barton Springs area is not desirable: ragweed, hackberries, nandina, ligustrum, and poison ivy.

Watering newly planted vegetation by hand can take a long time, and often does not provide the deep soaking required. Using water tank trucks is an alternative for areas fairly close to pavement. In general, however, for extensive lawns like exist at Barton Springs, and extensive planting, automatic irrigation is required. For native and naturalizing plants, irrigation is generally considered required for the two years it takes for plants to become established. There are few plants that do not benefit from occasional watering during dry periods, particularly plants that grow in the generally compacted soil of heavily used parkland.

Automatic irrigation systems, however, are not maintenance free. Heads can be damaged by the heavy trucks that bring scenery to the Hillside theater, or by vandalism, or in a thousand other ways. The number of licensed irrigators maintaining PARD irrigation systems has been dropping steadily over the years, and there are now two licensed irrigators responsible for all irrigation in PARD facilities. This trend is not expected to change in the foreseeable future.

Automatic irrigation systems have been installed over the years throughout the Barton Springs area. Irrigation has been installed and apparently abandoned throughout the South Fields, in the Sandbox Grove and around Zilker Playscape. There are recently functioning irrigation systems within the Pool fence and on the slope around the Hillside Theater. Those irrigation systems were installed between fifteen and thirty years ago. Only

the irrigation system within the Pool fence is still used on a regular basis.

We have not found construction documents of the irrigation system within the Pool fence. There are construction documents for the Hillside Theater area and the Zilker playscape area, but in the playscape area, enough construction was done after the irrigation system was installed to make the drawings obsolete. Because there is no documentation, it is impossible to say with certainty how the irrigation systems are laid out. It appears, however, that all these irrigation systems on the north side of the Pool are served by a water meter in the South Fields, through a pipe strapped to the downstream dam, and perhaps also by a meter north of the playscape, through a looped system.

There is the possibility that the same water lines are providing irrigation water and potable water to park restrooms and drinking fountains. Park facilities like restrooms and drinking fountains require potable – drinkable – water. A water line that provides water for irrigation cannot also provide potable water because of the risk of contamination. With an old, complex system that has been expanded and modified, and is not documented, the risk of cross-connections must be addressed so that the City is not exposed to any public health liability.

Because irrigation technology and efficiency has improved greatly in the last fifteen years, and because we have limited information about the construction of the existing system, it is likely more cost effective to replace the existing system, rather than attempt to update it.

Finally, in this parkland celebrating springs, and bordered by a creek and a lake, all irrigation water is potable – drinking water – provided by the City of Austin. There are several possibilities for replacing all or part of the landscape irrigation in the Pool area with alternative water sources, that will be described below.

The goal of this master plan is to minimize permanent irrigation, while providing sufficient temporary irrigation to establish naturalizing plants and trees, and to replace potable water in irrigation with alternative water sources, where possible. Irrigation systems should support the landscape goals for the springs area: lawns only where they are used, diversified native/naturalized plantings in other areas, and a diversified tree canopy throughout. Lawns where people sit, that are shaded or are planned to be shaded, should have permanent rotor or spray sprinkler head automatic irrigation. Shrub and perennial beds should have spray or drip irrigation for at least the first two years, and a quick coupler valve close enough to provided emergency supplemental water when needed. All newly planted trees should have temporary bubblers or drip irrigation, or be close enough to pavement to be

watered for two years by a water truck, or be in an area with automatic turf irrigation.

Alternative Water Sources

Several alternative sources of water for irrigation are possible in the Barton Springs area: lake water, creek water, graywater and rainwater. While limiting the use of City water and making the irrigation system more sustainable, none of these are considered potable water, and each would increase the hazard posed by possible cross-connections in the existing system. Therefore, before any alternative water sources are installed, the issue of possible cross-connections must be resolved.

Several sources of non-potable water are worth exploring as sources for irrigation water. One of these would be to use raw Town Lake water, from the existing pumping system that provides irrigation water to the Zilker soccer fields on the north side of Barton Springs Road and is currently being upgraded to improve its volume and pressure. This would require piping under Barton Springs Road, and extending a main irrigation line south to the Pool area. A second alternative source of landscape irrigation water would be to pump water directly from Barton Creek on either the upstream or downstream sides of the lower dam. A third alternative is to collect rainwater from the Bathhouse roof and store it in cisterns for irrigation use. A fourth alternative is to treat the water used in the Bathhouse showers and store it in cisterns for irrigation use.

The first, second and fourth alternatives – pumping water from Town Lake or from Barton Creek or using greywater – are potentially complex both in terms of regulation and in terms of engineering, and should be the subject of a separate study. The third alternative, harvesting rainwater, will not provide much irrigation water, because the roof area from which to collect is not large. It could, however, be a fairly simple system, with water collected from the Bathhouse roofs in small cisterns at the west end of the Bathhouse and used for drip irrigation in the Bathhouse perimeter planting beds.

Irrigation Within the Pool Fence

The irrigation system within the Pool fence currently works, and appears to offer close to complete coverage of the lawns in the Pool area. It appears to be around fifteen years old, and there are no 'as-built' drawings. Because of that, it is difficult to resolve the cross-connection question. The system is also, because of its age and maintenance, likely to be inefficient. We recommend that, when an alternative source of landscape irrigation water is identified, the area within the Pool fence be provided with a newly designed efficient irrigation system using non-potable water.

Tree Court

Automatic irrigation for the new trees installed in the Tree Court should be part of the new Pool irrigation system. New large caliper trees should not be installed in the Tree Court without automatic irrigation; partly because it is impossible to water larger trees adequately without slow drip irrigation, and partly because the surrounding soil is so compacted that a high rate of runoff from higher volume water would be expected.

Emergency Irrigation

We recommend that, when an alternative source of landscape irrigation water is identified, quick coupler valves be installed throughout the park, within 100 feet of any areas that will have tree or other planting. This will allow plants to be watered on an emergency basis if required.

Appendix C

MEETING NOTES

The planning team held many meetings with stakeholder groups, neighborhood groups and interested citizens throughout the course of the development of the project. Four Town Hall public meetings were held, and public presentations were made to the Parks and Recreation Board, the Environmental Board, the Joint Subcommittee of the Parks Board and Environmental Board, the Historic Landmark Commission, the Design Commission, the Planning Commission and the City Council. Preliminary review and information meetings were held with regulatory officials as the master plan concepts were developed. In addition, there were periodic meetings with City staff through the course of the project.

The attached meeting notes are included for additional information. The meeting notes are organized in to two categories - stakeholder meetings, including public meetings and presentations, and meetings with regulatory officials.

Stakeholder Group Meetings

Friday, February 16, 2007, Stakeholder Group
Attendees: FBSP/swimmers-Robin Cravey, Steve Barnick, Molly Bean, Suzanne Mason, COA/WPDRD-Nancy McClintock, Laurie Dries, COA/PARD-Farhad Madani, Tom Nelson, LGA-Al Godfrey, Laurie Limbacher

The purpose of the meeting was for PARD to introduce the project and LGA to the Friends of Barton Springs Pool (FBSP), who had worked to get funding committed to the care and maintenance of the pool and the master plan project.

FBSP was started about a year ago and has worked to raise awareness about the cleaning of the pool and the care and maintenance of the facilities. They have advocated for funding for this and the Council passes a resolution last fall authorizing funding on an ongoing basis. They envision implementation of master plan projects in a timely way, recognizing that phasing of work will be required. In the short term, they are working with staff on a pool operations manual.

LGA has been reviewing the list of tasks they are to study in the master plan, and asked the attendees for their personal sense of prioritization on these tasks. The following tasks were mentioned in this discussion:

- Renovate the existing Bathhouse, restoring the original entry
- Add small bathhouse at south gate
- Relocate overhead electrical to underground
- Solar power for lighting
- Tree maintenance and care
- Upgrade fencing
- Upstream, downstream dam modifications
- Restore Eliza Spring, enhance salamander habitat
- Restore salamander habitat at Sunken Garden

PARD will set up a group stakeholder meeting to go over the master plan project, inviting representatives of Save Our Springs Alliance (SOS), Save Barton Creek Association (SBCA), Hill Country Conservancy (HCC), other stakeholders.

Tuesday, March 6, 2007, Multiple Stakeholder Groups
Attendees: SOS-Colin Clark, FBSP/swimmers-Robin Cravey, Grant Thomas, Debby Gardner Molly Bean, Sarah Searcy, COA/WPDRD-Nancy McClintock, David Johns, Laurie Dries, Tom Ennis, COA/PARD-Farhad Madani, Tony Arnold, Tom Nelson, Sarah Macias, Mark MacDougal, LGA-Al Godfrey, Laurie Limbacher

The purpose of the meeting was to review the analyses and tasks LGA has been asked to complete in the course of preparing the Barton Springs Pool Master Plan.

A draft power point presentation, illustrating the analyses and tasks to be done, was presented and discussed. Comments on the draft as presented were as follows:

- Stakeholders: Add the adjacent neighborhood associations, Zilker NA and Barton Hills NA, to the list. Invite City of Rollingwood to the public hearings.
- Regulatory Oversight: Include the TCEQ and the Barton Springs/Edwards Aquifer Conservation District HCP on this list.
- Farhad reported that the utility department (is this Austin Energy?) has made a commitment to replace the exterior site lighting. LGA would like to be involved in the process of selecting and locating the proposed fixtures. FBSP would also like to be informed of what is proposed.
- Schedule: Tony added that the goal for the end of May is to have all the needs identified, with preliminary budget numbers for all.
- Boundaries: The group discussed the extent of the area to be included in this study. It is to include the pool and the Bathhouse (generally the area within the existing fence line), the area above the north parking lot that includes the Rock Garden/Zilker Pools, the

south grounds, and the area around the Bathhouse entry. There will also be recommendations made for the area around Eliza Springs.

- Public Meeting locations: All agreed it would be best to have them near the pool, if possible. Suggested locations included the Zilker Clubhouse and the Zilker Hillside Theatre. Also, all agreed that the meetings should be in the evenings, so people wouldn't have to take off from work to attend.
- Goals Statement: Consider including an overall goal to return the pool back to its former glory. FBSP members want the pool to be kept clean.
- Tasks: This should include the need to engage in a process for public input.
- Buildings: There is some termite damage that need to be addressed. The building rehabilitation, improvements and additions should incorporate sustainable building practices and technologies, such as rainwater collection, green roofs and water conservation. The proposed new South Gate bathhouse will be a small, modest building. It needs to be located to avoid the flood plain. A suggestion was made to use composting toilets in this building.
- The group discussed concerns about operational issues. Grant suggested that attention be paid to staffing and leadership issues in the operation and maintenance of the Pool. He cited an example of a condition of watering/lawn maintenance that took quite a long time for staff to address. A suggestion was made to reward staff for taking initiative, and to develop a set of standards for maintenance. The group discussed the pool operations manual, being developed by PARD and FBSP, which is intended to address this issue. Debby noted the potential for an organizational problem, with two different departments involved at the Pool, yet acting separately. She cited an example of difficulty in finding annual report data, and expressed concern about maintaining the 10A permit and coordination between the two departments. She is most concerned that the Pool be cleaned regularly and properly. These will be ongoing issues, and may be best addressed in an effort independent of this master plan process.
- Colin suggested that a website or a webpage on the COA website be created for Barton Springs Pool, to keep people informed of the master plan effort.
- Colin noted that there is a great deal of interest in an arts project at the site. He knows of an artist who very much wants to work at the springs. Any forthcoming projects at the site will include an Art in Public Places component, which will give the opportunity for this kind of arts project.
- Grounds: Nancy suggested that the dog park area be included in the master plan effort. Robin suggested that the concrete apron at the dog park also be included.
- Pool Environment: Tony noted that the flow studies referenced here would likely be completed by others, as a future effort.
- Pool Infrastructure: Colin asked about the possibility of installing fish ladders on the downstream dam. Nancy noted that this might be best determined as a species-based issue: the fish species in the creek don't need fish ladders.
- Additional Studies: The BS/EACD HCP is still in progress, so the evaluation of those recommendations can only progress to a certain point. Call this section something different than "Additional Studies". Perhaps "Algae Control Strategies" would be a better heading to use. Perhaps include a review of a drawbridge element at the downstream dam. Also, the master plan will not address relocating the downstream dam.
- A suggestion was made to include improvements in the educational and interpretive aspects of the site. The bat displays at the Congress Avenue bridge are a good example of educational/interpretive displays. An outdoor, interactive computer for educational information is another possibility. The current maintenance complex building might be a good location for interpretive and educational displays, and an expanded food operation. (The maintenance complex is to be relocated in the near future, and the existing building will be available for new uses. It is part of the National Register district, and the interpretive/food use might be a good one.)
- A suggestion was made to add a hot tub at the site.
- A suggestion was made to improve the signage within the park directing people to the Pool. Currently, there is only one sign and it

is not very evocative or visible.
- A suggestion was made to provide some (or more) times when people can use the Pool without an admission charge. This may require special action by the Parks Board and the Council, and may not be a master plan item.

The group asked for copies of the power point presentation, in order to review it with members of their respective groups who could not attend today. To avoid confusion, the copies will be conspicuously marked as "draft", and will be revised in accord with the discussions today prior to distribution.

It was noted that the master plan is a conceptual design process, and the images prepared during this effort may not reflect what might actually be constructed in the future. The conceptual design recommendations will be further refined and developed in future implementation phases.

The group discussed the public hearing process a bit more. A suggestion was made to have some materials available for previewing on a COA website, prior to the meeting. Also, it may be useful to devise a way to receive comments via the website, in addition to comments made during the public hearings.

The next standing PARD/WPDRD joint staff meeting is set for Wednesday, March 14, at 2:30 pm (or 3:30 pm) at the PARD Board Room. The group will discuss the building program for the Bathhouse, old and new. Also, as WPDRD is already preparing their budget items, the group will further discuss budgets for "additional studies".

Wednesday, April 11, 2007, Technical Stakeholder Group: Barton Springs Salamander Scientific Advisory Committee, US Fish & Wildlife Service, Barton Springs/Edwards Aquifer Conservation District
Attendees: BSS SAC-Tom Wilcox, Joe Martin, USFWS-Will Amy, BS/EACD-Brian Hunt, COA PARD-Tony Arnold, Tom Nelson, Mark MacDougal, COA WPDRD-Tom Ennis, Ed Peacock, David Johns, Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

The purpose of the meeting was to hear a presentation from members of the Barton Springs salamander Scientific Advisory Committee regarding modifying the dams to alter the flow regime in hopes of reducing sediment and nuisance algae accumulations, uniting the spring runs by removing the downstream dam and enlarging the Pool in hopes of enhancing salamander habitat, collecting more biological and hydrological data and hiring a full-time conservation biologist for the site. A draft memorandum describing these proposals, still under review by the members of the Scientific Advisory Committee, was presented to the group.

Discussion included:

- It seems like moving the dam and enlarging the Pool will create a bigger spot for sediment to settle in, making the conflict between sediment and salamanders worse.
- Permitting for new dams is hard to do.
- It is not clear how, or if, salamander movement among the springs would take place.
- Some types of algae form in swift flowing water.
- The maximum operational flexibility of a dam is limited.

All agreed that more information is needed before these proposals can be further studied. Most important is hydrodynamic modeling to study the impact of dam modifications on the flow regime. The master plan project is an opportunity to identify scopes for studies to assist in these efforts. The Scientific Advisory Committee will provide additional information to the planning team for these studies.

Saturday, April 14, 2007, Friends of Barton Springs Pool Membership Meeting
Attendees: FBSP-approximately 50 members, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey summarized the scope of work on the master plan project and noted the upcoming Town Hall Meeting about the master plan project. FBSP comments included:

- Putting the overhead wiring underground would be a visual improvement.
- Tell the story of the place in historic photos.
- Don't allow a south bathhouse to encroach on the hill overlooking

the Pool. Keep it outside the current fence line.
- Restore Eliza Spring. Keep the flow levels stable, to facilitate pool cleaning.
- Consider upstream baffles to catch debris, before it stops up the bypass tunnel inlet.
- Consider a request in the 10(a) permit to open the downstream dam gats in times of flood to reduce silt build up.
- Eliza Spring was once called the Polio Pit.

Monday, April 16, 2007, Public Hearing/Town Hall Meeting #1
Attendees: See sign-in sheet on file with PARD

The meeting was a public hearing to provide information about the proposed scope and content of the Barton Springs Pool Master Plan project.

Introductory remarks were made by Farhad Madani, COA PARD, Nancy McClintock, COA WPDRD, and Tony Arnold, COA PARD. The purpose of the meeting was to hear from the public about the BSP MP project.

An informational presentation on the site and the MP project was given by Laurie Limbacher and Al Godfrey, LGA. The presentation was illustrated with images projected on the monitors in the meeting room. A handout with a list of study tasks included in the MP project was provided. Comment sheets were provided, and the web address of an informational website and the email address for public comment were presented.

The floor was opened for questions. Comments were as follows:

- Peter Steinhardt: How was the task list developed?
- Colin Clark, SOS: Suggests that educational materials be enhanced, including interpretive signage. Also signage to direct people to the Pool. There should be increased vertical signage at the site, but it should emphasize that one is entering a place of nature. The Splash exhibit is a little tucked away, so may want to publicize more about it. He is in support of improvements to the flow regime in the Pool. Suggested posting USGS data at the Pool site, showing current flow, turbidity, etc. (A person from the audience offered the comment that they were against the signs.)
- Mark Nowaki: Suggested consideration of the Pool as a marine park, which should be addressed as an ecological system. Supports increasing the size of the Pool and increasing the size of the park. Suggested the use of native and adapted plant species, in lieu of things like ligustrum, which are found on the south side of the Pool. Perhaps a green area devoted to prairies and meadows. Concerned about tree care and maintenance. Small trees are being installed as replacement trees, but need to use big trees for this. Maybe relocate trees from the median on Barton Springs Road, where bigger trees were installed. Suggested the use of wild rice of San Marcos in the water.
- Robin Cravey, FBSP: Regular swimmer at the Pool, member of FBSP. Thrilled that the project is underway, thanks to all the COA staff, Council and City Manager. Concerned about the maintenance of the trees, which are in bad shape. Overhead wires are an eyesore and dangerous, would like to see these go underground. Supports renovation of the historic Bathhouse. The more contextual projects, like the Zilker Ponds, are good projects, but would prefer to focus on the Pool area first.
- Ron Whaley, Sierra Club: His primary issue is to maintain the water quality. Take care of the species. Like the Bathhouse, but prefer to do the Pool first. Love the idea of restoring Eliza and reconnecting it to the Pool/creek. Zilker Ponds are nice, but not a priority. Also, need to go beyond the Pool proper -- consider a fertilizer ban. (A person from the audience offered the comment that the water was crystal clear just 7 years ago.)
- Pam Thompson: Don't want to change the character of the Pool with new signs. Don't cut down existing trees, or at least let people know before it's done so that they can commune with or document the tree before it is removed. Emphasize the water quality issues, testing and the SPLASH education facility. Provide a solar shower in the Men's dressing area. Don't add new buildings or change the south entrance path - the dirt is fun for kids. Concerned about Eliza Spring work, but supports putting the water in the Pool, if possible to do without changing the temperature. Don't have an

operable downstream dam - no motors or remotes.

- Steve Barnick, FBSP: Have spent a year volunteering at the Pool during clean ups. Maintaining adequate maintenance of the site, including associated staff and equipment costs, is a big issue. This is not an easy process, as the Pool conditions change regularly with flow, flood, drought cycles. Need a metric or a device to measure pool cleaning processes. Agree with having USGS information at the site in real time, as the conditions change regularly.
- Steve Beers, swimmer: Need to deal with upstream development. The MP is a beginning, and an improvement over a previous effort when the salamanders were first listed as endangered and the bifurcation of the Pool was proposed. Likes the fundamental premise that both people and salamanders prefer clean water. More draw downs would help with this, but in low flow conditions may need to augment the flow by recirculating to allow for cleaning. Can the public access at Eliza be improved?
- Molly Bean, FBSP: Watched the progress of the gravel removal last fall for a frustratingly long time. There is a 15 year accumulation of gravel in the Pool, and about 1/3 was removed in this effort using vacuum tubes. May need to get the accumulation out with more aggressive methods, and then go back to the vacuum tube method after that.
- Robert Corbin, FBSP: About 7,000 cubic feet of debris to remove from the deep end-roughly two times the volume of the Council chambers. To lower Eliza Spring, need to keep the Pool levels high. Baseflow through the Pool to increase circulation through the Pool. Might like the idea of increasing the size of the Pool, and keeping the old dam as a footbridge. Change the caretaker and maintenance area into an educational facility.
- Karen Blizzard, FBSP: Impressed with the MP and stakeholder input. South bathhouse is needed - people do change under towels. Should be modest in scale, light, natural materials, accessible to people with disabilities. Keep the current open space at the top of the hill clear, and put the bathhouse toward the parking lot or near the woods. Should have a compatible look and feel with the north Bathhouse. Feels south bathhouse should have priority over north Bathhouse. Also, dislikes the idea of enlarging the Pool. The downstream area is one of the few places where people can swim with dogs, and should remain .
- Sarah Searcy, FBSP: Try to make this a green building showcase for Austin. Use native plants in the landscape, reduce the St. Augustine grass. Austin's greatest natural asset should be surrounded by other natural assets. Replace the chain link fence with wrought iron or other more attractive fencing. Capture rain water. Water quality in the Pool is a priority.
- Suzanne Mason, FBSP: Feels the process is going well, appreciates the work done to get to this point. Change can be scary, but can learn as a community. Keep lines of communication open, we can envision Austin together. Remember the relationship between upstream and downstream. Want to see the site treated as a living place, as a garden. Focus on the ecosystem, and avoid the temptation to laminate the park.
- Johnny Barnett, regular swimmer: Like the proposed flow improvements. Main concern on the south gate is to see it open all the time. Currently, doesn't open until 10 on weekdays and 9 on weekends. If you come before then, have to go all the way around. Maybe this change could happen now. Doggie Springs (downstream of Pool)-should maintain that, and keep some access that's free and allows dogs.
- Garrett Nick, SOS and swimmer: Agree with the south gate being open more. Main concern is to maintain springs and water quality. Upstream development is the key. Perhaps this plan can influence regulations on upstream development, and require developers to invest in the quality of the environment.
- Peter Steinhardt: The MP needs to emphasize community. The Pool is all about community. Suggests more benches and things like Philosopher's Rock. Pool suffers from poor management and maintenance. Need the MP for bigger views.
- Craig Smith, BS/EACD: Barton Springs/Edwards Aquifer Conservation District is currently developing a Habitat Conservation Plan. Their list of preferred methods does not include structural measures or the use of dissolved oxygen. BS/EACD wants to work

cooperatively with the COA on this MP.

- Haley Gillespie, graduate student, research assistant with BS salamander biologist: Renovations to structures are important, but may also want to add new facilities for scientific research at the site. Also, need more research on BS salamander.
- Mark Gentle, FBSP: Appreciates the work of Tom Nelson and the Aquatics staff in managing and maintaining the Pool. As part of this MP, is the drawdown schedule subject to revisions? (It was noted by Laurie Dries that the COA can ask USFWS for revisions to this schedule.) Suggests consideration of adjusting the number of drawdowns, increasing them, if these infrastructure changes are implemented. Need to study nuisance algae in the deep end, as well. Need to plan around drought conditions. Last year the "pond effect" took over the Pool, and heavy nuisance algae accumulations were bad for swimming.
- Dorothy Richter, FBSP: Related to drawdowns and cleaning, suggest that permission to open the gates in the downstream dam in times of flood would be good, letting debris and silt flow through the Pool instead of accumulating so much. (It was noted that the COA does have the authority to do this and has worked on a better process so that people at the site can open these gates.) Suggests some parking lot management, to keep runoff from coming in to the Pool. Suggests some upstream baffles, to catch debris before it gets to the bypass tunnel grate. A little concerned about creek water in the Pool.
- Robin Cravey, FBSP: To respond to earlier comment, FBSP is working on funding a graduate fellowship for study of Pool and water quality issues.

Tuesday, May 8, 2007, Barton Hills Neighborhood Association Steering Committee
Attendees: BHNA-John Luther, Kimberly Erlinger, Clay, Eddie Torres, Dave Kemptner, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey summarized the scope of work on the master plan project and noted the upcoming public hearings about the master plan project. BHNA has dedicated funding for new landscaping around the Sunken Garden. What is the timeline for the Sunken Garden work studied in the MP, and should they wait to install the new landscaping? Ms. Limbacher noted that this is only a master plan, and not a fully developed or permitted design or construction project. Also, master planning is ongoing, and it is not yet clear whether this would be recommended as a short term or a long term project. If any work does occur at Sunken Garden, it won't happen anytime in the next year.

The BHNA requested a presentation on the project during their next full membership meeting, in June.

Thursday, May 10, 2007, Bathhouse User Group
Attendees: FBSP/swimmers-Robin Cravey, Steve Barnick, Sarah Searcy, COA PARD-Tom Nelson, Farhad Madani, LGA-Al Godfrey, Laurie Limbacher

Dressing Rooms: The need for private versus open dressing facilities was discussed. In the Men's dressing, don't need as many private cubicles as are provided. In the Women's, the cubicles provided are not used, perhaps because many of them are too remote. Last year, 500,000 people used the facility. Need maintenance, and keeping things clean, which new staff people should address. In the Men's area, people usually need the length between two pylons to lay out, sit, change, etc. Amount of lawn is OK. In Women's more lawn and showers would be good. Both could use better (bigger, sturdier, more secure) lockers, hooks, benches, mirrors, shelves at mirrors. Open trash cans are OK. A full length mirror is desired. May want to have service functions in the dressing areas, like baskets and towels. PARD discontinued the basket service for liability reasons, and would probably not want to do that again. But, a towel service might be a good paid service, if patrons desire it. More hot showers in the Men's are desired. PARD would like for all the showers to be hot, as the building is rehabilitated. Also, more open showers desired - when the new showers were installed a few years ago, the number of heads was reduced from 4 to 2. At the showers, would like a shelf for soap or shampoo, and a bench and hook in the vicinity of the shower. At Stacy, there is a heated towel bar, which might be nice on cold days.

Toilets: In Men's, folks don't line up too much, unless one toilet is not in working order. In Women's, may need more toilets, although PARD

doesn't have complaints about this. The Women's toilet room needs refreshing, and is always damp. Study weatherizing all the fixtures in the Bathhouse. May want to do Men's toilets grouped in a room. Family/unisex facilities are desired on both sides. Baby changing tables are desired on both sides. PARD noted that the toilets do get packed during the summer, when groups of children come in for camps. There is a need for more restrooms in this part of the park, since the Bathhouse serves the Zilker Hillside Theater, the playscape, the trail and the picnic areas, in addition to the Pool.

Operations: More tool storage space is desired, maybe in a remote shed or in a south bathhouse, if one is done. At peak swimming times, there can be a long line at the entry, and it would be good to have 2 or 3 cashiers during these times. Communication to the life guards is done by walkie-talkie, which works well.

South Gate: If a bathhouse were to be added there, it might be a little bigger than the one at Stacy, and not as big as the one at Deep Eddy. Perhaps 4 toilets and 4 showers for women, 2 toilets and 2 urinals and 4 showers for the men, and a unisex family restroom, although this would need to be managed if it became attractive to transients. Space for a cashier and maybe a guard area. Storage for janitorial supplies, hoses, rakes, brooms, supplies, and a security system. Also, an information kiosk and interpretive signage. All fully handicapped accessible. Keep it out of the lawn area. Improve the walkway at the bluff, and make handicapped accessible if possible. Also control flooding that comes down the ravine into the Pool.

Friday, May 18, 2007, Bathhouse User Group
Attendees: FBSP/swimmers-Robin Cravey, Steve Barnick, Sarah Searcy, COA PARD-Tom Nelson, Sarah Macias, Michael Adair, Clark Hancock. Lizette, COA WPDRD-Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

South Gate: A preliminary floor plan for a south bathhouse was presented. For shower stalls, prefer walls as the screen, and not curtains. Exterior access to the janitor closet, tool storage, is preferred. A conceptual path to the Pool was presented. Prefer to have both accessible path and "short cut" sections with stairs. Interest in graywater system, if permissible in this location.

Existing Bathhouse: A preliminary scheme for rehabilitating the existing Bathhouse was presented. The scheme studied the insertion of a second level in the former basket room volumes, to incorporate space for classrooms while restoring the Women's dressing area and the original entry. For this to work the things stored in what is now attic space in these volumes (which is a code violation) need to be accounted for. Several options for this storage were discussed-a new building for storage on the site, carving out storage space in the dressing areas, or using the old bandstand enclosed space for storage. The group also discussed the possibility of using the ballcourt and caretaker's cottage as part of an educational facility. These spaces are currently used for maintenance operations, but these are slated for relocation sometime soon. The former basket room and entry areas in the Bathhouse could then be used as SPLASH, with some modernization of the exhibits, and as a visitor center for the park and Pool, including realtime information about the conditions at the Pool.

Monday, May 21, 2007, City of Austin Historic Landmark Commission
Attendees: City Historic Preservation Office staff, members of Historic Landmark Commission, general public in the audience and televised viewing, LGA-Al Godfrey

Mr. Godfrey gave a brief illustrated presentation, summarizing the scope of work on the master plan project. A handout with a project summary, description of tasks and projected schedule for the MP project was provided. The web address of an informational website and the email address for public comment were presented.

Tuesday, May 22, 2007, City of Austin Parks and Recreation Board
Attendees: PARD staff, members of Parks and Recreation Board, general public in the audience and televised viewing, LGA-Al Godfrey, Laurie Limbacher

LGA gave a brief illustrated presentation, summarizing the scope of work on the master plan project. A handout with a project summary, description of tasks and projected schedule for the MP project was provided. The web address of an informational website and the email address for public comment were presented.

Wednesday, May 23, 2007, Austin Neighborhoods Council
Attendees: members of Austin Neighborhoods Council, general public in the audience, LGA-Al Godfrey,

Mr. Godfrey gave a brief illustrated presentation, summarizing the scope of work on the master plan project. A handout with a project summary, description of tasks and projected schedule for the MP project was provided. The web address of an informational website and the email address for public comment were presented.

Friday, May 25, 2007, Bathhouse User Group
Attendees: FBSP/swimmers-Robin Cravey, Steve Barnick, Sarah Searcy, COA PARD-Tom Nelson, Clark Hancock, COA WPDRD-David Johns, LGA-Al Godfrey, Laurie Limbacher

Existing Bathhouse: A revised preliminary scheme for rehabilitating the existing Bathhouse was presented. The scheme included a restored entry and Women's dressing area, exhibit spaces including SPLASH and a park visitor center, and a family restroom. Overflow storage would go in the bandstand, and the classrooms would go to the ballcourt and caretaker's cottage area. The group asked to see more green space and a greater sense of openness in the Women's dressing area, and access to the family restroom from the Terrace.

Tuesday, May 29, 2007, Save Our Springs Alliance staff
Attendees: SOS-Bill Bunch, Colin Clark, COA PARD-Tony Arnold, Tom Nelson, COA WPDRD-Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

Process: Suggestion to have meetings where all stakeholders can participate in the same meeting, and to have interactive meetings. One town hall meeting and several public hearings at boards and commissions have been held, with more to follow. PARD noted that this is a master plan, only. Any projects that might be implemented will have their own design and public process phases. This would include tree maintenance and removal work. Also, PARD has notified stakeholder groups of organizational and progress meetings on the master plan, and will continue to do so.

Scope: Suggestion to start with fixing what exists, before starting new ventures. Enhance the natural and cultural heritage, with displays, signage, informational brochures. Mr. Bunch opposed to a south bathhouse, especially as a priority. Also feels that moving the dams would need a lot of study before an action. Suggestion to identify ways to reduce impervious cover and provide more parkland, such as trees along the path to the parking lot and trees around the parking lot. Suggestion for better signs to mark the Pool from city roads and park roads. More and better signage for SPLASH, and fill the vacant staff position for nature staff. Suggestion to have more staff at the south gate, or to use an electronic lock that allows unmanned access before the gatehouse is staffed, as is at main entry gate. New, more attractive fencing may be OK, but depends upon the specific fence. Need to include discussion of issues upstream of the Pool, when talking about water quality. Need to provide a way for fish to travel to and from the Pool-fish ladders (WPDRD noted these aren't effective with the species found here) or other dam modifications.

Thursday, May 31, 2007, Polar Bear swimmers
Attendees: Polar Bears-Karen Kreps, Ralph Webster, Ann Bower, Francis Fisher, Robin Cravey, Mary Warren, Ginny Rohlich, Steve Barnick, Mary rohlich, Nancy Hancock, Scott Cook, COA PARD-Warren Struess, Farhad Madani, Tom Nelson, LGA-Al Godfrey, Laurie Limbacher

PARD introduced folks and noted that the meeting is for swimmers to learn about the master plan. To date, there has been a town hall meeting, various stakeholder meetings, public presentations to boards and commissions, and an informational website and email address for public comment have been set up.

LGA summarized the scope of the work on the master plan project. A handout with a project summary and description of tasks was provided. The floor was opened to questions:

- Did someone give $500,000 to PARD? Who? It was noted that the ACL Festival had given this sum, which was being spent on the soccer fields. Related to the Pool, the Council and City Manager have committed to $500,000 per year.
- Opening the upstream dam to baseflow may be a conflict with the swimmers, as it is hard to swim against a current. This is proposed for operational flexibility, and to improve water quality. It won't be

used at all times.
- Who cleans the bypass grate? PARD does.
- Suggestion to prevent debris from coming in to the Pool from upstream, and open the bottom of the downstream dam to let through things that do get in. What was the result of the recent big silt pumping effort? Some was removed, but subsequent flooding moved material down the Pool.
- Current gates in the downstream dam can be raised and lowered with relative ease, in comparison to the old gates.
- If lower dam can be opened to allow debris to pass through Pool, then upstream dam work might not be needed and staff time for cleaning might be reduced.
- There is some heavy drainage down the south hillside, and this is the first filthy water that comes in to the Pool in a heavy rain event. This should be addressed. The accessible walkway is intended to address this.
- Keep the Pool opened to the public as much as possible. Concern that extensive periods of work will close the Pool. Already concerned about closings during flood periods.
- Most morning swimmers have no interest in a south side bathhouse. Other swimmers and Pool patrons do have an interest in it. Also, can be used when existing Bathhouse is rehabilitated. A south bathhouse needs toilets, for sure, but some did not feel the need for changing facilities. May also want to study something smaller than first presented.
- Suggestion for electrical outlets for computers at the Bathhouse. Others said they would rather keep cell phone and computer use at a minimum at the Pool. The Bathhouse should be just for changing and showering, and not an office environment.
- Suggestion for better food and hot coffee at the concession stand. Others suggested removing it completely.
- Suggestion for hand ball courts, horse shoe pits above the Pool, near the Bathhouse.
- Discussion of process for prioritizing projects and spending funds. PARD explained that the projects will be defined as short term or long term, with the short term projects being done first. In general building and ground renovations will probably be short term projects, and water quality changes will be long term projects because there are further study and data gathering steps needed before these projects may be begun. Several swimmers noted that water quality is the highest issue, more important than Bathhouse renovations or improvements to the south gate. Water quality projects must be done with care to ensure that the salamander habitat is not degraded or damaged. Will first require flow modeling to study and inform the design of any modifications to the dams.
- Will there be other meetings for swimmers? Yes- large and small stakeholder group meetings, town hall meetings, presentations to boards and commissions. Members of FBSP suggested that folks get involved with that organization for information, as well.
- Written suggestions were provided by two swimmers who could not attend the meeting.

Friday, June 1, 2007, Bathhouse User Group
Attendees: FBSP/swimmers-Robin Cravey, Molly Bean, Steve Barnick, COA PARD-Clark Hancock, Sarah Macias, LGA-Al Godfrey, Laurie Limbacher

Existing Bathhouse: A preliminary floor plan, revised in accord with the comments made in the previous Bathhouse user group meeting, was presented. Preference for some private cubicles and some more open dressing booths in the Women's dressing area. Suggestion to add closets in the Visitor Center for chair and table storage.

South Bathhouse: A preliminary floor plan, reduced in size in accord with comments received from stakeholders, was presented.

Water quality, grounds suggestions: Much interest in flow regime revisions-provide maximum gate area in downstream dam, allow periodic baseflow through upstream dam, enable natural forces to clean the Pool. Rethink the bypass - can it be eliminated? Viewing platforms from the dams for Pool and creek. Rubberized surface treatment on concrete paving, a la Schlitterbahn. Native plants, trees for shade. Move diving board-choke point for lap swimmers. More social spaces for sitting and talking. Maintain natural beauty. Many of the recommendations

made in the Nuisance Algae Report, completed in 2000, have not been implemented.

Friday, June 8, 2007, Stakeholder Group Meeting
Attendees: FBSP/swimmers-Robin Cravey, Molly Bean, Steve Barnick, Sarah Searcy, Susan Fein, Brian Leonard, COA PARD-Clark Hancock, Sarah Macias, Tom Nelson, Farhad Madani, LGA-Al Godfrey, Laurie Limbacher

Existing Bathhouse: A preliminary floor plan, revised in accord with the comments made in the previous Bathhouse user group meeting, was presented.

Town Hall Meeting #2: Discussion to have an interactive meeting, for all interested stakeholders and participants, in conjunction with the free swim day in July. Hold this at the Pool, display information in the gallery before the town hall meeting, have a moderator for the town hall meeting.

Public presentations: Upcoming event at Austin Museum of Art, in conjunction with a photo exhibit of images taken at Barton Springs over the years. Will have a display table with information about the master plan and how to comment or become involved. Also upcoming presentations to the Environmental Board and the Barton Hills NA. Still awaiting reply from Zilker NA to schedule that meeting.

Dam designs: Without hydrodynamic modeling data, this work will remain very conceptual. Different types of gate configurations can be presented, to prompt public discussion.

Flood strategies: Susan and Brian expressed frustration that Pool must close in times of flood. Suggest raising upstream dam, much higher than the one or two feet mandate given to the planning team. Also, frustrated with time required to clean Pool after flooding. The group discussed the need to educate people on what must be done to clean up after a flood episode. Also, any increase in the height of the upstream dam must take in to account the potential for inundation of the upstream areas.

Wednesday, June 20, 2007, City of Austin Environmental Board
Attendees: WPDRD staff, members of Environmental Board, general public in the audience and televised viewing, LGA-Al Godfrey, Laurie Limbacher

LGA gave a brief illustrated presentation, summarizing the scope of work on the master plan project. A handout with a project summary, description of tasks and projected schedule for the MP project was provided. The web address of an informational website and the email address for public comment were presented.

Questions, comments from Environmental Board members:

- The time frame for completion is to present preliminary findings by the end of the summer, for possible action on short term projects in the city budget development.
- All of the proposed projects, should they be implemented, must be completed in accord with the USFWS permit requirements. Additional studies of the salamander habitat are recommended in this plan.
- The project is being done by the Parks and Recreation Department, and the Watershed Protection Development and Review Department is a member of the project team.
- Discussion of the latest salamander counts and the breeding program, noting about 180 Barton Springs salamanders and about 20 Austin Blind salamanders in recent counts.
- The changes in the flow regime are intended to increase water quality and enhance salamander habitat. Physical modeling will be done before things are further studied and any implementation might begin.
- A question was raised about how much revenue Barton Springs Pool generates, which PARD answered after the meeting.

Public comment was made by three people:

- Sarah Searcy, FBSP: Supports the master plan process, and the idea of short term and long term projects. Also supports more free days at the Pool.
- Steve Barnick, FBSP: Supports the process. Following the process by participating in many of the public meetings.

- Bill Bunch, SOS: Speaking for himself, not SOS. Concerned that the process has not brought people together, and can't see comments made by others. Encourage more meetings. Suggests priority on restoring the Pool, and not building new things around it. Against a south bathhouse, but do support new restrooms there. Suggests the priority projects should be things like the restoration of the Eliza Spring run, burying the power lines, enhancing the exhibits. The possibility of moving the dam is a very complex issue, and needs much more study. Need to get more people to the Pool, working with Capitol Metro. Need to provide additional access at the south gate, so folks can get in that way more hours of the day. Need a presentation to the Zilker NA. Emphasis should be placed on maintaining the natural environment. Also, upstream issues should be addressed before calling it a master plan.

Friday, June 22, 2007, Stakeholder Group Meeting
Attendees: FBSP/swimmers-Robin Cravey, Steve Barnick, Sarah Searcy, COA PARD-Clark Hancock, Tony Arnold, Tom Nelson, Farhad Madani, Donita Hautman, COA WPDRD-Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

Brief reports were made on meetings with the City Historic Preservation Officer, the City Environmental Officer and the Development Assistance Center to go over the master plan projects.

Related to the meeting with the City Environmental Officer, the group discussed greywater systems studied in the planning effort. The leach field would be quite large. One possible location for this is the Polo Field area, which PARD is looking to irrigate. TCEQ regulations related to greywater are changing, and there may be a NPDES permit requirement associated with the USFWS 10(a) permit. Geothermal systems would be supported by Austin Energy as a demonstration project, but there may be concerns with habitat and performance issues.

Three different sized preliminary plans for a south bathhouse were presented. Related to public comments about the need for restrooms at the ball fields, PARD reported that there are restrooms at the ball fields, and they are quite far away from the Pool grounds. People walking and biking to the Pool need a restroom, and the general sentiment is to continue to study a restroom/bathhouse closer to the Pool area. The landscaping and entry sequence in the preliminary plan struck the group as very appealing. The medium sized scheme, about 2,200 square feet, should be included in future presentations.

The Zilker NA has not responded to previous requests for a meeting time to present information about the master plan. LGA will contact them again, in hopes of setting a meeting soon.

WPDRD staff is working on criteria for hydrologic modeling data. Once these criteria are available, this will define the approach and assumptions to be used in the master plan. The group discussed water quality improvements that might be considered for short term projects, including removal of the gravel bar, new bypass inlet grate, new openings and gates in upstream dam, recirculation system and nuisance algae skimmer. WPDRD will ask other staff people - watershed engineer, ecomorphologists - to attend a team meeting to further discuss these issues.

Town Hall Meeting #2 will be on July 14, an open house and community forum at the Pool. Arrangements for the event were discussed by the group.

Tuesday, June 26, 2007, Barton Hills Neighborhood Association
Attendees: members of Barton Hills Neighborhood Association, general public in the audience, LGA-Al Godfrey, Laurie Limbacher
LGA gave a brief illustrated presentation, summarizing the scope of work on the master plan project. A handout with a project summary, description of tasks and projected schedule for the MP project was provided. The web address of an informational website and the email address for public comment were presented.

Thursday, June 28, 2007, Austin Museum of Art event
Attendees: patrons of Austin Museum of Art, general public in attendance, LGA-Al Godfrey
LGA presented an informational slide show about the master plan and answered questions about the master plan. The web address of an informational website and the email address for public comment were presented.

Friday, June 29, 2007, Stakeholder Group Meeting

Attendees: FBSP/swimmers-Robin Cravey, Steve Barnick, Sarah Searcy, COA PARD-Clark Hancock, Tom Nelson, COA WPDRD-Laurie Dries, David Johns, LGA-Al Godfrey, Laurie Limbacher

Most of the meeting was spent discussing the arrangements for the upcoming Town Hall Meeting #2. The group also preliminarily discussed potential short term projects. The FBSP suggests that as many water quality related projects as can prudently be done, dependent on having adequate data on conditions and anticipated impacts and on approval in the context of the USFWS 10(a) permit, be included in the short term projects. Several projects were suggested as potential short term projects: bypass grate, upstream dam openings, rehabilitate the gate and cylinder at Sunken Garden, algae skimmers, gravel bar removal, repairs to bypass tunnel, water recirculation on the beach, and power, water and pumps for pool cleaning.

Thursday, July 5, 2007, Zilker Neighborhood Association Steering Committee
Attendees: members of Zilker Neighborhood Association Steering Committee, LGA-Al Godfrey, Laurie Limbacher
LGA gave a brief illustrated presentation, summarizing the scope of work on the master plan project. A handout with a project summary, description of tasks and projected schedule for the MP project was provided. The web address of an informational website and the email address for public comment were presented.

LGA was invited to attend the Zilker Neighborhood Watermelon Social, a membership meeting set for later in July. Steering Committee members offered the following questions and comments:

- What is the source for the funding for the master plan projects?
- Make sure there is proper study of the environmental impact on the salamander, before projects are implemented.
- Concern about upstream development, continuing to allow projects over the aquifer.
- Heard some concerns about the south bathhouse and making sure priorities are logical.
- Don't over light the Pool.
- Proposed work at Eliza Spring and Sunken Garden important to do.
- Fix the Pool, fix Eliza Spring, take care of what is already there.
- Provide a public gathering point at Eliza Spring.
- Add a bridge across the creek at Sunken Garden to allow crossing to the other springs.
- Make a stronger connection between the greenbelt and the Pool. Make the trail more attractive from the Pool.
- Concern about putting Pool above recreational aspects of the site.
- Interpretation of habitat, to educate the public.
- Flow regime improvements, dam improvements, Eliza Spring and Sunken Garden projects are priorities, but not the Bathhouse. Not sure about Zilker Ponds.

Friday, July 6, 2007, Stakeholder Group Meeting
Attendees: FBSP/swimmers-Robin Cravey, Steve Barnick, SOS-Kelly Davis, Bill Bunch, COA PARD-Farhad Madani, Tom Nelson, COA WPDRD-Laurie Dries, LGA-Al Godfrey, Laurie Limbacher, Moderator of Town Hall Meeting #2-Leon Barish

Most of the meeting was spent discussing the arrangements for the upcoming Town Hall Meeting #2.

Mr. Madani explained that a key issue emerging from the stakeholder input was water quality, to address nuisance algae accumulations, turbidity, water clarity and cleanliness. Also, enhancement of salamander habitat areas. Several safety issues are a concern to PARD and will need to be addressed in the short term, including bypass leaks, tree maintenance and site electrical wiring.

Mr. Bunch asked about the schedule after Town Hall Meeting #2, set for July 14. Mr. Madani explained that the short term projects will go to Council in August for budget review and action. To be incorporated in the information presented to Council, comments should be received by August 1.

Saturday, July 14, 2007, Public Hearing/Town Hall Meeting #2
Attendees: See sign-in sheet on file with PARD

The meeting was held in conjunction with a free swim day at the Pool. Prior to the Town Hall Meeting, called the Community Forum, a day long Open House was held in the Gallery at the Bathhouse. Presenta-

tion boards with drawings, photographs and text were displayed in the Gallery and consultants and staff were there to answer questions. Comment sheets were available, and attendees were also encouraged to make comments on sticky-backed note paper, which were then affixed to the presentation boards. Smaller stations on specific topics were also set up in several places on the Pool grounds.

The Community Forum was an interactive public hearing to provide information about the proposed scope and content of the Barton Springs Pool Master Plan project and discuss comments from the public. The forum was moderated by Leon Barish, swimmer.

Introductory remarks were made by Farhad Madani, COA PARD, Nancy McClintock, COA WPDRD, and Robin Cravey, FBSP. Al Godfrey gave an overview presentation of the master plan information. The presentation was illustrated with images projected on a screen in the tented meeting space. A handout with a project summary and a list of study tasks included in the MP project was provided. Comment sheets were provided, and the web address of an informational website and the email address for public comment were presented.

Mr. Barish led a discussion of master plan information. Comments were made, as follows:

- Q: How will the prioritization be done, and who will do it? A: Mr. Madani explained that the short term projects will be determined in mid-August, and presented to Council for budget consideration. There will be another public meeting to do the prioritization. From public participation to date, the water quality issues are of great concern. PARD is also concerned about safety issues, and will consider these a priority. The staff will make the prioritization recommendations, with the assistance of the consultants, regulatory authorities and stakeholders. Information will be provided through the COA website and the FBSP.
- Q: As far as making the water cleaner, is it just the algae skimmer and the added electrical power for cleaning? A: Ms. McClintock explained that other master plan items are intended to abate nuisance algae, such as the ultrasonic algae control and increased flow in the Pool. Removing the gravel bar accumulation will also reduce sediment accumulation. This will also enhance the health of appropriate aquatic plants in the Pool, which will in turn enhance water quality. There is not a specific "measure" for water quality, and the turbidity level can change during the course of a day.
- Comment: Suggestion made to pursue grant funds for master plan projects.
- Comment: The answer is to protect the aquifer, and provide public education about the health of the aquifer. There are a few simple things that would be good, efficient uses of the funding, including fixing holes in the south wall of the Pool, providing more funding for guards and training for guards. Don't like any idea that is going to keep the Pool closed. Don't like the silt problem being described as anything other than a problem of upstream development. Test the effects of other tree species on the salamanders. Thanks to the FBSP for working on this effort. Hate to see the process be open meeting, open meeting, closed decision.
- Comment: Not from here, only visiting for a few days, but the Pool is a spiritual experience.
- Comment: Don't feel that short term solutions, like algae skimmers, are going to solve the problem. Need to educate about issues upstream of the Pool. Against the south bathhouse, as just more concrete. Need to put toilet tissue and soap in the existing restrooms.
- Comment: Like the idea of dam gates that might allow for natural scouring and cleaning during floods. The city has changed, and we need to understand that this will have an impact. Concerned about needing to lower the water if the dam is moved and the Pool is enlarged, and also about the loss of the shallow end. Would be good to have more use of the Pool.
- Comment: In flood, very muddy water enters the north side of the Pool from the bypass tunnel. A: The joints in the bypass tunnel have developed leaks. The City has permission from the USFWS to do the required repair work, but are waiting for the right flow conditions to do so. Q: Will that close the Pool? A: May take a few days to complete. Will try to schedule on a cleaning day or

when otherwise closed.

- Comment: Thanks for listening to the community. The water is sacred. Would like to see the barbed wire fence replaced with a more appropriate, attractive fence. Also, work to educate newcomers about the Pool. And, provide funding for local musicians and artists to prepare works at and about the Pool.
- Comment: The master plan should focus on renovation and restoration prior to new construction. There is a sense of nature here, and that should be enhanced. Like the interpretive signs and exhibits proposed. Suggest adding an electronic lock on the south gate, to allow for longer hours of entry through that gate. Like the suggestion to provide data on Pool conditions in real time at the Bathhouse. Like the idea of paying lifeguards more. Suggestion to train the lifeguards in ecology, similar to tour travel guide training in the Galapagos. Suggest some signs that acknowledge public investment and lands upstream. Maybe match master plan funding with money for conservation easements of land purchases upstream. Like the idea of art in the Bathhouse or out in nature. Support an open decision making process.
- Comment: FBSP is working to make things better at the Pool. All are invited to become part of the volunteer process and to send their comments and recommendations on the master plan.
- Comment: Hope to become more involved. Good to see Barton Springs Pool improved, and the aquifer and the creek. Need to make Zilker Park and Barton Springs Pool a more high profile place.
- Comment: The notion of using dam gates to scour the Pool in floods seems a little sketchy to this speaker. Suggests a flier in the monthly utility bill with educational material about fertilizer use, encouraging folks to use less fertilizer.
- Comment: As a diver, concerned about lowering the water level associated with enlarging the Pool. Even a change of as little as 2' may eliminate the diving board.
- Comment: The area between the path and the woods should be a wildflower meadow.
- Comment: The water quality is a big concern, but also like some of the facility improvements. Like the rainwater collection and solar power ideas.
- Comment: Would like a hot tub, or maybe a solar powered hot tub.
- Q: How is the decision making process on the short term projects be documented? Will there be minutes? A: Mr. Madani will explore posting minutes on the City website. Recommendations will definitely be posted there.
- Comment: Concerns about lack of community communication. This venue not a good one for a meeting. Need to use modern communication channels - website, email - and do a better job of publicizing who is on the project team, who is the project manager.
- Comment: Need more signs, and signs explaining why there is not food allowed in certain places here.
- Comment: Appreciate the comments about public communication. Concerns about more efficient flood clean up, to get the Pool open faster. A: Ms. Dries noted that an advantage of creating a more natural flow regime is the likelihood of less flood damage.
- Comment: For anyone who paid for parking for this community meeting, please refund their money. A: PARD has already directed that parking fees be waived for meeting attendees.
- Comment: There seems to be a smaller crowd here than expected, because there was no notice given of the event. Also why was there no notice about the Pool being opened after flooding? A: Ms. Dries noted that the Pool opening had been delayed by flood waters coming upstream from Town Lake, which dirtied the Pool. Mr. Nelson noted that each flood is different and unpredictable. The staff has developed effective methods of cleaning the Pool after a flood, and works hard to open the Pool as soon as possible.
- Comment: There was a good deal of notice about this event. It was publicized in the local newspapers, television news programs and radio stations.
- Comment: This master plan is our master plan. We need to work together on it, keep aiming high, have back and forth dialogue.
- Comment: Have music and dancing at the site, down at the end across from the big hill.
- Comment: Not everyone likes this idea to have music and dancing.
- Comment: Don't swim here, but feel it is the heart and soul of

Austin. Don't like the south bathhouse.

- Comment: Like the idea of burying the electrical lines.
- Q: Is it possible to build a screen upstream of the Pool area to catch debris. A: The bypass grate does this already. It needs to be re-designed to work more effectively and not get clogged up so readily. A screen upstream will create a larger task of keeping the screen clean and maintained. Better to do it at the bypass grate.
- Comment: Suggest that the City give free swim passes to physically and mentally disabled people.
- Comment: Consider a fee of 25 cents added to each monthly utility bill to fund this project. Also, apply for grants, such as those from the Dell Foundation.

Closing comments were made by Robin Cravey, FBSP. Two good ways to keep informed on this project are through the websites of FBSP and PARD. Provide comments to the master plan email address or on the comment forms provided here. A good way to get more involved is to participate in the FBSP Advocacy Committee. The presentation drawings presented today will be on the two websites and will be on display in the Gallery at the Pool.

Monday, July 23, 2007, Save Barton Creek Association
Attendees: members of Save Barton Creek Association, general public in the audience, LGA-Al Godfrey
Mr. Godfrey gave an illustrated presentation, an overview of the preliminary recommendations on the master plan project. A handout with a project summary, description of tasks and projected schedule for the MP project was provided. The web address of an informational website and the email address for public comment were presented.

SBCA members expressed concerns that the master plan was endorsing enlarging the Pool. Mr. Godfrey clarified that the planning team had been asked to study this, and our preliminary assessment is that there are many serious challenges associated with this possibility. It is not something we recommend.

SBCA members offered comments on both sides of the south bathhouse issue, some in support and some not. Also, the future presentations ab city boards and commissions and council were discussed.

Wednesday, July 25, 2007, Stakeholder Group Meeting
Attendees: FBSP/swimmers-Robin Cravey, Steve Barnick, Sarah Searcy, COA PARD-Farhad Madani, Tom Nelson, Tony Arnold COA WPDRD-Nancy McClintock, Tom Ennis, David Johns, Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

PARD has compiled the comments from the Open House and Community Forum. The group discussed appropriate responses to the comments. The presentation boards have been on display at the Pool since the event. The presentation boards are on the FBSP website. The comments and presentation boards will go on the City website shortly.

Several items presented have emerged as items of special concern or great confusion. These will be addressed in the FAQ portion of the City website.

A large stakeholder group meeting, similar to the one held at the beginning of the project, will be held on August 8, to go over the proposed short term projects in the master plan.

Monday, July 30, 2007, Zilker Neighborhood Association
Attendees: members of Zilker Neighborhood Association, general public in the audience, LGA-Al Godfrey, Laurie Limbacher

LGA informally presented presentation drawings and answered questions about the master plan during the Zilker Neighborhood Association Watermelon Social. The web address of an informational website and the email address for public comment were presented.

Wednesday, August 1, 2007, Stakeholder Group Meeting
Attendees: SBCA-Susan Bright, SOS-Colin Clark, FBSP/swimmers-Robin Cravey, Steve Barnick, Sarah Searcy, COA PARD-Farhad Madani, Tom Nelson, Tony Arnold, Mark MacDougal, Dolores Posada, Clark Hancock, COA WPDRD-Tom Ennis, Ed Peacock, David Johns, Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

The group discussed potential short term master plan projects proposed by the attendees, including:

- Replace, improve bypass inlet grate

- Improve stone walls, outflow gate at Sunken Garden
- Algae skimmer system
- Gravel bar removal
- Joint repairs at bypass tunnel
- Water recirculation at the beach pilot project
- Relocate overhead power lines to underground, add power to south side of Pool
- New pumps to increase water pressure for pool cleaning
- Hydrodynamic flow modeling
- Salamander data collection
- Grounds improvements-trees, fences, natural grasses
- Accessible path at south side of Pool
- Silt and algae disposal system
- Ultrasonic algae control system pilot project
- Topographic survey of the grounds, including Sunken Garden and bathymetric survey of creek, Pool
- Flood modeling of the creek upstream of the Pool
- Interpretive signage, educational displays
- Informational kiosk with realtime data about the Pool
- Free swim passes for people who are disabled (Mr. Madani noted that this is an operational issue that can be further discussed with PARD, but is not a master plan item)
- Signs to the Pool from other areas of the park
- Flow control structure in front of the dam (This can be studied in the course of the hydrodynamic flow modeling, and does not need to be a separate item)

The possibility of some first phase renovation at the existing Bathhouse was also discussed.

The group also discussed the issue of funding for staffing, since recommendations for additional staffing sometimes come up in public comments. Mr. Madani explained that funding for staffing comes from a different source than the funding identified by the City Manager and Council for the master plan projects. The master plan funding is for improvements to the Pool, grounds and buildings. Money for staffing comes from the operating budget, which is not addressed by this master plan. As a point of information, there have been several new full time employees added for maintenance and salaries for life guards were recently raised.

Staff and consultants were assigned the task of drafting prioritization recommendations for discussion during a follow up meeting, set for next week. Consultants presented draft versions of project schedules, which help in determining the order in which some of the short term projects should logically be completed.

A public meeting, Town Hall Meeting #3, to discuss the short term projects and associated prioritization recommendations, has been scheduled for the evening of August 27. The short term projects will be presented during the Parks and Recreation Board meeting of August 28, and at Council on August 30.

Wednesday, August 8, 2007, Multiple Stakeholder Group Meeting
Attendees: SBCA-Susan Bright, SOS-Bill Bunch, FBSP/swimmers-Robin Cravey, Steve Barnick, Bill Adorno, Dorothy Richter, Brian Leonard, Susan Fein, Ralph Webster, Mark Lang, Mark Nowacki, Karen Kreps, Peter Steinhardt, several others (sign in sheet on file with PARD), BSS SAC-Tom Wilcox, Hill Country Conservancy-George Cofer, COA PARD-Farhad Madani, Tom Nelson, Tony Arnold, Mark MacDougal, Dolores Posada, Clark Hancock, COA WPDRD-Nancy McClintock, Tom Ennis, Ed Peacock, David Johns, Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

The group discussed potential short term master plan projects, one by one, for comment.

- Replace/improve bypass inlet grate: No comments.
- Improve stone walls, add outflow gate at Sunken Garden: This is recommended to hopefully enhance the salamander habitat at this spring. Suggestion to include this in general parks budget, instead of in the master plan budget, but not possible per PARD.
- Interim skimmer system to remove surface nuisance algae: This is a temporary installation, on the sidewall of the Pool. While other master plan items are aimed at reducing the algae, this is an acknowledgement that there will still be nuisance algae at the Pool, particularly during low flow times.
- Gravel bar removal: This is a continuation of the effort began last

year, which removed smaller sized gravel. There is a large accumulation that still need to be removed.

- Barton Creek bypass joint repairs: This will use the same repair methods developed for the ACWP project.
- Pilot study for water recirculation at the beach: A pilot study for pushing water across the beach, using submersible pumps. Swimmers expressed concerns about creating strong currents, making swimming difficult. The pilot study will test a very low rate of flow.
- Replace overhead wiring with underground wiring, and provide additional electric power to south side of Pool: No comments, except to break this in to two items, for clarity.
- Provide new pump to increase water pressure for cleaning: In low flow conditions, this will also be tied to city water for cleaning. One person requested that the scope be shown with a schedule, instead of a diagram. If this were an actual construction project, that sort of drawing might be done, but this is a master plan, so drawings are conceptual.
- Conduct flow modeling in the Pool, studying flooding, baseflow without openings in upstream dam, baseflow with openings in upstream dam: No comments.
- Data collection on salamanders: To study impact of creek inflows in to Pool on water chemistry, etc.
- Grounds improvements (trees, native grasses, plants, fences): This will include a thorough assessment of the existing trees, some of which are in a state of decline.
- Accessible path to Pool at south gate entry: The concept diagram shows a possible path. A specific design can be developed once topographic information is available. Concerns raised that the woods as they are now are natural, and a path might change that. The path is envisioned as "a walk in the woods", and is intended to be a natural experience. Concerns raised that runoff during construction might be a problem in the Pool. Best management practices, as required by code, are intended to address this concern. Concerns raised that accessibility not required by law here. The path is intended for all kinds of users -- families with strollers, people with difficulty walking, and people with disabilities.
- Disposal system for silt and algae debris resulting from routine cleaning:
- Pilot study on ultrasonic algae control:
- Topographic survey and cross-sections of Barton Creek upstream of Pool and grounds:
- Flood modeling up creek of Pool:
- Interpretive plan for Barton Springs: Educational signs, kiosks, displays.

Mr. Arnold and Mr. Madani explained the actions from here forward. The short term projects list will be presented in another group stakeholder meeting on August 15, at a Town Hall Meeting on August 27, at the Parks Board on August 28 and in a Council briefing on August 30. The Council is not yet posted for action on the short term projects, but may set that up after the briefing date. Mr. Madani briefly described costs spent or encumbered to date from the master plan funds.

Some attendees expressed acrimony about the master plan. Mr. Madani explained that the goal is to gain a good pool for future generations of Austinites. Information about the master plan is available on the city website and the project email address may be used for comments or questions. Ms. McClintock encouraged interested stakeholders to look at the information provided there, and come to future meetings prepared to discuss the agenda items.

Wednesday, August 15, 2007, Multiple Stakeholder Group Meeting
Attendees: SBCA-Susan Bright, SOS-Bill Bunch, FBSP/swimmers-Robin Cravey, Steve Barnick, Sarah Searcy, Susan Fein, Ralph Webster, Karen Kreps, Peter Steinhardt, several others (sign in sheet on file with PARD), COA PARD-Farhad Madani, Tom Nelson, Tony Arnold, Mark MacDougal, Dolores Posada, Clark Hancock, Margaret Russell, COA WPDRD-Nancy McClintock, David Johns, Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

Mr. Madani and Mr. Arnold passed out a three page chart with the list of twenty short term projects, identified by project number and described in terms of problem and proposed solution, for the group to review. Three project priority groups have been identified, designated by letter A, B or C. The group discussed the list, item by item:

- A1, Pilot study for water recirculation on the beach: No comments.
- A2, Pilot study for ultrasonic algae control: There is real science behind this device, and the cost for the pilot project is just that of the device, itself.
- A3, Pilot study to determine if creek inflows into Pool will impact water chemistry and algae growth: One swimmer expressed concern about swimming in creek water. It is hoped that creek water will aide in clearing the Pool water after floods and enhance ecologic viability in the Pool.
- A4, BS Pool grounds tree assessment and treatment: One swimmer felt this should come from a maintenance budget, but there are not funds for this purpose in the maintenance budget and the work is overdue. There are advantages to having a diverse tree species mix, and a high priority will be put on planting trees that are ecologically appropriate.
- A5, Replace all overhead wiring with underground wiring and add new lighting: The group discussed aesthetic criteria for new light fixtures. This topic will be fully addressed during Design Development, but is broadly addressed at the master plan phase.
- A6, Provide additional electric power to south side for cleaning: This will likely be done in conjunction with Item A5. The group discussed routing of the new power supply.
- A7, Topographic survey and cross-sections of Barton Creek upstream of Pool, Pool grounds and bottom of Pool: This information is needed for flow modeling and for documentation of topography of the site.
- A8, Gravel bar removal: There is a large accumulation of gravel, including about a 5' drift deposited this year, that needs to be removed from the Pool. This work will be scheduled during the major spring clean period, to minimize impact on pool operations. The fish are not breeding at the spring clean time of year, so there will be no impact on their eggs.
- A9, Phase I rehabilitation of the main Bathhouse: There are some code issues with the roof that need to be addressed. The group asked about accessibility upgrades; a major accessibility upgrade was completed at the Bathhouse a few years ago. The toilet paper holder in the Women's accessible restroom should be repaired.
- A10, Replace and improve Barton Creek bypass grate: The current grate clogs up easily, and flood waters then enter the Pool. A replacement grate should solve this problem. Adding barriers to catch debris upstream would solve more problems than they would solve.
- A11, Barton Creek bypass joint repairs: This work can only be scheduled when the flow conditions are just right to allow the work to proceed, and may require that the Pool be closed for a few days as a result.
- A12, Provide new pump to increase water pressure to facilitate cleaning: This will allow for more efficient cleaning of the deep end of the Pool.
- B13, Improve access to Pool to comply with Americans with Disabilities Act: Concerns about damage to the woods, runoff during construction. The concept for the path is as a walk in the woods, and best management practices would be employed during construction.
- B14, Conduct flow modeling of Pool; flooding, baseflow without openings in upstream and downstream dams, baseflow with openings in upstream and downstream dams: This is needed to study improvements to the flow regime.
- B15, Flood modeling upstream of Pool: This is needed to study flood elevations upstream of Pool, relative to possible raising of the upstream dam.
- B16, Disposal system for silt and algal debris resulting from drawdown and flood cleaning: Need a system to move cleaning debris off site for composting or other disposal.
- C17, Interpretive plan for Barton Springs: Suggestion to give this item a higher priority.
- C18, Temporary skimmer system to remove the surface nuisance algae: Discussion about whether this should have a higher priority. As long as there is not a drought period, this is not as urgent as some other items.
- C19, Grounds improvements (landscaping, fences, irrigation, seating): The group discussed fence types and bench locations proposed

in the master plan. Suggestion to lower the fence height on the dam.
- C20, At Sunken Garden, renovate walls and add gate: This will allow regulation of spring flows to improve habitat management.

The next public meeting will be on August 27, when the proposed short term items will be presented and discussed, item by item.

Monday, August 27, 2007, Public Hearing/Town Hall Meeting #3
Attendees: See sign-in sheet on file with PARD, about 60 attendees from the swimmers/general public, COA PARD-Farhad Madani, Tom Nelson, Tony Arnold, Ricardo Soliz, Mark MacDougal, Dolores Posada, COA WPDRD-Laurie Dries, David Johns, LGA-Al Godfrey, Laurie Limbacher

Mr. Madani introduced the meeting, held to present and discuss the proposed short term projects of the master plan project. Ricardo Soliz will moderate the discussion. There will be a brief informational presentation for each item, then we will stop to discuss each item.

Mr. Madani also noted the presentation at the Parks Board and at the Council of the short term projects later this week. The team is working to get funding for each item on the list, so the priority order indicated may not be an issue. The budgets for each project are still being prepared, and will be provided as soon as all the information is completed.

Mr. Godfrey presented a brief overview of the entire master plan, which considers an array of issues associated with the Pool and infrastructure, the grounds and the buildings. The short term project recommendations have emerged from public comment, concerns for public safety and site management issues.

The short term projects were then presented and discussed. Questions posed by the attendees were answered by the staff and consultants. The short term projects and discussion are briefly described below:

- A1, Pilot study for water recirculation on the beach: This is intended to enhance salamander habitat and mitigate nuisance algae.
- A2, Pilot study for ultrasonic algae control: The pilot project will be done with the captive breeding salamander population, before anything shows up in the Pool.
- A3, Pilot study to determine if creek inflows into Pool will impact water chemistry and algae growth: If the pilot project is successful and a long term project is done later, this would only happen during the times of year when the creek conditions are acceptable for introduction in to the Pool. During the pilot project, there may be some pump noise. During times of flood, creek water clears faster than the aquifer does; this could be beneficial in restoring water quality after a flood.
- A4, BS Pool grounds tree assessment and treatment: All are concerned about the loss of old trees, but all understand the hazards and public safety issues with deteriorating trees. Need to be sure to take good care of the trees that remain. Also consider commemorations or art pieces from trees that are removed.
- A5, Replace all overhead wiring with underground wiring and add new lighting: The actual light fixtures will be selected in the future, and not during the master plan.
- A6, Provide additional electric power to south side for cleaning: No comments.
- A7, Topographic survey and cross-sections of Barton Creek upstream of Pool, Pool grounds and bottom of Pool: Some attendees wanted to make sure this data would not be used in an effort to move the dams.
- A7a, Structural testing of existing dams: This is an addition to the short term projects lists discussed in previous stakeholder meetings. This information is needed in order to determine the capacity of the dams, with respect to the proposed flow regime improvements.
- A8, Gravel bar removal: The gravel in the deep end accumulates to an ever higher level, changing the velocity of the water through the deep channel. The accumulation needs to be removed, and future maintenance should then be more manageable. Swimmers expressed concern about having the Pool closed for a long time. The anticipated time for this work is 3 to 6 weeks. It may be possible to have a portion of the Pool open for swimming as the gravel removal is ongoing.
- A9, Phase I rehabilitation of the main Bathhouse: This work includes repair and maintenance issues, primarily.

- A10, Replace and improve Barton Creek bypass grate: The intent is to mitigate clogs that occur during "pop up" floods.
- A11, Barton Creek bypass joint repairs: This work can only be scheduled when the flow conditions are just right to allow the work to proceed, and may require that the Pool be closed for the repairs.
- A12, Provide new pump to increase water pressure to facilitate cleaning: This will allow for more efficient cleaning of the deep end of the Pool. Currently, all cleaning is done with city water. This will allow the use of Pool water for cleaning, unless the flows are too low.
- B13, Improve access to Pool to comply with Americans with Disabilities Act: This includes enhanced access from the north side and a new accessible trail from the south side to the Pool. The concept is a "walk in the woods" using permeable paving, built as a winding walkway, at a low enough slope to be without rails. A more detailed design would be prepared after the topographic data is available, and more public presentations and dialogue would take place at that time. Some expressed concern about this being invasive to the woods and the natural feel of the south lawn. Others noted accessible paths in parks and greenbelts, and felt it could be well done and should be done for people with disabilities, and even for people with knee issues or elderly folks. Some suggested that it be coordinated with parking and expressed support for bathrooms on the south side. (These are not included in the short term projects.) Mr. Madani noted that an accessible path is a values issue and an important thing for the city to do and do well.
- B14, Conduct flow modeling of Pool; flooding, baseflow without openings in upstream and downstream dams, baseflow with openings in upstream and downstream dams: This is needed to study improvements to the flow regime.
- B15, Flood modeling upstream of Pool: This is needed to study flood elevations upstream of Pool, relative to possible raising of the upstream dam.
- B16, Disposal system for silt and algal debris resulting from drawdown and flood cleaning: A low key, low intensity solution is proposed.
- C17, Interpretive plan for Barton Springs: Discussion about giving this item a higher priority. Since the goal is to pursue funding for all of the short term projects, doesn't seem necessary.
- C18, Temporary skimmer system to remove the surface nuisance algae: Discussion about what this will look like.
- C19, Grounds improvements (landscaping, fences, irrigation, seating): Discussion of irrigation system, fence types proposed. Turf and plant species also discussed.
- C20, At Sunken Garden, renovate walls and add gate: This is a "salamander-centric" solution in the short term projects, with more rehabilitation work needed in the long term.

Some suggestions for additional items that might be added or considered in the master plan were made by a few attendees. One suggestion was for more parking spaces. Another was to contemplate an irrigation system for the Zilker Ponds. Several people expressed concern about the lack of restroom facilities on the south side of the Pool, which results in people urinating and defecating on the ground, and washes in to the Pool. This should also be addressed, and portable toilets might be a short term solution. One person asked whether Eliza Spring couldn't be rehabilitated in the short term. There is an interest in enhancing the salamander habitat at Sunken Garden before work is done at Eliza Spring.

Tuesday, August 28, 2007, City of Austin Parks and Recreation Board
Attendees: PARD staff, members of Parks and Recreation Board, general public in the audience and televised viewing, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey presented a brief overview of the entire master plan, which considers an array of issues associated with the Pool and infrastructure, the grounds and the buildings. The short term project recommendations have emerged from public comment, concerns for public safety and site management issues. A brief illustrated presentation of the 21 short term projects was begun, but was stopped by the PARB at Item 7.

The Park Board members asked for a description of the process of presentation and acceptance going forward. The master plan process has

been underway for the past six months, with many meetings and presentations on the projects the consultants were asked to study. Projects to be completed in the short term versus in the long term were identified, as well. Mr. Madani, with PARD, explained that the short term projects will be presented to Council later this week. The Council may consider funding for these short term items in the near future. The full master plan, including the long term projects, will be presented later, in the fall, through another series of public meetings. The full master plan will be presented to the Parks Board at that time. Mr. Arnold, with PARD, explained that as each project is implemented, there will be a design phase during which there will be public presentations and opportunities for public comment.

Public testimony was taken from several members of the audience, as follows:

- Jackie Goodman, SBCA: Thanks to the FBSP and swimmers who have participated in this process. Suggests a longer process for the remainder of the master plan, and concerned about the use of the term master plan. Offered comments on several short term items, including tree removal, new pump and topographic survey. Suggests that the interpretive plan be given a higher priority. Suggests that the accessible path at the south side be given more study before implementation.
- Bill Bunch, SOS: Suggests that this hearing be held at another time, since it was quite late at night already. Suggests more community-wide meetings. Concerned about the push to include the short term projects in the current budget. Concerned about the 1-3 year time frame for short term projects, feels this is too long.
- Suzanne Mason, FBSP: FBSP started this process with the City after coming together as a grass roots organization over water quality in the Pool. This is an opportunity to move forward with some things. Personally interested in cleaning up the facilities, including the Bathhouse. Looks forward to further public process on the remainder of the master plan.
- Robin Cravey, FBSP: Has been a great effort getting the master plan process this far along. FBSP and swimmers got together to put emphasis on the Pool. Many meetings have been held, but not always well attended. Feels the short term projects are a well balanced list of improvements and studies needed to inform future master plan items. Supports making the south side of the Pool accessible to the citizens of Austin.

Thursday, August 30, 2007, City Council
Attendees: PARD staff, WPDRD staff, members of City Council, general public in the audience and televised viewing, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey presented a brief overview of the entire master plan, which considers an array of issues associated with the Pool and infrastructure, the grounds and the buildings. Over the course of the master plan process, the emphasis has changed from simple facilities improvements to the more complex water quality issues. The recommendations for short term projects, which have emerged from public comment, concerns for public safety and site management issues, were also presented.

Mr. Struess, with PARD, presented budget figures associated with the recommended short term projects.

Thursday, February 28, 2008, Joint Subcommittee of the Parks Board and the Environmental Board
Attendees: PARD staff, WPDRD staff, members of the Joint Subcommittee general public in the audience. LGA-Al Godfrey, Laurie Limbacher

An organizational meeting for the Joint Subcommittee, to meet the board members, exchange information and review timeline for the Barton Springs Pool Master Plan. No action was taken during the meeting.

Thursday, March 6, 2008, Joint Subcommittee of the Parks Board and the Environmental Board
Attendees: PARD staff, WPDRD staff, members of the Joint Subcommittee general public in the audience. LGA-Al Godfrey, Laurie Limbacher, Carolyn Kelley

Mr. Godfrey and Ms. Limbacher presented a brief overview of the entire master plan. The Joint Subcommittee members' questions were answered. The minutes of the meeting are on file with the Parks and Recreation Department.

Wednesday, March 19, 2008, Heritage Society of Austin
Attendees: members of the Heritage Society of Austin Preservation Committee, general members in attendance, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey gave an illustrated presentation, an overview of the master plan during the monthly meeting of the HSA Preservation Committee. The web address of an informational website and the email address for public comment were presented.

Thursday, March 27, 2008, Austin Parks Foundation
Attendees: members of the Austin Parks Foundation board of directors, general members in attendance, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey gave an illustrated presentation, an overview of the master plan during the monthly meeting of the Austin Parks Foundation board of directors. The web address of an informational website and the email address for public comment were presented.

Saturday, April 5, 2008, Public Hearing/Town Hall Meeting #4
Attendees: See sign-in sheet on file with PARD

The Town Hall Meeting was hosted by the Joint Subcommittee of the Parks Board and the Environmental Board. Introductory remarks were made by Linda Guerrero, Chair of the Joint Subcommittee. Al Godfrey and David Johns, COA WPDRD, gave an overview presentation of the master plan information. Tony Arnold, COA PARD, explained the future design and implementation process for the topics studied in the master plan.

A series of three small group break out sessions on the three major topics addressed in the master plan -- the pool and infrastructure, the grounds and the buildings -- were held. Each break out session was repeated three times, to allow attendees to participate in one break out session on each topic.

Linda Guerrero and Dave Anderson, Joint Subcommittee members, led a discussion of master plan information. Comments were made as follows:

- Comment: The speaker is a regular swimmer and member of the Scientific Advisory Committee to the 10A permit at the site. He noted that the City of Austin has changed dramatically, and he supports changing the pool in accord with current demands.
- Comment: The speaker is a regular swimmer, and supports the notion of an advisory joint subcommittee on an ongoing basis to be involved in further consideration of master plan topics.
- Comment: The speaker is a regular swimmer, and asked that information about projects that might emerge from the master plan be provided to the public, including timelines, budget information and completion status. He also noted that he found the landscape format of the master plan report difficult to use.
- Comment: The speaker is a regular swimmer, and wants to know more about how long the pool might be closed as master plan topics might be designed and implemented. She also offered comments on the lifeguard activities at the pool. She suggested selling copies of the master plan report at the pool, and encouraged more and better communication.
- Comment: The speaker is a regular swimmer, and would like to receive an abbreviated summary of the master plan topics, without any of the background information included in the master plan report. He would like to know how much money has been spent on the short term projects. He objected to the tree species planted at the pool site.
- Comment: The speaker is a regular swimmer, and asked who the director of PARD is. He later advocated for a national search for the new PARD director.
- Comment: The speaker is a member of the Scientific Advisory Committee to the 10A permit at the site, and expressed support for the provision of information to the public about projects that might emerge from the master plan. He also advocated removing the evidence of the human footprint -- the buildings and the pool -- from the site, in an effort to make the natural environment more resilient.
- Comment: The speaker is a regular swimmer, and objected to the format of this Town Hall Meeting, advocating instead a large group discussion. He claimed that the consultants hired to produce the

master plan report were liars and manipulated the system. He advocated for an open process.

- Comment: The speaker is a regular swimmer and member of the Scientific Advisory Committee to the 10A permit. He objected to the remarks of the previous speaker. He also noted that those who feel that information is not available about the master plan should read the master plan report.
- Comment: The speaker is a regular swimmer, and has followed the master plan process through several organizations with an interest in the master plan topics. He advocated for quarterly updates on progress on projects that might emerge from the master plan on the PARD website.
- Comment: The speaker is a regular swimmer, and expressed enthusiasm for the changes and improvements studied in the master plan. He supports a small bathhouse on the south side of the pool and supports the accessibility improvements, such as the accessible route proposed on the south grounds.
- Comment: The speaker is a regular swimmer and has been involved in the master plan process from the beginning. She stated that there has been no lying or manipulation by the consultants hired to produce the master plan report, and noted that she was insulted by that comment. She noted that there have been many public meetings, of many different types, offering opportunities for all to participate in the way they felt most comfortable.
- Comment: The speaker is a member of the Joint Subcommittee, and noted that part of their role is to help get the facts about the master plan out to the public.
- Comment: The speaker is a member of the Joint Subcommittee, and objected to the notion that the format of the Town Hall Meeting was intended to divide or subvert the group of attendees. The effort of the meeting today was to get public input on the draft master plan report.

Thursday, May 15, 2008, City of Austin Design Commission Project Review Task Force
Attendees: members of the Design Commission Project Review Task Force, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey gave an illustrated presentation, an overview of the master plan. A packet of summary information, excerpted from the master plan report, was distributed. Copies of the complete master plan will be provided to the task force members, for their use in preparing their recommendation to the full Design Commission.

Tuesday, May 27, 2008, City of Austin Parks and Recreation Board
Attendees: members of the Parks and Recreation Board, general public in the audience and televised viewing, PARD staff, WPDRD staff, LGA-Al Godfrey, Laurie Limbacher, Carolyn Kelley

Mr. Godfrey gave an illustrated presentation, an overview of the master plan topics and public participation process. A packet of summary information, excerpted from the master plan report, was distributed. The Parks Board had been presented with a letter from some members of the Scientific Advisory Committee to the 10A Permit the day of the meeting, and the Parks Board members discussed the recommendations made in the letter. The majority of the recommendations are consistent with the master plan; the recommendation for funding for dedicated scientific staff is beyond the scope of the master plan.

The Board discussed the possibility of changing the name of the master plan, and a draft resolution from the Joint Subcommittee of the environmental Board and the Parks Board. The Parks Board heard testimony from Bill Bunch, who urged the board to postpone action on this item. He advocated for dismissing the master plan, and beginning a new effort using students from the University of Texas.

The Parks Board asked that the item be placed on the agenda for their next regularly scheduled meeting. Minutes of the meeting are on file with the Parks and Recreation Department.

Thursday, May 29, 2008, City of Austin Historic Landmark Commission
Attendees: members of the Historic Landmark Commission, general public in the audience and televised viewing, PARD staff, WPDRD staff, LGA-Al Godfrey

Mr. Godfrey gave an illustrated presentation, an overview of the master plan topics and public participation process. A packet of summary

information, excerpted from the master plan report, was distributed.

The Commission recommended adoption of the master plan. Minutes of the meeting are on file with the City Historic Preservation Office and the letter of recommendation is on file with the Parks and Recreation Department.

Monday, June 2, 2008, City of Austin Design Commission
Attendees: members of the Design Commission, general public in the audience, PARD staff, WPDRD staff, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey gave an illustrated presentation, an overview of the master plan topics and public participation process. A packet of summary information, excerpted from the master plan report, was distributed.

The Design Commission recommended adoption of the master plan, and provided additional recommendations in a review letter. Minutes of the meeting are on file with the Neighborhood Planning and Zoning Department and the letter of recommendation is on file with the Parks and Recreation Department.

Monday, June 16, 2008, Joint Subcommittee of the Parks Board and Environmental Board
Attendees: members of the Joint Subcommittee, general public in the audience, PARD staff, WPDRD staff, LGA-Al Godfrey, Laurie Limbacher, Carolyn Kelley

PARD staff provided updates on the status work on a maintenance manual for the pool, the interpretive plan for the site and the Barton Springs Pool Master Plan website. PARD staff also presented background information on the origins of the master plan topics, which emerged from stakeholder input prior to the initiation of the master plan project.

The Joint Subcommittee considered a resolution recommending adoption of the master plan. The group discussed the name of the master plan report, and proposed the addition of a phrase following the name, reading "concepts for preservation and improvement". Members of the Scientific Advisory Committee to the 10A Permit were called on to discuss their letter regarding the master plan, and indicated that the concepts in the master plan do not prohibit realization of their goals for the site. Their primary concern is making sure that the hydrodynamic modeling is done appropriately. The Joint Subcommittee passed the resolution recommending adoption of the master plan. Minutes of the meeting and the resolution are on file with the Parks and Recreation Department.

Tuesday, June 24, 2008, City of Austin Parks and Recreation Board
Attendees: members of the Parks Board, general public in the audience and televised viewing, PARD staff, WPDRD staff, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey gave an illustrated presentation, an brief overview of the master plan short term and long term projects. He presented a re-designed cover for the master plan report, incorporating the name revision recommended by the Joint Subcommittee during their meeting of June 16, 2008.

PARD staff presented the recommendation of the Joint Subcommittee to adopt the master plan. The Parks and Recreation Board recommended adoption of the master plan. Minutes of the meeting are on file with the Parks and Recreation Department.

Wednesday, July 16, 2008, City of Austin Environmental Board
Attendees: members of the Environmental Board, general public in the audience and televised viewing, PARD staff, WPDRD staff, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey and COA staff gave an illustrated presentation, an brief overview of the master plan short term and long term projects.

The Environmental Board recommended adoption of the master plan, and provided additional recommendations in a review letter. Minutes of the meeting are on file with the Watershed Protection and Development Review Department and the letter of recommendation is on file with the Parks and Recreation Department.

Tuesday, July 22, 2008, City of Austin Planning Commission
Attendees: members of the Planning Commission, general public in the audience and televised viewing, PARD staff, WPDRD staff, LGA-Al Godfrey, Laurie Limbacher

Mr. Godfrey gave an illustrated presentation, an brief overview of the

master plan short term and long term projects. The Planning Commission recommended adoption of the master plan. Minutes of the meeting are on file with the Neighborhood Planning and Zoning Department.

Regulatory Meetings

Friday, March 16, 2007, City of Austin Building Officials

Attendees: COA-Ron Menard, J.B. Meier, LGA-Al Godfrey, Laurie Limbacher

Plumbing fixture counts: The existing fixture counts at the Bathhouse are acceptable as is. The building officials won't require an increase in plumbing fixtures, if the facility isn't increasing in size. In this case, the "facility" refers to the size of the Pool and the size of the pool decks and sunbathing areas. There is no prohibition against adding fixtures, if that is desired. And, adding a new bathhouse, with more fixtures, is also acceptable.

However, if the size of the Pool is increased or the size of the deck or sunbathing areas are increased, this will trigger full compliance with current code requirements for plumbing fixture counts. To figure the occupant loads for the fixture calculations, use 50 square feet per person in the pool and 15 square feet per person on the deck/lawn area.

Existing Bathhouse: As an existing building, this would need to comply with the Uniform Code for Building Conservation.

New south bathhouse: As a new building, this would need to comply fully with the International Building Code, and associated code requirements. This would also require an accessible route from the new bathhouse to the pool.

Composting toilets: The use of composting toilets has been suggested by stakeholders. The building officials indicated this would need more research, and may not be permissible. Waterless urinals are explicitly prohibited in the code. There is a Zurn urinal that uses 1/8 gallon of water per flush that is approved.

Tuesday, April 3, 2007, Texas Historical Commission
Attendees: THC-Caroline Wright, Brad Patterson, Mark Denton, LGA-Al Godfrey, Laurie Limbacher

Permitting and review procedures: Eliza Spring, Sunken Garden and the existing Bathhouse are all designated State Archeological Landmarks, as are several other sites in the vicinity. Work on these will require a historic structures permit review process through the THC.

The various federal entities and laws involved at this site all have authority. The US Fish and Wildlife Service 10(a) permit in place triggers the Section 106 review under the National Historic Preservation Act, even if there are no federal funds involved. The same would apply to any Section 404 permit through the US Army Corps of Engineers. The USFWS, USACE and THC work cooperatively on sites such as these, with authority for their respective areas of oversight. If there is an adverse effect on an endangered species, the USFWS would have the top slot; but an adverse effect on historic and cultural resources would also need to be mitigated in some way.

It may be useful to work with the THC to develop an investigative program for archeological resources, perhaps with some selective backhoe trenches in areas expected to contain archeological artifacts and information.

Thursday, June 14, 2007, City Historic Preservation Office
Attendees: COA CHPO-Steve Sadowsky, LGA-Al Godfrey, Laurie Limbacher

The scope and tasks included in the master plan project and the preliminary concepts prepared to date were reviewed.

Existing Bathhouse: The rehabilitation concepts, with the restored entry, visitor's center, women's and men's dressing area, was a focus of discussion. The CHPO felt that the concept was respectful of the historic Bathhouse, and maintained a good flow through the building.

South Bathhouse: No concerns with the concept to date, and a 2 WC scheme would be acceptable.

Landscape and Grounds: Suggests retaining a pecan grove around the Philosopher's Rock and entry area. Acceptable to intermix species in

other areas.

Thursday, June 14, 2007, City Development Assistance Center
Attendees: COA DAC-Kevin Autry, Chris Johnson, Kathy Haught, LGA-Al Godfrey, Laurie Limbacher

The scope and tasks included in the master plan project and the preliminary concepts prepared to date were reviewed.

There is a general permit in place for PARD, which will apply for much of the work studied in the master plan.

Graywater laws have changed recently, so may want to contact the folks at Austin Water Utility about this.

If there is an increase in impervious cover, will need to participate in the regional stormwater management program. Pervious pavement for pedestrian use does not count against impervious cover allowance, although it may need to be considered in water quality provisions. Vegetative filter strips would be encouraged on a site like this.

Would like to see the parking lot on the south side improved, in terms of runoff protection and water quality.

For a conditional use permit, if the limit of construction is less than 1 acre, an administrative approval will apply.

Thursday, June 14, 2007, City Environmental Officer
Attendees: COA CEO-Pat Murphy, COA WPDRD-David Johns, LGA-Al Godfrey, Laurie Limbacher

The scope and tasks included in the master plan project and the preliminary concepts prepared to date were reviewed.

Using creek or pool water for irrigation is not an issue for the CEO, from a development permit standpoint. May need an intake permit from LCRA, but not sure.

Rehabilitating the existing Bathhouse also not an issue for CEO, from a development permit standpoint, as all work is on existing impervious cover.

Pervious paving at new walkways would be acceptable, even encouraged. However, the CEO would be concerned about using products like GrassPave or GravelPave at the existing south parking lot. Suggest the use of impervious paving and vegetative swales or filter strips at this location, due to proximity to the Pool.

A graywater system for showers and lavatories is possible. The location of the discharge would need further development, and one should probably use a working assumption that it would need to be pumped to the Zilker Hillside Theater, and used in an irrigation system with a holding tank.

If a new south bathhouse is added, CEO suggests collecting and treating the roof run-off. Would prefer to treat parking lot runoff, and mitigate the roof with vegetative areas. Green roof is a possibility, but would need more information.

Rainwater collection is encouraged at the Bathhouse and any added bathhouse. Even if it is on a small scale, due to the relatively small roof areas, it would be a good demonstration project.

The bypass tunnel can not be eliminated. (In a previous meeting, stakeholders had asked that this possibility be investigated.)

Expanding the pool would require exploration of many checks and balances to get to the point of making the determination to do this. Then, would require special permitting efforts.

The algae skimmer is not a problem, from a development permit standpoint.

In terms of permitting, LDC 25-8-516(A)(2) does not apply, 25-8-261(B)(2) does. Best to assume that special approval from Council will be required for things like the south bathhouse, expanding the pool, reconnecting the Eliza Spring spring run, dam modifications, etc., for work within the Critical Water Quality Zone or the Barton Springs Zone.

Thursday, June 28, 2007, Texas Historical Commission
Attendees: THC-Caroline Wright, Brad Patterson, Mark Denton, LGA-Al

Godfrey, Laurie Limbacher

The scope and tasks included in the master plan project and the preliminary concepts prepared to date were reviewed. Comments were made on a few items, as noted below.

Regarding the overall site plan, the THC recommends refurbishing the entry gate posts and light fixtures. (This is not in the scope of the master plan area.)

From an archeological standpoint, the new south bathhouse and accessible path would probably not be a problem, but will require an Antiquities Permit application. THC staff would be happy to walk the area with the master planning team, to further review the conditions. The design of new buildings should be compatible with the overall historic nature of the park, but not derivative of the existing bathhouse building.

As an aside, it was noted that there are some forthcoming archeological investigations to be conducted in the vicinity of the master plan study area, associated with the ACWP project there. If the COA wants to install interpretive signage associated with these investigations, this might quality for a TPTF grant.

Installing a new dam in the same location may trigger archeological investigations and other forms of mitigation of adverse impacts. If the dam abutments are larger, this could be an especial challenge.

Moving a dam and expanding the pool introduces a number of complex issues. Impounding the water in a different location changes the context, a special issue for Sunken Garden. This would be a very complex permitting issue, as well, and the adverse effects would be numerous. It would trigger coordination with other federal agencies and could require several years to complete the process.

Thursday, July 5, 2007, US Fish and Wildlife Service
Attendees: USFWS-Will Amy, COA PARD-Farhad Madani, COA WPDRD-Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

In general terms, amendments to the Habitat Conservation Plan under which the 10(a) permit is issued, are possible. They must be reviewed and approved by USFWS, as either a minor or a major amendment. A major amendment and will be time-consuming (a few years) to complete. The amendment information needs to include a thorough description of the change proposed, scientific analysis, environmental analysis, options considered as applicable, information on estimated take by activity, cleaning activity, best management practices during construction, etc. Include both positive and negative impacts on the habitat. Preferable to make one comprehensive request for all amendments. Once submitted to USFWS, they review, work through any issues. Once resolved, amendment request published in the Federal Register for public review and comment. Might also be a public hearing, if so deemed through the NEPA process. In some cases, prior public hearings may be adequate. If the USACE is involved, there is potentially a different mechanism to be used for review and approval. They work under Section 7. But, will probably will defer to the 10(a) permit.

Ms. Dries will provide the full copy of the 10(a) permit and annual reports to LGA. The USFWS Barton Springs Salamander Recovery Plan is an advisory, guideline document.

Mr. Amy noted that restoration projects for endangered species have potential to apply for Section 6 grant funds, with applications administered by TPWD. Money goes from USFWS thru the state to TPWD. May be evaluated through regional office, or at national level. Potentially up to 75% from government, and 25% from owner. Some of the master plan projects may be eligible for this type of funding.

The scope and tasks included in the master plan project and the preliminary concepts prepared to date were reviewed with Mr. Amy.

New (or restored) openings in upstream dam: Could be considered an adaptive management change. Monitor to see if desired results are achieved. Use best management practices during construction – oil containment plans during construction and operation of the gates.

Repair bypass tunnel joints: Already have approval to repair several joints. Would use the same methods for additional joints. New leaks are depositing lot of sediment on the beach. All joints are in some level

of disrepair. Probably already have broad USFWS approval to do this, from previous approval of several years ago. Should be fairly straightforward to add joint repairs.

Algae control methods, skimmer and ultrasonic: For the ultrasonic, COA needs to test the effect on the salamanders in the captive breeding population. Also, need to finalize the appropriate locations for the devices. May want to keep algae around the main spring, particularly since the higher current velocity promotes the beneficial algae in these locations. USFWS – to evaluate the proposal would need some info on effect on captive group, and info on the effect on other aquatic species in general (need to maintain food source). USFWS will need to have some information to demonstrate that this algae reduction is not harmful to the salamanders and their habitat. May require a minor amendment, if can demonstrate that the take is not increased.

Sediment/gravel removal: Proposed crane location seems OK. May also be able to use the old clam shell. Perhaps the cleaning would be in the realm of the current permit, since an amendment was not required for the vacuum effort. Could be incorporated in to the spring clean covered under the current permit.

Downstream dam: relocate, increase number of gates. Timing of draining the pool would need to be considered in evaluating this proposal. Discussion of possible problems with the gate types. These changes would be a major amendment.

Moving the downstream dam: From this preliminary discussion, it appears this would be a complex amendment and approval process. Discussed logistical issues with expanding the pool and with relocating the pool. The environment is highly altered from the natural condition. To move dam based on the goal of reconnecting the salamander habitat would rely heavily on modeling. Salamanders are not a lake species, but a stream species. Not likely that this would enhance the salamander habitat, because they are not lake species. Already exposed to almost 100 years of adaptations in response to the changes already made to the environment. Don't need to move a dam to enhance migration. Can amend the permit to allow the moving of salamanders from one spring to another. Potential cost for the project may be better spent on other water quality improvements.

Sunken garden: Protect the stream and riparian habitat. For both Sunken and Eliza, USFWS interested in a project that looks in a wholistic fashion at both the structures and the salamander habitat. Suggests doing Sunken first, before Eliza. Once there is a more stable population at Sunken, could move on to Eliza.

Eliza: Concept to create a meandering stream, maintaining the velocity and expanding the natural stream habitat. The 11,000 SF of managed habitat on the beach does not provide good habitat. But, expanding Eliza could provide more habitat area.

Tuesday, July 10, 2007, US Fish and Wildlife Service
Attendees: USFWS-Will Amy, COA PARD-Tony Arnold, Tom Nelson, COA WPDRD-Laurie Dries, LGA-Al Godfrey, Laurie Limbacher

The discussion of master plan projects and preliminary concepts to date, begun in the meeting of July 5, 2007, was continued in this meeting.

Re-circulation of spring water across the beach area: More flow over beach area will improve the habitat, particularly for algae control and for accumulated sediment. Algae is worst during a drought. Discussed putting a pump in the cave area, near the main spring. This pump location is a concern to USFWS, because of the proximity to habitat. Also, the pump may need to be fairly large to effect improvement. Seems best to do a pilot or test installation, to further explore this possibility. Related to this item, another pump for cleaning is OK in concept. Could be a minor or a major amendment, depending on its design.

Sediment/gravel removal: A slightly different possibility than was previously discussed. Barge/clam shell digger to small truck carts to parking lot. The clamshell digger might be acceptable, in terms of generated turbidity, since it would not be used in a sensitive salamander area. COA has some prediction formulas for anticipated turbidity, changes in dissolved oxygen. Would need to provide a design document, with scientific data. Address concerns about depositing sediment on the beach area, by using underwater booms to separate excavation area from

salamander areas. City has to look at options, do a cost benefit analysis to show impact on salamander. Once system is more focused, need to see a biological analysis. Potentially a relatively short review period, perhaps under the context of the existing HCP. Amendments involve additional take of salamander that was not envisioned under the HCP. If seems benign, and no additional take, would be similar to the dredging done previously.

Gates in the dams: Simple option – modify existing dams with new weir type gates. Complex option – bascule gates. Held in the upright position by hydraulic mechanisms. Both gates are throttleable. Weir gates open from the bottom, so more tendency to scour the bottom. Bascule gates open from the top, so more useful in flood mitigation. USFWS has no problem in principle with the bascule gates, but would be a major amendment. Height of new dam would be an issue in terms of effecting the hydrology of Eliza and Sunken.

Trees, grass, electrical: Depth and placement of trenches for underground electrical need to be coordinated with the existing spring system at the fault line. No issues with trees, grass. Maintain IPM program-no fertilizers or pesticides.

Bathhouse: no issues

Downstream park: no issues

South bathhouse: Conceptually seems OK. Use best management practices to minimize runoff into the pool.

Eliza: Like idea of creating destination for interpretation and historic restoration. Habitat restoration for salamander is also good. Discussed methods to remove the concrete slab. Tread very lightly, approach well thought out, some contingencies to allow for field adaptation to respond to actual conditions. Also, assume that work will be done with smaller equipment, more man power. Try to provide some precaution against flood washing out – raised berm or bank to divert water. May be able to do this project in the short term, if it is determined that the take is minimal, and the benefit is high. Preference is still to raise the population in Sunken Garden first. May be able to coordinate changes in Eliza with further research on the mark-recapture program. Will study the population size, growth rate of salamanders, mortality rate, fecundity, other things to determine whether population is increasing or decreasing. Funding will come in to place hopefully in the fall – then should be doing the study for 2 years before work begins in Eliza.

Sunken: Discussion of the proposed rehabilitation modifications. Fence seems to be in the same place, which is preferred.

Discussed the Section 6 grants again, as some of the master plan projects would probably be good candidates.

Monday, August 20, 2007, Texas Department of Licensing and Regulation
Attendees: TDLR-Robert Posey, LGA-Laurie Limbacher

The scope and tasks included in the master plan project and the preliminary concepts prepared to date were reviewed. Comments were made on a few items, as noted below.

Rehabilitation of the existing Bathhouse must comply with the alterations to existing buildings/historic preservation sections of TAS.

If a new bathhouse is added, there must be an accessible route from the accessible parking to the building, only. If a path to the Pool from the new bathhouse is provided, it must be accessible. But, under the ADA as currently written, the primary function occurs at the building and not at the Pool.

Major revisions to the ADA have been written by the Access Board, are through the public review and comment period and are awaiting action by the Department of Justice. These revisions will require accessible routes to the pool, as a primary function. TDLR is poised to revise TAS immediately, to incorporate these revisions.

A platform lift is not a preferred method of access, and requires variance approval before use is allowed. Lifts must be independently operable, and available for independent use during all hours of operation.

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